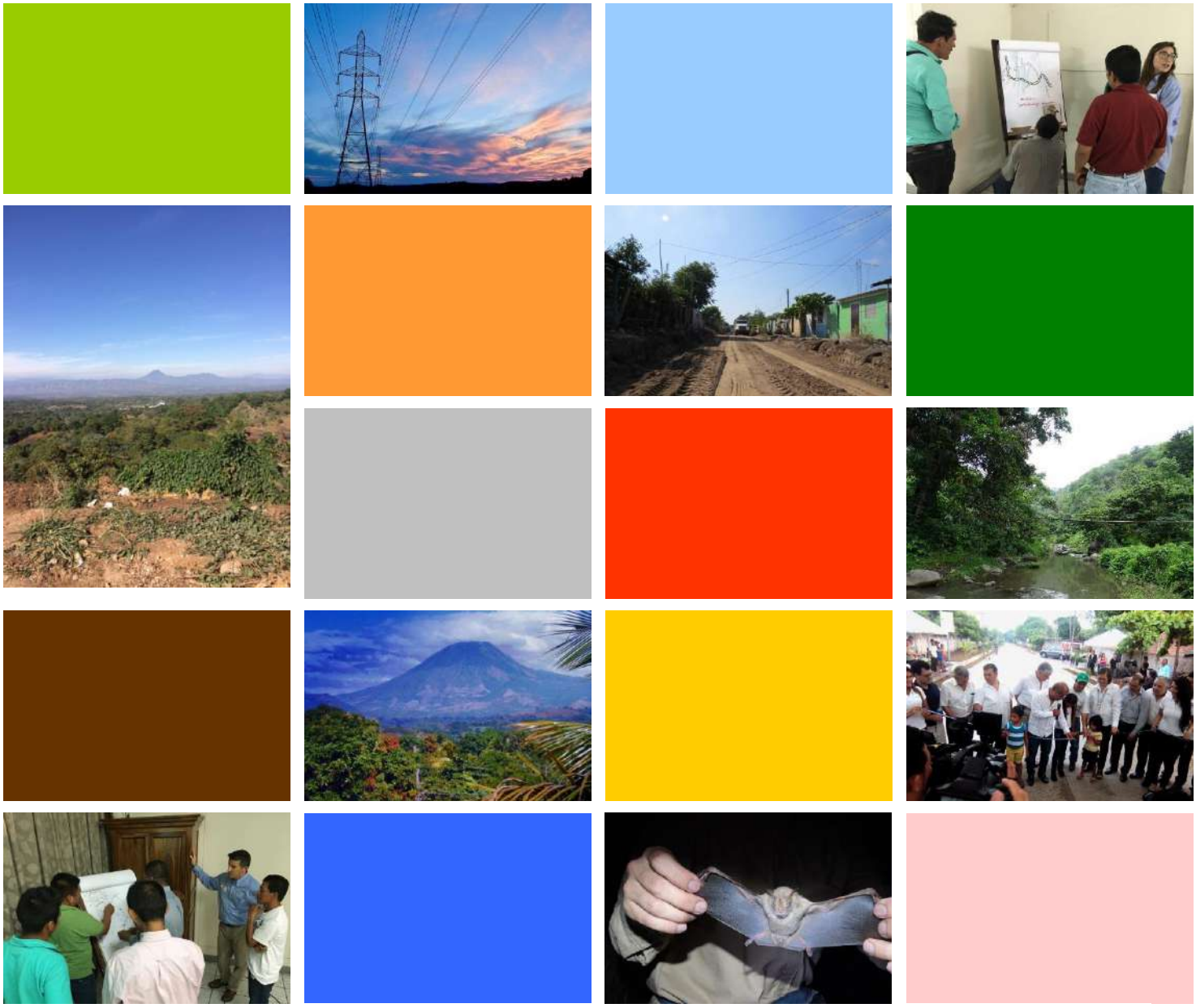

Energía del Pacífico

Environmental Impact Study

Volume I

Transmission Line Project Ahuachapán to Acajutla

January 2017

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LIST OF ACRONYMS

ADESCOS	Salvadoran Communal Development Associations (for its acronym in spanish) (Asociaciones de Desarrollo Comunales Salvadoreñas)
AIBR	Apaneca-Ilamatepec Biosphere Reserve
AIDS	Acquired Immunodeficiency Syndrome
AMSS	Metropolitan Area of San Salvador (for its acronym in spanish) (Área Metropolitana de San Salvador)
ANDA	National Administration of Aqueducts and Sewers (for its acronym in spanish) (Administración Nacional de Acueductos and Alcantarillados)
APLIC	Avian Power Line Interaction Committee
AQMN	Air Quality Monitoring Network
ASAPROSAL	Salvadoran Pro-Health Association (for its acronym in spanish) (Asociación Salvadoreña Pro-Salud)
BBC	British Broadcasting Company
BIRF	International Bank for Reconstruction and Development (for its acronym in spanish) (Banco International de Reconstrucción and Fomento)
CCAD	Central American Commission for the Development Environment (for its acronym in spanish) (Comisión Centroamericana de Ambiente de Desarrollo
CENTA	National Center of Agricultural and Forestry Technology "Enrique Álvarez Córdova" (for its acronym in spanish) (Centro Nacional de Tecnología Agropecuaria and Forestal "Enrique Álvarez Córdova")
CEPA	Autonomous Executive Port Commission (for its acronym in spanish) (Comisión Ejecutiva Portuaria Autónoma)
CFI	International Financial Corporation (for its acronym in spanish) (Corporación Financiera Internacional)
CH_4	Methane
CID	Integral Youth Development Center (for its acronym in spanish) (Centro Integral del Desarrollo Juvenil)
CLUSA	Cooperative of the United States of America (for its acronym) (Cooperativa de los Estados Unidos de América)
CO	Carbon Monoxide

CO_2	Carbon Dioxide
CODEM	Metropolitan Development Council (for its acronym in spanish) (Consejo de Desarrollo Metropolitano)
COMURES	Corporation of Municipalities of El Salvador (for its acronym in spanish) (Corporación de Municipalidades de El Salvador)
CSC	Salvadoran Coffee Council (for its acronym in spanish) (Consejo Salvadoreño del Café)
CSM	Military Health Command (for its acronym in spanish) (Comando de Sanidad Militar)
CT EDP	Energía del Pacifico Thermal Power Plant
dB	Decibels
DIA	Direct Influence Area
DO	Denomination of Origin
EAI	Enterprise for the Americas Initiative
ECOS	Family and Specialized Community Health Teams (for its acronym in spanish) (Equipos Comunitarios de Salud Familiar and Especializados)
EDP	Energía del Pacifico
EEUU	Estados Unidos de Norteamérica
EIS	Environmental Impact Study
EMP	Environmental Management Plan
ENSO	El Niño-Southern Oscillation
EPEA	Expected Peak Effective Acceleration
ETESAL	Transmitter Company of El Salvador (for its acronym in spanish) (Empresa Transmisora de El Salvador, SA de CV)
FAO	Food and Agriculture Organization
FISDL	Social Investment Fund for Local Development (for its acronym in spanish) (Fondo de Inversión Social para el Desarrollo Local)
FOSALUD	Solidarity Fund for Health (for its acronym in spanish) (Fondo Solidario para la Salud)
FUNDESYRAM	Foundation for Socioeconomic Development (for its acronym in spanish) (Fundación para el Desarrollo Socioeconómico)
FUSATE	Salvadoran Foundation for Elderly (for its acronym in spanish) (Fundación Salvadoreña de la Tercera Edad)

GDP	Gross Domestic Product
Gg	Giga grams
GHG	Greenhouse Gases
GIZ	German Cooperation
GPS	Global Positioning System
GRIS	GRIS, S.A De C.V.
GWM	Groundwater Masses
Ha	Hectares
HC	Hydrocarbons
HDI	Human Development Index
HFC	Hydrofluorocarbons
HIV	Human Immunodeficiency Virus
Hz	Hertz
IBA	Important Bird Area
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IFC	International Finance Corporation
IGN	National Geographic Institute (for its acronym in spanish) (Instituto Geográfico Nacional)
IIA	Indirect Influence Area
IPCC	Intergovernmental Panel on Climate Change
IPSFA	Social Security Institute of the Armed Forces (for its acronym in spanish) (Instituto de Previsión Social de la Fuerza Armada)
ISBM	Salvadoran Institute of Teacher Welfare (for its acronym in spanish) (Instituto Salvadoreño de Bienestar Magisterial)
ISDEMU	Salvadoran Institute for the Development of Women (for its acronym in spanish) (Instituto Salvadoreño para el Desarrollo de la Mujer)
ISRI	Salvadoran Institute of Integral Rehabilitation (for its acronym in spanish) (Instituto Salvadoreño de Rehabilitación Integral)
ISSS	Salvadoran Institute of Social Security (for its acronym in spanish) (Instituto Salvadoreño del Seguro Social)
IUCN	International Union for the Conservation of Nature

IUDOP	University Institute of Public Opinion (for its acronym in spanish) (Instituto Universitario de Opinión Pública)
JICA	Japan International Cooperation Agency (for its acronym in spanish) (Agencia de Cooperación Internacional de Japón)
km	Kilometers
KOICA	Korea International Cooperation Agency (for its acronym in spanish) (Agencia de Cooperación Internacional de Corea)
kV	Kilovolts
l/s	liters per second
LAPOP	Latin American Public Opinion Project
LNG	Liquid Natural Gas
LPPCN	Law of Protection to the Cultural Patrimony of the Nation (for its acronym in spanish) (Ley de Protección al Patrimonio Cultural de la Nación)
LULUCF	Land Use, Land Use Change and Forestry
m	Meters
m^2	Square Meters
m^3	Cubic Meters
m^3/s	Cubic Meters per Second
MAG	Ministry of Agriculture and Livestock (for its acronym in spanish) (Ministerio de Agricultura and Ganadería)
MARN	Ministry of Environment and Natural Resources (for its acronym in spanish) (Ministerio del Medio Ambiente and Recursos Naturales)
mG	MilliGauss
mg/l	Milligrams per Liter
MINE	Ministry of Economy (for its acronym in spanish) (Ministerio de Economía)
MINEC	Ministry of Commerce and Industry (for its acronym in spanish) (Ministerio de Comercio e Industria)
MINED	Ministry of Education (for its acronym in spanish) (Ministerio de Educación)
MINSAL	Ministry of Health (for its acronym in spanish) (Ministerio de Salud)
MITUR	Ministry of Tourism El Salvador (for its acronym in spanish) (Ministerio de Turismo El Salvador)

ml	Milliliters
MPHS	Multiple Purpose Household Survey
MPI	Multidimensional Poverty Index
msnm	Meters Above Sea Level
MSPAS	Ministry of Public Health and Social Assistance (for its acronym in spanish) (Ministerio de Salud Pública and Asistencia Social)
mT	Millitesla
MW	Megawatts
ND	Performance Standards
NMP	Most Potable Number
NOx	Nitrogen Oxides
NSO	Mandatory Salvadorian Rule (for its acronym in spanish) (Norma Salvadoreña Obligatoria)
OMS	World Health Organization (for its acronym in spanish) (Organización Mundial de la Salud)
ONG	Non governmental organization (for its acronym in spanish) (Organización No Gubernamental)
OPGW	Optical fiber composite overhead ground wire
PM 10	Particulate Matter Less Than 10 Micrometers
PM 2.5	Particulate Matter Less Than 2.5 Micrometers
PNUD	United Nations Development Program (for its acronym in spanish) (Programa de las Naciones Unidas para el Desarrollo)
PRD	Participatory Rural Diagnosis
PROCAFE	Salvadoran Foundation for Coffee Research (for its acronym in spanish) (Fundación Salvadoreñas para la Investigación del Café)
PVC	Polyvinyl Chloride
RA	Rainforest Alliance
ROW	Right of Way
SE	Substation
SECULTURA	Secretariat of Culture (for its acronym in spanish) (Secretaría de Cultura)

SIEPAC	System of Interconnection of the Countries of Central America (for its acronym in spanish) (Sistema de Interconexión de los Países de América Central)
SIGET	Superintendence of Electricity and Telecommunications (for its acronym in spanish) (Superintendencia General de Electricidad and Telecomunicaciones)
SINAMA	National System of Environmental Management (for its acronym in spanish) (Sistema Nacional de Gestión Ambiental)
SMP	Social Management Program
SNET	National Geological Service Seismology Area (for its acronym in spanish) (Servicio Geológico Nacional Área de Sismología)
SO_2	Sulfur Dioxide
TL	Transmission Line
TP	Tower
TSP	Total Suspended Particles
UNES	Salvadoran Ecological Unit (for its acronym in spanish) (Unidad Ecológica Salvadoreña)
UNESCO	United Nations Educational, Scientific and Cultural Organization
USACE	United States Army Corps of Engineers
USD	United States Dollars
VII	Value and Importance Index
WAP	Working Age Population
WQI	Water Quality Index
µT	Microtesla

TITLE AND AUTHORS

ENVIRONMENTAL IMPACT STUDY OF THE TRANSMISSION LINE OF AHUACHAPÁN TO ACAJUTLA

Holder

ENERGÍA DEL PACIFICO, Ltd. de C.V.



Ing. Alejandro Gustavo Alle

Legal Attorney

Authors

The study was prepared by a team of Salvadoran consultants with the support of several professionals from the company Environmental Resources Management, Inc. (ERM). The work team is presented below and the following pages include registration certificates as environmental service providers in the Ministry of the Environment and Natural Resources (MARN).

Name	Function	Registry
Specialists Registered in MARN		
Ing. Roberto Escalante	Chief Coordinator	RPSEA 0270
William Vaquerano	Biological Aspects	RPSEA 462
Massiel Ramos	Cultural Aspects	[a]Does not have
Ing. Federico Ildefonso Castellanos	Risks	RPSEA - 0006
Carlos Reyes	Socioeconomic Aspects	[a]Does not have
Collaborators of ERM		
Dr. Ricardo Calvo	Environmental Planning	N/A
Dr. Herbert Pirela	Physical Aspects	N/A
Lic. Lilian Flank Maggi	Planning	N/A
Lic. Isolina Sánchez	Socioeconomic Aspects	N/A
Dr. Robert Langstroth	Biodiversity	N/A
Dr. Manuel Roman	Cultural Aspects	N/A

[a] Archaeologists and sociologists have no record in the MAR

MINISTERIO DE MEDIO AMBIENTE Y RECURSOS NATURALES
UNÁMONOS PARA CRECER

RESOLUTION MARN-RPSEA-PN No. 13/2015

Ministry of the Environment and Natural Resources, San Salvador, twenty-fifth of February of two thousand and fifteen. Considering the measures promoted by ROBERTO ALFONSO ESCALANTE CACEROS, Civil Engineer, of the address of San Salvador, department of San Salvador, and with Single Personal Identity Document Number zero one three zero one one one three - three, who requests to this Ministry that in compliance with what is established in Article 47 of the General Regulation of the Law of the Environment, will be renewed His registration in the Registry of Service Providers of Environmental Impact Studies and Environmental Diagnostics and Environmental Assessment Audits. The Ministry of Environment and Natural Resources through the Directorate of Environmental Assessment and Compliance.

CONSIDERING THAT:

I. On October seven, nineteen hundred and ninety-nine, this Ministry issued the note MARN-DCA-EIA-721/99, in which it was resolved that the professional ROBERTO ALFONSO ESCALANTE CACEROS, was registered under the number TWO HUNDRED SEVENTY (270), as Service Provider of Environmental Impact Study, Environmental Diagnostics

II. On the nineteenth day of February of the year two thousand and fifteen, the application for renewal of the Service Provider Registry was submitted to this Ministry by engineer ROBERTO ALFONSO ESCALANTE CACEROS. It was verified that the documentation presented complied with the requirements established in Article 47 of the General Regulation of the Law of the Environment

THEREFORE:

In accordance with the provisions in the previous recitals, the Environmental Law and its General Regulations.

RESOLVES:

1. GROWING THE RENEWAL OF REGISTRATION WITH THE **NUMBER TWO HUNDRED SEVENTY (270)**, AS A SERVICE PROVIDER OF ENVIRONMENTAL IMPACT STUDY AND ENVIRONMENTAL DIAGNOSTICS, to the Civil Engineer, ROBERTO ALFONSO ESCALANTE CACEROS, Bearer of its Unique Identity Document Number Zero one three three one one one three three, who meets the requirements established in Article 47 of the General Regulation of the Law of the Environment.

2. The present resolution will have a validity of THREE (3) years from the date of its issuance, that is to say from the twenty-fifth of February of two thousand fifteen, to the twenty-fifth of February of the year two thousand and eighteen, once the term has expired, it must request its renewal, the presentation of the appropriate form and accompanying documentation to this State Ministry.

3. That the Environmental Service Provider will keep the same number with which it was Certified and Registered in this State Ministry.

4. That this resolution does not authorize the bearer to perform environmental technical services or activities related to Environmental Assessment Audits, only Environmental Impact Studies and Environmental Diagnostics.

5. The Service Provider of Environmental Impact Studies shall keep the reservation and professional secrecy of the information and documentation to which they have access for the provision of their services, in each particular case.

6. That any modification that the Service Provider intends to make to the present resolution, must request to the Ministry of Environment and Natural Resources by means of note with its respective annexes that justify this modification.

7. That the Service Provider can not be a reference of the holder in the Ministry of Environment and Natural Resources, to present or receive notifications or other documentation related to the Environmental Assessment Process, its role will only consist of the Preparation of the Environmental Impact Study , With the purpose of avoiding conflicts of interest.

8. That the Environmental Service Provider should not provide their telephone numbers or office address, as a place of notification, all of the above must be information of the Project holder.

9. That the Environmental Service Provider can only provide its services within its professional specialization.

10. That the Service Provider, that for any reason enters to work to the Ministry of Environment and Natural Resources, by any modality of contracting; Must submit an Affidavit, duly notarized with the list of Projects of Environmental Impact Studies in which it has participated directly or indirectly; And so it is also made known that in compliance with what is established in Article 43 of the General Regulation of the Environmental Law, if for any reason to enter this State Ministry, under any modality of contracting will be temporarily disabled for the Execution of Environmental Impact Studies and Environmental Diagnostics, while providing its service in this Institution.

11. The Environmental Service Provider must have basic knowledge of the legal system that regulates the activity, work or project in which the Environmental Impact Study and Environmental Diagnostics will be developed.

12. That the Environmental Service Provider submitted to this State Ministry documents confirming the renewal of the registration of the Registry of Environmental Studies and Environmental Diagnostic Services Providers and that it complies with the requirements established in Article 47 of the General Regulation of the Law of the Environment.

13. The Ministry may unsubscribe from the Registry to the Environmental Impact Assessment Service Provider for any of the following causes: a) For having provided false or notoriously incorrect information for registration, b) For presenting in the Environmental Impact Studies and in The Environmental Diagnostics, false or incorrect information or omit information due to negligence, bad faith or fraud, which entails the commission of an environmental infraction in accordance with Article 86 of the Environmental Law, c) For presenting Environmental Impact Studies that do not meet The relevant technical and scientific quality and that do not comply with the general characteristics established in the Law and its regulations, d) For non-compliance with the content of this resolution, e) And the others indicated in article 47 A, of the General Regulation of the Law of the Environment.

14. According to the details in the previous numeral the Ministry may at any time send to the Service Provider of Environmental Impact Study, administrative penalty notice for violation of the Environmental Law, which will also send a copy to your personal Service Provider file located in this Ministry. And if the non-compliance repeatedly persists, the Environmental Service Provider will be subject to the unsubscribe process that establishes the article 47 A, of the General Regulation of the Law of the Environment.

15. That the contents of note MARN-DCA-EIA-721/99, dated October seven, nineteen hundred and ninety-nine, is without effect.

The present Resolution are signed in two (2) original, and the same will come into effect from the day of its issuance. - **COMMUNICATE. - THE DIRECTOR GENERAL OF EVALUATION AND ENVIRONMENTAL COMPLIANCE, SILVIA MARGARITA HERNANDEZ DE LARIOS (f).**

MINISTERIO DE MEDIO AMBIENTE Y RECURSOS NATURALES
DIRECCIÓN GENERAL DE
EVALUACIÓN Y CUMPLIMIENTO AMBIENTAL
El Salvador

Licenciada Silvia Margarita Hernández de Larios
Directora General de Evaluación y
Cumplimiento Ambiental

DGECA-GEA-KA-JS

Ministerio de Medio Ambiente
y Recursos Naturales

RESOLUTION MARN-RPSEA-PN No. 007/2014

Ministry of the Environment and Natural Resources, San Salvador, March thirty-one, two thousand and fourteen.. Considering the measures promoted by WILLIAM ORLANDO VAQUERANO HUEZO, Bachelor of Biology, from the San Salvador domicile, department of San Salvador, and with Single Personal Identity Document Number: zero one two eight nine four three four - two, who requests to this Ministry that in compliance with what is established in Article 47 of the General Regulation of the Law of the Environment, will be renewed His registration in the Registry of Service Providers of Environmental Impact Studies and Environmental Diagnostics and Environmental Assessment Audits. The Ministry of Environment and Natural Resources through the Directorate of Environmental Assessment and Compliance.

CONSIDERING THAT:

I. On October nine, two thousand two, this Ministry issued a note MARN-DGA-EIA-1656/2002, in which it was resolved that the professional WILLIAM ORLANDO VAQUERANO HUEZO, registered under number FOUR HUNDRED AND SIXTY TWO (462), as Service Provider of Environmental Impact Study, Environmental Diagnostics

II. On the twenty-sixth day of March of the year two thousand and fourteen, the application for renewal of the Service Provider Register was filed by the WILLIAM ORLANDO VAQUERANO HUEZO. It was verified that the documentation presented complied with the requirements established in Article 47 of the General Regulation of the Law of the Environment

THEREFORE:

In accordance with the provisions in the previous recitals, the Environmental Law and its General Regulations.

RESOLVES:

1. GROWING THE RENEWAL OF REGISTRATION WITH THE **NUMBER FOUR HUNDRED AND SIXTY TWO (462)**, AS A SERVICE PROVIDER OF ENVIRONMENTAL IMPACT STUDY AND ENVIRONMENTAL DIAGNOSTICS, to Mr. WILLIAM ORLANDO VAQUERANO HUEZO, bearer of his document Unique Identity Number zero one two eight nine four three four - two, who meets the requirements established in Article 47 of the General Regulation of the Law of the Environment.

2. The present resolution will have a validity of THREE (3) years from the date of its issuance, that is to say from the twenty-fifth of February of two thousand fifteen, to the twenty-fifth of February of the year two thousand and eighteen, once the term has expired, it must request its renewal, the presentation of the appropriate form and accompanying documentation to this State Ministry.

3. That the Environmental Service Provider will keep the same number with which it was Certified and Registered in this State Ministry.

4. That this resolution does not authorize the bearer to perform environmental technical services or activities related to Environmental Assessment Audits, only Environmental Impact Studies and Environmental Diagnostics.

5. The Service Provider of Environmental Impact Studies shall keep the reservation and professional secrecy of the information and documentation to which they have access for the provision of their services, in each particular case.

6. That any modification that the Service Provider intends to make to the present resolution, must request to the Ministry of Environment and Natural Resources by means of note with its respective annexes that justify this modification.

7. That the Service Provider can not be a reference of the holder in the Ministry of Environment and Natural Resources, to present or receive notifications or other documentation related to the Environmental Assessment Process, its role will only consist of the Preparation of the Environmental Impact Study , With the purpose of avoiding conflicts of interest.

8. That the Environmental Service Provider should not provide their telephone numbers or office address, as a place of notification, all of the above must be information of the Project holder.

9. That the Environmental Service Provider can only provide its services within its professional specialization.

10. That the Service Provider, that for any reason enters to work to the Ministry of Environment and Natural Resources, by any modality of contracting; Must submit an Affidavit, duly notarized with the list of Projects of Environmental Impact Studies in which it has participated directly or indirectly; And so it is also made known that in compliance with what is established in Article 43 of the General Regulation of the Environmental Law, if for any reason to enter this State Ministry, under any modality of contracting will be temporarily disabled for the Execution of Environmental Impact Studies and Environmental Diagnostics, while providing its service in this Institution.

11. The Environmental Service Provider must have basic knowledge of the legal system that regulates the activity, work or project in which the Environmental Impact Study and Environmental Diagnostics will be developed.

12. That the Environmental Service Provider submitted to this State Ministry documents confirming the renewal of the registration of the Registry of Environmental Studies and Environmental Diagnostic Services Providers and that it complies with the requirements established in Article 47 of the General Regulation of the Law of the Environment.

13. The Ministry may unsubscribe from the Registry to the Environmental Impact Assessment Service Provider for any of the following causes: a) For having provided false or notoriously incorrect information for registration, b) For presenting in the Environmental Impact Studies and in The Environmental Diagnostics, false or incorrect information or omit information due to negligence, bad faith or fraud, which entails the commission of an environmental infraction in accordance with Article 86 of the Environmental Law, c) For presenting Environmental Impact Studies that do not meet The relevant technical and scientific quality and that do not comply with the general characteristics established in the Law and its regulations, d) For non-compliance with the content of this resolution, e) And the others indicated in article 47 A, of the General Regulation of the Law of the Environment.

14. According to the details in the previous numeral the Ministry may at any time send to the Service Provider of Environmental Impact Study, administrative penalty notice for violation of the Environmental Law, which will also send a copy to your personal Service Provider file located in this Ministry. And if the non-compliance repeatedly persists, the Environmental Service Provider will be subject to the unsubscribe process that establishes the article 47 A, of the General Regulation of the Law of the Environment.

15. That the contents of note MARN-DCA-EIA -1656 / 2002, dated October nine, two thousand two, is without effect.

The present Resolution are signed in two (2) original, and the same will come into effect from the day of its issuance. - **COMMUNICATE. - THE DIRECTOR GENERAL OF EVALUATION AND ENVIRONMENTAL COMPLIANCE, SILVIA MARGARITA HERNANDEZ DE LARIOS (f).**

MINISTERIO DE MEDIO AMBIENTE Y RECURSOS NATURALES
DIRECCIÓN GENERAL DE
EVALUACIÓN Y CUMPLIMIENTO AMBIENTAL
El Salvador, C.A.

Lic. Silvia de Larios
Directora General de Evaluación y
Cumplimiento Ambiental

MINISTERIO DE MEDIO AMBIENTE Y RECURSOS NATURALES
UNIDOS CRECEMOS TODOS

RESOLUTION MARN-RPSEA-PN No. 041/2014

Ministry of the Environment and Natural Resources, San Salvador, July ten, two thousand and fourteen. Considering the measures promoted by FEDERICO ILDEFONSO CASTELLANOS FUNES, Civil Engineer, of the domicile of Santa Tecla, department of La Libertad, and with a Single Personal Identity Document Number: zero zero six eight two zero one two – three, who requests to this Ministry that in compliance with what is established in Article 47 of the General Regulation of the Law of the Environment, will be renewed His registration in the Registry of Service Providers of Environmental Impact Studies and Environmental Diagnostics and Environmental Assessment Audits. The Ministry of Environment and Natural Resources through the Directorate of Environmental Assessment and Compliance.

CONSIDERING THAT:

I. On December First of nineteen hundred and ninety-eight, this Ministry issued the note MARN-CA-EIA-192/98, in which it was resolved that the professional FEDERICO ILDEFONSO CASTELLANOS FUNES, was registered under the number SEIS (0006), as Service Provider of Environmental Impact Study, Environmental Diagnostics

II. On June twenty-seventh of two thousand and fourteen, the Ministry of the Ministry of the Interior, the Engineer of the FEDERICO ILDEFONSO CASTELLANOS FUNES. It was verified that the documentation presented complied with the requirements established in Article 47 of the General Regulation of the Law of the Environment

THEREFORE:

In accordance with the provisions in the previous recitals, the Environmental Law and its General Regulations.

RESOLVES:

1. GROWING THE RENEWAL OF REGISTRATION WITH THE **NUMBER SIX (006)**, AS A SERVICE PROVIDER OF ENVIRONMENTAL IMPACT STUDY AND ENVIRONMENTAL DIAGNOSTICS, To the Civil Engineer, FEDERICO ILDEFONSO CASTELLANOS FUNES, bearer of his document Unique Identity Number zero zero six eight two zero one two - three, who meets the requirements established in Article 47 of the General Regulation of the Law of the Environment.

2. twenty-fifth of February of the year two thousand and eighteen, once the term has expired, it must request its renewal, the presentation of the appropriate form and accompanying documentation to this State Ministry.

3. That the Environmental Service Provider will keep the same number with which it was Certified and Registered in this State Ministry.

4. That this resolution does not authorize the bearer to perform environmental technical services or activities related to Environmental Assessment Audits, only Environmental Impact Studies and Environmental Diagnostics.

5. The Service Provider of Environmental Impact Studies shall keep the reservation and professional secrecy of the information and documentation to which they have access for the provision of their services, in each particular case.

6. That any modification that the Service Provider intends to make to the present resolution, must request to the Ministry of Environment and Natural Resources by means of note with its respective annexes that justify this modification.

7. That the Service Provider can not be a reference of the holder in the Ministry of Environment and Natural Resources, to present or receive notifications or other documentation related to the Environmental Assessment Process, its role will only consist of the Preparation of the Environmental Impact Study , With the purpose of avoiding conflicts of interest.

8. That the Environmental Service Provider should not provide their telephone numbers or office address, as a place of notification, all of the above must be information of the Project holder.

9. That the Environmental Service Provider can only provide its services within its professional specialization.

10. That the Service Provider, that for any reason enters to work to the Ministry of Environment and Natural Resources, by any modality of contracting; Must submit an Affidavit, duly notarized with the list of Projects of Environmental Impact Studies in which it has participated directly or indirectly; And so it is also made known that in compliance with what is established in Article 43 of the General Regulation of the Environmental Law, if for any reason to enter this State Ministry, under any modality of contracting will be temporarily disabled for the Execution of Environmental Impact Studies and Environmental Diagnostics, while providing its service in this Institution.

11. The Environmental Service Provider must have basic knowledge of the legal system that regulates the activity, work or project in which the Environmental Impact Study and Environmental Diagnostics will be developed.

12. That the Environmental Service Provider submitted to this State Ministry documents confirming the renewal of the registration of the Registry of Environmental Studies and Environmental Diagnostic Services Providers and that it complies with the requirements established in Article 47 of the General Regulation of the Law of the Environment.

13. The Ministry may unsubscribe from the Registry to the Environmental Impact Assessment Service Provider for any of the following causes: a) For having provided false or notoriously incorrect information for registration, b) For presenting in the Environmental Impact Studies and in The Environmental Diagnostics, false or incorrect information or omit information due to negligence, bad faith or fraud, which entails the commission of an environmental infraction in accordance with Article 86 of the Environmental Law, c) For presenting Environmental Impact Studies that do not meet The relevant technical and scientific quality and that do not comply with the general characteristics established in the Law and its regulations, d) For non-compliance with the content of this resolution, e) And the others indicated in article 47 A, of the General Regulation of the Law of the Environment.

14. According to the details in the previous numeral the Ministry may at any time send to the Service Provider of Environmental Impact Study, administrative penalty notice for violation of the Environmental Law, which will also send a copy to your personal Service Provider file located in this Ministry. And if the non-compliance repeatedly persists, the Environmental Service Provider will be subject to the unsubscribe process that establishes the article 47 A, of the General Regulation of the Law of the Environment.

15. That the contents of note MARN-CA-EIA-192/98, dated December First, nineteen hundred and ninety-eight , is without effect.

The present Resolution are signed in two (2) original, and the same will come into effect from the day of its issuance. - **COMMUNICATE. - THE DIRECTOR GENERAL OF EVALUATION AND ENVIRONMENTAL COMPLIANCE, SILVIA MARGARITA HERNANDEZ DE LARIOS (f).**



Lic. Silvia Margarita Hernández de Larios
Directora General de Evaluación y
Cumplimiento Ambiental

EXECUTIVE SUMMARY

1.0 PURPOSE AND NECESSITY OF THE PROJECT

The purpose of the Transmission Line Project (TL) is to deliver electrical power to the Ahuachapán Substation (SE), which is interconnected with the Central American Interconnection System (SIEPAC), with a voltage of 230 kilovolts (kV). The project also includes the 115-kV interconnection with the Acajutla SE to provide greater flexibility to the electricity distribution system in the country, as well as to make the necessary modifications and expansions in both substations, Acajutla and Ahuachapán.

2.0 DESCRIPTION OF THE PROJECT ANT ITS ALTERNATIVES

The project contemplates the construction of a double-stranded TL 230 kV of approximately 44 kilometers (km) in length. The TL is part of Energía del Pacífico's "LNG to Power" project, which consists of a) the construction of a Power Plant (Central / Thermal Energía del Pacífico Power Plant [CT EDP]) generating electricity, with a capacity of 380 megawatts (MW) based on natural gas, to be located in the Municipality of Acajutla, Department of Sonsonate, b) expansion of existing substations of Ahuachapán (230 kV) and Acajutla (115 kV), and c) the construction of the new Acajutla 230 kV electrical substation within the thermal power plant.

The TL starts at the Ahuachapán SE, located in the vicinity of Los Ausoles Geothermal Plant; then passes through the municipalities of Ahuachapán, Apaneca, San Pedro Puxtla, Santo Domingo de Guzmán, Sonsonate and Acajutla; reaching CT EDP, where the Acajutla SE will be built, which will have a double voltage transformation level, 230 kV for the interconnection with the Ahuachapán and SIEPAC substations and 115 kV for the interconnection at the Acajutla substation.

The project is located between the parallels 13° 35' 1.81"(Acajutla SE) and 13° 55' 21.39" (Ahuachapán SE) of north latitude and meridians 89° 49' 39.67" (Acajutla SE) at 79° 49' 2.65" (Ahuachapán SE) of west longitude (Figure 1).

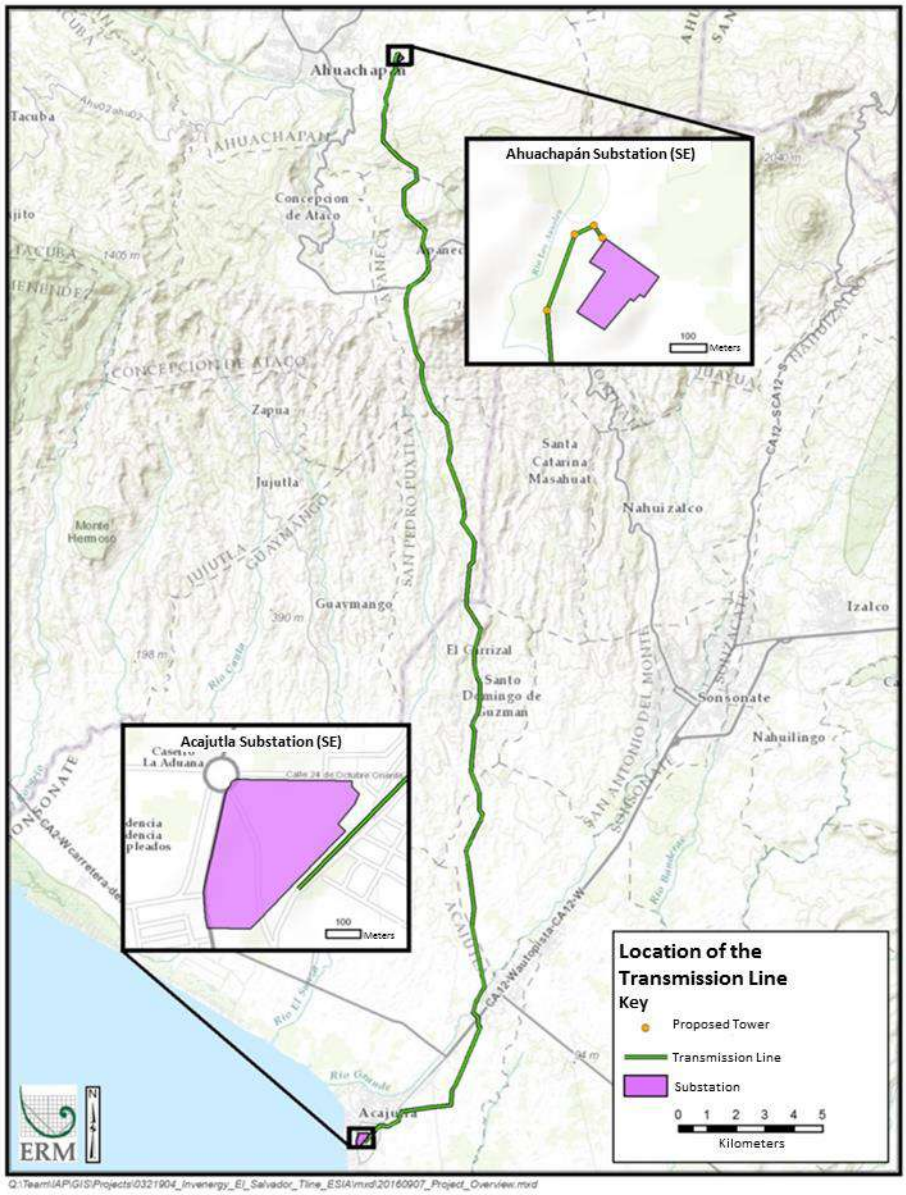


Figure 1 ***Location of the Transmission Line and Substations***

For this Environmental Impact Study (EIS), two types of area of influence have been defined as described below:

- Direct Influence Area (DIA): corresponds to the space within and near which the Project footprint will be located, where a direct impact is expected to occur. Within the area of direct influence evaluated, the footprint of the affected area is included: towers, substations, access roads and their right of way; in addition, of the areas where the different equipment and machinery (campuses) and substations were stored.

- Project Indirect Influence Area (IIA): defined as the physical space that may be potentially affected by any of the Project components, outside the Project area. The IIA was established as the space from the DIA boundary to the distance where 100m is covered on both sides of the Project alignment. For socio-economic aspects, the six municipalities covered by the Project are considered.

2.1 *PROJECT COMPONENTS*

The execution project of the CT EDP also includes the implementation of the following high voltage installations that allow the conection of the power plant with the electrical interconnected system of El Salvador:

- Expansion of existing Ahuachapán SE (230 kV) and Acajutla (115 kV);
- Building of a new electric SE power plant Acajutla 230 kV inside CT EDP territory;
- Building of a 115kV Transmission Line between CT EDP and Acajutla SE of 115kV; and
- Building of a 230 kV Transmission Line between Ahuachapán and Acajutla Substations of 230 kV.

For the purpose of this EIS, this Project considers the 230 kV Transmission Line between the Ahuachapán and Acajutla Substations, the construction of the new Acajutla electric SE 230 kV within the grounds of CT EDP, and the adequacy of Ahuachapán SE.

The necessary access network for the construction of the different components of the Project will be constituted by the following types of accesses:

- Main accesses, built from the existing public road network.
- Internal access, between the various work fronts and services.

It is estimated that the installation project for the Ahuachapán - Acajutla 230 Kv Transmission Line will last approximately 24 months.

2.2 *ALTERNATIVES CONSIDERED*

2.2.1 *Selection of Sites for Substations*

The positioning of the new bay in the Ahuachapán SE is the most suitable and optimal site for its connection with the lines coming from the Acajutla SE and minimizes the removal of vegetation near the plant. Acajutla SE will be built within the grounds dedicated to the construction of the Pacific Power Thermal Power Station in an industrial area of the city of Acajutla. The selection of the site optimized its connection with the TL of 230 kV towards the Ahuachapán SE and the substation Acajutla of 115 kV.

2.2.2 *Transmission Line*

Four possible main alternatives (traces) were identified for the transmission line connection from the Ahuachapán SE to the Acajutla SE. All the alternatives of route, from the exit in Ahuachapán travel approximately 33 km under the same trace. By design, the traces in this section vary between one and the other not more than 30 m, which is insignificant. The difference between the four traces is significant near the CT EDP and its connection with the Acajutla SE and also when crossing the city of Acajutla.

The traces selected were Trace 4, which was based on Trace 3 route, away from the City of Acajutla and the housing areas of Kilo 5, entering agricultural land and pastures, and looking for a new area to cross the Road of Acajutla. As a consequence, this trace would increase in length approximately 500 m in regard to Trace 3. The selection of location of the crossing of the Road to Acajutla was studied in detail so that the social impacts were minimal and for this reason Trace 4 was selected as the preferred one.

3.0 EXISTING ENVIRONMENTAL, SOCIAL AND CULTURAL CONDITIONS

3.1 *PHYSICAL ENVIRONMENT*

In the Project region, there are several geological faults with a preferential course towards the southeast. The surface local geology in the Project area is mainly a sequence of Quaternary units of the formations San Salvador (sedimentary) and Balsam (volcanic). The San Salvador Formation is the most recent and it mainly appears in the north and south of the TL. Formación el Bálsamo constitutes the deep foundation of the Project area; Emerges mainly in the central zone of the TL, and is constituted for the most part by a sequence of pyroclastic and epiclastic rocks, with intercalations of andesitic lava flows. Two physiographic provinces appear near or within the Project. The Antearco Chortis Region/Basin consists of a bas-relief area of coalescence of alluvial fans extending up to 70 km inland from the volcanic front.

Two physiographic provinces appear near or within the Project. The Antearco Chortis Region / Basin consist of a bas-relief area of coalescence of alluvial fans extending up to 70 km inland from the volcanic front. The Chortis Volcanic Front encompasses two major morphothectonic segments heading northwest: Guatemala Mountain Range, formed along the western margin of the highlands of the Chortis, and El Salvador Mountain Range, developed along the southern boundary faults of the Central Valley or graben. Both mountain ranges consist of aligned clusters of stratovolcanoes and boilers located along transverse faults that intersect the Chortis Volcanic Front.

Three topographic scenarios were identified along the line of the Project that are a clear reflection of the type of dominant landscape in the course of the line: a region with heavily undulating topography, a region with slightly wavy topography and a region with flat topography.

The types of soils that occur near or within the Project correspond to Latosoles Arcillo Rjizo, Andisoles, Grumosoles, Aluviales, Regosoles and Halomórficos, varying in texture and depth depending on the relief of the landscape. According to the agrological classification of soil / land use capacity of the MAG, the soils in the environment of the project trace correspond to Classes II-IV, VI-VII and soils in urban areas.

Due to their geographic location, TL and substations will be exposed to potential natural hazards primarily geophysical, such as volcanic eruptions, earthquakes and landslides.

The climate in the Project area is characterized as Hot Tropical Savannah or Hot Land with humid subtropical forest.

The study area of the Project crosses three basins: Paz, Cara Sucia-San Pedro and Grande de Sonsonate-Banderas. The main rivers and streams within the Project area are the Rio Grande of Sonsonate or SENSU, Cashalate River, Quebrada de Invierno, Camalote River and El Venado River.

The main aquifers near the Project area are:

- Aquifer of Ahuachapán Valley located at the foot of the Ahuachapán volcano and used to supply water to nearby cities and towns. The water depth is between 10 and 40 m with flows between 30 and 60 liters per second (l/s) (Dimas 2005).
- Sonsonate-Acajutla aquifer that originate in the area of recharge of the volcanoes of Santa and Izalco and they supply drinking water to the city of Sonsonate, water to small irrigation projects and to the industrial zone of Acajutla. The depth of groundwater in this aquifer ranges from 5 to 50 m and flows between 40 and 100 l/s are obtained.

In general terms, the air quality throughout the study area is good, given the conditions prevailing in the natural environment (pasture and natural vegetation, as well as agricultural and cultivated land). The main sources of pollution throughout the study area, but not yet affecting air quality, are the combustion of transport units (public and private) and the non-continuous or controlled burning of solid waste (Eg, Ahuachapán, Concepcion de Ataco, Apaneca, San Pedro Puxtla and Santo Domingo). However, for the Acajutla area, air quality is influenced by local industrial sources (eg, existing power plants, port activities) and seasonal agricultural activities (eg, burning of sugar cane season, field tillage and its preparation).

The threshold levels set out in the IFC Environment, Health and Safety (2007) guidelines were used to compare noise levels measured under existing conditions. The only daytime noise level data in the Project area were below the guidelines set by the IFC (55 dBA). On the other hand, night noise levels at three monitoring sites L1, L2 and L3 were above the IFC guideline.

3.2 *BIOLOGICAL ENVIRONMENT*

The baseline methodology of the biological components included tours along the Project area, including all TL right of way. Parcels of land, transects, auditory bands, visual encounters, and auditory and visual

observation points were used. In order to determine species richness, abundance, diversity and importance, the relative abundance, the Shannon Wiener index, Simpson, Value and Importance Index (VII), and wealth indexes were estimated using the EstimateS 8.0 program.

For terrestrial fauna, the study was focused on vertebrate groups: mammals, birds, reptiles and amphibians. There were no collections, but capture and release on-site of species of fauna, especially the group of bats, to meet the scope of the study requested by MARN's technicians. The respective permit was obtained for the capture and release of fauna specimens.

For the vegetation, the field study was developed in the coffee plantation forest, patches of forest and cultivation areas in the area of influence of the project trace. The general types of vegetation include the following: Coffee plantations with polycultures (characterized by trees not very high (8-10 m), with a large number of young trees, fruit trees, timber and introduced to shade coffee plants, which produces rich and diverse structures in species, with a variety of trees), monoculture coffee plantations (where one or two species are planted to shade the coffee plantations) and grasslands (where the original vegetation has been transformed into agro-ecosystems that are currently used as paddocks and cultivated areas).

In the present study, a total of 123 families, 384 genders and 536 species (including subspecies, varieties and forms) of vascular plants were registered. Of the 536 species, 411 are native and 125 are exotic. Of the total species, 156 are trees (118 native and 38 exotic), 65 are shrubs (34 native and 31 exotic), 75 vines (67 native and 8 exotic), 29 ferns (28 native and one exotic) and 209 herbs (164 native and 45 exotic).

Ten species of trees and shrubs are classified as threatened in El Salvador and/or globally threatened according to IUCN (2016). Pacific mahogany (Swietenia humilis) and chaperno (Lonchocarpus rugosus ssp. apricus) are classified as endangered species by MARN.

Amphibians and reptiles were evaluated together. For this, linear transects were established on the trails or paths that are parallel to the traces of the transmission line. A total of 15 species of amphibians and reptiles distributed in 11 families and 14 genders were recorded. Most of the species recorded are common, with wide distribution at national level and high adaptability to areas disturbed by anthropogenic activity. However, the second most abundant species was the black-eyed tree frog (Agalychnis moreletii), a nationally threatened species that is on the IUCN's red list as a critically endangered species. The habitat with greater

abundance of individuals and diversity of species was crop areas and the habitat with lower abundance was patches of natural forest.

In order to sample birds, observation points were established in which 15 minute stops per point were recorded and the species identified were recorded either by their morphological characteristics or by their singing. The points were established in the transects previously established for the other groups since at these points a high incidence of birds had been determined. A total of 39 bird species belonging to 26 families were recorded. The majority of recorded species are common, with wide distribution at national level and high adaptability to areas disturbed by anthropogenic activity. However, 4 species with threatened status were registered for El Salvador.

TL traverses part of the northwestern sector of the Area of Importance for (IBA) Los Cobanos between towers TP 136 and TP 145+100 m for a distance of approximately 2,890 m. IBAs are internationally recognized for their biodiversity values but are not natural areas protected by law in El Salvador.

In order to sample non-flying mammals, linear transects were established in which mammalian species were recorded by means of sightings or from traces, excreta or other traces indicating the occurrence of these species. A total of 14 species belonging to ten mammalian families were recorded, none of which are threatened or endangered on national or international lists.

For the sampling of the chiroptera, two mist nets (one of 9 m x 2.6 m and one of 12 m x 2.6 m) were placed at ground level around the points of the towers TP 2 - 3, TP 33 - 34, TP 36 and TP 44 - 44a. In total, 14 species of bats were recorded. The most abundant species was G. commissarisi, a species of nectarivorous habit.

Six species of fauna were detected in the category of Threatened according to the National Official List, of which one is Critically Endangered (CR) category according to the IUCN Red List:

Agalychnis moreletii

The black-eyed frog is an endemic species of Central America with Critically Endangered (CR) category worldwide due to chytridiomycosis, a disease that has caused the extinction of several species of amphibians worldwide.

Ctenosaura similis

Garrobo jiote or black iguana is a large lizard that inhabits much of Central America. It is categorized as Threatened nationally but is a least concern (LC) according to the IUCN Red List. It can be very abundant in anthropized habitats but is sensitive to hunting pressure as it is desirable for domestic and commercial consumption in El Salvador.

Brotogeris jugularis

This species of parrot or psittacida, known as catalan, is threatened at national level. The main risks for its conservation are the destruction of the habitat and the human predation since this species is usually captured at an early age in their nests (talchinol), soon to be commercialized in order to be restricted to the captivity.

Eupsittula canicularis

It is another species of parrot threatened at national level and popularly known as chocoyo. Like the previous species, its main risks are predation and loss of habitat.

Aulacorhynchus prasinus

The green toucan is a nationally threatened species but distributed between Nicaragua and San Luis Potosí in Mexico and of least concern category (LC) at the international level. During the field study, three individuals were observed in the patch habitat of natural forest and none in the shade or pastureland.

Chiroxiphia linearis

The jumping colilargo or toledo is a threatened species at the national level but distributed between Costa Rica and Oaxaca in Mexico and of least concern category (LC) at the international level. During the field study, 20 individuals were observed in patch habitat of natural forest and none in the shade or rangeland coffee plantation.

The vast majority of documented species have wide distributions in Central America or even North and South America. No endemic species of the country were registered.

There were no areas of singular importance for breeding, mating or hatching of fauna species within the Project area. However, two breeding sites were found for the frogs Agalychnis moreletii, a species that

frequents shade coffee plantations and uses artificial stacks such as egg laying and tadpoles.

To evaluate the aquatic ecosystems, five rivers representative of the area of influence of the Project were chosen. The information reflects that there is little variability among the five rivers sampled, either in terms of the number of species or the number of plants found. Between 2 and 6 species of fish were found at each site. We found between 20 and 69 individuals in Sites 1, 2, 3 and 5, but only 3 individuals were found in Site 4. The diversity of macroinvertebrates at family level was similar among the five sampling sites, ranging from 22 to 24 families per site.

The project area crosses the Apaneca-Ilamatepec Biosphere Reserve in the northern part in two sectors: 9.28 km between towers TP 14 and TP 30 and 0.89 km between towers TP 56a and TP 59. In the southern sector, the TL would be within the Transition Area of the RBAI. In the northern sector, it would be within the Transition Area between TP 14 and TP 28 and within the Buffer Area between TP 28 and TP 39.

According to the Enterprise for the Americas Initiative (EAI), coffee plantations predominate in the vegetation of the transition zone of the RBAI and are part of the Mesoamerican Biological Corridor, whose function is to contribute to the flow of species of flora and fauna. The RBAI is one of two Biosphere Reserves in El Salvador.

3.3 *SOCIOECONOMIC AND CULTURAL ENVIRONMENT*

The Project carried out activities of identification and mapping of the social actors relevant to the Project, as well as those that have interest or influence in the Project. Those that have representations or actions in the area of influence were mapped out and with them semi-structured interviews, participatory rural diagnostic workshops and focus groups were carried out. The social and economic base line was focused on the six municipalities within two departments within which the Project is located: Ahuachapán, Apaneca, San Pedro Puxtla, Acajutla, Sonsonate and Santo Domingo de Guzmán. These municipalities are within the departments of Ahuachapán and Sonsonate. Acajutla and San Pedro Puxtla are the largest populated centers in the study area.

54 interviews with key informants were conducted to gain a better understanding of the issues that demanded greater knowledge. These interviews were conducted with community leaders, municipal officials, doctors, priests and teachers, among others. Three participatory rural diagnostic (PRDs) workshops were held as well as focus group sessions to

better understand the views, concerns and priorities of specific groups that might be affected by Project activities.

According to 2007 census, the population of the department of Ahuachapán was of 319,503 inhabitants, with a projected population of 359,418 inhabitants in 2016. The population growth rate in the period 1992-2007 was 1.38%. The population density in the department of Ahuachapán is of 258 inhabitants per square kilometer (km2); with 42.2% of the population in urban areas and 57.8% in rural areas. The municipality of Ahuachapán is the most populous municipality in the department. The municipality of San Pedro Puxtla is one of the least populated municipalities in the department.

The departments of Ahuachapán and Sonsonate experience high levels of emigration. During the participatory rural diagnoses developed in Ahuachapán and Apaneca, it was indicated that there was a flow of population favored by the greater security of these populations, and in the specific case of Apaneca, because of its location in the commercial transport lines with Guatemala.

At the national level, out of every 100 people who make up the working age population (WAP), 63 are employed and offering their labor power to the labor market; while 37 are not actively working, or looking for work and are therefore classified as Economically Inactive Population (EIP). This situation is repeated at the departmental level, where the number of EIPs is higher among women than men. The unemployment rate varies by department; Ahuachapán is one of the departments with the highest unemployment rate (9.3%). For its part, the department of Sonsonate reported an unemployment rate of 7%.

The main economic activity in the departments of Ahuachapán and Sonsonate is retail trade, manufacturing and services.

At the departmental level, the Apaneca-Ilamatepec mountain range, which passes through the departments of Ahuachapán and Sonsonate is one of the main coffee regions in the country. The main coffee producing departments in El Salvador are Santa Ana, Ahuachapán and Sonsonate.

Within the area of influence of the Project, the municipalities of Apaneca and Ahuachapán are the most touristy. The municipality of Apaneca is one of the pioneer municipalities in the tourist development of the country. The city of Acajutla is also a relevant tourist area, because of its location along *Ruta de las Flores.*

Ruta de las Flores is a tourist route of 36 km along the Apaneca Mountain Range. The route includes stops in different colonial cities, including the cities of Apaneca and Acajutla in the area of influence of the Project. The route is known for the beauty of its coffee plants when they bloom and the markets for handicrafts and typical furniture. In the department of Ahuachapán, the hot springs are another tourist attraction in the region. Based on an analysis of the area around one of the most well-known hot springs - Termales de Santa Teresa, near the city of Ahuachapán - there is a relatively established tourist infrastructure including a series of hotels and recreation centers.

Despite an improvement in the country's electricity supply, it remains limited compared to other countries in the area, mainly in rural areas. During the 2007 Census, about 87,000 households had no access to electricity.

Since the beginning of this decade, violence in El Salvador has been increasing, specially since 2008. The crimes of greatest incidence in the country are homicide and robbery. The phenomenon of maras[i] and extortion are common, to such an extent that in August 2015 the Supreme Court declared terrorist groups to the so-called Mara Salvatrucha and Barrio 18 gangs. According to interviews with representatives of the national police in the municipalities of San Pedro Puxtla, Santo Domingo de Guzmán and Ahuachapán, the municipality of Ahuachapán has the highest number of security personnel (80 security agents), who are sometimes accompanied by soldiers from Military Detachment No. 7. In 2014, 130 homicides in the department were registered. On the other hand, the municipality of Santo Domingo de Guzmán has the lowest number of security personnel (10 security agents). In Acajutla, they have 15 national and 6 municipal police officers.

3.3.1 *Cultural, Archeological, Ceremonial and Historical Resources*

The corridor proposed for the TL is relatively close to significant pre-hispanic resources such as Santa Leticia, San Benito, El Carmen, Tacuzcalco and Los Tablones. Of these, Santa Leticia is a place of first order in the vicinity of the present town of Apaneca, specially recognized

[i] Those stable youth groups that have a group identity built through participation in violent or criminal acts, and that offer some patterns of identification to its members that allow to organize their daily life.

by its "Barrigones", anthropomorphic sculptures carved on basalt or andesite and the remains of a village of hundreds of hectares of extension.

The baseline description below was developed from the following sources:

• Current knowledge about the region as identified through bibliographic search and consultations and conversations with national and international experts.

• Findings of a field survey campaign in the Project's area of influence.

Estimation of baseline conditions from the first two partial sources; that is, to calculate a possible but not yet confirmed inventory of resources present in the Project area for terrestrial and underground resources.

The baseline field survey identified a total of 13 archaeological resources.

4.0 IDENTIFICATION, DESCRIPTION AND EVALUATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

This study analyzes the potential impacts, both positive and negative, of the construction and operation of the proposed Project; it also describes the control and mitigation measures that will be developed by EDP and other recommended complementary measures to avoid, minimize or mitigate possible negative impacts and expand positive ones. Impacts were classified based on 1) magnitude of potential impact and 2) Sensitivity / Vulnerability / Importance of Resource / Receptor. The final classification of impacts is done considering the implementation of the mitigation measures.

4.1 *IMPACTS ON THE PHYSICAL ENVIRONMENT*

- Leveling work, where required depending on the slope of the area, soil compaction and formwork; as well as the foundation of the towers and substations will not have significant impacts in the geology of the Project area.
- The construction of the Project will result in the alteration of approximately 34 hectares (ha) of land, mainly the area around the towers, substations, facilities and access roads. Without additional mitigation measures, soil erosion caused by construction activities

would have an impact of moderate significance (average magnitude; average sensitivity) on the soils of the Project. With the implementation of mitigation measures, the magnitude of the impact is expected to be reduced to small, reducing the significance of the impact to smaller.

- The risk of compaction of soils during construction and operation of the Project is expected to be insignificant (negligible magnitude; low sensitivity).
- Spill risk is estimated to be reduced to insignificant with the implementation of mitigation and control measures (negligible magnitude, low sensitivity)
- The implementation of control measures incorporated in the construction of TL will diminish the potential effect of natural threats to a lesser significance (small magnitude, medium sensitivity/vulnerability).
- With the implementation of control measures to reduce the emissions of gases produced by the combustion of hydrocarbons in engines and by suspended solids, the significance of the impact of the Project on air quality will be reduced to insignificant.
- With the implementation of control measures to mitigate changes in surface runoff, the impact will be reduced to insignificant.
- With the implementation of control measures to mitigate potential impacts on water quality, the impact will be reduced to insignificant.
- Since the use of water from rivers and/or streams is not contemplated for the tasks of the construction phase, the impact on the availability of water is insignificant. On the other hand, during the operation of the Project the requirements of supply are minimum so no impacts on the availability of water are foreseen.
- The impact of the noise caused by the corona effect, which is caused by the movement of ions and a sizzle produced by the electric discharges, is considered insignificant.
- With the implementation of control measures to reduce noise pollution along the TL and proposed infrastructure, the significance of impacts will be reduced to lesser and in some cases insignificant.

4.2 *IMPACTS ON THE BIOTETIC ENVIRONMENT*

- It is estimated that the Project will require the logging of about 3,599 trees. The significance of the impact on vegetation cover is classified as minor (minor magnitude, mean sensitivity). With the implementation of an environmental compensation program through the reforestation of trees (10 trees per cut tree) and shrubs (1 shrub per bush felled), the impact on the vegetation cover will be reduced to insignificant (insignificant magnitude, mean sensitivity).
- The number of individuals of tree and shrub species categorized as threatened or endangered will be insignificant in the context of global, regional and local populations of these species. With the implementation of compensation measures, the impact is expected to be positive because of the increase in populations of these species in reforestation areas.
- With the implementation of mitigation measures, the Project's residual impact on aquatic habitats will be insignificant (insignificant magnitude, medium sensitivity).
- The project's potential impacts on wildlife will be of short duration and limited in area, by which it is classified as small in magnitude and low in sensitivity to receiving species, resulting in insignificant impact.
- The Project may affect areas that are habitat for the black-eyed frog (Agalychnis moreletii), which is Critically Endangered by IUCN and Threatened by MARN. However, these habitats and individuals represent an insignificant fraction of their local population and will not affect the survival of the species. With the application of mitigation measures, the residual impact on the black-eyed frog will be positive because of the greater availability of habitats for its reproduction and the increase in forest cover in the Biosphere Reserve by the Ecological Compensation Program.
- Considering that the sensitivity of bird populations to collisions with the lines is considered average and that the magnitude of the impact is small, the impact is classified as minor. With the application of the proposed measures, the residual impact on birds by collision with the lines is classified as insignificant (insignificant magnitude, mean sensitivity).
- The risk of electrocution for large birds such as raptors is minimal. This risk does not require mitigation because it is insignificant (insignificant magnitude, medium sensitivity) and does not require specific measures of control and mitigation.

- A portion of the TL will be constructed and operated within the Transition Zone and the Buffer Zone of the Apaneca-Ilamatepec Biosphere Reserve. It is estimated that 194 trees will be felled in the Buffer Zone and 248 trees in the Transition Zone. Temporary areas will be rehabilitated and re-developed to complete construction of the Project. With the application of mitigation and reforestation measures, the residual impact of the Project on the Apaneca Biosphere Reserve - Ilamatepec is classified as positive.
- A section of approximately 2,890 m of transmission line crosses part of the northwestern sector of the Important Bird Area “Los Cobanos”. There is a risk of collision of birds with the lines and the construction of the towers may result in the elimination of natural vegetation. With the application of the proposed mitigation measures, the residual impact of the Project on the Important Bird Area "Los Cobanos" is classified as positive.

4.3 *IMPACTS ON THE SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT*

In general, the impacts of the Project on the socio-economic environment will be positive, mainly due to the demand for labor and the requirement of other services (such as transport and food), especially during the construction phase. At the national level, the major contribution of the Project is the improvement of the reliability of the electricity supply in the national electricity system.

• For the construction and maintenance of TL and infrastructure, the Project will hire a labor force consisting mainly of workers from villages and municipalities in the area of influence of the Project and national specialized workers. It is expected that at the peak of construction there will be approximately 200 people employed for the construction of TL and infrastructure. This is a positive impact.

• For the operation of the Project, it is estimated that the labor requirement will be approximately 3 to 5 people. Majority of the workforce will be used during this phase. Unskilled labor will be used for periodic maintenance of the right of way and support activities (eg pruning and vegetation control in right of way and maintenance of roads).

• As a result of the Project, the growth of commercial, industrial and related services is expected. This impact is positive.

• Increased electricity supply is one of the main impacts of the Project. This impact has been rated positive.

• The Project has designed a citizen participation plan to ensure good relationships with the community. The magnitude of the potential impact of poor community relations with the Project during construction has been considered small, and the vulnerability of the population low. With the application of mitigation measures, the impact has been rated as insignificant. In the operation stage, impact is considered insignificant because the interactions of Project staff with communities will be minimal.

• One of the main negative effects during the construction phase is the effect on traffic routes. The impact is categorized as moderate during construction and insignificant during operation and abandonment.

• Along the route, 269 affected properties have been identified, representing 264 parcels of land. To date, we have 100% of the registry-cadastral verifications of the properties under the trace. The Project will require the rehousing of a family in Acajutla, in the Santa Emilia estate. During the construction phase, the impact is estimated to be of medium magnitude and low vulnerability. The impact is categorized as minor to insignificant in the stage of operation and abandonment.

The construction and operation of a transmission line entail, for safety, the restriction in the use of the ground for activities that are not compatible with the operation of the line. With the implementation of the mitigation measures, the magnitude of this impact is considered insignificant for all the stages, since it will start from a previous agreement, sealed through a legal contract, between the owners and the promoter of the Project.

- Considering the mitigation measures integrated in the design of the line layout, the magnitude of the impact on the visual quality of the Project area is considered medium and the vulnerability low. Therefore, this minor impact is considered.
- During the construction phase, occupational accidents can be generated, as well as effects on the community, such as an increase in the incidence of traffic accidents. After the application of the mitigation measures the magnitude of this impact is considered medium and the vulnerability is low, reason why the impact is categorized of minor significance in the construction stage. For the operation stage the impact is considered insignificant.
- The levels of exposure to the electromagnetic field generated by the TL that are anticipated for the nearest residences are considered to be below the international norm. Therefore, adverse health impacts as a consequence of the implementation of the Project are classified as insignificant.

4.3.1 *Impacts on Cultural, Archaeological, Ceremonial and Historical Resources*

Even after having conducted a surface survey along the entire trace, complemented by cabinet studies and a paleontological survey, there is a likelihood that cultural traces will be discovered during the excavation process. In the case of finding archaeological and / or cultural resources during the development of the Project, the necessary measures will be taken to minimize the impact on them. SECULTURA will be contacted to determine the course to follow in order to preserve and protect the resource. For this reason, this impact is classified as insignificant to minor, direct, localized, low intensity, of permanent duration, irreversible, mitigable and of possible occurrence.

5.0 CITIZENS QUERY

The Project has carried out an intense process of consultation and citizen participation. The elements of this process are as follows:

Information and socialization activities:

• Information to landowners. In September of the year 2015, field activities were started to establish relations with the population of the Project area. Approaches with owners / possessors were numerous, including owner / occupant identification visits, document collection, follow-up visits, disclosure of management progress information, notice of court date, negotiation and acceptance of appraisal, finally, the signature of writing and payment.

• Opening of the Project's offices in Sonzacate and Acajutla to assist the owners, receive any complaints or complaints, manage the job market, and maintain a connection with the community.

• Socializing with local authorities and community leaders. Since February 2016, a series of meetings have been held with local authorities and community leaders to present the Project, the process of developing the EIS and to collect information relevant to the baseline and the consideration of impacts.

Consultation with communities:

• During the baseline, the Participatory Rapid Diagnostic (DRP) methodology was applied to the six municipalities in the Project's area of influence.

Socialization of the study with the communities:

• After completing the studies that made up the ESIA, EDP socialized with the communities the results of the same, as well as the methodology used to carry out the impact analysis. This activity was carried out in the communities of Sonsonate and Apaneca on September 7 and 8, 2016 with the participation of members of the following communities: Ahuachapán, Apaneca, Acajutla, Santo Domingo de Guzmán, San Pedro Puxtla, Sonsonate and Las Tablas.

6.0 PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PROGRAM

EMP establishes environmental and social protection measures and contains a set of plans, specifications and guidelines aimed at preventing and controlling the environmental impacts, impacts and risks that will be generated during the implementation of the Project, both in its direct and indirect area of influence.

The main parties and their main functions of those responsible for the implementation of this LDC are:

• EDP, as the project proponent, is responsible for overall project oversight, ensuring compliance with environmental and social policies and obligations in the EMP, and ensuring that their commitments are met.

• Subcontractor is responsible for complying with the EMP and with the requirements established by EDP.

The implementation of the EMP will be carried out with the support of EDP's senior management, through the following organizational scheme:

• Project Manager

• Field Manager

• Community Link

• Construction Contractor

• Environmental Inspectors

The Project will have negligible or minor negative impacts, in addition to positive impacts. Most impacts to the physical environment will be adequately addressed through the implementation of typical construction measures and "best practices" typical of the industry. Inevitable biological impacts, such as the deforestation of trees and areas where black-eyed frogs reside, will be effectively offset by reforestation at a rate of 10 to 1

trees and the construction of stacks of water that provide space for reproduction of the black-eyed frog, resulting in a net positive effect. The project will have mostly positive social impacts, both direct (as local employment opportunities) and indirect (improving the availability of electricity), and negative impacts, such as the potential for traffic accidents or increased noise during construction, are moderate and will be effectively managed with the implementation of best practices. In its entirety, the Project is considered viable and positive for El Salvador.

While most management and impact mitigation measures include the implementation of good practices during construction, EMP includes the following special measures to compensate for unavoidable impacts:

• Reforestation plan: following the requirements of El Salvador, trees will be compensated in a proportion of 10 trees planted for each tree cut and one shrub planted for each shrub cut.

• Construction of stacks of water to provide areas for deposition of black-eyed frog eggs.

• To mitigate potentially negative social impacts, the Project will implement a Complaint Management Plan, as well as a Community Participation Plan.

• To avoid or minimize potential impacts on archaeological resources, EMP includes a Plan of Uncertain Findings.

The following table summarizes the main potential impacts of the Project, the proposed mitigation measures, and the significance of the impact after mitigation.

Summary of Project Potential Impacts and Proposed Mitigation Measures

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Physical environment				
Construction	Increased erosion and sedimentation	• Terrain leveling; construction of towers, substations, access roads and facilities.	• Especially in areas with steep slopes, the possibility of building the bases of the towers on the existing relief will be evaluated or they will be installed on piles, without leveling the area. This minimizes the amount of soil to be affected. • Implement measures to control soil erosion, storm water management and sedimentation. These measures include the use of sediment fences, the installation of permanent and temporary drainage systems to manage runoff from construction sites and the use of sediment capture trenches; as well as the use of regulation dams to control water runoff, among others. • Use appropriate management practices during deforestation activities. For example, as far as possible, schedule construction activities during the dry season, especially in areas with steep slopes; limit deforestation and alteration only to the approved work area; minimize the area of vegetated soil within the approved work area as much as possible; and gradually stabilize and reforest the altered areas. • Revegetate slopes in areas where required. • Place surplus material in properly approved areas or reuse it as a filler. • Properly compact all material at the end of activities. • Once the construction phase is completed, those access routes and service routes that are not necessary for the project operation stage will be closed and restored to their original or better conditions; and • Communities' requests to maintain an open service path or route will be evaluated jointly with the competent authorities.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Construction / Operation	Pollution of soil	• The risk of contamination of soils by accidental spills of fuel and lubricants from equipment and machinery.	• The risk of contamination of soils by accidental spills of fuel and lubricants from equipment and machinery. • Maintenance of the equipment in good mechanical conditions, to avoid losses of fuel and lubricants that can contaminate the floors and be washed by the rains; • Any major maintenance of the equipment should be carried out in specialized workshops and not at the project site; • Adequacy of a specific area, with waterproofing protection, to carry out minor maintenance activities; and • Implementation of the Contingency Plan in case of spills (see Section 7.0 - Environmental Management Program).	**Insignificant**
Construction / Operation	Natural Threats	• Volcanic eruptions, earthquakes, seisms and landslides	• Design and construction of all facilities associated with proposed TL considering high safety factors and under local and international seismic protection codes and standards. • EDP has located the path of the TL trace outside the trajectories of lava flows and lahars of the two volcanoes near the TL, • Reveive slopes where excavation work has been done. If landslides prone to landslides, which to date after several visual scans have been found, stabilizations would be made. • Implementation of a contingency plan (see Section 7.0 - Environmental Management Program).	**Minor**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Construction and operation	Alteration of air quality	• Emissions of gases and particles from equipment, machinery and vehicles (mobile sources) that use hydrocarbons as a source of fuel.	• The dust generated by the construction and transit of material loading trucks will be mitigated by the irrigation of roads and access to the right of way and within the right of way. Such irrigation will be by means of water pipes. • The use of any machinery, equipment, or vehicles that have fuel leaks, ruptures in combustion and exhaust systems, or problems in catalyst systems shall not be permitted. • Concentrations of PM10, particulate matter less than 2.5 microns aerodynamic diameter (PM2.5), volatile organic compounds, SO2, NO2 and CO will be monitored. • The carton of vehicles transporting debris, dirt or construction material should be fitted with a tarpaulin to prevent dust from escaping during its journey. In addition, protective tires will be covered during loading and unloading of materials to prevent them from throwing material when spinning. • Any vehicle, whether for transportation, forklift or maneuvering equipment, shall be driven into previously opened roads, gaps and roads designated for that purpose. • Equipment that operates on diesel and gasoline must have preventive maintenance to comply with applicable environmental regulations. • Gasoline equipment will have catalytic converters in good condition. Those that are maneuverable equipment (for example, forklifts and cranes) will adjust their operation to the guidelines of these measures. Catalytic converters or filters for diesel will be incorporated, as the case may be. • Establish speed limits for vehicles that circulate in populated areas as well as access to the project (maximum speed of 25 km/h). • Ensure that the vehicles and equipment to be used comply with the maintenance required by each equipment and will have: 1) specific maintenance requirements for each equipment, 2) inventory of equipment, spare parts and materials needed for maintenance; and 3) periodic lubrication.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			• Perform resistance testing of materials, galvanizing impregnation and other tests in the factory and not on site.	
Construction / Operation	Change in surface runoff	• Construction of towers, substations, access roads and facilities.	• Proposed facilities should have roof drains that collect the runoff water and direct it to the ground where they can continue their normal course. • Piping stormwater into roads through ditches, sewers, sediment barriers and settlers, among other devices to reduce the drag of solids to rivers and/or creeks. • In the parking and storage areas of machinery/equipment and in the open, suitable control systems such as hay bales should be placed to avoid contamination of runoff water. • If it is necessary to carry out ground leveling work for the foundation surface, these must be done in a way that does not alter the surface drainage conditions and do not leave areas that in future compromise the stability of the structure.	**Insignificant**
Construction	Changes in the quantity and quality of water	• Construction of towers, substations, access roads and facilities; accidental spills of chemicals, lubricants and fuels. • Earth movement. • Crossing of gulches by vehicles and machinery can introduce contaminants.	• The material generated from the excavation works will be removed from the excavation and deposited at a safe distance to avoid material falling into nearby rivers and/or ravines. The collection area of the material should be selected prior to the start of excavation work to prevent mounds of accumulated material from having any impacts on nearby rivers and/or streams. • Piping stormwater into roads through ditches and/or culverts, sediment barriers, and settlers, among other devices to reduce the flow of solids to rivers and/or streams. • In the parking and storage areas of machinery/equipment and in the open, suitable control systems such as hay bales should be placed to avoid contamination of runoff water. • Conduct domestic water management during the construction phase using portable sanitary modules, as described in Section 2.0 (Project Description). Use at least one portable toilet for	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
		• Three of the nine storage facilities or temporary storage areas are located within 100 m of a body of water.	every 15 people and give daily treatment with detergents and biodegradable additives to these sanitary modules. The solid waste from these toilets will be extracted by the company that rents these devices, as well as their disposal. • Comply with the manufacturer's guidelines for machinery and equipment used to prevent fuel spills. • Avoid vehicular traffic in riparian areas and avoid the use of machinery in the vicinity of watercourses. • Have a prevention plan; control and response to risks of spills including emergency response, cleaning and recovery of contaminated soils (see Section 7.0 - Environmental Management Program). • Use airtight barrels with device for transferring fuel for power generators.	
Construction / Operation	Increase the level of environmental noise and vibration	• Increased traffic of vehicles and machinery (heavy machinery and trucks) and use of equipment and machinery.	• Maintain maximum permitted noise levels within the values indicated by Salvadoran authorities or threshold levels of noise established by IFC. • Indicate all sites where they emit noises above 85 dBA, to avoid exposure of persons without properly certified hearing protection equipment. • Train all workers on techniques for the use and maintenance of hearing protection equipment (occupational safety) that should be required at all times during the exposure period. • Establish speed limits for vehicles traveling in populated areas (maximum speed of 25 km/h). • Maintain in good condition the damping systems of all vehicles, machinery and equipment used during the Project phases. • Design and implement a contingency plan and corrective measures to meet eventualities. • Study and use noise barriers or acoustic noise suppression devices when necessary. •	**Insignificant to minor**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Biotic Environment				
Construction	Loss of plant cover	• Tree logging during construction and installation of towers and substations; construction of access roads and storage areas - campuses (towers and lifting cables).	• Optimize the design of the TL route and infrastructure to minimize impacts to natural forests. • Implement an environmental compensation program through reforestation of trees (10 trees per cut tree) and shrubs (1 shrub per bush cut). • If you cut trees whose timber is of commercial or utility value, you will consult with landowners to inquire if they are interested in retaining timber. The contractor will cut the logs to segments of appropriate size. • If the landowner is not interested in wood, the contractor may seek other ways to distribute the wood to entities that can be put to good use. • Other generated plant materials can be crushed on site and used to provide a layer of protection against erosion.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Construction	Loss of individuals from threatened or endangered species	• Tree logging during construction and installation of towers and substations; construction of access roads and storage areas - campuses (towers and lifting cables).	• Optimize the design of the TL route and infrastructure to minimize impacts to natural forests. • Prior to construction, count individuals of threatened and endangered species to be logged. • Implement an environmental compensation program through reforestation of trees (10 trees per cut tree) and shrubs (1 shrub per bush cut).	**Insignificant to Positive**
Construction	Contamination and degradation of aquatic habitats	• Tree cutting during construction and installation of towers and substations; Construction of access roads and storage areas - campuses. • Earth movement. • Crossing of gulches by vehicles and machinery can introduce contaminants. • Three of the nine storage facilities or temporary storage areas are located within 100 m of a body of water.	• The material generated from the excavation works will be removed from the excavation and deposited at a safe distance to avoid material falling into nearby rivers and/or ravines. The collection area of the material should be selected prior to the start of excavation work to prevent mounds of accumulated material from having any impacts on nearby rivers and/or streams. • Piping stormwater into roads through ditches, sewers, sediment barriers and settlers, among other devices to reduce the drag of solids to rivers and/or creeks. • In the parking and storage areas of machinery/equipment and in the open, suitable control systems such as hay bales should be placed to avoid contamination of runoff water. • Comply with the manufacturer's guidelines for machinery and equipment used to prevent fuel spills. • Avoid vehicular traffic in riparian areas and avoid the use of machinery in the vicinity of watercourses. • Have a prevention plan, control and response to risks of spills including emergency response, cleaning and recovery of contaminated soils (see Section 7.0 - Environmental Management Program).	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			• Use airtight barrels with device for transferring fuel for power generators.	
Construction	Loss of habitat and black-eyed frog individuals	• Loss of habitat and mortality of individuals during construction activities.	• Campaigns for the capture and relocation of frogs in habitats to be affected by the Project. • Avoid impacts to your existing breeding sites. • Construct two water catchment piles in each area where the frog was documented to increase the availability of habitats for breeding the species (Santa Rita and Tequendama farms). The "piles" are artisanal structures used by coffee producers in the region to store water. Frogs use these piles as shelters and breeding grounds. Two piles constructed according to local custom should be installed with the following dimensions and materials: approximate dimensions - 2.5 m long x 1.5 wide x 1.6 m deep with a canopy roof and down pipe; and materials - building bricks, cement, sand, grooved sheets, nails and/or screws, with cement refining. • Reforestation of forest habitats in the Biosphere Reserve. • Educational conservation campaigns on the importance of the frog and the advantages of organic coffee cultivation without agrochemicals.	**Positive**
Operation	Collisions of birds with the transmission cables	• Collision with cables of the TL, mainly in the cables of guard for being of smaller diameter and less visibility.	• Installation of bird flight deterrents throughout the transmission line section of the IBA "Los Cobanos." • Installation of deterrents in the main crossings of rivers and streams.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Construction / Operation	Construction of TL in Apaneca-Ilamatepec Biosphere Reserve - Buffering zone and Transition zone.	• 194 Felling trees in the buffer zone and 248 trees in the Transition Zone. • TL installation, partially, within the limits of the Apaneca Biosphere Reserve - Ilamatepec.	• Installation of bird flight deterrents throughout the length of the transmission line within the IBA. • Minimize felling of trees and shrubs by positioning the towers outside areas of woody vegetation. • Minimization of the opening of new accesses and their rehabilitation and revegetation to finalize the construction of the Project. • Restoration of forests within the Reserve through the Environmental Compensation Program. • Training of workers on the importance of the Reserve and its conservation objectives. • Installation of information signals on public roads on the Reserve and its biodiversity values.	**Positive**
Construction / Operation	Construction of TL in an important bird conservation area 'Los Cobanos'	• Tree cutting in the bird conservation area. • Risk of collision of birds with transmission cables.	• Installation of bird flight deterrents throughout the length of the transmission line within the IBA. • Minimize felling of trees and shrubs by positioning the towers outside areas of woody vegetation. • Restoration of gallery forests within the IBA through the Environmental Compensation Program. • Training of workers on the importance of birds and their habitats. • Installation of informative signage about the IBA and its biodiversity values on Route 12.	**Positive**
Socioeconomic Environment				
Construction / Operation	Generation of temporary and permanent jobs	• Construction, operation and maintenance of TL and infrastructure.	• Recruitment of the labor force consisting mainly of workers of the towns and municipalities in the area of influence of the Project and national specialized workers.	**Positive**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Construction / Operation	Regional economic stimulus	• Construction, operation and maintenance of TL and infrastructure.	• Growth in commercial, industrial and related services is expected	**Positive**
Operation	Increased power supply	• Operation of TL and infrastructure.	• Increased power supply.	**Positive**
Construction	Risk of conflicts between the local population and the Project	• Construction of TL and infrastructure.	• The Project has designed a citizen participation plan that establishes recurrent meetings to inform the progress of the Project. It has also established a grievance mechanism to have an open line of communication with communities. For more details, refer to Section 7.0 Environmental and Social Management Program. • Additionally, contractors will be required to abide by the workers' code of conduct and all employees will be required to induce community relations.	**Insignificant**
Construction / Operation	Risk of traffic accidents on public roads	• Traffic of vehicles and equipment during TL construction and infrastructure.	• The works will be programmed so as to always maintain the main communication channels enabled. The necessary precautions will be taken to avoid accidents, maintaining at all times adequate signage, both day and night, according to the rules of the competent authority complying with current regulations. It will be driven at a maximum speed of 25 km/h. At the end of the works to improve the roads, the cleaning and cleaning work will be carried out. • All personnel and Project contractors related to vehicle driving will undergo training for defensive driving (Smith System). It will ensure that the drivers have the Smith System certificate and if they do not have it, they will take a course. • All Project staff and Project vehicles will give the right of passage to all local people (for example, inhabitants of communities who are moving on foot). Project employees as well as subcontractors will be responsible for the traffic of their vehicles and will have to comply with the measures proposed	**Moderate – Construction. Insignificant – Operation.**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			in the Environmental Management Plan and the Social Management Plan.	
Construction	Right of way purchase	• Resettlement of a house in Acajutla.	• Anticipate and avoid or, where this is not possible, minimize the adverse social and economic impacts arising from the acquisition or restrictions on land use: (i) compensating the loss of assets at replacement cost • The Project will make every effort to improve the living conditions of physically displaced persons by providing them with adequate housing with security of tenure in resettlement sites. • Development of the document developed the methodology for the "Zoning of Land Uses, Determination of Securities Ranges for Land and Infrastructure Compensation, Definition of Valuation Parameters and Negotiation Criteria", which establishes the limits or Land use classification boundaries, and value ranges for fair compensation for acquisitions or land use restriction resulting from Project implementation. • Resettlement activities will be carried out with appropriate dissemination of information, consultation and informed participation of affected persons. The Project Social Management team will ensure that these aspects are met. • It has an Office of Attention to Owners since September of 2015 which has among its functions: o Attention to the owners/owners of real estate located under the trace or any other person interested in obtaining information about the project. o Receipt of personal identification documents and property ownership. o Receipt of complaints and claims, not only by owners/owners of real estate, but also by any person who lives in the area of influence of the parcel of land, and who are directly involved who consider that they have suffered damage on their property by The teams that work in the field. This establishes a mechanism of	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			complaints to file appeals and aims to resolve disputes in an impartial manner.	
Construction / Operation	Alteration of quality and visual fragility	• Clearing and clearing of vegetation • Earth movement • Rehabilitation and construction of access roads • Rise of the towers • Laying the conductors	• The line layout and the right of way corridor design have been optimized to minimize impact and preserve the visual quality of the natural environment. Elements of the natural environment (for example, points of tourist interest or natural observation, churches or buildings with historical and heritage value, peaks and mountains, among others) have been taken into account to avoid intersection with them. • Design of TL route near the edge of agricultural or forest parcel of land in order to hide the lines in the dark background.	**Minor**
Construction	Occupational accident risk	• Construction of TL and infrastructure.	• EDP will ensure that the working conditions in the Project comply with the occupational health and labor standards of El Salvador. • The staff must be qualified to carry out the activities of the Project. • All employees will receive training in Occupational Health and Safety. • The contractor company will provide personal protection equipment and tools in good condition to all workers according to the activities they carry out. • Personnel shall wear appropriate personal protective equipment at all times and work at heights shall be carried out with appropriate safety measures (harness, gloves and insulation clothing), in accordance with the applicable legal requirements in this area. • The staff will have adequate and sufficient means to ensure adequate hydration and at least one hour of rest during the day. • If there are torrential rains during the removal work for the installation of the line, the work must be done with extreme caution or even suspended, while the rain lasts to avoid soil trapping and runoff.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			• All workers should be made aware of the importance of complying with all the above-mentioned measures in order to ensure adequate waste management, personal protective equipment and work tools in good condition, and to safeguard and preserve the biological and Environmental aspects of the area. • All access points to the Project sites will be clearly marked and will have security personnel.	
Cultural, Archaeological, Ceremonial and Historical Resources (Cultural Heritage)				
Construction	Alteration of the context or state of resources of Pre-Hispanic cultural heritage	• Terrain leveling; excavation for bases of and construction of the towers, access ways and establishments.	• Line design and right of way corridor design have been optimized to minimize the impact on underground cultural heritage resources. The findings have been taken into account and a second phase of the survey will also be carried out with the participation of representatives of the Ministry of Culture. There will be monitoring for incidental findings and an awareness plan for workers during the construction process.	**Insignificant to moderate (depending on findings during fase II)**
Operation	Restriction of access to cultural heritage resources	• Restricted access in the vicinity of right of way.	• Communication channel will be established to ensure relevant research on the resources identified in the trace and restricted access will add an additional level of protection to documented resources.	**Positive**

1.0 INTRODUCTION

1.1 *PURPOSE AND NECESSITY OF THE PROJECT*

The Republic of El Salvador is promoting its economic and social development with development projects and the diversification of its sources of electricity generation to increase the reliability of the country's energy supply. The purpose of the Transmission Line (TL) Project is to deliver electrical power to the Ahuachapán Substation (SE), which is interconnected with the Central American Interconnection System (SIEPAC), with a voltage of 230 kilovolts (kV). The project also includes the 115 kV interconnection with Acajutla SE to provide greater flexibility to the electricity distribution system in the country, as well as to make the necessary modifications and expansions in both substations, both Acajutla and Ahuachapán.

Among the specific objectives of the Project are the following:

- To create the necessary technical and operational conditions to construct and install an aerial transmission line that will be connected to the Pacific Power Thermal Power Station (CT EDP) in Acajutla to its point of connection with Ahuachapán SE;
- To seek the development of the Project in harmony with the environment and defend the ecology, following the current environmental regulations, with the least possible impact to the environment and effectively implementing all appropriate and required mitigation measures;
- Ensure that SIEPAC will not be subject to possible instability or collapse problems at the time of the energy injection; and
- Stimulate the local economy through the generation of direct and indirect jobs and trade with local companies dedicated to the supply of construction and maintenance equipment, and companies dedicated to providing services.

In 2013, the Transmitter Company El Salvador (ETESAL), which is in charge of the maintenance and expansion of the electric power transmission system in El Salvador, carried out an electrical chargeability study and concluded that the point of optimal delivery of the electricity generated by the CT EDP would be the Electrical Power Ahuachapán. The study was reviewed by the General Superintendence of Electricity and Telecommunications (SIGET), which approved the connection point.

2.0 DESCRIPTION OF THE PROJECT AND ITS ALTERNATIVES

The main objective of the Project description is to identify the main characteristics and activities of the Project during the planning, construction and operation phases of the Project. In this way, activities that could have an impact on the physical, biological and social environment of the Project area can be evaluated and quantified.

The project contemplates the construction of a 230 kV double-ended TL of approximately 44 kilometers (km) in length. The TL is part of the "LNG to Power" Energía del Pacífico's project, which consists of a) the construction of a Power Plant (Energía del Pacífico Central/Thermal Power Plant [CT EDP]) generating electric power, with a capacity of 380 megawatts (MW) based on natural gas, to be located in the Municipality of Acajutla, Department of Sonsonate, b) expansion of existing substations of Ahuachapán (230 kV) and Acajutla (115 kV), and c) the construction of the new Acajutla 230 kV electrical substation within the thermal power plant.

TL starts at the Ahuachapán SE, located in the vicinity of Los Ausoles Geothermal Plant; then passes through the municipalities of Ahuachapán, Apaneca, San Pedro Puxtla, Santo Domingo de Guzmán, Sonsonate and Acajutla; reaching the CT EDP, where the Acajutla SE will be built, which will have a double voltage transformation level, 230 kV for the interconnection with the Ahuachapán and SIEPAC substations and 115 kV for the interconnection in the Acajutla substation.

2.1 *LOCATION AND COMPONENTS OF THE PROJECT*

2.1.1 *Location of the Project*

The project is located between the parallels 13° 34' 47" (Acajutla SE) and 13° 55' 19" (Ahuachapán SE) of north latitude and meridians 89° 49' 51" (Acajutla SE) at 89° 47' 23" (Ahuachapán SE) of longitude west. Table 2.1-1 includes the location of the towers and Figure 2.1-1 shows the location of the Project. Appendix P shows the aerial maps of the LDT route in detail by segment: segment A, 16.2 km (from TP 1 to TP 51); Segment B, 20.4 km (from TP 52 to TP 128); And segment C, 6.7 km (from TP 129 to TP 151).

The TL from its connection with the Ahuachapán SE up to Tower 1 (TP 1), the TL will be with aerial cables (approximately 100 meters [m]), providing for higher towers to avoid crossings with existing facilities.

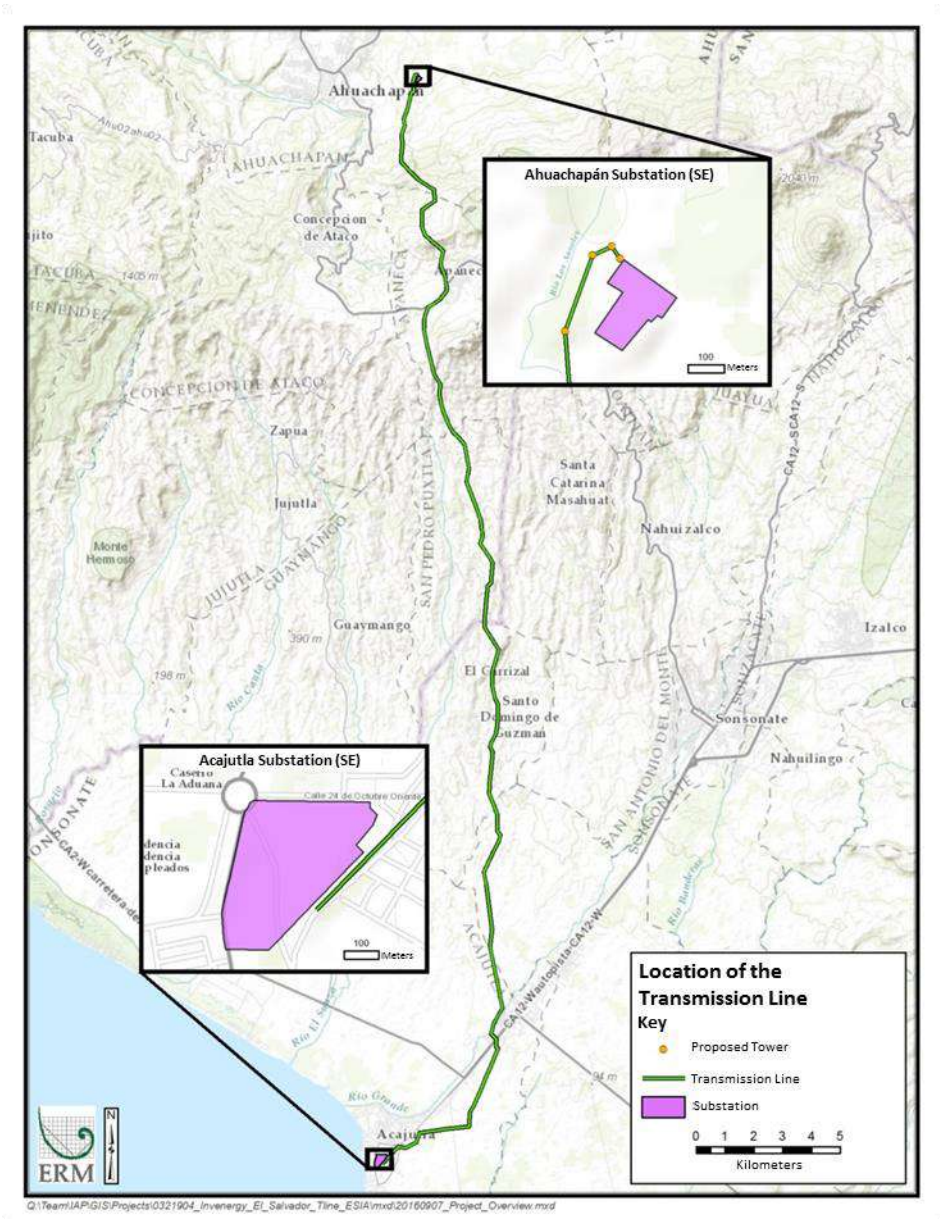


Figure 2.1-1 Location of the Transmission Line and Substations

The rest of the route will be aerial, with towers of varying height depending on the natural obstacles that the orography offers in order to adapt as much as possible to the terrain of the area. Where there are crossings with other distribution or transmission lines, it is planned to have towers of a higher height than the previous to be able to cross without affecting them.

Table 2.1-1 Number of Towers and their Coordinates

Tower Number	*Latitude X (meters)*	*Longitude Y (meters)*
TP 1	195434	1540991
TP 2	195379	1540966
TP 3	195303	1540757
TP 4	195332	1540390
TP 5	195238	1540352
TP 6	195190	1540111
TP 7	195111	1539782
TP 8	194961	1539444
TP 9	194999	1539221
TP 11	194881	1538899
TP 12	194914	1538588
TP 13	194884	1538249
TP 14	194858	1537960
TP 16	195198	1537587
TP 17	195440	1537332
TP 18	195700	1537165
TP 19	195994	1536985
TP 20	196025	1536593
TP 21	195795	1536436
TP 22	195565	1536278
TP 24	195558	1535699
TP 25	195684	1535406
TP 26	195851	1535253
TP 27	195933	1535178
TP 28	196292	1534849
TP 29A	196209	1534396
TP 29C	196346	1533980
TP 29F	196402	1533641
TP 29G	196399	1533469
TP 29I	196156	1533154
TP 29J	195959	1533037
TP 30	195758	1532919
TP 31	195614	1532477
TP 32	195612	1532134
TP 33	195645	1531928
TP 34	195698	1531637
TP 36	195775	1531309

Tower Number	*Latitude X (meters)*	*Longitude Y (meters)*
TP 37	195882	1530858
TP 38	195941	1530610
TP 39	196173	1530229
TP 40	196125	1529928
TP 41	196169	1529647
TP 42	196236	1529363
TP 44	196438	1528829
TP 44a	196581	1528562
TP 44b	196781	1528382
TP 45	196990	1528144
TP 45a	197029	1527909
TP 46	197141	1527311
TP 47	197093	1527102
TP 48	197036	1526868
TP 49	197170	1526503
TP 51	197318	1526099
TP 52	197468	1525694
TP 53	197510	1525533
TP 54a	197556	1525202
TP 56	197591	1524952
TP 56a	197495	1524708
TP 58	197822	1524207
TP 59	197932	1524037
TP 60	197915	1523873
TP 61	197888	1523605
TP 63	197866	1523325
TP 64	197728	1523199
TP 65	197725	1523041
TP 66	197699	1522805
TP 67	197657	1522418
TP 68	197615	1522042
TP 71	197641	1521767
TP 72	197788	1521532
TP 74	198105	1521022
TP 76	198000	1520658
TP 77	197953	1520493
TP 78	197896	1520295
TP 79	197868	1519794
TP 80	197960	1519347
TP 81	198049	1519148
TP 82	198064	1518943
TP 83	198050	1518509

Tower Number	*Latitude X (meters)*	*Longitude Y (meters)*
TP 84	198036	1518323
TP 85	197990	1518104
TP 86	197839	1517811
TP 87	197772	1517656
TP 89	197876	1517482
TP 90	197852	1517254
TP 91	197817	1516925
TP 92	197776	1516544
TP 94	197724	1516057
TP 95	197892	1515613
TP 96	197998	1515332
TP 97	197997	1515115
TP 98	197996	1514866
TP 99	197995	1514747
TP 100	198105	1514598
TP 101	198076	1514420
TP 102	197915	1514090
TP 103	197715	1513681
TP 105	197527	1513296
TP 106	197613	1512919
TP 107	197651	1512605
TP 108	197686	1512307
TP 110	197728	1511959
TP 111	197767	1511631
TP 112	197804	1511313
TP 113	197757	1511013
TP 114	197711	1510721
TP 114a	197790	1510326
TP 116	197863	1509966
TP 117	197935	1509606
TP 118	198007	1509246
TP 119	198081	1508881
TP 122	198139	1508592
TP 123	197973	1508309
TP 124	197830	1508065
TP 127	197734	1507695
TP 128	197929	1507496
TP 129	197896	1507251

Tower Number	*Latitude X (meters)*	*Longitude Y (meters)*
TP 130	197977	1507186
TP 131	197836	1506860
TP 132	197687	1506515
TP 133	197545	1506184
TP 134	197400	1505849
TP 135	197255	1505513
TP 136	197111	1505177
TP 137	196983	1505016
TP 138	196965	1504766
TP 139	196945	1504494
TP 140	196596	1504461
TP 141	196261	1504430
TP 142	195925	1504380
TP 143	195584	1504329
TP 144	195231	1504276
TP 145	195109	1503969
TP 146	194744	1503768
TP 147	194491	1503790
TP 148	194281	1503597
TP 149	194082	1503414
TP 150	193953	1503414
TP 151	193894	1503414

2.1.2 *Area of Influence of the Project*

The area of influence is defined as the geographical reference frame in which the environmental analysis and evaluation of the Project will be carried out. It is the territory where potentially the impacts of the work on the totality of the environment or on some of its physical, biological, socioeconomic or historical-cultural components are manifest.

The area of influence of the Project was estimated taking into account the extent and magnitude of the work, as well as safety standards established for this type of project. For this Environmental Impact Study (EIS) two types of influence area have been defined that are described below:

- Direct Influence Area (DIA): corresponds to the right-of-way strip of 38 meters wide, as well as the location of the towers, access roads and temporary areas of machinery collection and construction support. The width of the right of way complies with the maximum width set forth

in Section 2 of the Rights of Way Constitution Act for National Electrification Works and provides a sufficient distance to provide sufficient space for construction and maintenance activities and to ensure That the electromagnetic field is insignificant at the edge of the right-of-way fringe.

- Project Indirect Influence Area (IIA): it is defined as the physical space that can potentially be affected by any of the Project components, outside the Project area. Consequently, the IIA is the territory in which the impacts occurring in a different location to where the action generating the environmental impact occurred and in a deferred time in relation to the moment in which the action provoking the impact occurred. This area must be demarcated, depending on the scope of the impact, with some type of delimitation, which may be geographic and/or political-administrative.

In the first instance, the following delimitation criteria are considered, not necessarily mutually exclusive:

• Areas with an administrative political definition. It refers mainly to the six municipalities that surround the area through which the project is taking place: Ahuachapán, Apaneca, San Pedro Puxtla, Acajutla, Sonsonate and Santo Domingo de Guzmán. These municipalities are within the departments of Ahuachapán and Sonsonate. Acajutla and San Pedro Puxtla are the largest populated centers in the study area.

• Relationships or direct flows between populated centers and economic and productive activities.

For this study, the IIA of the Project was determined primarily on the basis of socio-economic criteria, mainly near populated places, roads, properties and structures. In addition, environmental factors such as the presence of areas with forests and the existence of wildlife and protected areas were considered. In order to cover a representative surface of the environmental aspects in TL mentioned above, the IIA was established as the space from the boundary of the DIA to the distance where 100 m is covered on both sides of the Project alignment.

2.1.3 *Project Components*

The execution project of the CT EDP also includes the implementation of the following high voltage installations that allow the connection of the power plant with the electrical interconnected system of El Salvador:

- Expansion of existing substations of Ahuachapán (230 kV) and Acajutla (115 kV);
- Construction of a new electric power plant Acajutla 230 kV inside the grounds of the CT EDP;
- Construction of a 115kV Transmission Line between the CT EDP and the Acajutla SE of 115kV; and
- Construction of a 230 kV Transmission Line between the Ahuachapán and Acajutla substations of 230 kV.

For the purpose of this EIS, this project considers the Transmission Line 230 kV between the Ahuachapán and Acajutla substations, the construction of the new electric power plant Acajutla 230 kV within the grounds of the CT EDP, and the adequacy of Ahuachapán SE.

2.2 *AHUACHAPÁN AND ACAJUTLA SUBSTATIONS*

The CT EDP will be held in the city of Acajutla, Acajutla Municipality, on the Pacific coast of El Salvador. Energía del Pacifico will build a 380 MW Combined Cycle Power Plant with 19 MW engines. The Acajutla SE will be installed in the same plant, which includes the output of the transformers that raise the generating voltage to 230 kV. This substation will be of the compact type and will have two 230 kV line outputs to the Ahuachapán SE (Double Terna) and two 115 kV outputs to the Acajutla substation at 115 kV. These last two substations are owned by ETESAL (Transmitting Company of El Salvador, see Figure 2.2-1).

The Ahuachapán SE, located near the Los Ausoles Geothermal Plant, has a 230 kV key yard, the installation to the exterior of the plant and a switch-and-a-half bar connection system, should be extended through implementation of a bay for the connection of two 230 kV lines from the Acajutla SE 230 kV (see Figure 2.2-2).

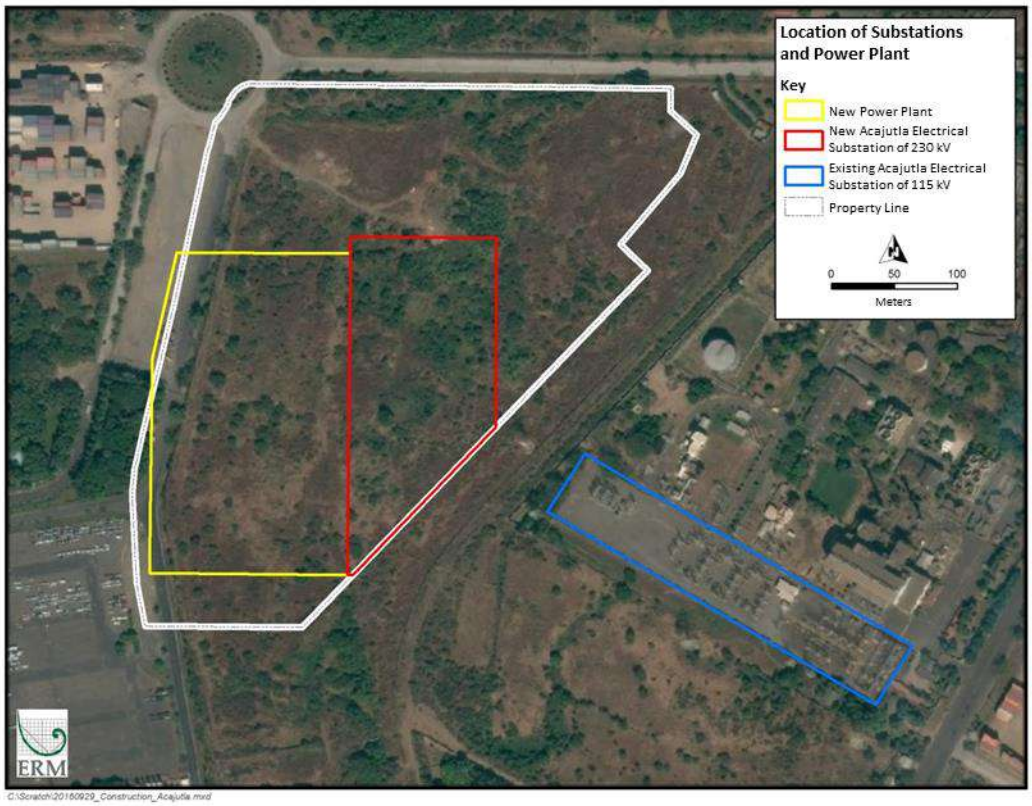


Figure 2.2-1 Location of the New Acajutla Electric Substation of 230 kV Within Energía del Pacífico Central Power Plant territory and Acajutla Substation of 115 kV



Figure 2.2-2 Location of Ahuachapán Electric Substation at Los Ausoles Geothermal Plant

2.3 *TRANSMISSION LINE 230 KV AHUACHAPÁN - ACAJUTLA*

The TL 230 kV between the Ahuachapán and Acajutla substations is located across the Pacific Ocean and crosses a coastal area and a mountainous area. It also runs an urban area and farmland. The output of the 230 kV two-thirds of the Acajutla SE will be made with aerial cable, to which the arrival at the Ahuachapán SE. The rest of the trace will be an aerial double terna with metallic structures.

The main characteristics of TL are:

- Rated voltage system: 230 kV
- System Frequency: 60 Hz (Hertz)
- Maximum voltage between phases: 245 kV
- Maximum power to be transmitted: 295 MW
- Approximate length: 44 km
- Number of ternas: 2
- Number of conductors per phase: 1
    - Configuration: Vertical for phases and horizontal for guard wires
- Guard cables: 2 [one of alumoweld (aluminum coated braided steel wires) and the other of OPGW ("optical fiber composite overhead ground wire") optical fiber]
- Structures: Self-supporting galvanized steel lattice type
- Number of structures: Approximately 139 lattice towers

2.3.1 *Main Characteristics of Transmission Line Structures*

2.3.1.1 Towers

For the installation of the project's aerial transmission line, the construction of 139 electric towers is planned. The towers shall be constructed of galvanized steel in latticework, in double-stranded configuration with vertical arrangement of the circuits, as shown in Figures 2.3-1 to 2.3-3.

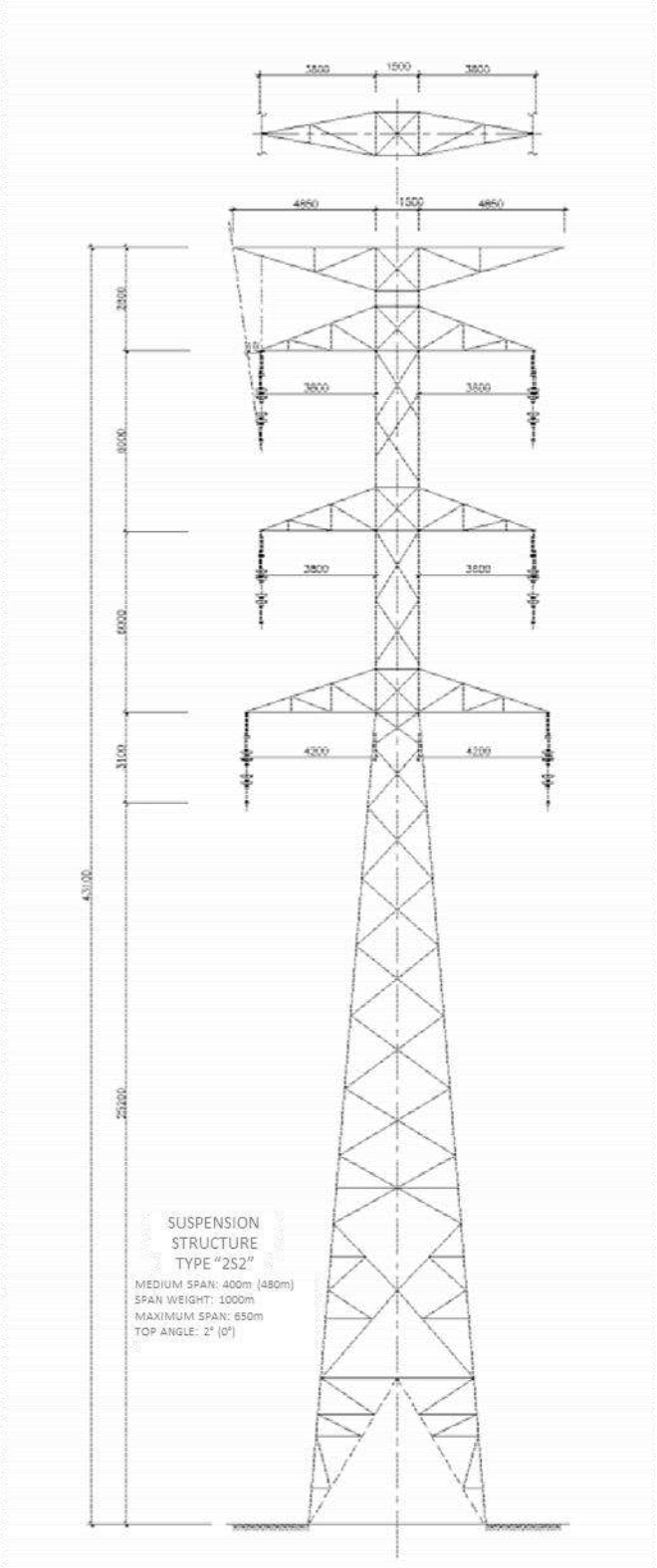


Figure 2.3-1 Suspension Tower 2S2

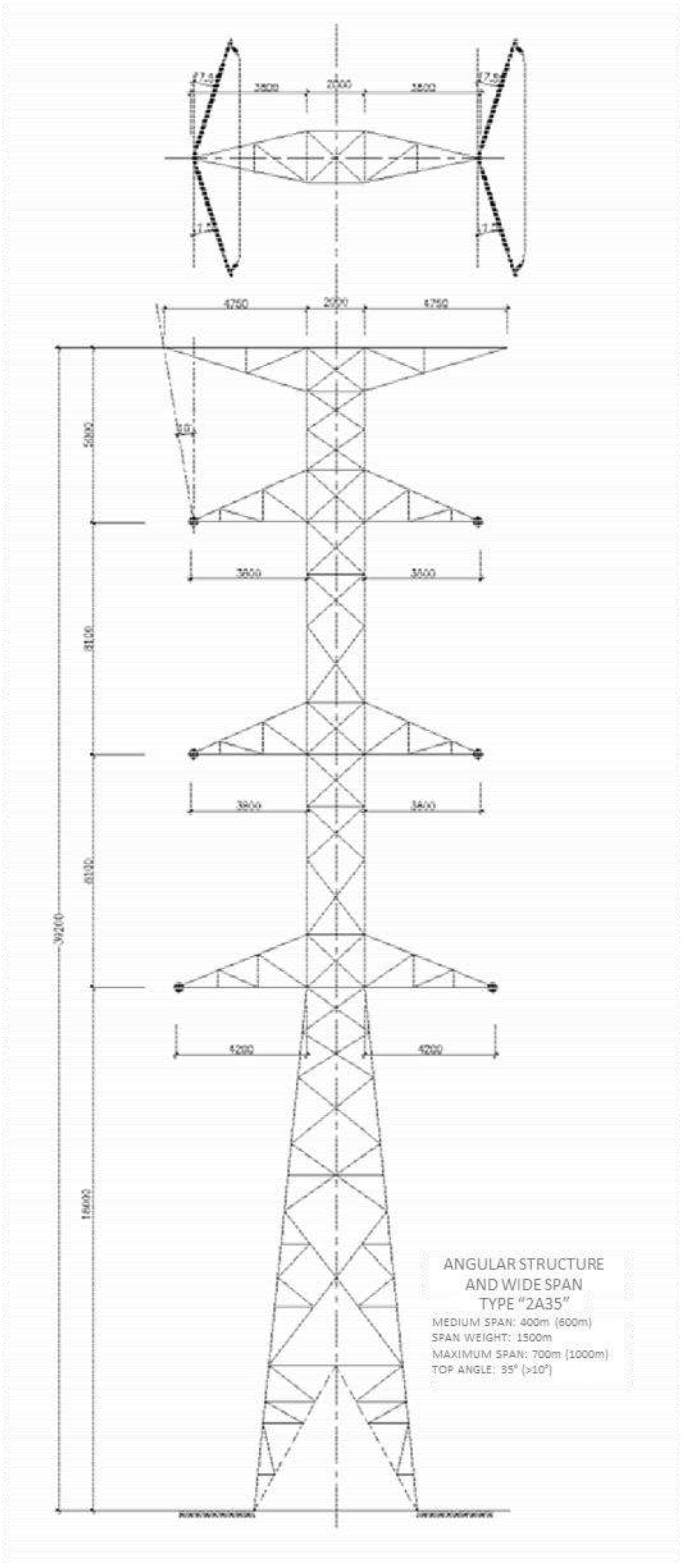


Figure 2.3-2 Angular Tower 2A35

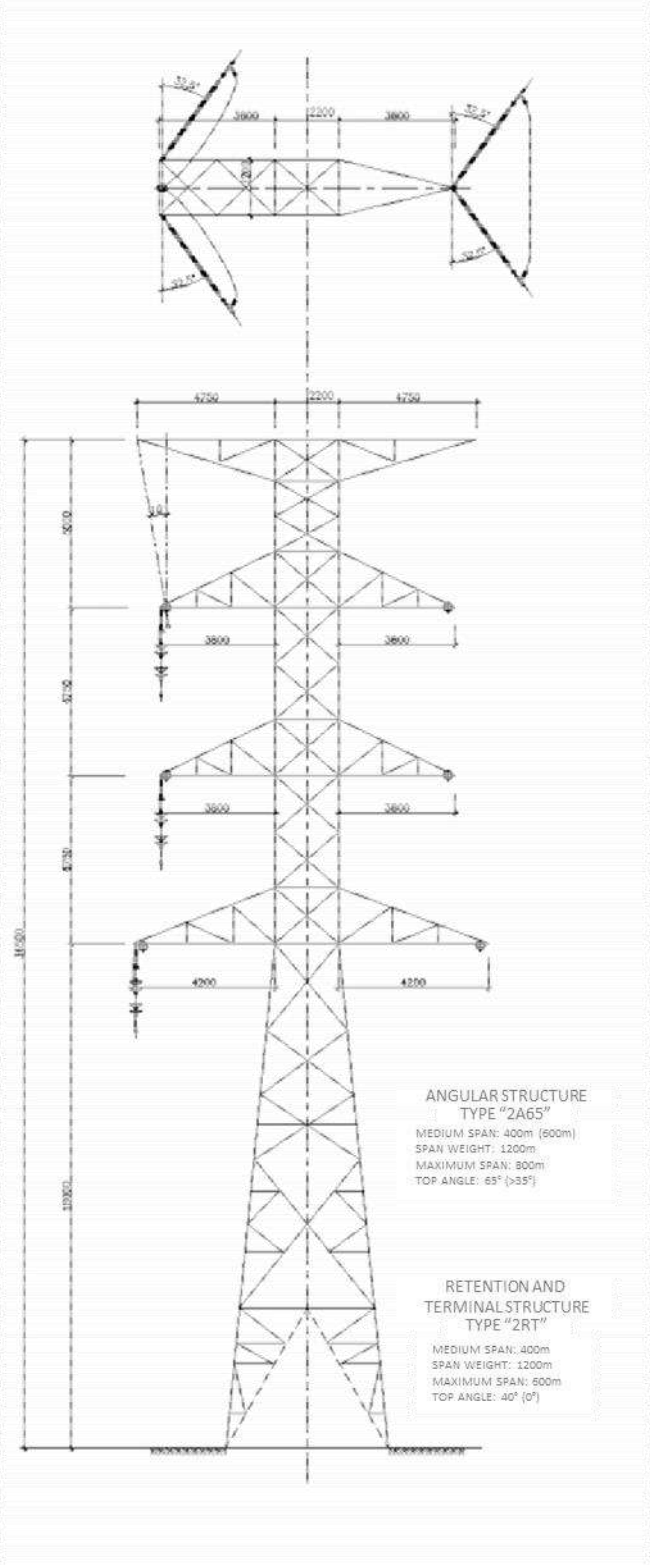


Figure 2.3-3 Tower 2S65 and Retention and Terminal Tower 2RT

2.3.2 *Foundation of the Towers*

- The available area for the foundations of the towers is 10 x 10 m (100 meters square [m^2]). The dimensions of the foundations for each type of tower strictly obey a civil-structural design which considers the loads or weights, tensions and efforts, as well as the conditions of the structures and terrain conditions, among others.
- The types of foundations consider the proper mixing of their components according to laboratory tests which determine the type and quantity of components (gravel, sand, cement, iron and sand). For the purposes of this study two classes of normal and special foundations are defined:
- **Normal:** those foundations that will be supported in the types of soils described by the study of previously developed soils, in the particular technical specifications or in the design drawings. Also, included in this group are foundations for which, due to local conditions of the terrain, it will be necessary to modify their design and adapt them.
- **Special:** are those foundations that will be supported by a special type of soil by its nature according to the result of the study of soils developed for the design, either by low support capacity or other conditions.

2.3.3 *Description of the Project Stages*

This section describes the stages of the Project including planning, construction of works and operation of the system. The number of personnel and their specialization vary from one stage to another.

This section also includes the dismantling and abandonment of temporary work areas during construction as the closing stage of the construction phase. The stage of abandonment of the work is not described since it must be in operation for more than 20 years. The main tasks and activities in stages are described below.

2.3.3.1 Planning

The planning stage includes site survey, topography survey, geotechnical/geological studies and soils, resistance analysis of existing materials and zoning of the terrain. These activities provide the basis for designing the location of the Project equipment: towers, drivers, roads and access.

During this stage, the estimated workforce is approximately 20 people. This staff will be responsible for collecting and elaborating the field information necessary to design TL. No works that may damage the environment, due to their occurrence and duration, will be executed at this stage.

The main activities to be carried out during the planning stage are described in the following sections:

Line Drawing Selection

It includes the development of the necessary engineering for the accomplishment of the topographic and geotechnical studies, investigations and calculations in order to design the tracing of the electrical line. This includes the definition of the different alternatives selected, analysis of each of them and verification in the field of their viability, both technical and the impacts that could be generated in the environment as well as acceptance by affected owners, to select the location of each component of the transmission line.

Geotechnical study

It is a local study to obtain the data and information base and to be able to specify the environmental conditions that will be applied to the design of the power line. The geotechnical study determines the bearing capacity of the soil and its geological characteristics to be able to design the components of the power line (for example, foundations of towers, study of the type section of the roads to be built and study of slope design, among others).

Topographical Survey

Topographic works included a topographic survey of the projected direct influence area. These topography works required a pruning and minimal felling to establish the visual within the study area to proceed to the study of sites, looking for the optimal solutions.

Selection of Power Line Components

With the previous data that were obtained, a selection of the components that conform the power line was made, according to the specifications given to fulfill the objectives of the Project.

Permit Management and Obtaining

Before starting any type of work in the area, you must obtain the respective permits of passage of the owners that will be affected. This entails initiating conversations with each of them, explaining what the Project and its activities are, its importance and the formal request to the owner by the promoter to access their land in order to carry out the relevant studies and execute the Project.

Some of the recommendations that will be derived from this EIS will be incorporated during the project planning and design stage, and others will be incorporated later. It will be considered as the final design, the version that has the approval and seals of the different competent entities.

2.3.3.2 *Construction*

The transmission line will be constructed using conventional construction methods, such as:

- Mobilization and construction of temporary and permanent facilities
- Recruitment of labor
- Cleaning of the right of way strip
- Access Routes - construction of temporary and permanent access roads
- Construction materials
- Construction of foundations
- Assembly and arming of the towers
- Laying of conductors and cables
- Emissions and waste management

Mobilization and Construction of Temporary and Permanent Installations

The first working groups to be mobilized to the Project site will carry out the preliminary work necessary to support the construction phase.

This preliminary work will consist of, but will not necessarily be limited to, the preparation of internal access roads and the temporary construction of personnel camps / locker rooms, storage yards and adequate disposal facilities, transfer of materials and general provisions to Patios of storage, as well as mobilization of machinery. All temporary

structures will be prefabricated metal mounted on a platform of trucks of different tonnages.

In those cases, where it is necessary to open new access roads within private properties, they will be enabled by consensus with the affected owners, adjusting to their needs and conditions. It is anticipated that the construction of transmission lines will be extended for a period of 24 months.

Due to the proximity of the Project area to urban centers, it is anticipated that there will be no need to build temporary or permanent camps for the accommodation of contracted personnel for the construction of the Project. Instead, temporary shelters (a maximum of nine) will be built for the storage of tools, equipment and, among other things, will include spaces for workers to change clothes and clean up, in addition to portable toilets. The facilities will be supplied with water and appropriate collection of waste water and solid waste.

For the construction of the line, the option of less impact will be chosen. The construction contractor will be responsible for leaving the construction area equal to or better than as found at the time of its arrival at the place of work.

Recruitment of Manpower

The recruitment of personnel will follow the guidelines of the Ministry of Labor of El Salvador and the rules of procedures of the construction company. All labor necessary for the construction will be of local character, with the exception of the engineering personnel leading the Project; so there will be no employee camps.

In general, at this stage approximately 200 people will work. The workers must be qualified in techniques of civil construction, erection of towers and wiring, among others. Most of the jobs will be direct, within which there will be qualified personnel, such as engineers, middle technicians and masters of works and squares distributed between construction workers and helpers. The indirect jobs to be generated are 30 places, which will correspond to subcontracts and other services related to construction, such as transportation of materials, sale of meals, water supply and others.

Cleaning the Right of Way Strip

The work consists of clearing the land and removing the vegetation layer in the area where the towers are installed using construction equipment such as bulldozers or backhoes in poor access areas and tractors in those with better access. The rest of the right of way strip will be pruned where necessary. In those places where the felling of trees is required, the corresponding permit will first be obtained by MARN. Said logging shall be carried out manually by means of gangs equipped with chainsaws, with the prior authorization of the MARN. Stumps and roots will be removed in those sections where necessary.

Although the right of way of the transmission line will be 38 m wide, the nominal width of the laying will be between 10 and 12 m wide. Said width will be determined by the type of structure to be constructed. No logging is foreseen in the right of way belt. The pruning of trees that is necessary along the strip of right of way will be done in such a way that, without neglecting the safety distances, allow the trees that only need to be pruned, are not severely affected and die. In the cultivated areas will be followed the indications of the owners of the properties.

For the construction of the towers, an area of 10 m x 10 m will be used during construction, with a maximum area 35 m x 35 m around each tower to allow the hoisting and tensioning of the cables during construction. During the operation, an area of 7.5 x 7.5 m will be maintained for each tower.

Access roads

The access network necessary for the construction of the different components of the Project will be constituted by the following types of accesses:

- Main accesses, built from the existing public road network.
- Internal access, between the various work fronts and services.

In general, most of the towers have access roads, balated streets or dirt roads. Some towers do not have existing access; Such access shall be suitable for the construction stage. In addition, some accesses must be improved or extended for the circulation of the trucks. It is estimated that the traffic flow will be about 10 trucks per day per sector and/or tower.

During the maintenance stage, it will be 1 truck per month. Figure 2.3-4 shows the main (temporary and permanent) accesses to the Project.

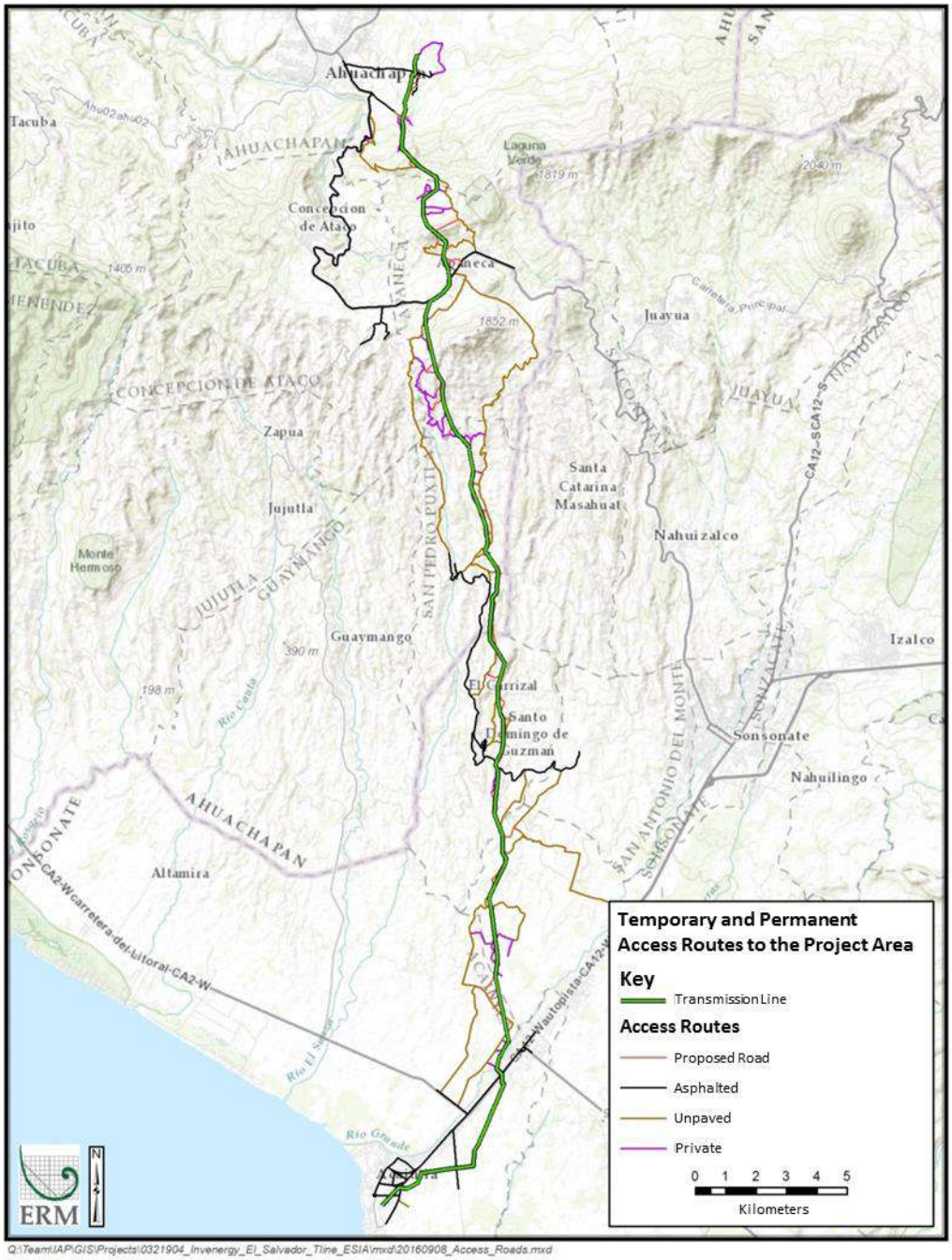


Figure 2.3-4 Temporary and Permanent Access Routes to the Project Area

Construction of Towers Foundations

The excavations for each tower will be 10 m wide by 10 m long, with a depth varying between 3 and 6 m, depending on the type of soil.

Once the tower is built, the footprint area is 7.5 m wide by 7.5 m long, giving an area of 56.25 square meters.

Foundation

During the process of foundation of the towers, the following technical aspects are considered:

- Pre-excavation considerations;
  - Verification of location,
  - Tracing,
  - Security, and
  - Weather conditions;
- Works of excavation;
  - Signs of excavations,
  - Deposit of excavated material, and
  - Method and equipment;
- Completion of excavation;
- Preparation of the iron grill;
- Installing the Iron Grill;
- Process of casting - preparation of the mixture of cement and concrete; and
- Casting process - emptying.

Assembly and Arming of Towers

In the case of lattice towers, there are several methods of assembly and assembly in the industry. When it comes to assembly, these vary from manual assembly "piece by piece" to those assisted by helicopter. The method to be used will depend on variables such as: type of terrain, climatic conditions, restrictions of environmental regulations, access to the route of the line, program of execution of the builder, availability of manpower and equipment by the builder between others. However, it is expected that the assembly and reinforcement of the towers will be manual and crane assisted. The selection of the method to be occupied

will depend on the parameters mentioned above. Appendix Q describes in detail the activities that relate to structure, tensioning and driver lifting between towers of the LDT.

Wiring of Conductors and Cables

The laying of phase conductors and guard conductor refers to all activities related to placing the conductors one by one in the chain of conductors and fittings. Electrical and hydraulic guidewires, brakes and "winch", with preferably electric motors driven by portable electric plants powered by gasoline combustion engines, are used for phase and guarding. (See Appendix Q)

For cable laying activities, small cranes of the appropriate capacity are used to transfer one by one the cable reels to be used in the area. The cable reel is placed in the right of way strip and entered by prepared accesses for the handling of materials and others. For the laying of cables, brake and winch equipment are anchored with wind-type auxiliary legs to the ground to avoid over-stressing of the conductors caused by accidental displacements of the equipment. (See Appendix Q)

Construction Materials

The main building element in civil works will be concrete and concrete blocks, as well as reinforcing steel rods for foundations.

The concrete, sand, gravel (crushed stone), additives and cement components will be moved, as and when required, from the cities of Acajutla or Sonsonate, approximately 19 km from the Project. The water for formulation and curing will be taken from small cisterns mounted on trucks.

To position the bodies of the towers, will use crane, trucks and four-wheel drive trucks, small concrete mixers, devices of traction of cables (winches) and other type of equipment that facilitate this work and assurance of the same with concrete. Here is some additional equipment to be used:

- For the improvement and opening of access roads and cleaning of the right of way: crawler tractors, front loaders and trucks for waste disposal.
- For the collection and transport of materials (cement, sand, crushed stone), metal profiles for the tower, fittings, insulators and cable reels, platform trucks and dump trucks will be used, as well as cranes and loaders.
- For the transportation of personnel will be used trucks or four-wheel drive trucks.
- For the handling and transport of fuel for power generators, sealed barrels with a device for the transfer of fuel will be used. These barrels will save fuel according to project needs.
- Materials will be transported using cargo trucks, and in some cases light trucks will be used. These include those used for the foundations of the tower, as well as fittings, insulators and cable reels for the assembly of the line.

Emissions and Waste Management

Atmospheric Emissions

Emissions to be generated will be by release of carbon monoxide from the cargo trucks, equipment and machinery needed to lift the armory of the towers. In addition, gas release will be generated by on-site painting of the armory.

Liquid Waste

To handle sewage water during the construction phase, portable sanitary modules will be used. There will be at least one portable toilet for every 15 people and will be given daily treatment with detergents and biodegradable additives. The company that rents these devices will be responsible for the final disposal of solid waste from these toilets.

Solid Waste

Solid waste such as cement packing bags will be used as caulking material in the formwork of smaller structural elements. Other materials such as wood residues from niveletas, formworks and similar works, will be stored in the collection sites and then delivered to the different municipalities for their proper treatment. The same treatment will be

given to the debris and waste from construction. Solid waste from food or other activities during the construction stage will be stored in covered containers and will be delivered daily to the collecting trucks of the different municipalities. Solid waste of human origin will be handled in portable latrines, with the company in charge of providing this service who will take care of the disposition of the same, according to the conditions of its operating license.

Noise and Dust

Noise generated during construction will not exceed those established by any municipal ordinance or regulatory act. The dust generated by the construction and transit of material loading trucks will be mitigated by the irrigation of the roads and access to the right of way and within the right of way. Such irrigation will be by means of water pipes.

2.3.3.3 Operation and Maintenance of the Power Line Operation

Operation

Once the construction of the transmission line is completed, the last step before the start of operation is the tests. The transmission line will have preventive and corrective operation and maintenance protocols.

Tests

TL testing and commissioning includes the following and tests and inspections:

- Conduct an inspection of visual type the state of each of the structures that make up the TL;
- Documentation - the supporting documentation evidencing the construction process such as worksite logs is thoroughly reviewed;
- Measurement of ground resistance of each of the cable descramblings of the tower structure to the grounding rods;
- Optical fiber power tests;
- Testing of the chain of insulators;
- Sequence and phase continuity tests;
- "Hi-Potential" insulation test;

- Line lightning arrester test;
- Measuring line parameters;
- Rated voltage; and
- Thermography.

Line Maintenance

Periodic Reviews and Line Maintenance Work

Periodic inspections and preventive maintenance work respond to the annual maintenance program that will be developed for the transmission line. These activities follow the following stages of execution: inspection to determine maintenance and repair needs, execution of preventive maintenance activities on electrical components of the line during the summer (eg broken isolators, conductor damage, ground leads, of conductors, grid measurement to ground, application of paint, replacement of other deteriorated components); Preventive maintenance and repairs of structural components of the system during the rainy season (construction of deteriorated parts of structures, maintenance of foundations, especially in structures with more than 10 to 15 years).

Some of the repair and maintenance activities are performed and inspected by EDP staff, others are subcontracted. The normal equipment used in these usual repairs consists of an all-terrain vehicle, and the tools of the work, not being necessary the use of heavy machinery. All towers that have direct access will not have greater inconvenience of access for their maintaining. For towers that do not have assigned access roads, the crews must arrive through the right of way of passage to them for their maintenance.

Vegetation Control

During routine periodic checks the growth of the trees and climbers is monitored, which is expected to interfere, by its height or dimension, with the line. These feet shall be trimmed so that, as it grows, its branches approach the conductors at a distance less than that of safety.

In general, two pruning activities are carried out per year. The service will be subcontracted and inspected by technical staff of the Promoter or a subcontractor, following the technical specifications defined for such purposes.

This activity will be carried out by EDP or subcontractors, in relation to the management of pruning and logging permits and coordination of the accompaniment of MARN inspectors in the required inventories.

Maintenance of Drainage and Access Routes

The maintenance needs of drains and access roads depend on the design and construction conditions of these works. The maintenance actions of the drainage network and access roads are limited, due to the extension of the same.

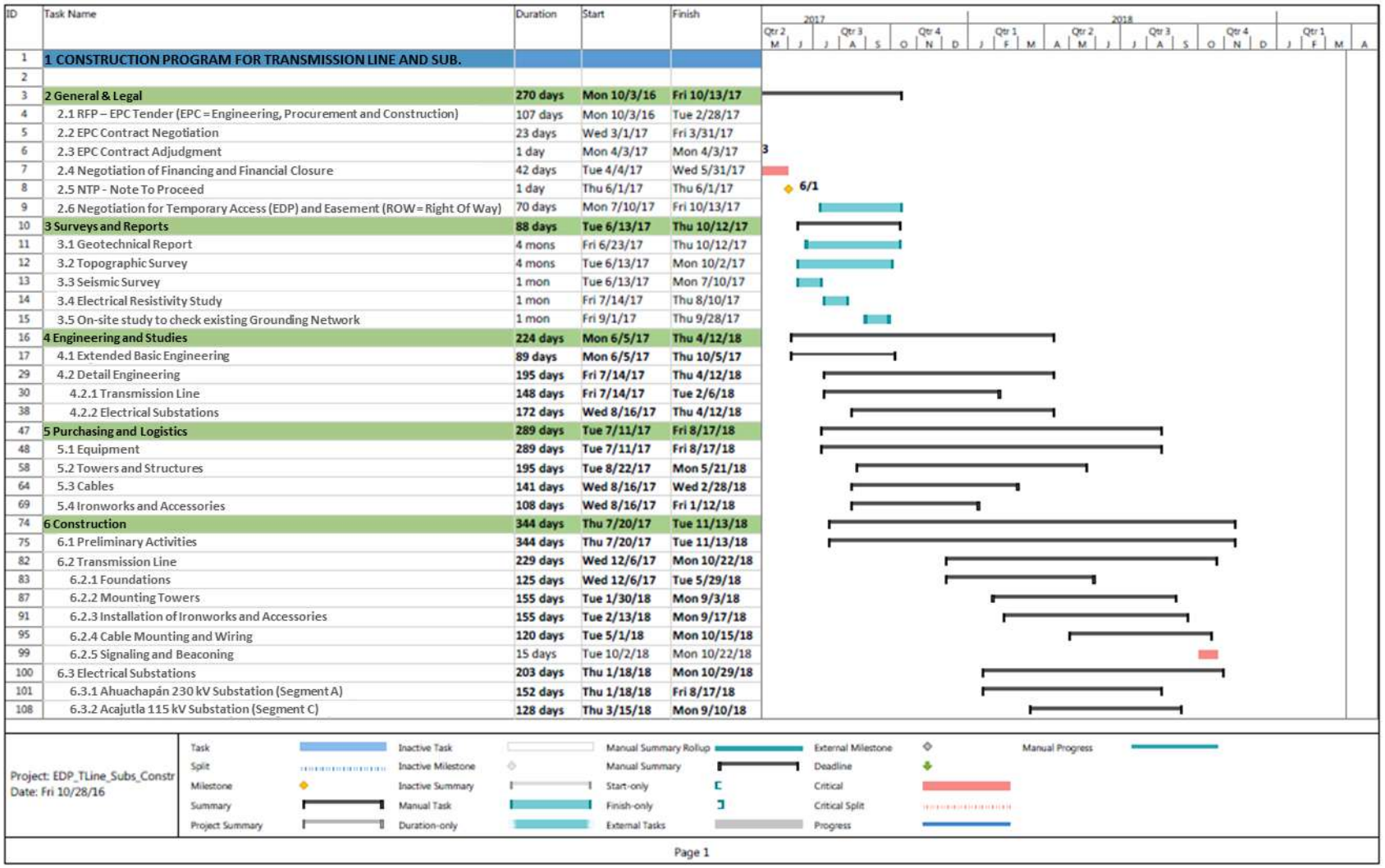
Emissions and Waste Management

In the operation and maintenance stage of the Project, they will not generate atmospheric emissions, liquid waste or dust. Solid waste such as paper, cans and plastic originated from the maintenance of the transmission line; as well as any paper or derived plastic, will be placed in containers with lid separately and delivered to the different municipalities for their respective treatment.

The noise generated by the maintenance of the transmission line will not exceed those established by any municipal ordinance or regulatory act.

2.4 *SCHEDULE OF PROJECT IMPLEMENTATION*

It is estimated that the Transmission Line 230 Kv Ahuachapán-Acajutla Installation Project will last approximately 24 months (see Figure 2.4-1).



ID	Task Name	Duration	Start	Finish
1	**1 CONSTRUCTION PROGRAM FOR TRANSMISSION LINE AND SUB.**			
2				
3	**2 General & Legal**	**270 days**	**Mon 10/3/16**	**Fri 10/13/17**
4	2.1 RFP – EPC Tender (EPC = Engineering, Procurement and Construction)	107 days	Mon 10/3/16	Tue 2/28/17
5	2.2 EPC Contract Negotiation	23 days	Wed 3/1/17	Fri 3/31/17
6	2.3 EPC Contract Adjudgment	1 day	Mon 4/3/17	Mon 4/3/17
7	2.4 Negotiation of Financing and Financial Closure	42 days	Tue 4/4/17	Wed 5/31/17
8	2.5 NTP - Note To Proceed	1 day	Thu 6/1/17	Thu 6/1/17
9	2.6 Negotiation for Temporary Access (EDP) and Easement (ROW = Right Of Way)	70 days	Mon 7/10/17	Fri 10/13/17
10	**3 Surveys and Reports**	**88 days**	**Tue 6/13/17**	**Thu 10/12/17**
11	3.1 Geotechnical Report	4 mons	Fri 6/23/17	Thu 10/12/17
12	3.2 Topographic Survey	4 mons	Tue 6/13/17	Mon 10/2/17
13	3.3 Seismic Survey	1 mon	Tue 6/13/17	Mon 7/10/17
14	3.4 Electrical Resistivity Study	1 mon	Fri 7/14/17	Thu 8/10/17
15	3.5 On-site study to check existing Grounding Network	1 mon	Fri 9/1/17	Thu 9/28/17
16	**4 Engineering and Studies**	**224 days**	**Mon 6/5/17**	**Thu 4/12/18**
17	4.1 Extended Basic Engineering	**89 days**	**Mon 6/5/17**	**Thu 10/5/17**
29	4.2 Detail Engineering	**195 days**	**Fri 7/14/17**	**Thu 4/12/18**
30	4.2.1 Transmission Line	**148 days**	**Fri 7/14/17**	**Tue 2/6/18**
38	4.2.2 Electrical Substations	**172 days**	**Wed 8/16/17**	**Thu 4/12/18**
47	**5 Purchasing and Logistics**	**289 days**	**Tue 7/11/17**	**Fri 8/17/18**
48	5.1 Equipment	**289 days**	**Tue 7/11/17**	**Fri 8/17/18**
58	5.2 Towers and Structures	**195 days**	**Tue 8/22/17**	**Mon 5/21/18**
64	5.3 Cables	**141 days**	**Wed 8/16/17**	**Wed 2/28/18**
69	5.4 Ironworks and Accessories	**108 days**	**Wed 8/16/17**	**Fri 1/12/18**
74	**6 Construction**	**344 days**	**Thu 7/20/17**	**Tue 11/13/18**
75	6.1 Preliminary Activities	**344 days**	**Thu 7/20/17**	**Tue 11/13/18**
82	6.2 Transmission Line	**229 days**	**Wed 12/6/17**	**Mon 10/22/18**
83	6.2.1 Foundations	**125 days**	**Wed 12/6/17**	**Tue 5/29/18**
87	6.2.2 Mounting Towers	**155 days**	**Tue 1/30/18**	**Mon 9/3/18**
91	6.2.3 Installation of Ironworks and Accessories	**155 days**	**Tue 2/13/18**	**Mon 9/17/18**
95	6.2.4 Cable Mounting and Wiring	**120 days**	**Tue 5/1/18**	**Mon 10/15/18**
99	6.2.5 Signaling and Beaconing	15 days	Tue 10/2/18	Mon 10/22/18
100	6.3 Electrical Substations	**203 days**	**Thu 1/18/18**	**Mon 10/29/18**
101	6.3.1 Ahuachapán 230 kV Substation (Segment A)	**152 days**	**Thu 1/18/18**	**Fri 8/17/18**
108	6.3.2 Acajutla 115 kV Substation (Segment C)	**128 days**	**Thu 3/15/18**	**Mon 9/10/18**

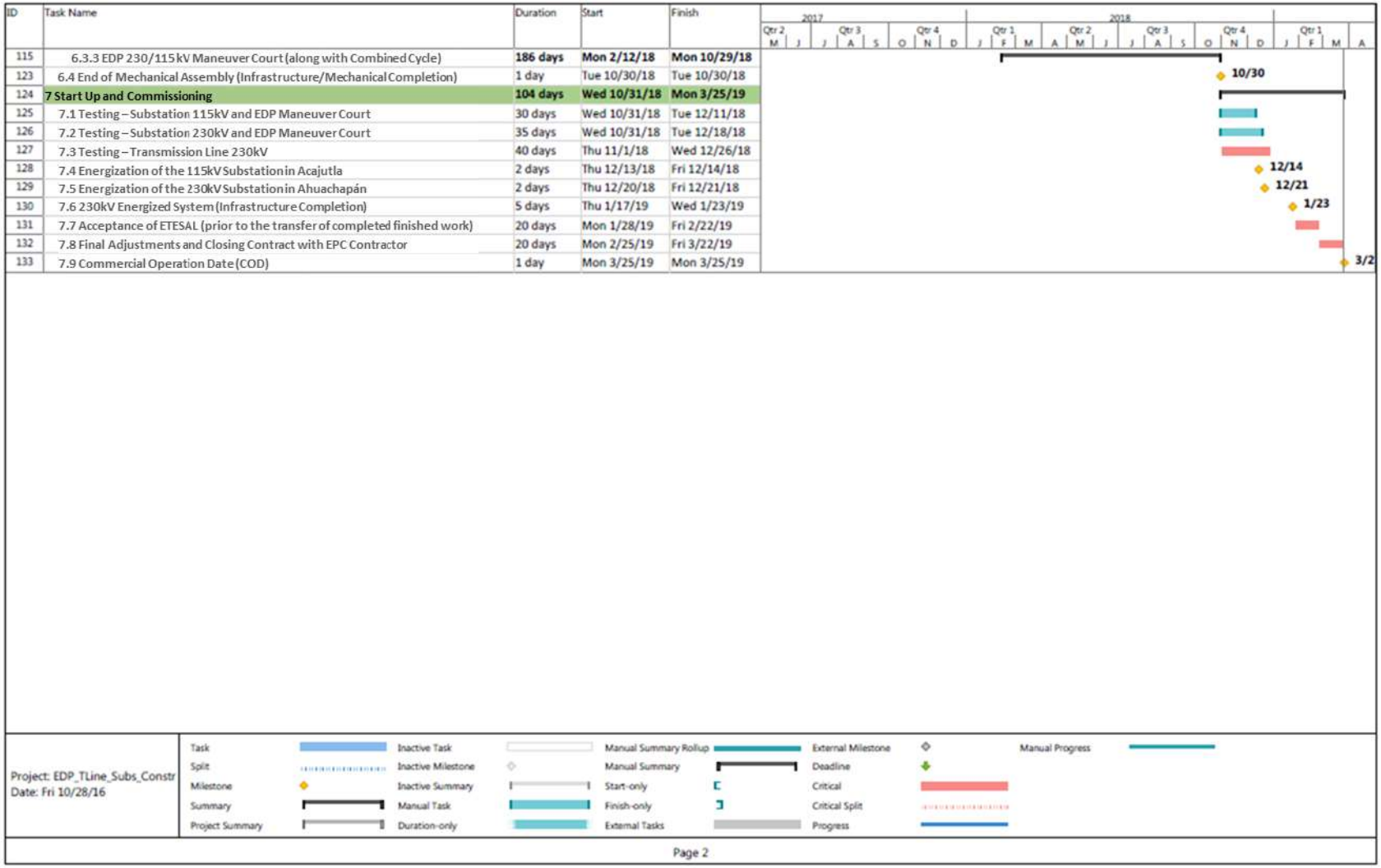


Figure 2.4-1 Transmission Line 230 Kv Installation Project Schedule

2.5 *ALTERNATIVES CONSIDERED*

2.5.1 *Selection of Sites for Substations*

Ahuachapán electric power station, located near Los Ausoles Geothermal Plant, has a 230 kV key yard, the TL Project includes the extension of switch type busbar connection system and medium on the outside of the plant, by building a new bay for the connection of two 230 kV lines from the Acajutla SE 230 kV. The positioning of the bay is the most suitable and optimal place for its connection with the lines coming from Acajutla SE and minimizes the removal of vegetation near the plant.

Acajutla SE will be built within the grounds dedicated to the construction of CT EDP in an industrial area of the city of Acajutla. The selection of the site optimized its connection with the TL of 230 kV towards the Ahuachapán SE and the substation Acajutla of 115 kV. EDP evaluated the positioning of the substation minimizing the removal of vegetation and connection with the plant and chose the most appropriate locality.

2.5.2 *Transmission Line*

Four main possible alternatives (traces) were identified for the transmission line connection from the Ahuachapán SE to the Acajutla SE (see Figure 2.5-1). However, to reach these four main traces, EDP performed a detailed analysis, in which the area of the route of the trajectory was divided into sections where technical, topographical, environmental, social and abstention aspects were evaluated by some Owners in the Project area. In Appendix R the trace alternative analysis is presented in detail.

All the route alternatives, from the exit in Ahuachapán generally travel approximately 33 km under the same corridor. By design, the distance of the traces in this section varies between one and the other approximately 30 to 750 m, which is insignificant. The difference between the four traces is significant near the CT EDP and its connection with the Acajutla SE and also when crossing the city of Acajutla.



Figure 2.5-1 Considered Transmission Line Alternatives

In environmental terms, in general the traces in the municipality of Ahuachapán and Apaneca cross first-line coffee plantations. In the municipality of San Pedro Puxtla they cross smaller crops or of season (sugar cane) and in municipality of Santo Domingo de Guzmán, Sonsonate and northern part of Acajutla cross by seasonal crops and grasslands. In social terms, all traces pass through a small urban area of Ahuachapán; from there they do not cross communities or populated areas. The trails pass approximately 700 m from the urban center of San Pedro Puxtla, and about 500 m from the urban center of Santo Domingo de Guzmán. There are some parcels of land where the traces pass less than 100 m from a house, but are isolated; independently, the distances to these houses are large enough so that there are no impacts (see Figure 2.5-1).

As shown in Figure 2.5-2, all traces are separated upon reaching Acajutla. These differences are described below.

2.5.2.1 Trace 1

La Traza 1 leaves the field of the CT EDP in the north direction until arriving at Boulevard 25 de Febrero; There it changes direction towards the Road to Acajutla, towards the northeast, covering approximately 1.5 Km; Then it changes direction again, towards the northwest, and once outside the zone of influence of Acajutla, continues in direction towards Ahuachapán.

Trace 1 implies the resettlement in several crosses as they are the Colonies IVU, Acaxual No.4, the Parcelation San Emilio and the Lotification El Milagro. These resettlements and the intense fragmentation of the land would have affected several families. For this reason, this alternative was eliminated.

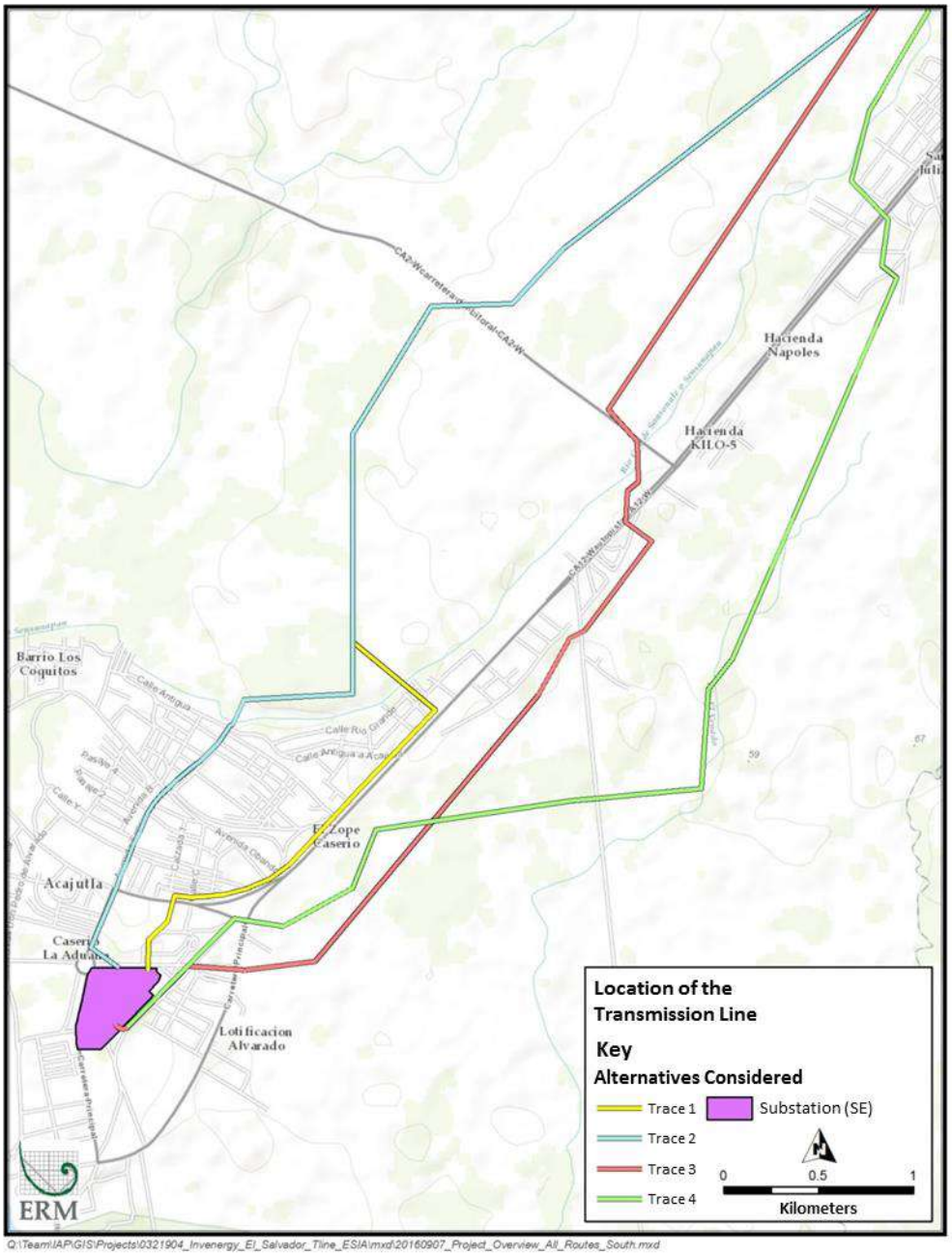


Figure 2.5-2 Alternatives of the Transmission Line in Acajutla Area

2.5.2.1 Trace 2

To minimize impacts to El Milagro Lotification, the alternative of Trace 2 sought to move away from this lotification, bordering it, and avoid transit through the colonies through which Trace 1 passed. The route of Trace 2 would use the central border of Boulevard Colonel Oscar Osorio, which later becomes Avenida Sensunapán, which is wide enough to place posts or even towers for the transmission line.

The use of thick posts of high altitude for the placement of the transmission line minimizes the impacts of the route; however, the construction of TL and the fact of crossing completely the City of Acajutla, increased the possibility that there is some type of opposition to the Project by the inhabitants, which led to eliminate this trace.

2.5.2.2 Trace 3

With Trace 3 it was tried to avoid completely the impacts in the City of Acajutla, bordering it by the east. This route would increase the length of the track by approximately half a kilometer, but would avoid affecting the City of Acajutla.

The route of Trace 3 leaves the CT EDT in an easterly direction, on Calle 24 de Octubre; then crosses Carretera a Acajutla and enters grassland or underutilized land; then it continues on the east, parallel to Carretera a Acajutla, crosses Calle a Los Cóbanos, arrives in areas near the community of kilometer 5 (Kilo 5) and crosses Carretera de Acajutla to the west, then Carretera del Litoral towards the north, heading already towards Ahuachapán.

This trajectory had enough viability with respect to the vicinity of Ciudad de Acajutla, but presented a social inconvenience when arriving at Kilo 5. The inconvenience was that it had to cross inhabited areas of Caserío Colima and Canton San Julián; in addition, certain private companies that refused the crossing permit would cross. These two situations resulted in the removal of Trace 3.

2.5.2.3 Trace 4 – Selected Trace

Trace 4 took as a base the route of Trace 3, moving away from Ciudad de Acajutla and the residential areas of Kilo 5, entering agricultural fields and pastures, and looking for a new area to cross Carretera de Acajutla. As a consequence, this trace would increase in length about 500 m with respect to Trace 3.

As with Trace 3, Trace 4 leaves the CT EDP on Calle 24 de Octubre in the eastbound direction; Then crosses Carretera a Acajutla, and enters grassland or underutilized land; then it continues parallel to Carretera a Acajutla, crosses Calle a Los Cóbanos; follow Carretera a Acajutla to the east, avoiding approaching Kilo 5, and finally find the optimal point to cross the road, heading west, finally heading towards Ahuachapán. The selection of the location of the crossing of Carretera a Acajutla was studied in detail so that the social impacts were minimal and for this reason Trace 4 was selected as the preferred one.

3.0 LEGAL AND REGULATORY FRAMEWORK OF EL SALVADOR

The applicable legal and regulatory framework refers to the legislative and regulatory requirements of the Salvadoran government.

3.1 *COMPETENT AUTHORITY*

In the Republic of El Salvador, public environmental management establishes general and specific competencies for different governmental bodies. These competencies fall mainly in centralized institutions, with specific responsibility for the use and management of territorial resources and the health of the population, but also environmental competences are recognized at local government level.

The main institutional bodies involved in environmental management are: The Ministry of Environment and Natural Resources (MARN), the Ministry of Public Health and Social Assistance (MINSAL), and the Ministry of Agriculture and Livestock (MAG).

3.2 *MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES*

In accordance with the provisions of the national regulatory framework, MARN is the institution with the greatest environmental competence. This Ministry is responsible for the formulation, planning and implementation of environmental policies and the rational management of natural resources; having therefore the competence to apply the corresponding law and its regulation.

In order to implement environmental management, the Environmental Law has created a National Environmental Management System (SINAMA for its achronym in spanish), which, under the coordination of MARN, is composed of the environmental units of each Ministry, autonomous institutions and municipalities of the Republic. Its main function is to give effect to the principles, norms and guidelines of the environmental management of the State.

3.2.1 *Ministry of Public Health and Social Assistance*

In accordance with the Health Code, the Ministry of Public Health and Social Assistance is responsible for controlling the environmental conditions that may affect the health and well-being of the population, and it is mandatory to control the quality and use of chemicals which may constitute a risk to human health.

3.2.2 *Ministry of Agriculture and Livestock*

Due to the competencies of this Ministry in what concerns the management and use of water resources and the conservation and management of the country's forest resources, the respective Irrigation and Drainage Law; and Forest Law, confer powers on the granting of concessions for the use and exploitation of surface water for productive purposes and exploitation of underground sources; As well as in relation to the use of the forests and management of the forest resource.

3.2.3 *Municipalities*

At the local level, the Municipal Code is the legal instrument that confers powers to the municipalities of the country to manage the environmental resources of their territories, allowing them, in coordination with the centralized instances, to issue municipal ordinances related to the protection and conservation of natural resources and the environment. In the case of the present Project, the municipalities of Ahuachapán, Apaneca, San Pedro Puxtla, Acajutla, Sonsonate and Santo Domingo de Guzmán are responsible for granting permission for the execution of the actions that the transmission line project entails.

3.2.4 *Other Relevant Institutions*

In addition to the instances already mentioned, other entities also have competence in this Project, which although not directly related to environmental management, are related by the type of activity to be developed, the location of the activity and the type of services required. These institutions are mainly:

- Autonomous Port Executive Commission (CEPA). Institution responsible for the port development of the country and whose port area of La Union, the infrastructure corresponding to this project.
- Ministry of Economy (MINEC) (Directorate of Energy and Mines). Branch of the executive, responsible for the national energy development policy.
- General Superintendence of Electricity and Telecommunications (SIGET): That is the entity responsible for dictating and administering the regulation in the matter of electric energy

3.3 *PROCEDURE FOR OBTAINING ENVIRONMENTAL PERMIT*

The owner of any project must consult the Environmental Law if his work or project requires environmental permission. If so, this should request the corresponding form in the Directorate of Environmental Management of MARN, completing the following steps:

3.3.1 *Presentation of the Environmental Form*

The owner must duly complete the environmental form received, placing in it all the information requested, under an affidavit and presenting the corresponding annexes, which include:

- Plan of location of the work or project activity, clearly indicating access to it,
- Documents proving the ownership or type of tenure in which the activity, work or project will be developed, and
- Photocopy of identity document if it is natural person or deed of incorporation of the corporation or company, if it is legal person.

According to Article 22 of the Regulations to the Environmental Law, in a period not exceeding 20 working days, the MARN will notify the owner, the subsequent steps to follow to obtain the environmental permit.

According to the foregoing, if it is determined that for the execution of the Project no environmental permit is required, the holder will receive the corresponding notification. Otherwise, it will receive the terms of reference that the required EIS must meet.

3.3.2 *Elaboration of the Environmental Impact Study*

For the elaboration of the EIS, the holder must contract the services of a multidisciplinary team of professionals, who must develop the study according to the terms of reference received. The holder has the responsibility to know the content of the EIS and to agree with it, before submitting it to MARN for its evaluation.

3.3.3 *Analysis, Evaluation and Technical Opinion of the Environmental Impact Study*

Upon completing the evaluation process of the EIS, the MARN will notify the owner of the result obtained, which may be a technical opinion with observations or the requirement of environmental compliance bond to approve it. In the first case, the owner must satisfy the observations to

continue with the process and in the second case he must render the corresponding bond as the final step of the process.

3.3.4 *Public Consultation of the Environmental Impact Study*

For those EIS whose results that reflect possibilities of affecting the quality of life of the population or of risks to human health and well-being or to the environment, through the MARN a public consultation will be organized so that the citizens express their concerns and take the necessary measures in the development of the project.

In this Project, the owner of the project will act in accordance with what is established in the corresponding resolution and the commitment to publish the results of the study in the most widely circulated newspapers in the country is accepted.

3.3.5 *Resolution, Compliance Bond and Environmental Permit*

In accordance with the Law, the evaluation and approval of the EIS, should not exceed a period of more than 60 working days, in the effective times that correspond to MARN and to make effective the environmental permit of this project, the holder must render the bond of faithful environmental compliance established by the MARN.

3.4 *GENERAL REGULATIONS*

In the national regulatory framework, based on what is expressed as the legal basis of the Magna Carta of the Republic, there are a number of laws that regulate its own area, the use, exploitation and management of renewable and non-renewable natural resources. Establishing in each case, the regulations applicable in the process of utilizing them, this framework stands out:

3.4.1 *Political Constitution of the Republic of El Salvador*

(**DECREE** No. 38 of December 15, 1983)

The Magna Carta of the Republic of El Salvador establishes as a duty of the State the protection of natural resources and the diversity and integrity of the environment, in order to guarantee sustainable development.

It is considered as a social interest the protection, conservation, rational use, restoration or substitution of natural resources, according to the terms established in the Law.

3.4.2 *Environmental Law*

(**DECREE** No. 233 of March 2, 1998)**.**

The purpose of this law is to develop the provisions of the Constitution of the Republic, regarding the protection, conservation and recovery of the environment; the sustainable use of natural resources to improve the quality of life for present and future generations; and regulate environmental management, public and private, and environmental protection as a basic obligation of the State, municipalities and inhabitants of the country; and to ensure the application of the international treaties or conventions concluded by El Salvador in this matter.

In their structure, they establish the general principles of environmental management in El Salvador, covering topics related to Environmental Policy, National Environmental Management System and citizen participation; to the prevention and control of pollution of renewable and non-renewable natural resources; management of protected natural areas and ecosystems; as well as environmental responsibilities.

Its Art. No. 4 declares of social interest, the protection and improvement of the environment. It establishes that public or municipal institutions are obliged to include in all their actions, plans and programs as a priority the environmental component; and that the Government is responsible for introducing measures that give an adequate economic valuation to the environment, according to the real value of the natural resources, assigned the rights of exploitation of them in such a way, that the citizen when acquiring them, use them with responsibility and sustainability.

To initiate operations of any activity, work or project, Art. 19 of the law establish that an environmental permit must be obtained and that it will correspond to the MARN, to issue such a permit, with approval of the corresponding EIS.

3.5 *REGULATIONS ASSOCIATED WITH THE PHYSICAL ENVIRONMENT*

In the area of regulations for social intervention on the physical environment, there are a series of laws and regulations, which address specific fields for the process of regulating the activities of the population, such as:

3.5.1 *Law of Irrigation and Drainage*

(**DECREE** No. 153 of November 11, 1970)

The purpose of this law is to regulate social actions in relation to the use of soil and water resources for the increase of agricultural productivity, for which purpose, it establishes norms oriented to the proper use of surface and groundwater, as well as the obligatoriness of treating the waste water, before discharge to the receiving bodies. The application of this Law has no relation with the project activities, since its infrastructure components, does not even consider works that have contact with bodies of water.

3.5.2 *General Law on Management and Promotion of Fisheries and Aquaculture*

(**DECREE** No. 637 of December 6, 2001)

This law regulates the fishing activities to assure the conservation and the sustainable development of the hydrobiological resources that owns the national territory, in waters jurisdictional of the sea, like in marine waters and inland water bodies; and designates the Ministry of Agriculture and Livestock (MAG), as the governing body and competent authority to apply its regulations.

Regarding hydrobiological resources (CAP II), Article 18 establishes that in order to determine the areas of aquatic reserve for the protection and conservation of hydrobiological resources, MAG will coordinate with MARN and other related institutions.

3.5.3 *Regulation on Water Quality, Discharge Control and Protection Areas*

(**DECREE** No. 50 of October 16, 1987).

It develops the principles contained in the Law on Integrated Water Resources Management and its Regulations, as well as Articles 100 and 101 of the Law on Irrigation and Drainage, concerning water quality, control of discharges and protection zones, with the purpose of avoiding, controlling or reducing pollution of water resources.

It establishes the mechanisms to take the appropriate and timely measures to regulate the activities that come to produce pollution of the waters and to harmonize the rational and integral use of the water resources with the protection of the quality of the same ones. Article 35, stipulates that discharges of solid, liquid or gaseous wastes can only be carried out when, in accordance with quality objectives, the physical-chemical and biological

conditions of the receiving aquatic environment are not prejudiced. Also, it regulates the waste that is discharged to the sewer system, according to contaminant limits, established as control parameters in the same regulation.

Due to its nature, this project is not related to this regulation, since its activity does not affect the use of water.

3.5.4 *Health Code*

(**DECREE** No. 955 of April 28, 1988)

With regard to the environment, the Health Code regulates prohibitions for the discharge of liquid waste pollutants to natural bodies, without prior authorization from the Ministry of Health; It also states that waste that by its nature or characteristics of danger should not be delivered to public sewerage services must have a treatment system authorized by said ministry. In any case, its content is not applicable to the characteristics of the Project.

3.5.5 *Special Regulation of Technical Norms of Environmental Quality*

(**DECREE** No. 39 of May 31, 2000)

Its objective is to determine the guidelines for the establishment of environmental quality technical standards in receiving environments and the mechanisms for the application of these standards, relating to the protection of the atmosphere, water, soil and biodiversity.

In order to establish the prevention, mitigation or compensation actions referred to in Article 20 of the Environmental Law, Article 6 states that the owner of any activity, work or project referred to in Art. 21 of the same law, the following shall be incorporated into the respective EIS:

- Determination of the physical and chemical characteristics of the ecosystem and the receiving environment in the area of influence of the activity, work or project, as established in the technical and specific guidelines issued by the Ministry for the corresponding studies;
- Determination of the type, quality and quantity of the discharges or emissions of the activity, work or project and the technical evaluation of the same. Consideration should be given to minimizing the

generation of discharges or emissions in order to prevent contamination in the different media, and

- Determination of the impacts caused by the discharge or emission in the ecosystem and the receiving environment in the area of influence of the activity and describes in its field of application the procedures for its compliance and the provisions for its control.

The spirit of these regulations practically does not interfere with the activities of the Project.

3.5.6 *Special Regulations on the Comprehensive Management of Solid Wastes*

(**DECREE** No. 42 of May 31, 2000)

This regulation refers to the management of solid wastes of domicile, commercial, service or institutional origin; industrial wastes and non-hazardous solid waste.

3.6 *REGULATIONS ASSOCIATED WITH THE BIOTETIC ENVIRONMENT*

Due to the nature of the Project, there are three regulations associated to the biotic environment that are more relevant and that are susceptible to condition criteria for their construction and management, each of which define the limits and scope of social action in use of the territory's resources.

3.6.1 *Regulation for the Exploitation of Salted Forests*

(**DECREE** No. 53 of May 28, 1969)

This regulation establishes the requisites and formalities necessary for the authorization of the use of the wood extracted from the mangrove forests and the debarking of the salted wood; and at the same time establish the provisions for its use.

In this case, although the transmission line runs in the vicinity of masses of salted forest, its activity does not interfere with the use of that resource.

3.6.2 *Law on Wildlife Conservation*

(**DECREE** No. 844 of April 14, 1994)

This law aims at the protection, restoration, management, use and conservation of wildlife; Its scope includes the regulation of activities such as hunting, harvesting, marketing and other forms of use and exploitation of this resource.

Its relation to the activities of the Project is relative, because although it is true that in the transept that defines the axis of the transmission line, wild animal species circulate, most of them are of terrestrial habits and the operation of the infrastructure will not affect its subsistence.

3.6.3 *Forestry Law*

(**DECREE** No. 852 of May 22, 2002)

The purpose of this Law is to establish provisions that allow the increase, management and sustainable use of the country's forest resources and the development of the timber industry. It establishes that the forest resources are part of the natural heritage of the Nation and the State is responsible for its protection and management.

It declares the country's forestry development from the establishment of the plantation to the final harvest and all its forms of added value to be of economic interest. Likewise, it seeks to establish the conditions to stimulate the participation of the private sector in the reforestation of the national territory, either for productive or protective purposes, being excluded from this regulation the Natural Protected Areas and the salted forests.

This law defines a series of provisions related to the conservation and use of forests in salted forests and sweet forests, forest closures, management of protected areas, forest reserves and national parks, among others.

In the case of this Project, its applicability is related to the need to comply with the international standards of electric lines, where the existence of trees in the path of the transmission line can constitute risks to the safety of the people.

3.7 *REGULATIONS ASSOCIATED WITH CULTURAL AND SOCIO-ECONOMIC ASPECTS*

In the regulatory framework of El Salvador, the relationship with cultural and socio-economic aspects that could influence the execution of this project is based on occupational safety and health, protection of cultural heritage, urban planning and construction, as briefly stated below:

3.7.1 *General Regulations on Safety and Hygiene in Work Centers*

(**DECREE** No. 7 of February 2, 1971)

The purpose of this regulation is to establish the minimum safety and hygiene requirements that must be met for the development of occupational work in the workplace. Regulates aspects related to buildings, lighting, ventilation, temperature, humidity, noise, medical examinations, water services and sanitary measures, order and cleaning, preventive measures, work clothes and other aspects that guarantee the minimum occupational risk of citizens.

This regulation corresponds to the forecasts that must be taken into account in the process of construction and operation of the Project, in which case it must comply with what expressly stipulated in it.

3.7.2 *Special Law for the Protection of Cultural Heritage*

(**DECREE** No. 513 of May 13, 1993)

In its article, this law defines the current legal framework, related to the rescue, investigation, conservation, protection, promotion, encouragement, development, diffusion and valorization of the Cultural Heritage of the nation.

For purposes of law enforcement, objects of paleontological interest, property related to history, the proceeds of authorized and unauthorized excavations, as well as archaeological discoveries, duly proven antiquities, other values that identify the archaeological and paleontological history of our territory.

Due to the fact that in the construction process of the transmission line a certain number of excavations are required for the anchoring of the towers that support the high voltage wiring, it will be necessary to undergo the conditions determined by this regulation.

3.7.3 *Law of Urbanism and Construction*

(**DECREE** No. 232 of June 6, 1951)

This Law establishes the general requirements, standards and procedures to be followed by natural or legal persons, in order to obtain the necessary authorization for the development of urbanizations, subdivisions and all types of construction projects.

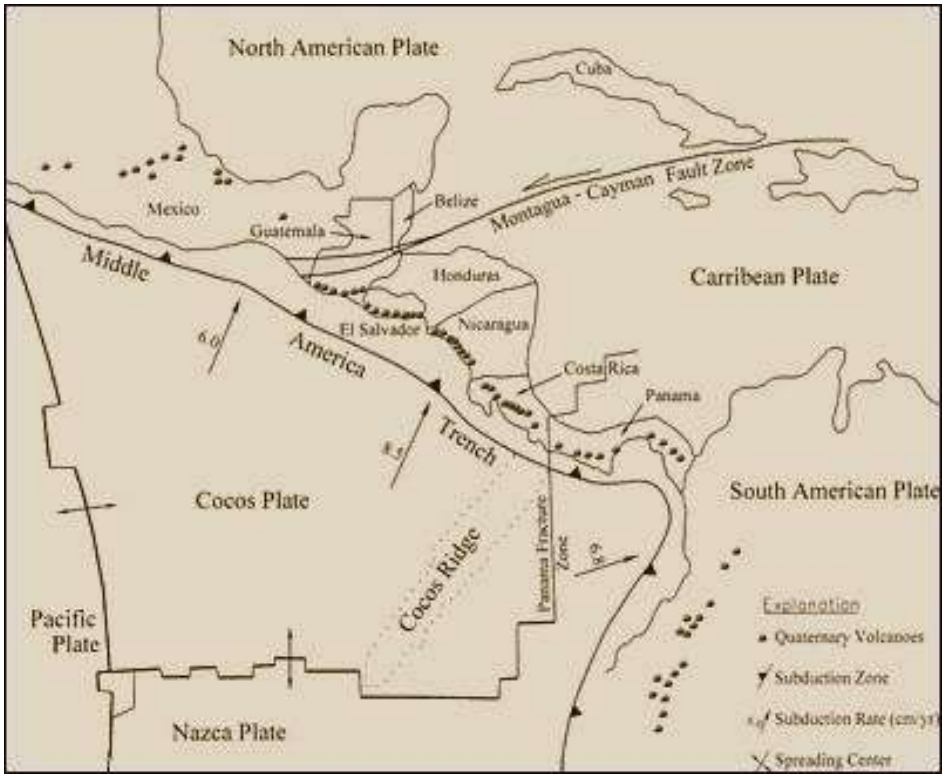
4.0 EXISTING ENVIRONMENTAL, SOCIAL AND CULTURAL CONDITIONS

This section describes the existing environmental, social and cultural conditions in the area of influence of the transmission line and electrical substations that make up the Transmission Line Ahuachapán to Acajutla 230 kV Project. For this description, both qualitative information and quantitative data were required, which were obtained through the review of primary and secondary sources that included: field visits and studies, sampling and interviews, among other methodological resources. The level of detail presented in this section, for each of the elements described, is in line with their importance in discussions of significant impacts and the need to develop preventive or mitigating measures.

4.1 *PHYSICAL ENVIRONMENT*

4.1.1 *Regional Tectonics and Geology*

Most of Central America, including El Salvador, rests on the Caribbean Plate (a relatively immobile tectonic plate). To the west of the Caribbean Plate is Los Cocos Plate, which is moving in a northeast direction. The subduction of Los Cocos Plate under the Caribbean Plate creates the deep middle American trench, which crosses the coast of El Salvador (see Figure 4.1-1). The tectonic plates active in Central America, as described in Subsection 4.1.2.1 Geomorphology, have generated a variety of topographies and landscapes, including a volcanic axis, the main feature of the landscape that is understood throughout the area from western Guatemala to western Panama. The volcanic axis in El Salvador (Volcanic Mountain Range) has about twenty-three volcanoes and a long history of earthquakes and volcanic eruptions.



Source: 40.91 South, 2014

Figure 4.1-1 Plate Tectonics of Central America

The region of the Project is affected by the presence of several geological faults with a preferential course towards the southeast. During the formation of the central valley of Central America (see Subsection 4.1.2.1 Geomorphology), the entire region was subjected to a phase of tectonic movements in the transition from the tertiary Pliocene to the Quaternary Pleistocene. All the original terrains were dislocated along lines with general east-west orientation, leaving areas sunk between raised blocks. These movements left areas of weakness through which the magmatic volcanic materials formed due to the fusion of the rocks originated by the subduction phenomenon occurred between Los Cocos Plate and the Caribbean Plate. Molten rock or magma ascends, forms magmatic chambers and then discharges as volcanism (Marshall, 2007).

The surface local geology in the Project area is mainly a sequence of Quaternary units of San Salvador (sedimentary) and Balsam (volcanic) formations (MARN, 2016, IGN, 2000) (see Figure 4.1-2).

San Salvador Formation is the most recent in geological terms and appears mainly in the northern and southern regions of the TL (see Figure 4.1-2). The younger materials it presents are unstable sediments because of its poor consolidation. To this formation belong the volcanic ash or white earth, which according to their granulometry were thrown by a series of violent eruptions of the caldera of the volcano Ilopango about 2000 years ago; the greater thicknesses of this material are located within the centers of effusion, diminishing from these; also, presents the alluvial deposits and concentrates the volcanic part consisting of basic effusive rocks, andesites and basalts.

The Balsam Formation, constitutes the deep foundation of the Project area; emerges mainly in the central zone of the TL (see Figure 4.1-2), and consists mostly of a sequence of pyroclastic and epiclastic rocks, with interleaves of andesitic lava flows.

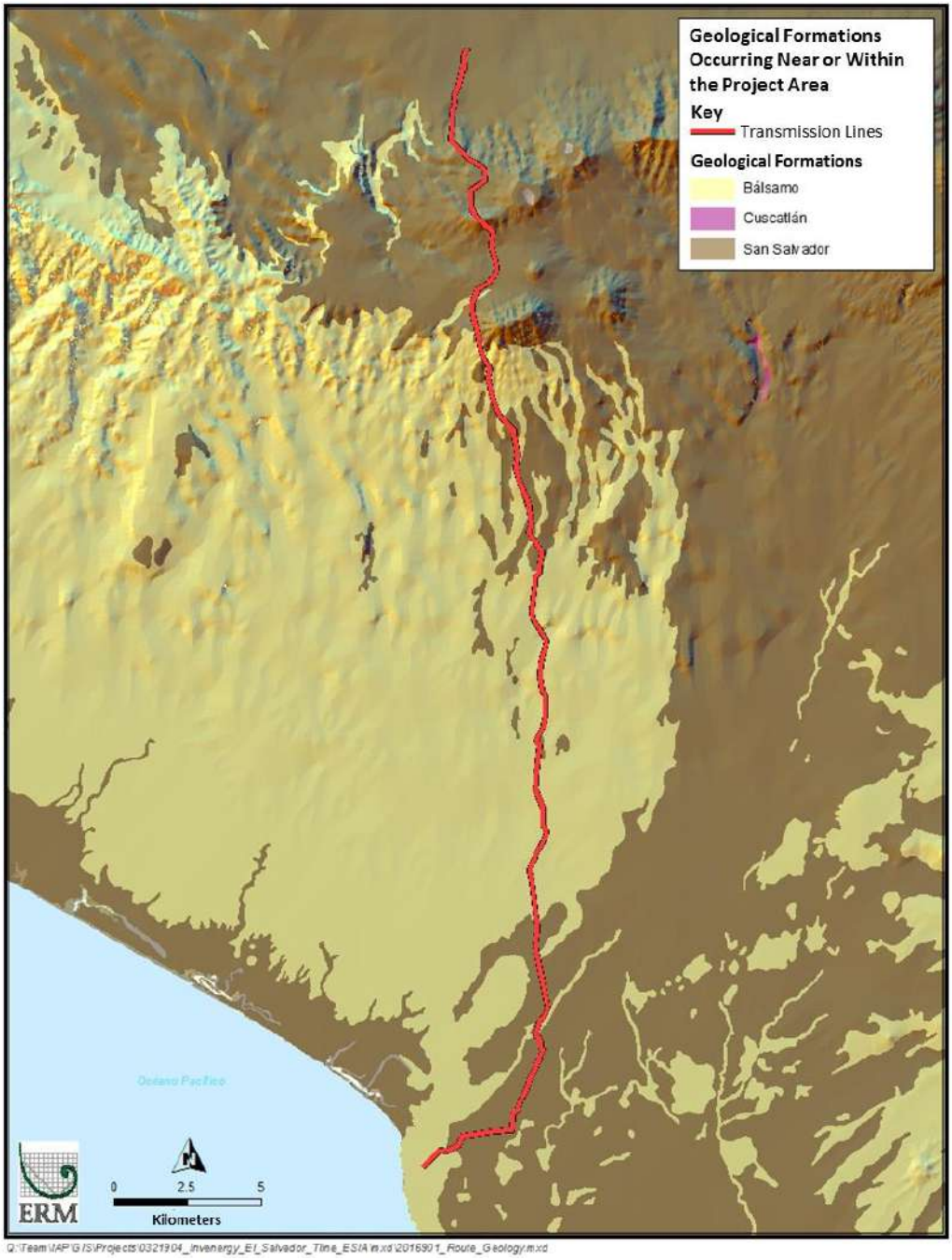


Figure 4.1-2 Geological Formations Occurring Near or Within the Project Area

4.1.2 *Geomorphology, Topography and Soils*

4.1.2.1 Geomorphology

Physiographic Provinces

El Salvador has four geomorphological provinces, which run east-west in bands that cross the country following more or less the coastline (Marshall, 2007). Two physiographic provinces appear near or within the Project (see Figure 4.1-3), which are described below:

Region/Basin Antearco Chortis: The province of the region Antearco Chortis consists of a bas-relief area of coalescence of alluvial fans that extend up to 70 km inland from the volcanic front. This broad alluvial plain was formed from volcanic eruptions and clastic sediments and debris deposited by rivers draining the interior volcanic highlands (see Figure 4.1-2). In general, the topography along the Antearco Chortis coast is relatively moderate, with localized minor faults affecting only the Quaternary strata. This low-relief coastal morphology contrasts sharply with the tectonically active coasts of Antearco Chorotega in southern Central America. In this region, active faulting and rapid rise have produced an abrupt coastal topography along the steep coast of Costa Rica and Panama.

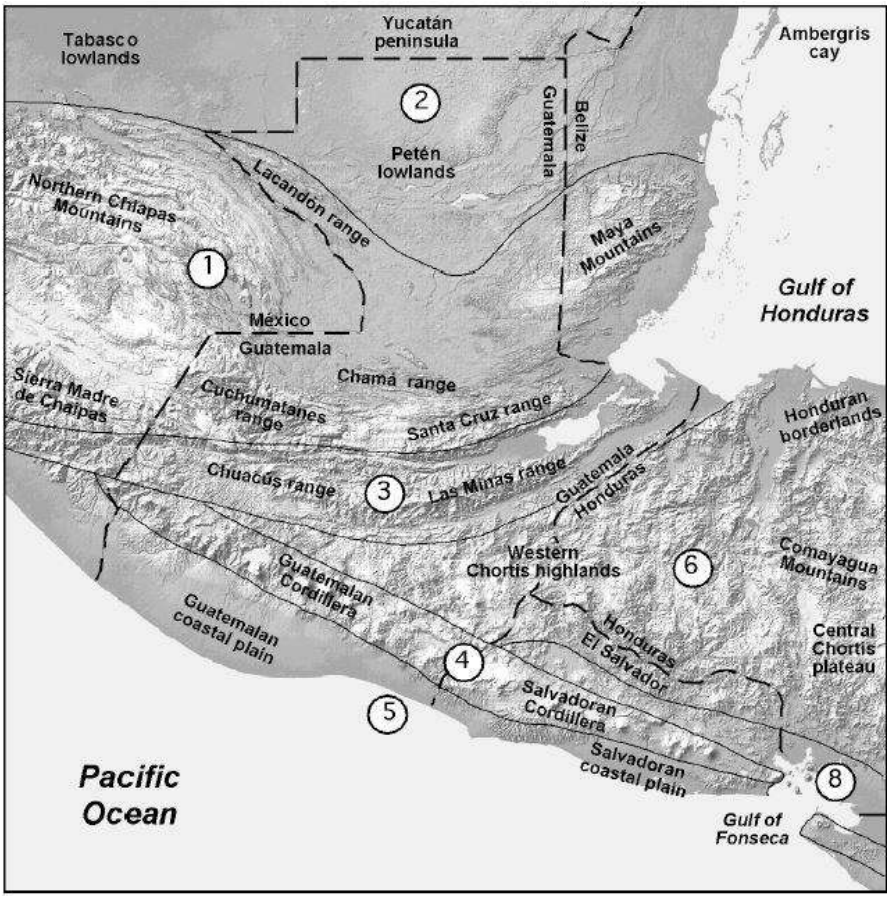
Chortis Volcanic Front: The province of the active Chortis Volcanic Front encompasses two major morphothectonic segments heading northwest: Mountain Range of Guatemala, formed along the western margin of the highlands of the Chortis, and Cordillera de El Salvador, developed along boundary faults south of the central valley. Both mountain ranges consist of aligned clusters of stratovolcanoes and boilers located along transverse faults that cut the volcanic front chortis.

Geomorphological Units

The geomorphological units that will be traversed by the proposed TL corridor include: The Coastal Plain and the Volcanic Mountain Range of El Salvador (see Figure 4.1-3).

Salvadoran Coastal Plain: The Coastal Plain unit is constituted by two strips. Its petrography is varied since on it have been deposited materials by the rivers that cross the region, forming alluvions, as well as deposits of old volcanic eruptions. The lands where the "LNG TO POWER" Project will be located, the Acajutla SE and part of the TL, are located in this unit.

Salvadoran Volcanic Mountain Range: This unit consists of thick and dense agglomerates of the Pliocene age, together with the thin layers of andesitic lava, tuff layers and interlayers of ignimbrites. Part of the TL and the Ahuachapán SE are located in this unit.



Source: Marshall, 2007

Figure 4.1-3 Physiographic Provinces in Northern Central America – (6) Highlands Chortis, (8) Nicaraguan Depression, (4) Chortis Volcanic Front, and Region Antearco Chortis – and Geomorphological Units that occur near or within the Project Area

4.1.2.2 Topography and Soils

Topography

The relief of the lands along the TL presents variations, because the selected trace crosses a variety of landscapes and morphology. Along the Project line, three topographic scenarios are identified that reflect the type of dominant landscape in the line path (see Figure 4.1-4). These scenarios are:

Region with Strongly Rippled Topography: This region is mainly made up of mountain landscapes, hills and slopes of the volcanic mountain range of Salvador (See Figure 4.1-4), which generate a profuse network of shallow drainage and almost parallel or slightly radiated, which are oriented parallel to the axis of the TL, and are located mainly in the northern region of the trace. In this region, whose relief is undulating to strongly undulating, the dominant slopes range goes from 30 to 50% on the skirts and up to 70% on the slopes.

Region with Slightly Ondulated Topography: This region is characterized by a slightly undulating relief, which within the corridor of the TL corresponds to the terminal areas of the system of low hills that move from the northern slopes of the mountain range and are located mainly in the central sector of the TL in east-west direction of the TL axis. In this sector, the relief is relatively low and the terrain configuration is gently undulating, with dominant slopes of 15 to 30%.

Region with Plain Topography: In this region, the relief is flat and the topographic configuration varies from flat to slightly undulating, with slopes not exceeding 15%. The region is characterized by deposits that have been transported by the rivers that cross the region, forming alluviums. This region covers about half of the selected trace.

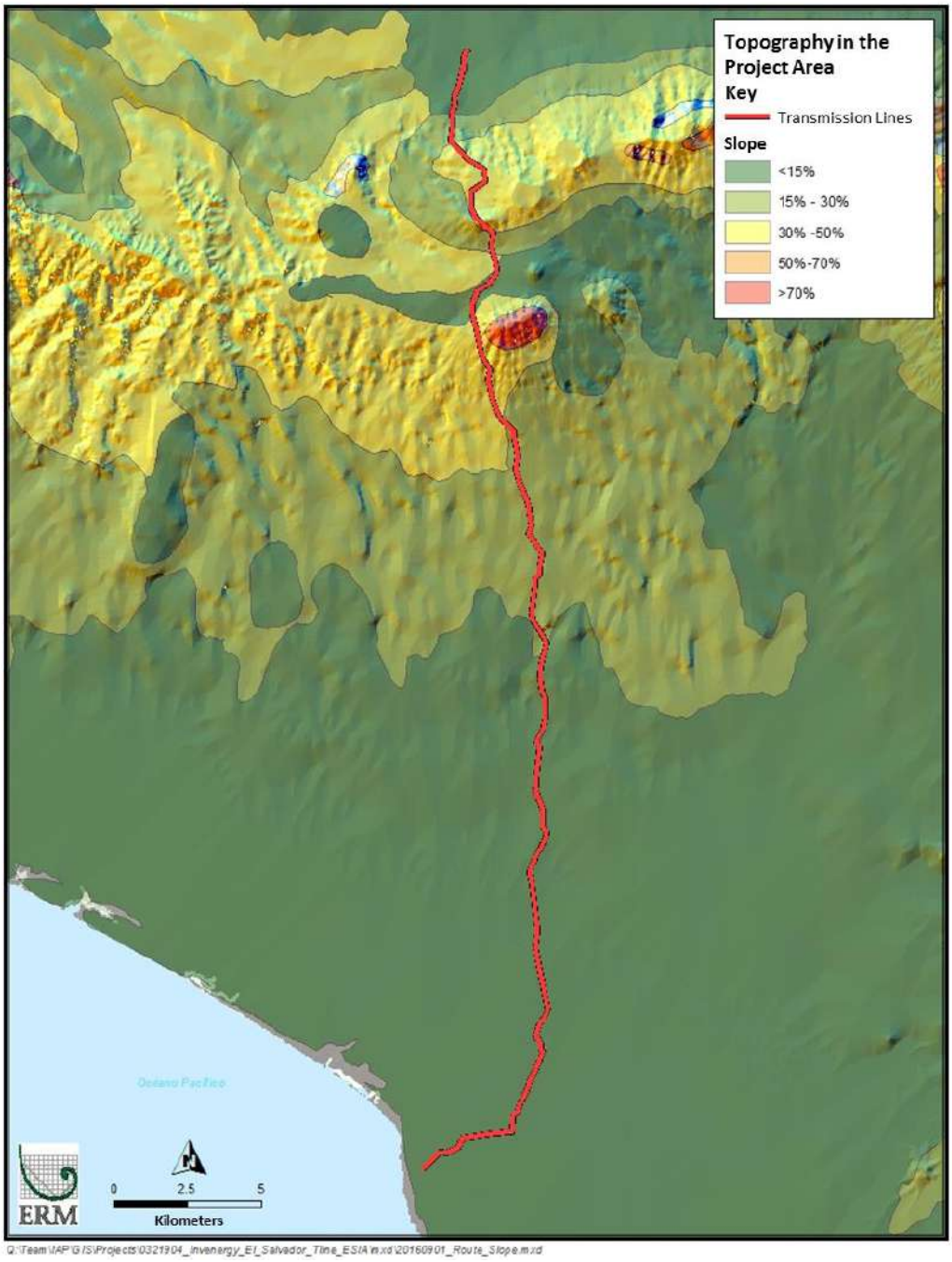


Figure 4.1-4 Topography in the Project Area

Type of Soils and Usability

Type of Solis

The types of soils that occur near or within the Project correspond to Latosoles Arcillo Reddish, Andisols, Grumosols, Alluvial, Regosols and Halomorphic, varying in texture and depth Depending on the landscape relief (see Figure 4.1-5). The following is a general description of this type of soils according to MARN.

Latosoles Arcillo-Reddish: Reddish clay soils, located mainly in the Project area on mountain slopes. They are well developed with block structure with a generally red color, although sometimes they are yellowish or brownish. This coloration is mainly due to the presence of iron minerals of different types and degrees of oxidation. The surface texture is clay loam and the subsoil is clayey. The average depth is one meter, although in some places rock outcrops due to erosion. Fertility can be high on protected land and agricultural machinery can be used when the slope is moderate. They are soils suitable for almost all crops.

Andisols: Soils originating from volcanic ash, from different times and in different parts of the country, usually have a surface horizon between 20 and 40 centimeters (cm) thick, of dark color, open texture and granular structure. Its production capacity is high to very high productivity. According to the topography they are suitable for an intensive mechanized agriculture for all kinds of crops. In the Project area, these soils are mainly located on hills and mountains.

Grumosols: Very clayey soils gray to black with vegetation of hills, when they are very wet they are very sticky and very plastic. When they are dry they are very hard and crack. On the surface they are dark in color, but with little humus or organic matter. The subsoil is dark gray. They are very deep and little permeable so the infiltration of rainwater is very slow. Its potential use is moderate to low, not suitable for permanent crops of high commercial value because when they crack, they break the roots of plants. In the Project area, these soils are located mainly in the region of the interior plain.

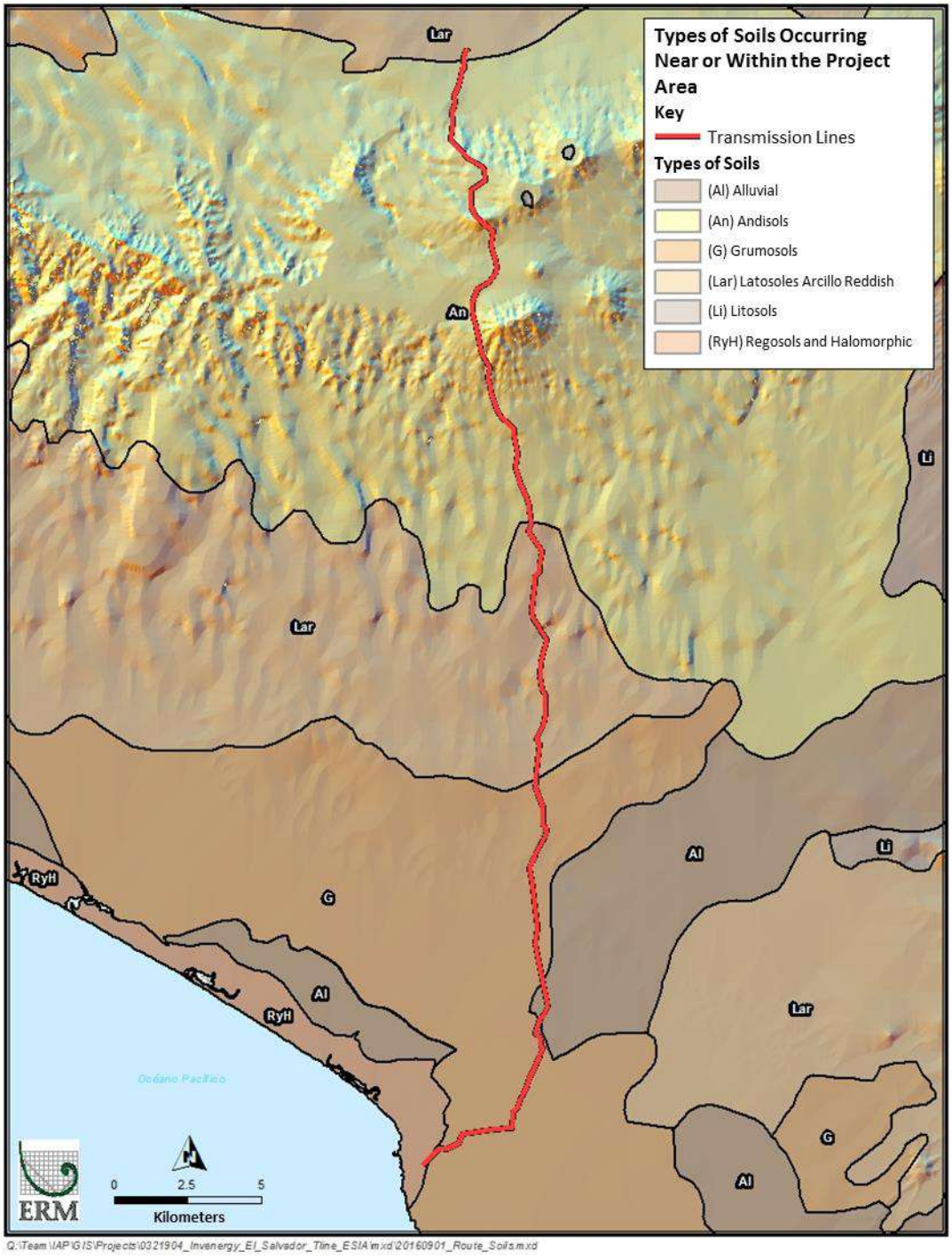


Figure 4.1-5 Types of Soils Occurring Near or Within the Project Area

Alluvial: soils of materials transported or deposited in the coastal plains and inland valleys. They are stratified alluviums of variable texture. They are recent or recently deposited soils and lack modifications of external agents (eg water, climate). They are located in areas that are slightly sloping or almost level in the coastal plains and inland valleys where the water table is close to the surface and drainage is generally poor. They are high productivity soils allowing intensive and mechanized agriculture, suitable for all kinds of crops.

Regosols: deep soils, young of loose or unconsolidated material. The surface horizon is usually about 10 to 20 cm thick, with a high content of organic matter. In El Salvador, it is always found in fine sandy material of gray color, loose. Given its precarious surface layer in the tops of the ripples of the coastal cords, it is recommended to use the Regosols only for permanent vegetation such as coconut, cashew or grass.

Halomorphic: Saline soils of gray-colored mangroves due to the anaerobic condition existing during their formation because they are frequently flooded. Its texture is variable, with silty texture, sandy and clayey strata in different position. The potential use of these soils is very poor for the production of agricultural crops; however, there are in the transition from mangroves to inland alluvial deposits the production of palm trees whose leaves are used for ranches and hats.

Usability

According to the Agrological classification of soil/land use capacity of the MAG (Bonifacio, 2004), the soils in the area of the Project trace correspond to Classes II-IV, VI-VII and soils in urban areas (see Figure 4.1-6).

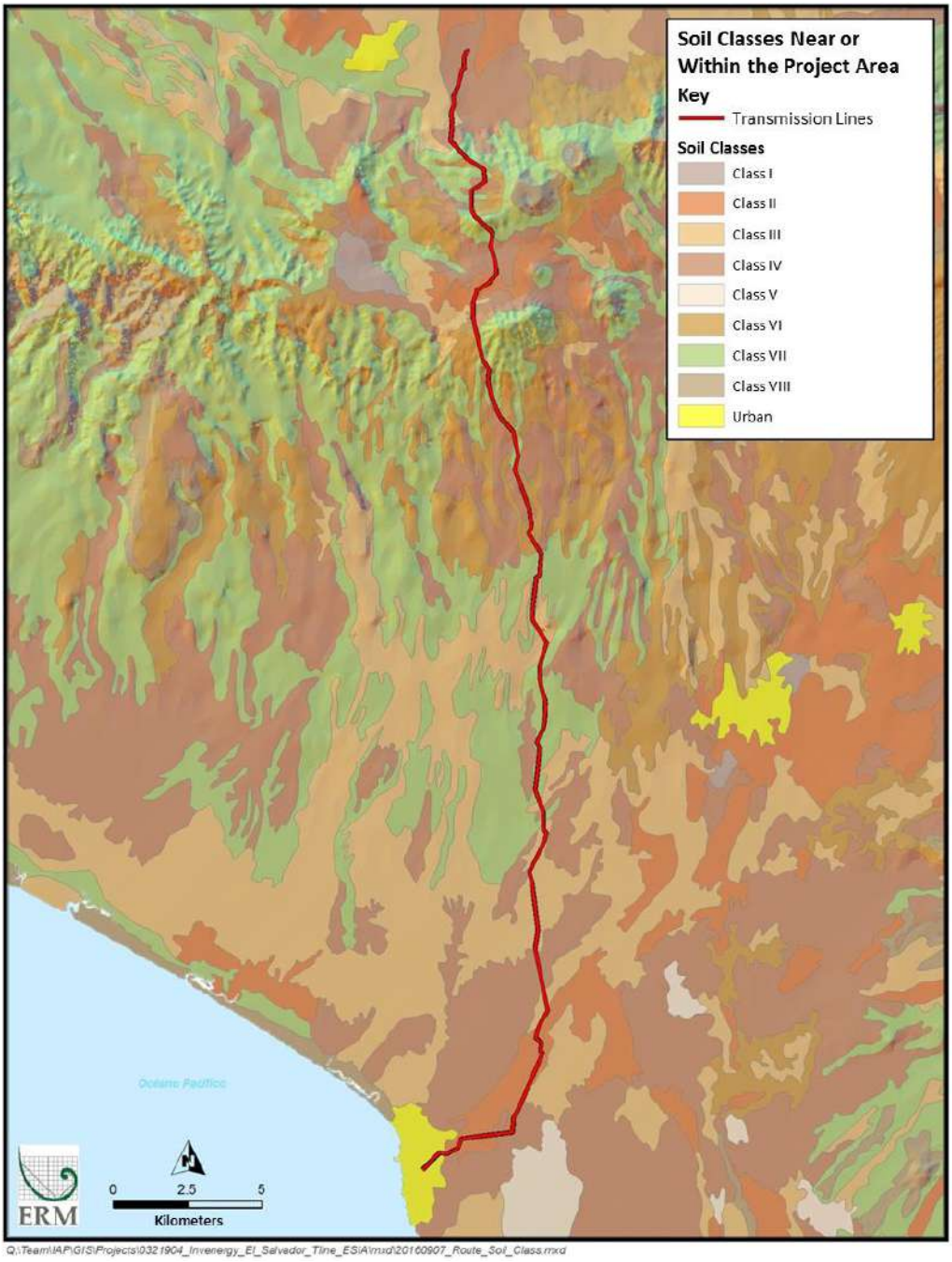


Figure 4.1-6 Soil Use Capacity that Occur Near or Within the Project Area

Table 4.1-1 shows the types of soil in the TL trace corridor, the soil class and the area (based on a 38 m wide right of way) occupied by each class in relation to the footprint of the corridor. As can be seen in Table 4.1-1, most soils in the TL corridor are classified as Class IV and VII. The soils near and inside the substations are mostly classified as urban.

Table 4.1-1 Types and Classes of Soils in the Project Area

Type of Soil (see Figure 4.1-5)	*Class II (ha)*	*Class III (ha)*	*Class IV (ha)*	*Class VI (ha)*	*Class VII (ha)*	*Urban (ha)*
Aluvials	0.2	4.6	0.5	0	0	0
Andisols	5.0	3.2	27.9	5.6	25.5	0
Grumosols	21.4	18.4	8.4	0	3.5	1.6
Latosoles Arcillo Reddish	0	5.4	2.7	3.1	25.7	0
Regosols and Halomorphic	0	0	0	0	0	2.2
Total	***26.6***	***31.6***	***39.5***	***8.7***	***54.7***	***3.8***

Key: ha = hectares

4.1.3 *Amenazas Naturales*

Due to their geographic location, TL and substations will be exposed to potential natural threats mainly geophysical, such as volcanic eruptions, earthquakes and landslides. These threats are described below.

4.1.3.1 Volcanic Threats

Threat or volcanic hazard is the probability that materials ejected by an erupting volcano affect a specific area over a given period of time. There are several types of threats or hazards such as gas emissions, lava flows, pyroclastic (ballistic projection, ash fall), pyroclastic flows and lahars (debris flows), each of which presents characteristics and forms of displacement themselves, and therefore, have different effects. In the case of the TL Project, threats of lava flows, pyroclastic and lahars, and pyroclastic fall are the most important.

According to MARN records of the volcanic threat in El Salvador, Santa Ana volcano (approximately 19.3 km distance to the TL) and Izalco volcano (approximately 18.2 km away) are located in the Volcanic Cordillera in the northern area of the trace, are the closest active volcanoes that could affect TL (SNET, 2016; see Figure 4.1-7).

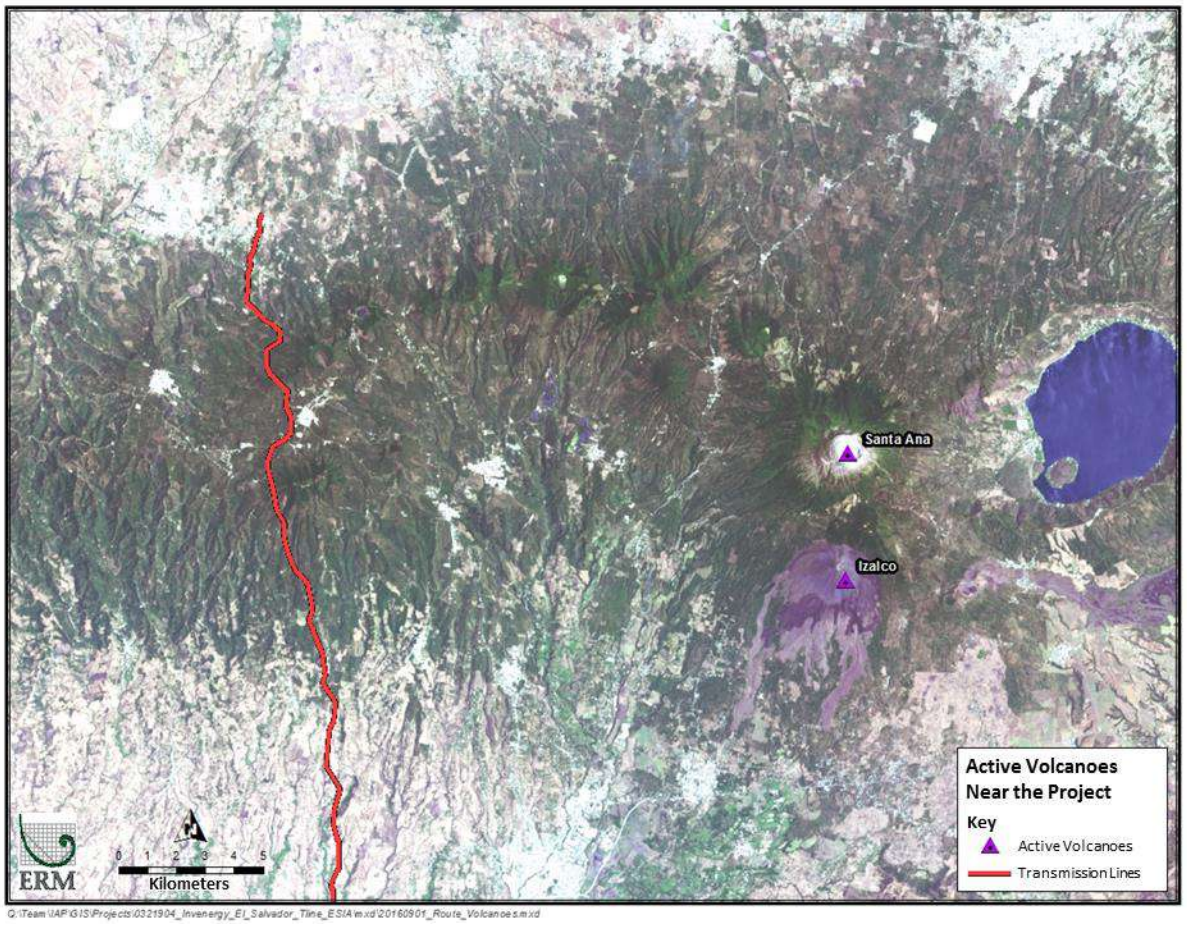


Figure 4.1-7 Active volcanoes Near the Project

Santa Ana volcano or Ilamatepec is a stratum volcano located in the department of Santa Ana. At a height of 2,382 meters above sea level (masl), it is the highest volcano in the country. It lies immediately west of Coatepeque Lake. The last eruption of this volcano was recorded in 2005. The Izalco volcano is also a stratum volcano, located on the southern flank of Santa Ana volcano in Sonsonate department, at a height of 1,965 m. The last eruption was recorded in 1966.

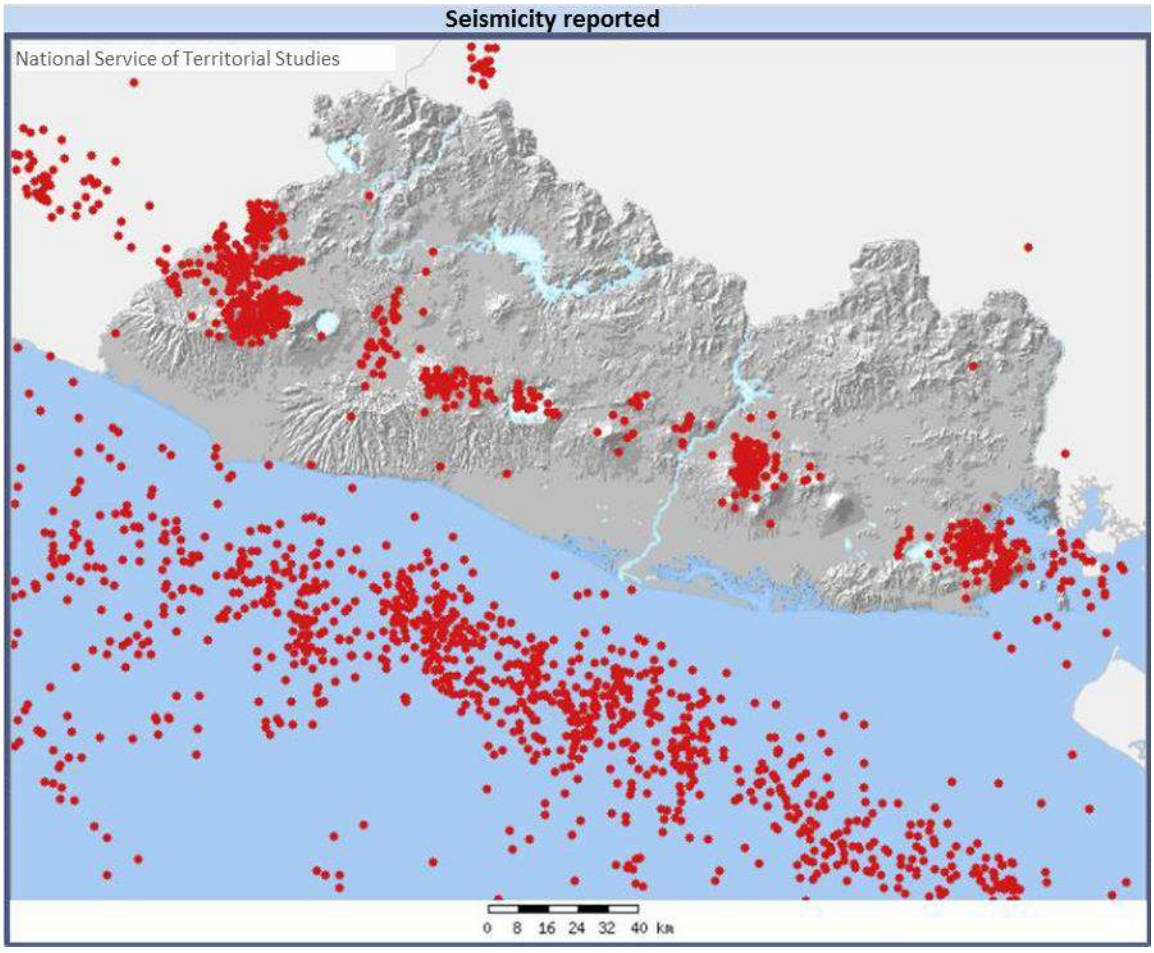
4.1.3.2 Seismic Threat

In El Salvador, the seismic threat arises from two main sources: the subduction zone of the tectonic plates and the volcanic mountain range that is understood throughout Central America from western Guatemala to Panama. The TL trajectory traverses the geomorphological units coastal plain and volcanic mountain range. The volcanic mountain range is considered as the main seismogenic source in the Project area (see Figures 4.1-8 and 4.1-9). As can be seen in Figure 4.1-8, the SNET of El Salvador

has recorded numerous earthquakes in the region of the volcanic mountain range in the Project area.

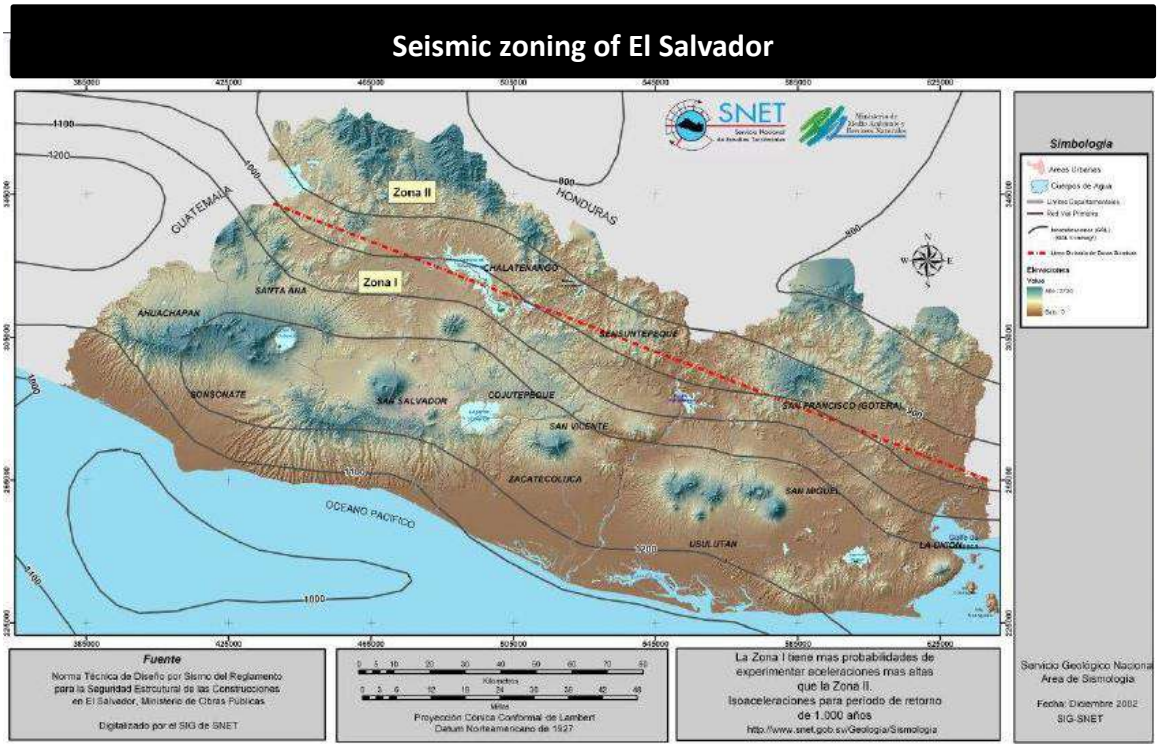
The seismic threat is a function of the magnitude of the earthquake and the distance from the point to the seismic source. Seismic motion is measured with maximum terrain acceleration and the seismic threat is evaluated in probabilistic terms: it is a common practice to define the seismic threat as expected peak effective acceleration (EPA) or maximum acceleration of the terrain with a probability of exceeding 10% in 50 years (which generally corresponds to the useful life of a normal structure). This threat level corresponds to the seismic movement that has a return period (an average interval between events) of 475 years.

According to the SNET El Salvador seismicity map (SNET, 2016), El Salvador is divided into two seismic zones (Zone I and Zone II) and are used in the construction of structures using the technical standard for earthquake design. The area of the Project is located in Zone I (see Figure 4.1-9), which corresponds to an EPA factor of 0.40 g (acceleration due to gravity of the earth, which equals the force g). Zone II has a factor of 0.30 g. expected peak effective accelerations of 0.34 to 0.65 g correspond to a Grade VIII seismic intensity on the Mercalli scale; and from 0.18 to 0.34 g at a seismic intensity of Grade VII on the Mercalli scale. Seismicity maps are used in the design of structures, including the design of electric towers.



Source: SNET, 2016

Figure 4.1-8 Seismicity Reported in El Salvador (2001 - 2006 Epicenters) in the Regions of the Subduction of Tectonic Plates and the Volcanic Mountain Range



Source: SNET, 2016

Figure 4.1-9 Seismic Zones in El Salvador

4.1.3.3 Landslide Threat

Land slipping is a type of land mass motion or movement, caused by the instability of a slope, and typically occurs by saturation of water during heavy rains and seismic movements. Important physical factors affecting landslides include geological structure, lithology, geomorphology, tectonics and slope.

As shown in Figure 4.1-10, which characterizes the configuration of areas susceptible to landslides that crosses the TL, the only important sites (areas with high and moderate susceptibility to landslides) that could have a significant effect on the occurrence of landslides includes areas north of the TL in the hills and mountain slopes and in the central area where the TL crosses area with alluvial formations.

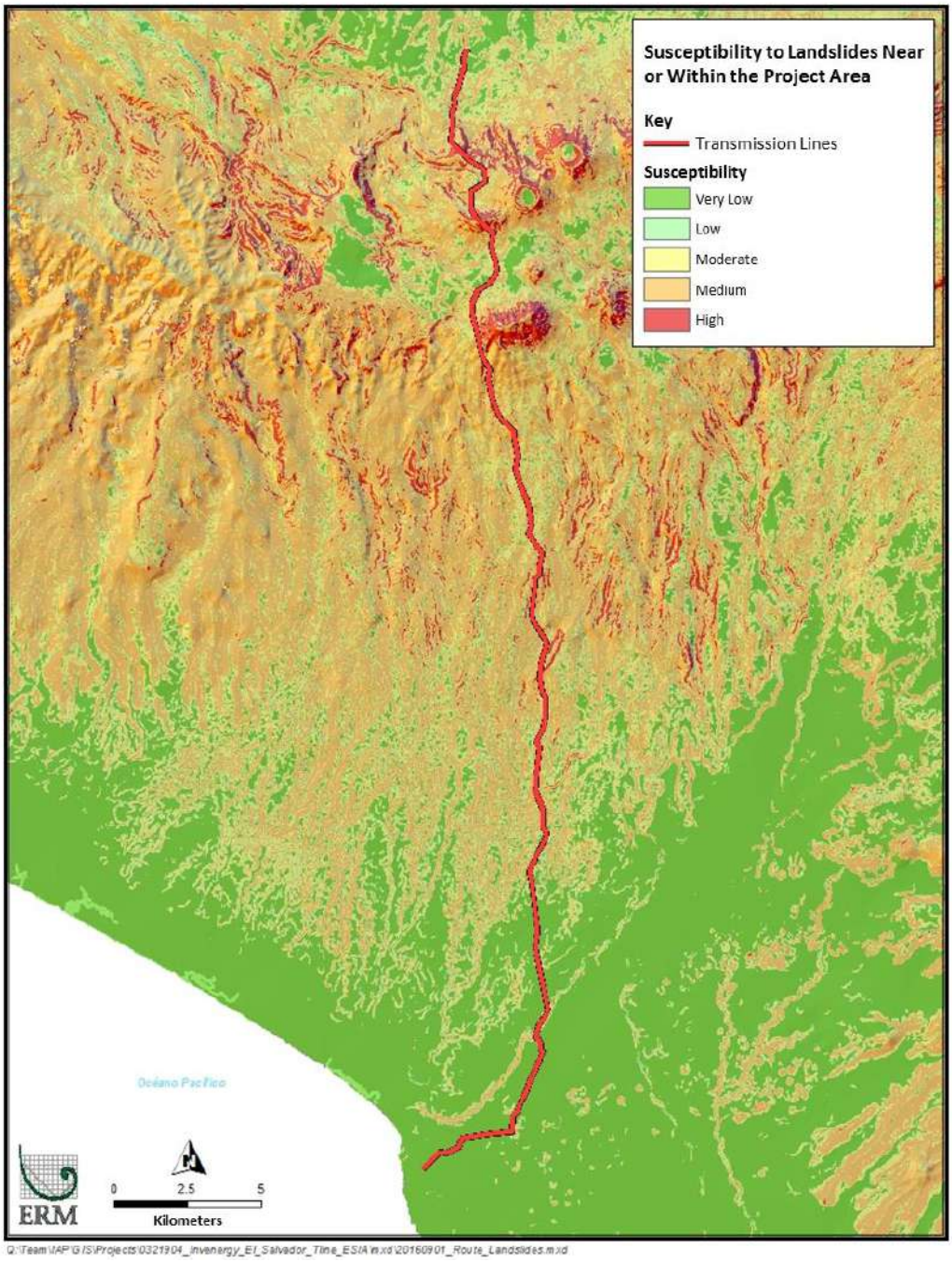


Figure 4.1-10 Susceptibility to Landslides Near or Within the Project Area

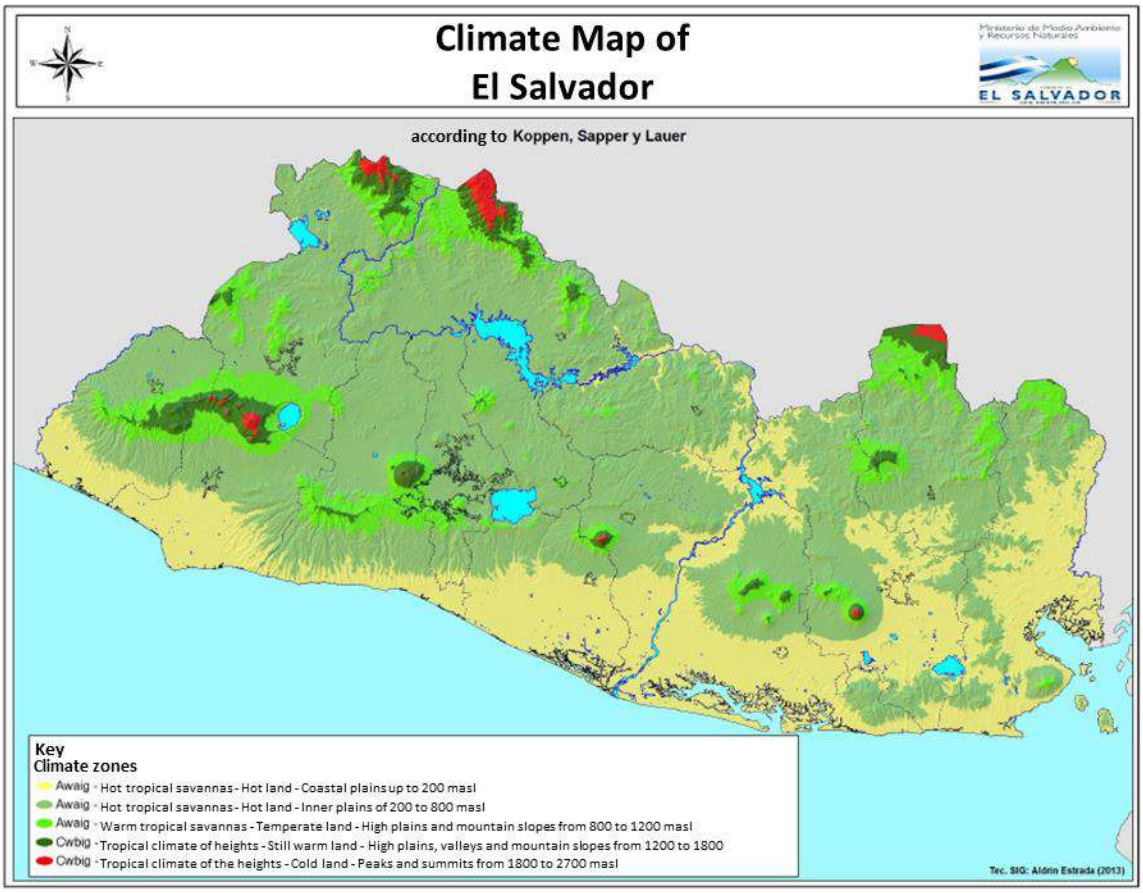
4.1.4 *Weather conditions*

This section describes the main climatic characteristics of the project area. The description was based on the use of official information generated by MARN for the departments of Sonsonate and Ahuachapán, where the Project will be located.

El Salvador is located on the outside of the climate belt of the Tropics of Cancer and Capricorn, which produces small changes in temperatures throughout the year (SNET, 2015). Contrary to the temperatures, the rains show great oscillations throughout the year, presenting a dry season and a rainy season. Figure 4.1-11 shows the climatic zones in El Salvador, which vary with elevation.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2006), the following factors condition the climate regime in El Salvador:

- The relief of the country;
- The intertropical convergence zone;
- The trade winds;
- Tropical or Eastern waves;
- The influence of the Pacific Ocean breeze;
- Atltantic subtropical anticyclone or Bermuda;
- Cold fronts displaced by masses of cold and continental air of polar origin;
- Weak thermal centers with low atmospheric pressure; and
- • Cyclonic systems, such as tropical storms and hurricanes.



Source: SNET, 2015

Figure 4.1-11 Climate Zones of El Salvador

The climate in the Project area is characterized as Hot Tropical Savanna or Hot Land with humid subtropical forest (SNET 2015). Table 4.1-2 presents the two main meteorological stations (Ahuachapán [H-8] and Acajutla [T-6]) located within the Project area, which were used to characterize the climatological aspects of the area. The station of Ahuachapán is located in the outskirts of the city, near El Espino lagoon (Llano hamlet), in the central zone of the western region of the country. The station of Acajutla is located near the facilities of the Port, in the coastal zone of the western region of El Salvador.

Next, the climatological parameters of these two stations are described for a period of 39 years (1971-2010) according to what was reported by MARN (Araujo, 2016).

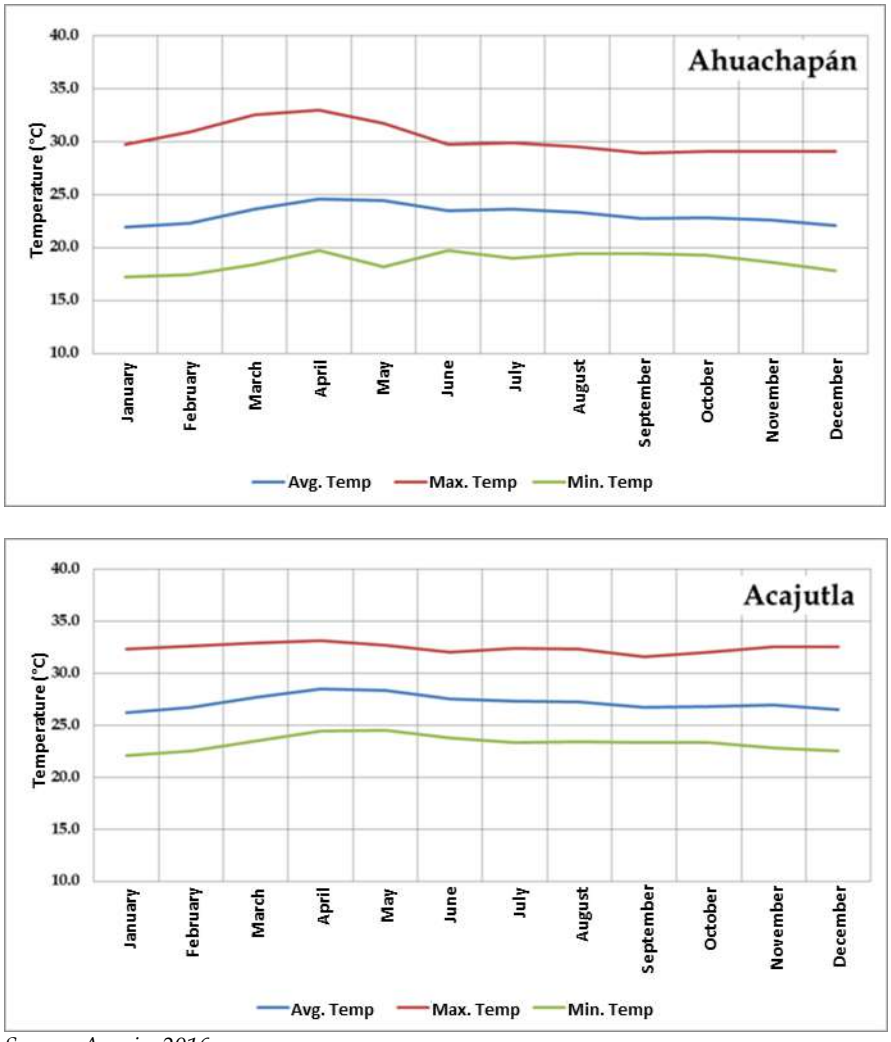
Table 4.1-2 Climatological Stations Within the Area of Study

Station	*Code*	*Coordinates*	*Elevation (masl)*
Acajutla	T-6	13° 34.3′ North Latitude 89° 50.0′ West Longitude	15
Ahuachapán	H-8	13° 56.6′ North latitude 89° 51.6′ West Longitude	725

Key: masl = meters above sea level

4.1.4.1 Temperature

El Salvador has annual average temperatures of 24.8 °C, with average minimum temperatures of 23.8 °C in December and 23.9 °C in January due to the influence of cold winds caused by air incursions from the North. The warmest month is April with an average temperature of 26.4 °C (UNESCO, 2006). According to the records of Ahuachapán weather station, the average annual temperature is 27.2 °C (see Figure 4.1-12 and Table 4.1-3), while the average annual temperature in Acajutla is 23.1 °C (see Figure 4.1-12 and Table 4.1-4). In its annual climate bulletin, MARN (2014a and 2015a) reports that Acajutla (T6) station recorded the highest average annual ambient temperature of 2015, with a record of 29.0 °C; while Ahuachapán station recorded an annual average temperature of approximately 24.3 °C (Araujo, 2016).



Source: Araujo, 2016

Figure 4.1-12 Average Air Temperatures per Month Recorded at Ahuachapán Climatological Stations (above) and Acajutla (below) for the Period 1971-2010

Table 4.1-3 Average Climatological Data of the Ahuachapán Station for the Period 1971-2010

Parameters/Months	*Units*	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
Maximum Average Temperature	℃	29.7	30.9	32.5	33	31.7	29.7	29.9	29.5	28.9	29.1	29.1	29.1
Minimum Average Temperature	℃	17.2	17.4	18.4	19.7	18.2	19.7	19	19.4	19.4	19.3	18.6	17.8
Average Temperature	℃	21.9	22.3	23.6	24.6	24.4	23.5	23.6	23.3	22.7	22.8	22.6	22.1
Relative Humidity	%	65	63	66	66	75	81	76	80	84	79	70	66
Sunlight	hours/days	9.3	9.3	9.4	8.7	7	6.2	8	7.5	5.7	6.9	8.4	9.1
Cloud Cover	Octas	2.8	2.4	3.6	4.2	6.2	7.1	6.4	7.1	7.6	6.4	4.3	3.2
Wind Maximum Absolute Speed	km/hour	69.5	76.3	70.6	87.1	61.2	68.4	77	73	60.8	43.2	54	64
Wind Direction	---	NE	NE	NE-W	NE-W	W	NE-W	NE	NE	NE	NE	NE	NE

Source: Araujo, 2016

Key: NE= Northeast; W= West; km= Kilometers; ℃= degrees Celsius; octas (Eighth) = If the clouds cover the middle of the sky it is said that the cloudiness is of 4 octas.

Table 4.1-4 Average Climatological Data of the Acajutla Station for the Period 1971-2010

Parameters/Months	*Units*	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
Maximum Average Temperature	℃	32.3	32.6	32.9	33.1	32.7	32	32.4	32.3	31.6	32	32.5	32.5
Minimum Average Temperature	℃	22.1	22.5	23.5	24.4	24.5	23.8	23.3	23.4	23.3	23.3	22.8	22.5
Average Temperature	℃	26.2	26.7	27.7	28.5	28.3	27.5	27.3	27.2	26.7	26.8	26.9	26.5
Relative Humidity	%	69	69	40	73	77	80	78	79	82	80	73	70
Atmospheric pressure	mb	1010.1	1010.3	1009.6	1008.8	1008.4	1008.8	1009.7	1009.3	1008.7	1008.5	1009	1009.4
Cloud Cover	en /10	1.9	2.3	3.1	4.6	5.8	7.3	6.8	7.1	7.5	6.8	4.3	2.7
Wind Maximum Absolute Speed	km/hr	11.3	12.5	11.6	11.1	10.3	9.9	9.9	9.5	9.6	9.3	11	10.9
Wind Direction	---	NE	NE	NE	W	NE	E	NE-E	E	E	NE	NE	NE

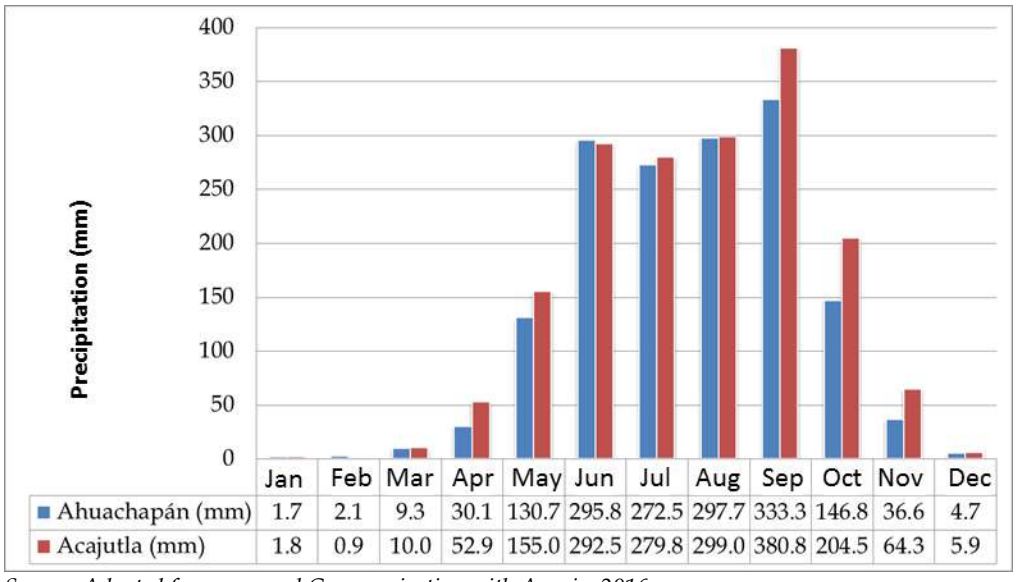
Source: Araujo, 2016

Key: NE= Northeast; W= West; E=East; Km = kilometers; ℃ = degrees centigrade; Mb = millibars

4.1.4.2 Precipitation

According to the water balance prepared by UNESCO (2006) for El Salvador, rainfall in the country is of orographic origin (northern and coastal mountain ranges), convective (warming of air mass) and cyclonic (atmospheric systems such as tropical waves, low pressures and troughs). In El Salvador, there is a dry season and a rainy season, with their respective transition periods (November to April and May to October). In addition, there is a period of rain reduction between the months of July and August, which is called the canicus period. El Salvador is periodically affected by El Niño-Southern Oscillation (ENSO) phenomenon, which causes delay in the beginning of the rainy season and reduction in the duration of the rainy season, as well as a decrease in rainfall and extension of the heat stroke period.

Figure 4.1-13 shows the monthly precipitation averages based on historical data recorded by MARN (Araujo, 2016) during the rainy season in Ahuachapán and Acajutla for a period of 39 years (1971-2010). The highest rainfall is recorded in August and September of each year, when there is the highest probability of occurrence of tropical storms with torrential repercussions in the coastal zone. The average annual rainfall recorded at Ahuachapán and Acajutla stations is approximately 1,561 millimeters (mm) and 1,747 mm, respectively. However, in its annual climatological bulletin (MARN 2014a and 2015a) of 2015, MARN reported that the precipitation regime in these two seasons and in general was reduced compared to its normal climatological. The rain accumulated in 2015 in these two stations was approximately 1,470 mm for Ahuachapán and 1,250 mm for Acajutla.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ahuachapán (mm)	1.7	2.1	9.3	30.1	130.7	295.8	272.5	297.7	333.3	146.8	36.6	4.7
Acajutla (mm)	1.8	0.9	10.0	52.9	155.0	292.5	279.8	299.0	380.8	204.5	64.3	5.9

Source: Adapted from personal Communication with Araujo, 2016

Figure 4.1-13 Average Precipitation Recorded at Ahuachapán and Acajutla Climatological Stations for the Period 1971-2010

4.1.5 *Water Resources*

This section describes the baseline conditions of surface and groundwater within and near the Project area. The surface waters include the basins and micro-basins that cross the Project, as well as the rivers and/or ravines near the same. The groundwater includes the hydrogeological units and aquifers near the Project. The main sources of information used for this section are:

- Information generated by MARN;
- El Salvador National Geographic Institute "Ing. Pablo Arnoldo Guzmán";
- Information generated by the National Administration of Aqueducts and Sewers (ANDA) and the Swiss Cooperation;
- Information generated by MAG, General Directorate of Forest Management, Watersheds and Irrigation; and
- Among others (eg, UNESCO, University of El Salvador, etc.).

The following describes the current conditions of the water resources of the Project area.

4.1.5.1 *Watersheds and Subwatersheds*

El Salvador is divided into eleven hydrographic regions (MAG, 2012). The study area of the Project crosses three of them: Paz (region B), Cara Sucia-San Pedro (region C) and Río Grande de Sonsonate-Banderas (region D) showed in Figure 4.1-14. Table 4.1-5 presents the general characteristics of these three hydrographic regions.

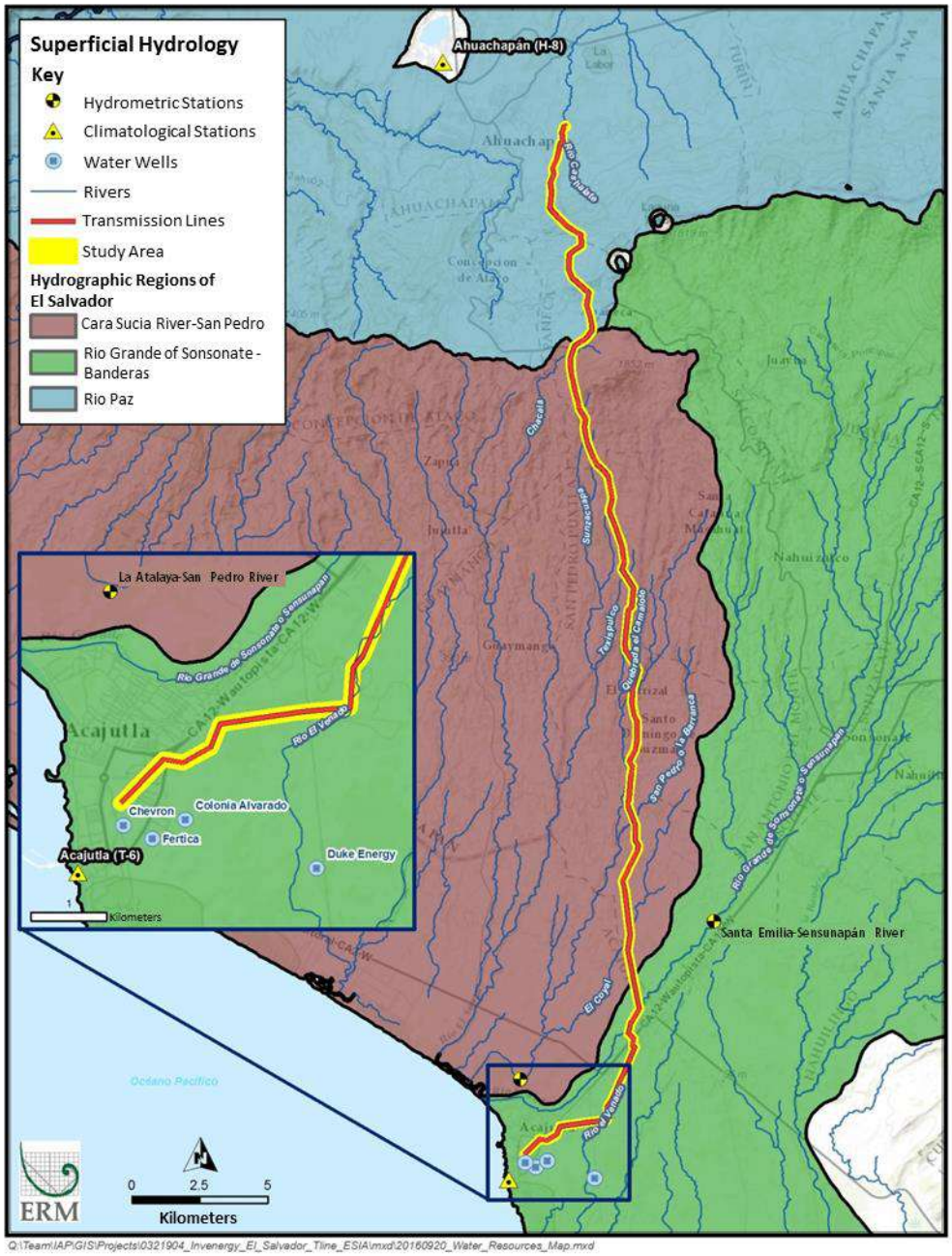


Figure 4.1-14 Hydrographic Regions in the Project Area

Table 4.1-5 Characteristics of the Main Hydrological Basins of the Project Area

Parameter	*Units*	*La Paz*	*Cara Sucia*	*Sonsonate-Banderas*
Area	km^2	2,011 (El Salvador-Guatemala); 919 (National)	768.0	778.43
Perimeter	km	268.0	228.1	107.5
Maximum lift	masl	2,365.0	1,436.8	1980.0
Soils	---	Latosols Arcillo Reddish, Litosols, Regosols, Grumosols and Alluvial	Latosols Arcillo Reddish, Litosols, Regosols, Grumosols and Alluvial	Latosols Arcillo Reddish, Litosols, Regosols, Grumosols and Alluvial
Annual Average Precipitation	mm	1400-2400	1400-2400	1400-2400
Climate Classification	---	Hot Land / Sizzling Temperate 16-28 ℃	Hot Land / Sizzling Temperate 16-28 ℃	Hot Land / Sizzling Temperate 16-28 ℃

Source: IGN, 2000 and UNESCO, 2006
Key: Km^2 = square meters; km = kilometers; masl = meters above sea level; mm = milímeters.

4.1.5.2 Rivers and Ravines

The main rivers and ravines within the Project area are Rio Grande of Sonsonate or SENSU, Río Cashalate, Quebrada de Invierno, Río Camalote and Río El Venado (see Figure 4.1-14). The main characteristics of these rivers are described below:

- Rio Grande of Sonsonate presents a permanent flow towards the Pacific Ocean;
- Cashalate River is part of Paz hydrographic region and has a permanent flow north to Paz River;
- Quebrada de Invierno is part of Cara Sucia-San Pedro hydrographic region and only has a flow during the rainy season, with a southward direction towards the Pacific Ocean;
- Río Camalote is part of Cara Sucia-San Pedro hydrographic region and presents a permanent flow southward to the Pacific Ocean; and
- El Venado River which is part of the Grande of Sonsonate-Banderas and presents a permanent flow south to the Pacific Ocean.

According to MARN data, there are no records of flows of the rivers and / or streams mentioned above. However, within the Sonsonate department,

where a large part of the Project is located, there are two hydrometric (telemetric) stations that record flows of Sensunapán rivers (Santa Emilia station) and San Pedro (La Atalaya station). Table 4.1-6 presents a summary of the flows recorded in both hydrometric stations; while Table 4.1-7 presents a water balance for Río Grande of Sonsonate basin according to UNESCO (2006).

Table 4.1-6 Information of Hydrometric Stations close to the Study Area

Station	*River*	*Parameters*	*Units*	*Value*
Santa Emilia	Sansunapán	Multi-year average flow	m^3/s	---
		Registered maximum flow (11 October 2013)	m^3/s	310
		Registered minimum flow (April 27, 2014)	m^3/s	4.78
La Atalaya	San Pedro	Multi-year average flow	m^3/s	3.00
		Registered maximum flow (11 October 2013)	m^3/s	391.37
		Registered minimum flow (April 27, 2014)	m^3/s	0.44

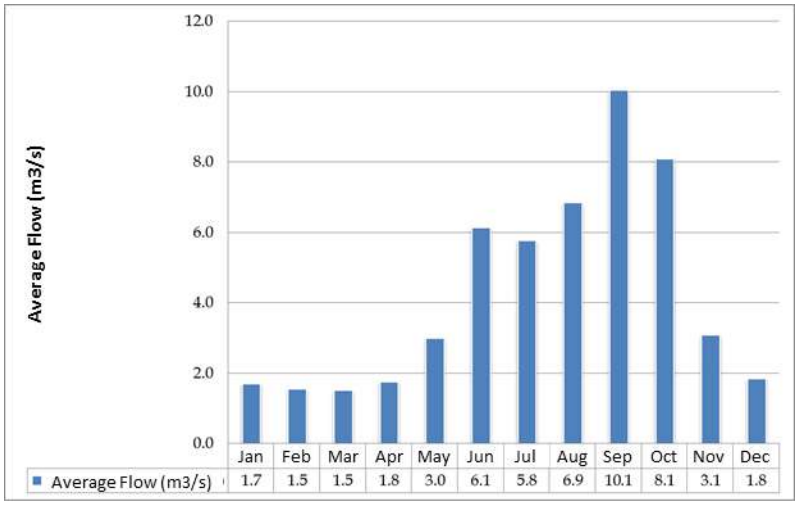
Source: Adapted from MARN, 2014b

Table 4.1-7 Water Balance for Río Grande of Sonsonate Basin

Basin	*Area (km^2)*	*Precipitation*	*Evaporation of water bodies*	*Real evaporation*	*Evaporation of urban areas*	*Surface runoff*	*Aquifer recharge*
		Millions of cubic meters (Mm^3)					
Río Grande of Sonsonate	220	458.72	0.37	187.23	2.33	180.64	88.15

Source: Adapted from UNESCO, 2006
Key: Km^2 = square kilometers

According to SNET database, there are no hydrometric stations that record flows for Rio Grande of Sonsonate, so it was necessary to estimate the annual and monthly mean flows using the mean annual regionalization equations and monthly distribution factors that apply to the Hydrological Region No. 1 (see UNESCO, 2006); the drainage area of Río Grande of Sonsonate basin of approximately 220 km2 was also used (see Table 4.1-7). Considering the above, the average flow rate for Río Grande of Sonsonate was estimated at 4.3 cubic meters per second (m3/s); while estimated average flow rates per month ranged from 1.5 to 10.1 m3/s (see Figure 4.1-15).



Source: Estimated by ERM

Figure 4.1-15 Estimated Average Flow for Rio Grande of Sonsonate

4.1.5.3 Surface Water Quality

According to MARN (2012) since 2006, permanent monitoring of water quality has been carried out in 123 sampling sites in 55 rivers in the Salvadoran territory. The main objective of this program is to assess its condition to allow the development of aquatic life and determine the use of watercourses.

There is no baseline of water quality for rivers and/or ravines located within the Project area. In order to have a general idea of the water quality within the municipalities close to the study area, general aspects of surface water quality outside the Project's area of influence are described below.

The MARN (2012) reports a water quality diagnosis of the rivers located within Sonsonate hydrographic region. This diagnosis concludes that according to the Water Quality Index (WQI) for 2011, the water quality of the rivers located in this region is good at two monitoring points, poor at six monitoring points and regular at nine monitoring points. Table 4.1-8 presents a summary of available water quality data for the main rivers/ravines near the Project area.

Table 4.1-8 Water Quality Summaries of the Principal Rivers Near the Project Area

River	*Water suitable for Potabilization*	*Water with Environmental Quality*	*Water for Irrigation*	*Water for Recreational Activities*
Paz River	The lower middle part (Downstream of La Hachadura bridge). The main channel of Paz River is suitable for potabilization by conventional methods, since it presents high levels of fecal coliforms (up to 1700 MLN/100ml).	The results of the Diagnosis show that in general the water qualifies as "Regular" which limits the development of aquatic life.	In general, the water quality for irrigation is good and only in the upper part of the main channel of Paz River is the parameter of fecal coliforms out of norm with a value of 1700 MLN/100ml.	In basin of Paz River (downstream of La Hachadura bridge), they comply with the regulations for recreational activities involving human contact with water. The sites that do not comply correspond to those that present average levels of turbidity and a value of fecal coliforms of 1700 MLN/100ml.
Cara Sucia River			In general, the quality of the water for irrigation is good and in few cases, it has problems with pH, conductivity and high levels of sodium. A contamination problem for irrigation are high levels of fecal coliforms, ranging from 1300 MLN/100ml to 160,000 MLN/100ml.	In general, the water quality of rivers is not suitable for recreational activities involving human contact with water. Only the upper part of El Rosario River and Guayapa River comply with the regulations.

River	*Water suitable for Potabilization*	*Water with Environmental Quality*	*Water for Irrigation*	*Water for Recreational Activities*
Sansunapán, Cenizas Rivers	In the basin of "Río Grande of Sonsonate", the Sensunapán or Río Grande of Sonsonate and Ceniza River were evaluated. None of the evaluated sites fulfilled the capacity of raw water to be purified by conventional methods. BOD5 and phenol values ranging from 3.7 mg/L to 4.3 mg/L, respectively, indicating a high degree of organic contamination	The environmental quality of Río Grande of Sonsonate and Ceniza River ranges from Regular to Mala, being of better quality in the upper part of the basins, that is, it allows aquatic life, but in a very limited way.	In general, the water quality for irrigation is good except for the high levels of fecal coliforms, ranging from 5000 MLN/100ml to 160,000 MLN/100ml.	The waters are not suitable for recreational activities due to the high levels of fecal coliforms and low dissolved oxygen levels in Ceniza River.

Source: Adapted from MARN, 2012
Key: MLN/100 ml = Most Likely Number (MLN)/100 milliliters of total coliform bacteria

4.1.5.4 *Hydrogeology*

This section describes the main hydrogeological characteristics of the study area of the Project, considering the main aquifers and their susceptibility to be contaminated; a brief description of the quality of groundwater is also presented. Based on what has been reported by the United States Army Corps of Engineers (USACE, 1998), most of the aquifers in El Salvador are made up of lava flows and pyroclastic flows from the Middle Tertiary to the Recent Era, being San Salvador and Cuscatlán formations the most important aquifers in El Salvador.

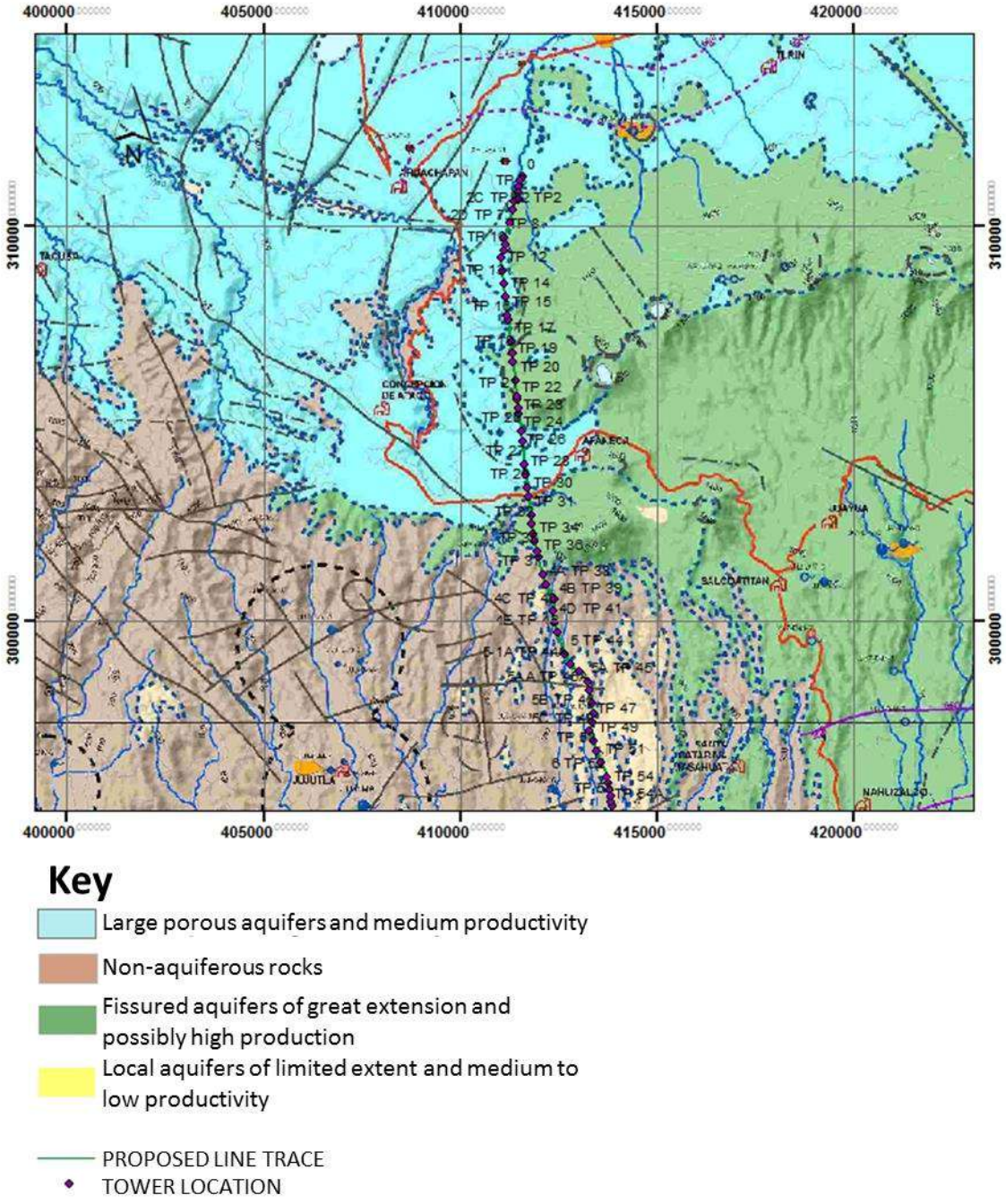
Table 4.1-9 presents a summary of the main characteristics of the hydrogeological units within the Project study area; while Figure 4.1-16 shows the location of such hydrogeological units.

Table 4.1-9 Description of Hydrogeological Units Within the Project Study Area

Hydrogeological Units	*Description*
Non-aquiferous rocks	It is composed of old lavas, melted tuff (ignimbrites) and agglomerates of tertiary age, which have very low hydraulic characteristics due to their high degree of weathering or decomposition, that is, they have been exposed to the most atmospheric agents which accelerate Its transformation into clays. Because of this, in most cases, the predominant factor in its classification as an aquifer is the age of the rock: the older the rock, the greater the degree of decomposition and compaction. However, the hydraulic properties of these materials may vary locally. The presence of cracks in old lava flows makes possible the existence of groundwater flows that transit in specific areas giving rise to local aquifers. These properties are not homogeneous and will depend on the degree of fracture of the rock and the presence of clays.
Local aquifers of limited extent and medium to low productivity	The sedimentary alluvial and eluvial deposits of San Salvador formation, which are in intercalation with reworked pyroclastics and Agglomerated Tufts, constitute a porous aquifer formed by materials that are the product of sequences of events of transport and sedimentation of materials. The limb that underlies the sediments is formed by lavas, tuffs and agglomerates of Bálsamo formation; they do not present homogeneity in their hydraulic characteristics. These depend on their degree of compaction and the presence of fractures. That is, they could also form isolated aquifers under special circumstances.

Hydrogeological Units	*Description*
Large porous aquifers and medium production	It consists essentially of loose and semi-composite structure materials; have a primary porosity, that is, they allow the storage and transit of groundwater through the spaces that exist between the grains that constitute them. The central part of Zapotitán Valley was formerly occupied by a lagoon, "during the lacustrine period muddy and turbid sediments were formed", for which there are sedimentary deposits of fluvial and lacustrine origin throughout the valley. Additionally, the volcanic activity of Coatepeque Caldera and the volcano of San Salvador has left deposits of pyroclastic materials and tufts of loose structure to semicompact, in addition to lava of compact structure, in alternation with the sedimentary deposits. Currently sediments of fluvial origin are visible on Río Colón riverbed and throughout the Zapotitán Valley. They consist of boulders, gravel, sand, silt and clays. They are composed basically of materials that have been dragged and deposited in alluvial terraces by the mentioned river. The lavas that have been found in perforations of the zone are of andesitic and basaltic character, in some points lava flows have been detected at depths between 70 m and 160 m.
Fissured aquifers of great extension and possibly high production	The porosity of these materials is secondary, that is, that groundwater circulates and is stored through fractures of the rock occurring after they were deposited. One of the basic characteristics of this type of aquifer is its great anisotropy, so its hydraulic characteristics can not be generalized for an entire area. They consist mainly of lavas of quaternary and tertiary age coming from nearby volcanic structures. It is also possible to find flows of lavas less recent belonging to the chain of tertiary material, located to the south of the land of the Project area that in spite of its age could be fractured giving the possibility of capturing and transmitting underground water.

Fuente: Adapted from MARN, 2014b



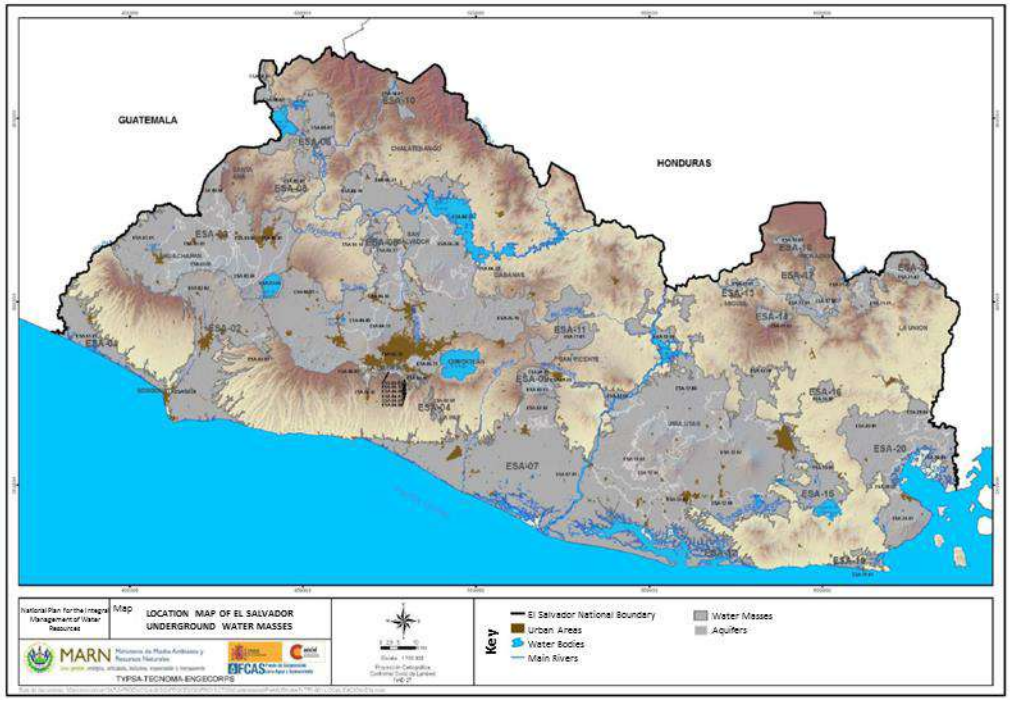
Source: Adapted from Hydrogeological Map of El Salvador ANDA, 2008.

Figure 4.1-16 Hydrogeological Units within the Area of Study

According to MARN (2014b), a total of 72 aquifers and 21 groundwater bodies (MASub) have been delimited in El Salvador. MASub are groups of aquifers that attend to their hydrogeological and hydrochemical behavior. The main aquifers of El Salvador are: the aquifer of San Salvador valley;

the aquifer of Zapotitlán valley; the aquifers in the valleys of Ahuachapán, Santa Ana, San Vicente and Usulután; the aquifer of San Miguel valley; the aquifer of West Coastal Plain; The Sonsonate aquifer; The aquifer of the Central Coastal Plain; and Río Lempa-Usulután coastal aquifer (UNESCO, 2006). Figure 4.1-17 showing the location of aquifers and MASub in El Salvador, as reported by MARN (2014b). The main aquifers near the Project area are:

- Aquifer of Ahuachapán valley that is located to the feet of Ahuechapán volcano and is used to supply water to cities and near towns. The water depth is between 10 and 40 m with flows between 30 and 60 liters per second (l/s) (Dimas 2005).
- Aquifer of Sonsonate-Acajutla that originate in the area of recharge of Santa Ana and Izalco volcanoes and serve to supply of drinking water to the city of Sonsonate, to small projects of irrigation and to the industrial zone of Acajutla. The depth of groundwater in this aquifer varies from 5 to 50 m and yields between 40 and 100 l/s (Dimas 2005). The aquifer is composed of recent alluvial sediments beginning in the northeastern part of the city of Sonsonate (Jovel-Campos et al., 2003).



Source: MARN, 2014

Figure 4.1-17 Groundwater Masses in El Salvador

4.1.5.5 *Groundwater Quality*

In general, groundwater quality in El Salvador is good, with notable exceptions for coastal, geothermal and densely populated areas. Also, many shallow aquifers are vulnerable to being contaminated, mainly due to poor management and waste disposal (USACE, 1998).

The quality of the groundwater near and within the Project area depends on the residence time it has had in the aquifer. For example, if water is older in the aquifer, it will surely have more associated elements.

Data from FERTICA well monitored by ANDA (Araujo, 2016) and three other wells located in Acajutla were monitored during the information surveys for the Environmental Impact Study of the Pacific Liquid Natural Gas (LNG) Plant (Energía Del Pacifico 2014). Figure 4.1-14 shows the location of these monitoring wells; while Table 4.1-10 and Table 4.1-11 present the groundwater quality parameters monitored in these wells, which are compared with the Salvadorean Mandatory Standard NSO 13.07.01: 08 water and drinking water (MINSAL, 2009). Based on this comparison of available groundwater quality data, only the microbiological parameters were above the NSO standard 13.07.01: 08 (total coliforms and fecal, see Table 4.1-11)

Table 4.1-10 Water Quality in Wells Located in Acajutla

Parameter	*Units*	*Maximum Admissible Limit*	*Colonia Alvarado*	*Duke Energy*	*Chevron*
pH	---	6.0-8.5	7.70	7.80	7.20
Odor	---	---	No Rejectable	No Rejectable	No Rejectable
True color	Pt-Co	15.0	1	0	1
Apparent color	Pt-Co	---	---	0	1
Turbidity	UNT	5.0	0.25	0	1.0
Total Dissolved Solids	mg/L	600	222	180	142
Total Alkalinity	mg/L	350	---	138	182.3
Total hardness	mg/L	400	102.80	94	110.6
Carbon dioxide	mg/L	---	---	8.41	24.5
Conductivity	µS/cm	400 [a]	---	360	285
Carbonate hardness	mg/L	---	---	94	110.6
Calcium	mg/L	75.0	---	17.6	23.3
Magnesium	mg/L	50.0	---	12.15	12.7
Total iron	mg/L	0.30	<0.05	---	0.16
Dissolved iron	mg/L	---	---	0	0.08

Parameter	*Units*	*Maximum Admissible Limit*	*Colonia Alvarado*	*Duke Energy*	*Chevron*
Total manganese	mg/L	0.10	0.05	---	0.15
Manganese dissolved	mg/L	---	---	0.0	0.10
Carbonatos	mg/L	---	---	0	0
Bicarbonatos	mg/L	---	---	138	182.3
Hidróxidos	mg/L	---	---	0	0
Cloruros	mg/L	25.0	---	18	25.8
Nitratos	mg/L	45.0	<1.0	0.08	0.02
Sulfatos	mg/L	250.0	15.70	13	3.6
Sílice	mg/L	125.0	---	91.98	25
Fluoruros	mg/L	1.5	---	0.31	0.5

Source: Adapted from Energía de Pacífico, 2014

[a] Standard CAPRE, 1994

Key: mg / L = milligrams per liter; µS/cm= microsiemens per centimeter; Pt-Co = platinum-cobalt scale (APHA) UNT = Turbidity Nephelometry Unit

Table 4.1-11 Water Quality in Fertica Well

Parameter	*Units*	*Maximum Allowed Limit*	*Perforated well FERTICA*
Date	—	—	March 26, 2013
pH	—	6.0-8.5	7.51
Total Alkalinity	mg/L	---	158
Total Solids	mg/L	---	296
Conductivity	µS/cm	400[a]	410
Total Dissolved Solids	mg/L	1000[b]	203
Total hardness as CaCO3	mg/L	500	114
Carbonaceous Hardness	mg/L	---	114
Non Carbonate Hardness	mg/L	---	0
Carbon dioxide	mg/L	---	6.8
Calcium	mg/L	---	22.4
Magnesium	mg/L	---	14.1
Total iron	mg/L	0.3	<0.05
Soluble iron	mg/L	0.3	< 0.05
Total manganese	mg/L	0.1	< 0.025
Soluble manganese	mg/L	---	< 0.025
Chlorides	mg/L	---	31.4
Silica	mg/L	---	40.8
Sulfates	mg/L	250	6.2
Fluorides	mg/L	1	0.5
Nitrates	mg/L	45	< 1
Total Coliform Bacteria	NMP/100 mL	< 1.1	> 8
Fecal Coliform Bacteria	NMP/100 mL	< 1.1	1.1

Parameter	*Units*	*Maximum Allowed Limit*	*Perforated well FERTICA*
Escherichia coli	NMP/100 mL	< 1.1	Absence

Source: Adapted from Araujo, 2016.
[a] Norm CAPRE, 1994
[b] Conditions of the country
Key: NMP/ 100 mL= Most likely number per 100 milliliters; cm= Microsiemens per centimeter; mg/L= Milligrams per liter; $CaCO_3$= Calcium carbonate.

4.1.5.6 *Water Uses*

According to the statistical bulletin of 2013 (ANDA, 2013), there was a total consumption of drinking water of approximately 222,366 thousand m3 of which the metropolitan population had a consumption of 51.2%, the central region 23.2%, the western region 15.4% and the eastern region 10.2% of the total consumption of the country. The project area is located within the western region, which recorded a water consumption of approximately 34,181 thousand m3, of which Ahuachapán recorded a consumption of 5,631 thousand m3 and Sonsonate 9,961 thousand m3. Table 4.1-12 presents a summary of drinking water consumption by user class based on ANDA statistical data for the year 2013. According to the Food and Agriculture Organization of the United Nations (FAO, 2016), 66% of water at the national level is used for irrigation, 22% in municipalities, 9% for the thermoelectric sector; while the remaining 3% is used for agriculture, livestock and industry.

Table 4.1-12 Drinking Water Consumption by User Class for the Year 2013

User	*Volume in thousands of cubic meters*	*Percentage*
Domicile	172,386	77.5
Central government	8,698	3.9
Autonomous institutions	1,194	0.5
Municipals	2,86	1.3
Marginal	6,581	3.0
Private operation	30,644	13.8
Total	***222,365***	***100***

Source: Adapted from ANDA, 2013

4.1.6 *Air Quality*

This section presents a description of the air quality and greenhouse gas (GHG) conditions of the baseline for the Project area. It is anticipated that air quality in the Project area will generally be affected by natural and anthropogenic emissions, such as:

- Dust dragged by the wind in the dry season;
- Dust created by driving vehicles on unpaved roads;
- Gas exhaust (industrial zone of Acajutla);
- Smoke from fires and burning of crops (eg sugar cane); and
- Combustion of fuels in engines.

Air quality conditions in El Salvador are verified through the measurement of particulate matter less than 2.5 micrometers (PM 2.5), which is considered the pollutant criterion that causes the greatest damage to human health. Since 2008, MARN has operated an air quality monitoring network (REDCA), which is located only in the metropolitan area of San Salvador. This network has three automatic stations located in the East of San Salvador (Don Bosco University), in Downtown San Salvador (Centro de Gobierno) and to the East of San Salvador (Consejo de Desarrollo Metropolitano (CODEM)). These stations are equipped to monitor carbon monoxide (CO), sulfur dioxide (SO2), nitrogen oxides (NOx) and particulate matter less than 10 and 2.5 micrometres (PM 10 and PM 2.5) (MARN, 2015c).

4.1.6.1 Sources of Emission

Within the department of Sonsonate, where the Project is located, there is no air quality monitoring stations operated by MARN. Air quality information for the entire study area is limited and focuses only on the municipality of Acajutla. According to the Environmental Impact Study prepared for the proposed Acajutla plant (Energía del Pacífico, 2014), baseline air quality monitoring was performed with indicators that included: nitrogen dioxide (NO2), carbon monoxide (CO), sulfur dioxide (SO2), total suspended particles (TSP), particulate matter less than 10 micrometers (PM 10) and particulate matter less than 2.5 microns (PM 2.5). The parameters monitored were compared to the air quality criteria established in the local guide titled NSO 13.11.01: 01 - Environmental Air Quality Atmospheric Emissions (Official Journal, 2003) and the Health, Hygiene and Environment Guidelines - Environmental Emissions Guidelines and Air Quality Standards established by the International Finance Corporation (IFC, 2007). Monitoring was performed with an

instrument for particulate material (PST, PM10 and PM 2.5) and one for the other compounds. The location of monitoring site in Acajutla, which was selected considering proximity to sensitive receivers (residences, schools, etc.), presence of other significant sources of emissions (eg, port, existing power station), availability of a safe location for the equipment and access to a source of electricity; Is shown in Figure 4.1-18.

In general terms, the air quality throughout the study area is good, given the conditions prevailing in the natural environment (pasture and natural vegetation, as well as agricultural and crop land) as shown in Figure 4.1-19 and Figure 4.1-20. The main sources of pollution throughout the study area, but not yet affecting air quality, are the combustion of transport units (public and private) and the non-continuous or controlled burning of solid waste (eg, Ahuachapán, Concepción de Ataco, Apaneca, San Pedro Puxtla and Santo Domingo). However, for the Acajutla area, air quality is influenced by local industrial sources (eg, existing power plants, port activities) and seasonal agricultural activities (eg, burning of cane harvest season, field tillage and its preparation).

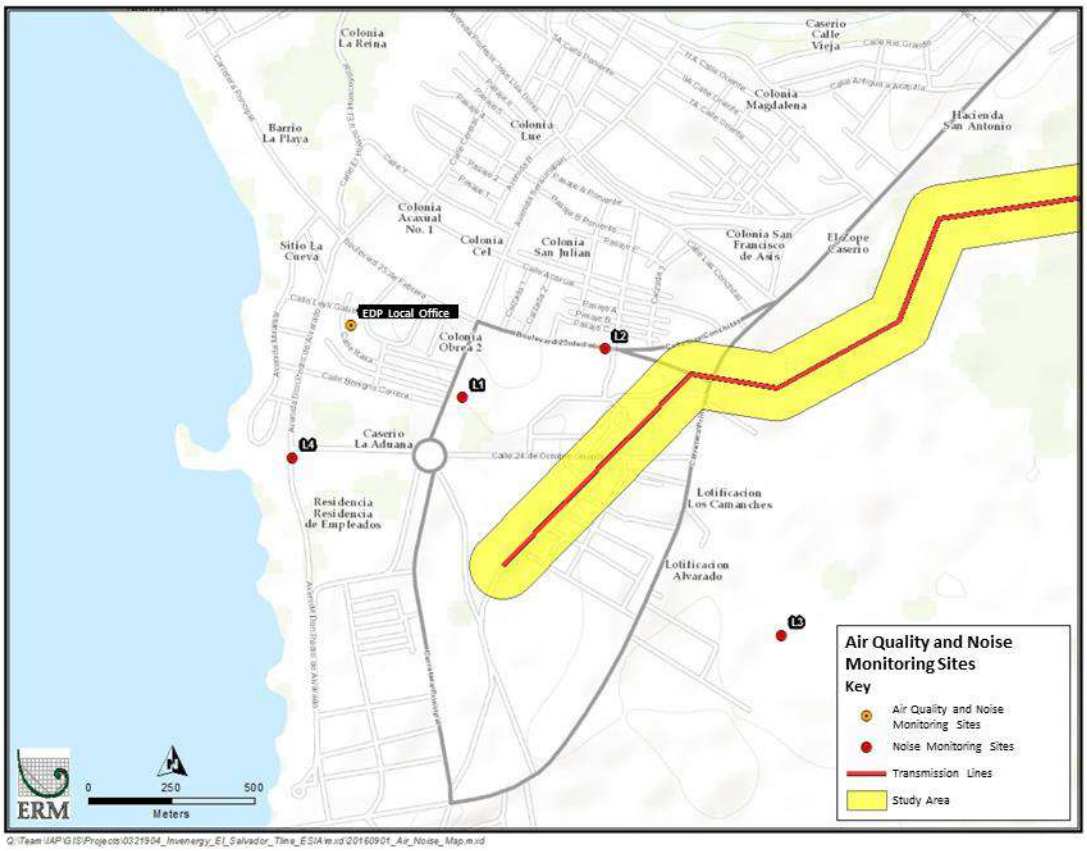
Table 4.1-13 Measured Air Quality Parameters in Acajutla

Compound	*Average Period*	*Concentration (µg/m³)*	*Criteria (µg/m³)*
Nitrogen dioxide	24- hours	27.4	150
	Annual	5.3[a]	100
Carbon monoxide	1-hour	681.2	40,000
	8-hours	563.1	10,000
Sulfur dioxide	24-hours	178.2	365
	Annual	34.2[a]	80
Suspended total particles (STP)	24-hours	372.2	260
	Annual	71.3a	75
Particulate matter <10 µm	24-hours	196.2	150
	Annual	37.6[a]	50
Particulate matter <2.5 µm	24-hours	34.1	65
	Annual	6.5[a]	15

Source: Adapted from Energía del Pacífico, 2014

[a] Annual concentrations calculated using 24 hours at an annual conversion factor of 0.1916

Key: µg/m³= micrograms per cubic meter



Source: Adapted from Energía del Pacífico, 2014

Figure 4.1-18 Location of Air Quality Monitoring Sites and Noise Levels for the Liquefied Natural Gas Plant Project

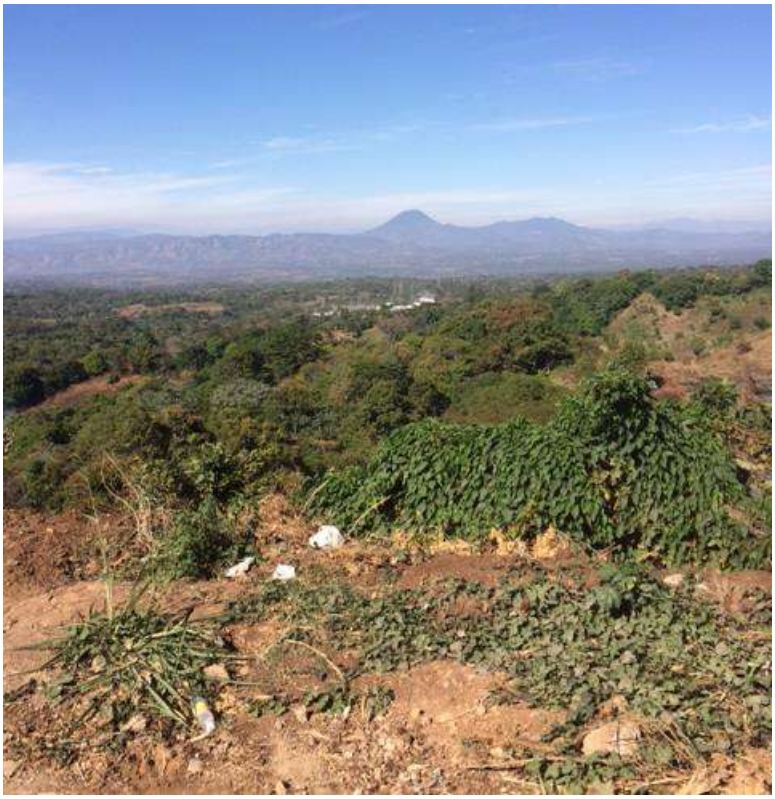


Figure 4.1-19 Panoramic View to Ahuachapán Substation



Figure 4.1-20 Lower Zone Acajutla Municipality

4.1.6.2 Greenhouse Gases

Greenhouse gases (GHG) are gases that absorb reflected solar radiation from the earth's surface and contribute to global warming. The three most common GHG gases are carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). Other GHGs such as hydrofluorocarbons (HFCs), water vapor and sulfur hexafluoride (SF6) are not so common and are generally limited to specific types of facilities (eg power generation facilities).

Historically and to date, El Salvador stands out for its low GHG per capita emissions, ranking 31st at the regional level with 1.8 tons of carbon dioxide equivalent per capita (tCO2e / hab), with the energy sector being the cause of the most of GHG emissions at the national level (Vicuña, 2014). However, the country is committed to the international effort to reduce GHG emission levels and is in the process of implementing a low emission development model (MARN, 2015d).

The GHG inventory update for El Salvador was developed in 2005[ii] through MARN and using the Intergovernmental Panel on Climate Change (IPCC) guidelines for national GHG inventories and the "Good Practice Guidance and Management of Uncertainty" in national GHG inventories (MARN, 2013a). The GHG inventory comprises the calculation of emissions in the following categories:

- Energy
- Industrial processes
- Farming
- Land use, land-use change and forestry (LULUCF)
- Waste

According to the MARN inventory (2013), the GHG estimate for 2005 was estimated at approximately 14,453 giga grams of carbon dioxide equivalent (GgCO2e). Emissions by sector were calculated as: 5,909 GgCO2e (energy), 442 Gg of CO2e (industrial processes), 3,115 Gg of CO2e (farming), 3,380 Gg of CO2e (land use, land use change and forestry - LULUCF) and 1,606 gg of CO2e (waste). Compared with the year 2000

[ii] El Salvador has three GHG inventories corresponding to the years 1994, 2000 and 2005.

inventory (13,942 Gg of CO2e), GHG emissions increased by approximately 3.7% due to increases in the energy, agriculture and waste sectors. However, LULUCF had a decrease in emissions compared to the year 2000.

4.1.7 *Noise*

This section describes the environmental noise for the Project study area. Also, a brief introduction on the basic concepts and terms related to noise is included. The noise measurements reported in this study were obtained from a cabinet review.

Noise is defined as an unwanted sound. The loudness/sonority of the sound is measured in decibels (dB). Changes in sonority are described on a logarithmic scale (decibel scale). Since the decibel scale is logarithmic, noise levels do not add up or change according to simple linear arithmetic. Therefore, adding the levels of two equal noise sources results in a doubling of the sound energy, which gives a combined noise level of 3 dB higher than the individual levels. For example: 70 dB plus 70 dB equals 73 dB, not 140 dB. The sound measurement is tuned using a weighted scale A, which focuses on a range between 1000 and 8000 cycles per second. These cycles represent frequencies of sound more audible to the human ear; therefore, unless otherwise noted, all decibel measurements presented in this report are weighted according to curve A (dBA) on a logarithmic scale. Since sound often varies over time, statistical (or metric) parameters are used to measure and describe the sound.

El Salvador does not have noise standards and therefore the threshold levels set out in the IFC Environment, Health and Safety guidelines (2007) were used to compare noise levels measured under existing conditions. According to IFC (2007) the noise levels generated by a project should not exceed the levels presented in Table 4.1-14 or result in a maximum increase of 3 dB background noise at the nearest receiver. The IFC guidelines identify two classes or groups of recipients, habitational or residential land uses, institutional and educational uses; and the second group that includes industrial and commercial land uses. As can be seen in Table 4.1-14, noise levels for residential receivers are more restrictive.

Table 4.1-14 Noise Threshold Levels Established by the International Finance Corporation

Receiver	One hour L_{Aeq} (dBA)	
	Daytime 07:00-22:00	Overnight 22:00-07:00
Residential; institutional; educational	55	45
Industrial; commercial	70	70

Source: Adapted from IFC, 2007
Key: dBA = decibels weighted according to curve A; LAeq = Equivalent continuous level (dBA).

The only data of noise levels along the Project area correspond to those measured in the proximity to the existing power plant in Acajutla during the elaboration of the Environmental Impact Study of the same. The locations of sampling points in Acajutla were carried out in 4 sites with 3 RION NL-22 sound level meters equipped with windshields, microphone extension cable, protective case and a data logger. The microphones were placed 1.5 m from the ground approximately. Monitoring results and their comparison with daytime and night noise criteria of the IFC are presented in Table 4.1-15; while the location of the monitoring points is presented in Figure 4.1-18 (Energía del Pacífico, 2014). As can be seen in Table 4.1-15 the daytime noise levels at the four monitoring points were below the guidelines set by the IFC (55 dBA). On the other hand, night noise levels at the L1, L2 and L3 monitoring sites were above the IFC guideline (45 dBA) and therefore the applicable criterion for this zone will be the minimum values measured at those sites (See Table 4.1-15).

The noise levels in this area are indicative of an acoustic environment dominated by low frequency noise with some tonal characteristics. The low-frequency aspect of noise is most noticeable at night when background noise due to road traffic or urban buzzing in general is lower and the dominant source of noise is from the Duke Energy Power Plant (Energía del Pacífico, 2014). In general, the sources of noise in the study area correspond mainly to rural settlements and to low-moderate traffic typical of natural and agricultural areas. The main sources of noise come from the road to Acajutla and small urban centers close to the project area (eg, Ahuachapán, Concepcion de Ataco, Apaneca, San Pedro Puxtla and Santo Domingo).

Table 4.1-15 Summary of Background Noise Monitoring in the Acajutla Area

Monitoring point	Date	Per hour Leq (dBA)					
		Daytime 07:00-22:00			Overnight 22:00-07:00		
		Maximum	Minimum	Applicable standard	Maximum	Minimum	Applicable standard
1 (Residential area to the northwest)	April 9-13, 2014	63.8	48.3	55	63.9	50.3	50.3
1 (Residential area to the north)	April 9-13, 2014	66.1	53.9	55	62.6	53.6	53.6
3 (Residential area to the southwest)	April 9-10, 2014	67.3	52.8	55	61.7	55.5	55.5
4 (Area close to craft pier)	April 11-13, 2014	62.6	46.2	55	58.9	43.9	45

Source: Adapted form Energía de Pacífico, 2014
Key: dBA = Decibels weighted according to curve A; LAeq = Equivalent continuous level (dBA)

4.2 *BIOLOGICAL ENVIRONMENT*

The baseline methodology of the biological components included tours in the Project area, including all TL right of way. Parcels of land, transects, auditory bands, visual encounters, and auditory and visual observation points were used. In order to determine the richness, abundance, diversity and importance of the species, relative abundance, Shannon Wiener, Simpson, Value and Importance Index (VII) and wealth indexes were estimated using the EstimateS 8.0 program.

For terrestrial fauna, the study focused on vertebrate groups: mammals, birds, reptiles and amphibians. There were no collections, but capture and release on site of species of fauna, especially the group of bats, to meet the scope of the study requested by the technicians of MARN. The respective permit was obtained for the capture and release of specimens of fauna.

4.2.1 *Flora and Fauna*

4.2.1.1 Vegetation and Terrestrial Flora

Plant Cover Units

Based on Landsat satellite imagery, the University of Maryland has analyzed global forest cover for 2014 (Hansen et al., 2013). For the Project area, these images cover according to the density of woody elements (trees and shrubs, see Figure 4.2-1):

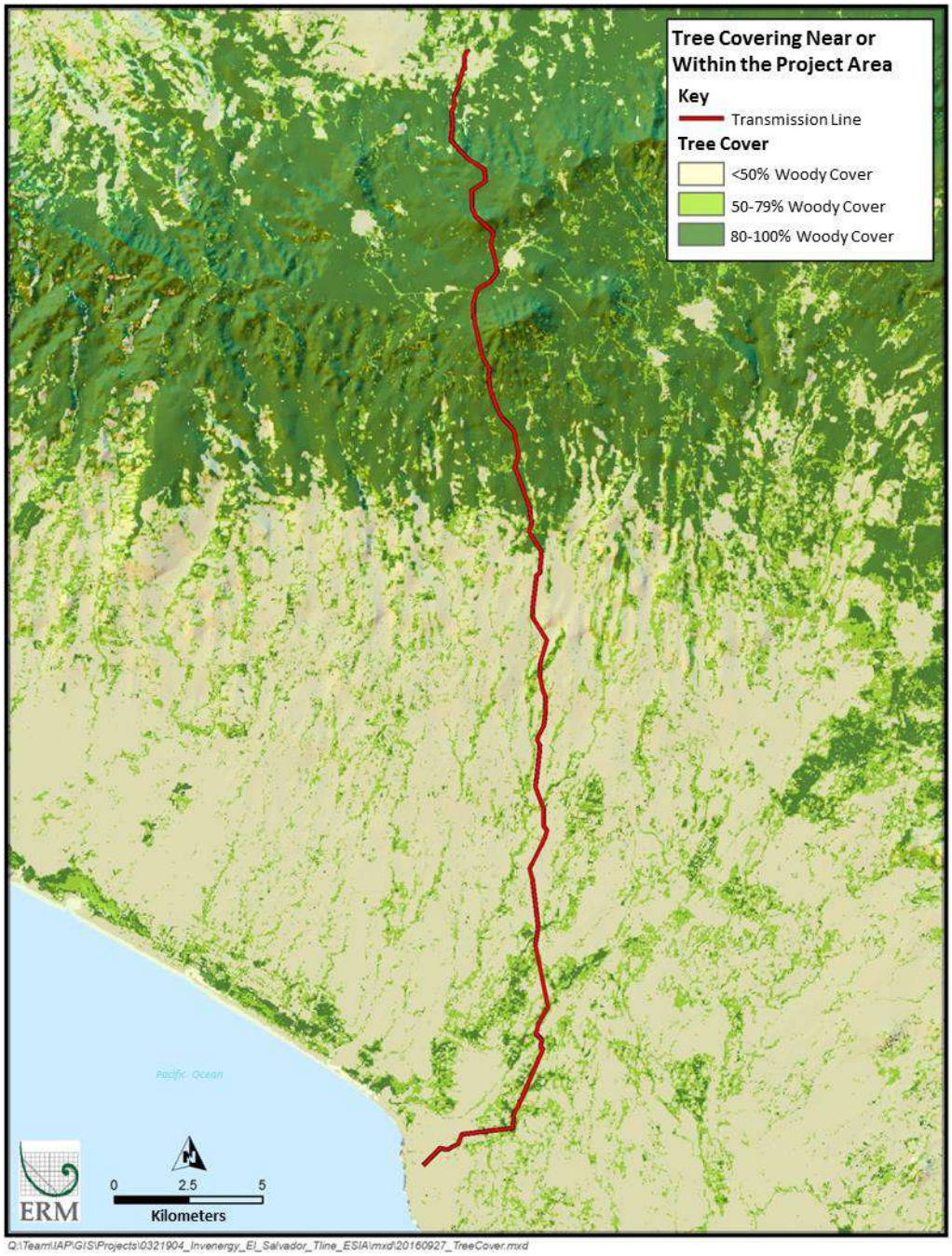


Figure 4.2-1 Classification of Habitats in the Project Area

In satellite imagery, there are areas that appear to be natural forests but actually shade-grown coffee plantations under cover of trees. In the available images, it is not possible to determine whether a forest is natural or a coffee plantation. Based on measurements of sections of Google Earth Pro imagery for the year 2016, it is estimated that the area of natural forest remaining within the right of way strip is less than 18 ha in total. The figures estimated above include rows of trees and riparian or gallery forests in pasture and crop areas.

According to the 2004 national inventory of land use, there were areas of coffee plantations, natural forests, grasslands and urban areas within the Project's area of influence. The field study was developed in the coffee plantation forest, forest patches and growing areas in the area of influence of the project trace.

Methodology

The study area comprises part of the western section of Sierra de Apaneca in the southwest of El Salvador, in the departments of Sonsonate and Ahuachapán. This area houses the largest coffee growing landscape in El Salvador, and contains some patches of natural forest located between coffee plantations.

The sites sampled belong to three altitudinal zones. The lowlands, until approximately 700 masl, belong to the Ecoregion Dry Forests. The average elevations, until approximately 1900 masl, belong to the Ecoregion of the Humid Forest. The highest peaks contain forest of fog, and belong to the Forest Ecoregion Montanes. Coffee is grown from about 400 m to about 1700 m, and on more than 90% of the surface within this altitudinal range.

For the study of flora, all cultivated areas/pastures, coffee plantations and forest patches that were within the area of influence of the Project were sampled (see Figure 4.2-2). A total of 30 sampling sites were established, with 10 sites in each type of coverage: i) forest fragments, ii) coffee farms and iii) extension areas used for pasture or basic grain production. The sampling sites were parcels of land of 0.1 ha (10 m x 100 m) randomly placed within each type of cover.

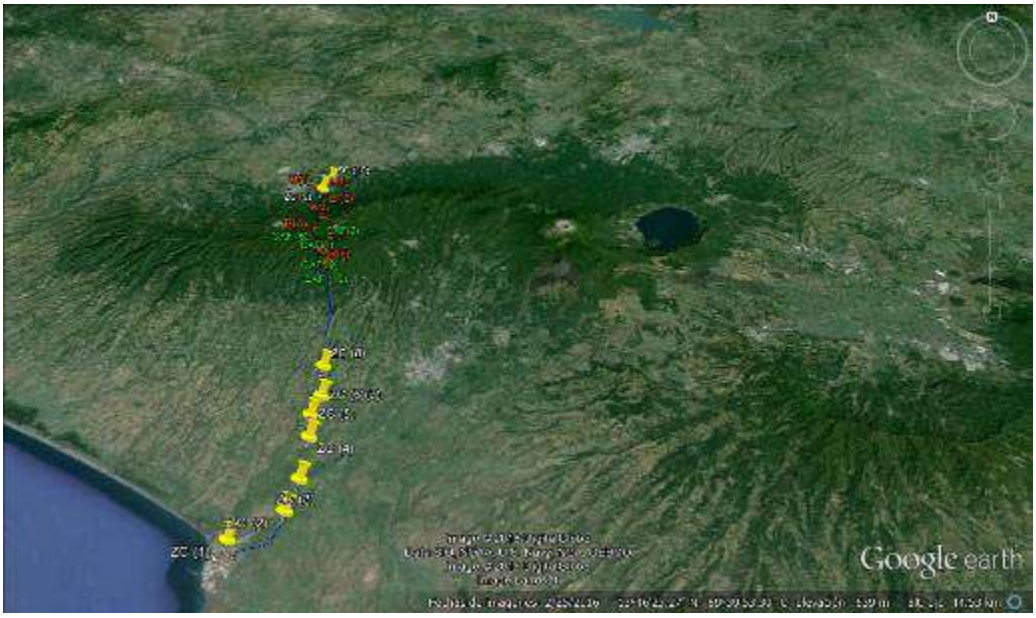


Figure 4.2-2 Location of the 30 Flora Sampling Sites along the Transmission Line Route

Diversity and Abundance of Flora

To develop a list of tree species, during tours of the area of influence of the Project, all species of trees with a diameter at breast height of 5.0 cm or more were noted. For each species, the scientific name was registered and, where possible, the common name. In the case that the plant could not be identified immediately, some important characteristics were noted, photographed and identified using keys and specialized literature.

To calculate the structure and floristic composition of the patches of forest, coffee plantations and cultivation areas, a survey was carried out at the sampling sites of 0.1 ha. The ten sites by type of vegetation give a total of 10,000 m2 (one hectare) per habitat. The circumference at chest height was measured for each tree of 16 cm or more in circumference. With these data, the VII was calculated for the main woody species. Likewise, coffee shrubs were sampled in the 10 parcels of land corresponding to the habitat of coffee plantations in order to obtain densities per hectare, basal area per hectare and number of shrubs.

With the information recorded in the samplings, we determined the abundance, richness and diversity value index. For alpha diversity, the Shannon-Wiener index was used. Absolute (n) and relative (%) abundance of aquatic organisms recorded in the study were also determined. The

methodology for calculating the indices is described in Appendix A - Vegetation and Flora Report.

4.2.1.2 Structure of Vegetation

The general types of vegetation include the following:

Coffee plantations with Polycultures

This category is characterized by trees not very high (8-10 m), with large number of young trees, fruit trees, timber and introduced to shade the coffee plants, which produces rich and diverse structures in species, with great variety of trees. However, they are not very complex in their physiognomy and include many introduced species that are not from the region (see Figure 4.2-3).

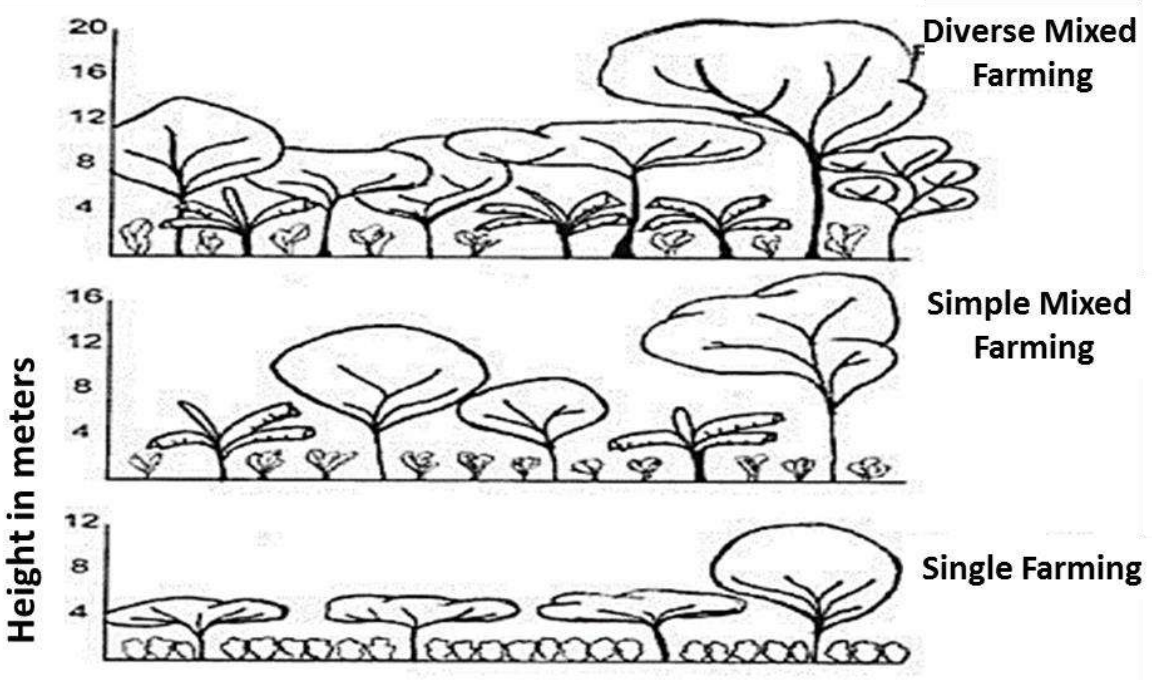


Figure 4.2-3 Scheme of Coffee Plant Structures Present in the Area of Influence of the Project

Coffee Plantations with Monocultures

In this type of coffee farm, it is frequent that trees of one or two species are planted to give shade to the coffee trees. These farms have the simplest structures: with a density of 216 trees per hectare, with an average height of 4.8 m, with thin trunks of average diameter of 17.7 m, without epiphytes, with an average coverage of 65%, although the density of coffee plants per hectare is the highest on farms and can reach 4,300 individuals per hectare (see Figure 4.2-3).

Grasslands

In these areas, the original vegetation has been transformed into agro ecosystems that are currently used as paddocks and growing areas. The sites are dominated by herbaceous vegetation of the families Poaceae, Euphorbiaceae and Asteraceae, and some tree species.

The herbaceous species sampled from the families Poaceae, Euphorbiaceae and Asteraceae include species ideal for warm climates, do not tolerate shade, grow very well under the sun and under the traditional management of the farmer after producing seed is dried. They are among the first species to regrow when the rain begins.

Tree species are found mainly in live fences. These species are well adapted to a wide range of soils in humid to sub-humid climates, including moderately acidic and infertile sites. They are favored by human disturbances and have colonized large areas following the destruction of native forest. These species are a major component of fallows that follow tomb and burn agriculture, probably because of their fire tolerance: after a fire, these species sprout vigorously when the rainy season begins.

In the present study, a total of 123 families, 384 genera and 536 species (including subspecies, varieties and forms) of vascular plants were registered. Of the 536 species, 411 are native and 125 are exotic. Of the total species, 156 are trees (118 native and 38 exotic), 65 are shrubs (34 native and 31 exotic), 75 vines (67 native and 8 exotic), 29 ferns (28 native and one exotic) and 209 herbs 164 native and 45 exotic). The complete list of species is given in Appendix A.

Many of the trees are relatively large and appear to be very old, so they are likely to be in the area since this was a forest, because having recalcitrant seeds does not germinate in dry, open or sunny places. In addition, they appear to be at the upper limit of their altitudinal distribution and also grow in places somewhat removed from the ravines, so it is difficult to suppose that they have been brought there by watercourses.

Some species such as wattle (Acacia polyphylla) and laurel (Cordia alliodora) are typical of areas of early succession. The mothercatchers (Gliricidia sepium), both peccary and paternal (Inga spp.), are native to the country, but in the area they are cultivated for their properties to improve soils through the fixation of Nitrogen and its edible fruits. Some trees, like the amates (Ficus spp.), although dispersed by birds and have relatively fleshy infructescences, are also characteristic of the early stages of regeneration of a forest.

Many of the trees that were detected in the inventory were located only in the ravines. Trees such as the cold ground anona (Annona muricata), the chaperone (Lonchocarpus rugosus ssp. Apricus), nixtamal (Margarida nobilis), chulumuyo (Rollinia mucosa) and palanco (Sapranthus palanga) were only found growing in or near the riverbed of the ravines. To these others like Crudia acuminata, although they grow in other places, are more common in the ravines. Also, some vines like Aristolochia grandiflora were only observed in these places. These observations indicate the importance of ravines as a micro that are important for the conservation and restoration of the forest.

4.2.1.3 *Exotic and Invasive Species*

A total of 123 species of exotic plants were identified (see Appendix A). Some of these species only propagate vegetatively by means of cuttings or rhizomes, since they do not count here with suitable pollinators. Some of the vegetatively propagated are floripundia (Brugmansia candida and B. suaveolens), izote (Yucca guatemalensis) and veraneras (Bougainvilaea spp.), which although they may persist for a long time in abandoned forests and orchards, do not spread other than vegetative and therefore do not represent a danger to native biodiversity. However, a total of 39 species were identified as dangerous invasive species according to the list of invasive plants of the International Union for Conservation of Nature (IUCN) (http://www.issg.org/database/welcome/).

4.2.1.4 *Species Threatened or Endangered*

Ten species of trees and shrubs (see Table 4.2-1) are classified as threatened in El Salvador (MARN, 2015) and/or globally threatened according to IUCN (2016). Pacific mahogany (Swietenia humilis) and chaperno (Lonchocarpus rugosus ssp. Apricus) are classified as endangered species by MARN.

Table 4.2-1 Threatened Species Found Within the Project Area

Specie	*Common name*	*ES*	*IUCN*	*Family*	*Habit*
Astronium graveolens Jacqu.	Glassywood	A	NE	Anacardiaceae	Tree
Cedrela odorata L.	Cedar	A	VU	Meliaceae	Tree

Specie	*Common name*	*ES*	*IUCN*	*Family*	*Habit*
Diphysa americana	Guachipelín	A	NE	Fabaceae	Tree
Eugenia salamensis (Standl.) McVaugh		A	EN	Myrtaceae	Bush
Eugenia sasoana Standl. & Steyerm.		A	NE	Myrtaceae	Bush
Juglans olanchana Standl. & L.O. Williams	Walnut	A	EN	Juglandaceae	Tree
Lonchocarpus rugosus ssp. apricus (Lundell) M. Sousa	Chaperno	EN	LC[a]	Fabaceae	Tree
Myroxylon balsamum var. pereirae	Balm	A	NE	Fabaceae	Tree
Quercus skinneri Benth.	Oak	A	VU	Fagaceae	Tree
Swietenia humilis Zucc.	Mahogany	EN	NE	Meliaceae	Tree

[a] *At species level. IUCN has not evaluated the subspecies of L. rugosus.*
Key: ES: Category in El Salvador; IUCN: IUCN global category; A: Threatened (MARN, 2015); EN: ("Endangare") in danger; LC ("Least Concern"); NE: Not evaluated; VU: ("Vulnerable"), According to: (IUCN, 2016).

4.2.1.5 Floristic Analysis - Structural

Importance Value Index (IVI)

The IVI is a parameter that estimates the contribution or ecological significance of each species in the community; the maximum value is 300%. The closer a species comes to this value, the greater its ecological importance and floristic dominance over other species present and equal to the sum of dominance, abundance and frequency.

The IVI data for the most representative species in the parcels of land are summarized in Table 4.2-2.

Table 4.2-2 Importance Value Indices of the Most Representative Arboreal Species (according to the results obtained from IVI) Present in the Parcels of Land of Structural Floristic Analysis

Specie	*Family*	*Average Circumference (cm)*	*Total Basal Area (cm^2)*	*Relative Basal Area*	*Abundance*	*Relative Abundance*	*Frequency*	*Relative Frequency*	*IVI*
Inga vera	Fabaceae	63	27057.30	30.73	33	27.73	0.75	18.99	77.45
Inga punctata	Fabaceae	107	14659.64	16.65	20	16.81	0.50	12.66	46.12
Inga oerstediana	Fabaceae	91	9506.90	10.80	11	9.24	0.35	8.86	28.90
Persea americana	Lauraceae	159	6615.35	7.51	3	2.52	0.15	3.80	13.83
Trophis racemosa	Moraceae	44	1754.07	1.99	7	5.88	0.20	5.06	12.94
Dendropanax arboreus	Araliaceae	245	5713.44	6.49	2	1.68	0.10	2.53	10.70
Crudia acuminata	Fabaceae	182	5045.21	5.73	2	1.68	0.10	2.53	9.94
Syzygium jambos	Myrtaceae	32	2348.21	2.67	4	3.36	0.15	3.80	9.83
Gliricidia sepium	Fabaceae	115	3675.70	4.17	3	2.52	0.10	2.53	9.23
Trichilia havanensis	Meliaceae	40	648.40	0.74	4	3.36	0.15	3.80	7.90
Zanthoxylum kellermanii	Rutaceae	161	2866.48	3.26	2	1.68	0.10	2.53	7.47
Nectandra martinicensis	Lauraceae	95	945.08	1.07	3	2.52	0.15	3.80	7.39
Psidium guajava	Myrtaceae	54	698.37	0.79	3	2.52	0.15	3.80	7.11
Mangifera indica	Anacardiaceae	61	668.87	0.76	3	2.52	0.15	3.80	7.08
Tabebuia rosea	Bignoniaceae	32	530.34	0.60	3	2.52	0.10	2.53	5.66
Eremosis triflosculosa subsp. Triflosculosa	Asteraceae	32	387.38	0.44	2	1.68	0.10	2.53	4.65
Sideroxylon capiri subsp. tempisque	Sapotaceae	141	1582.08	1.80	1	0.84	0.05	1.27	3.90

Specie	Family	Average Circumference (cm)	Total Basal Area (cm^2)	Relative Basal Area	Abundance	Relative Abundance	Frequency	Relative Frequency	IVI
Spondias purpurea	Anacardiaceae	36	181.77	0.21	2	1.68	0.05	1.27	3.15
Cecropia obtusifolia	Cecropiaceae	101	811.77	0.92	1	0.84	0.05	1.27	3.03
Licania platypus	Chrysobalanaceae	100	795.77	0.90	1	0.84	0.05	1.27	3.01
Vernonia patens	Asteraceae	69	378.87	0.43	1	0.84	0.05	1.27	2.54
Sapindus saponaria	Sapindaceae	65	336.21	0.38	1	0.84	0.05	1.27	2.49
Calophyllum brasiliense var. rekoi	Clusiaceae	51	206.98	0.24	1	0.84	0.05	1.27	2.34
Quercus skinneri	Fagaceae	45	157.58	0.18	1	0.84	0.05	1.27	2.29
Cedrela odorata	Meliaceae	38	111.91	0.13	1	0.84	0.05	1.27	2.23
Castilla elastica	Moraceae	37	108.94	0.12	1	0.84	0.05	1.27	2.23
Cordia alliodora	Boraginaceae	33	86.66	0.10	1	0.84	0.05	1.27	2.20
Croton reflexifolius	Euphorbiaceae	33	84.05	0.10	1	0.84	0.05	1.27	2.20
Lycianthes heteroclita	Solanaceae	32	81.49	0.09	1	0.84	0.05	1.27	2.20
Total			***88044.85***	***100.00***	***119***	***100.00***	***3.95***	***100.00***	***300.00***

Key:
cm = Centimeter.
cm^2 = Square centimeter.
IVI = Importance Value Index.

More than half of the IVI, i.e. the ecological weight of the species, is represented by only three species: pepeto (Inga vera), cuje or guamito (Inga punctata), and cujinicuil (Inga oerstediana). The three species, although native to the country, are grown in the area to shade coffee and contribute to soil improvement through nitrogen fixation.

Coffee Plantation Condition

- As a result of the floristic analysis, the following parameters were found in the 10 parcels of land with coffee plantations (total area of 10,000 m2): Average number of coffee shrubs per ha - 2,979
- Average shrub diameter (cm) – 8.0
- Basal area in 1 ha (m^2) - 17.2

4.2.2 ***Fauna***

4.2.2.1 Amphibians and Reptiles

Methodology

Amphibians and reptiles were evaluated together. For this purpose, linear transects were established on the trails or roads that are parallel to the traces of the transmission line, in which the time of travel is taken as a sampling unit (one hour per transept, see Appendix B - Report on Terrestrial Fauna), Making an intensive search of these organisms under logs, rocks and litter (see Figures 4.2-4 to 4.2-7).



Figure 4.2-4 Transects Established for the Sampling of Herpetofauna in the Sector of Apaneca to San Pedro Puxtla for the Project

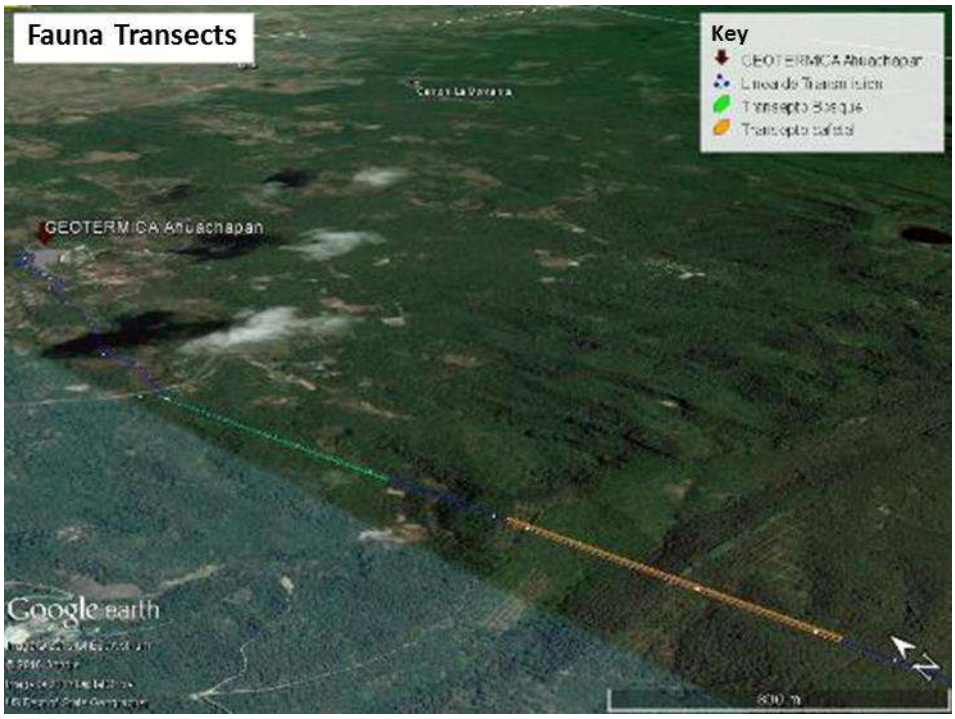


Figure 4.2-5 Transects Established for Herpetofauna Sampling in the Ahuachapán Sector for the Project

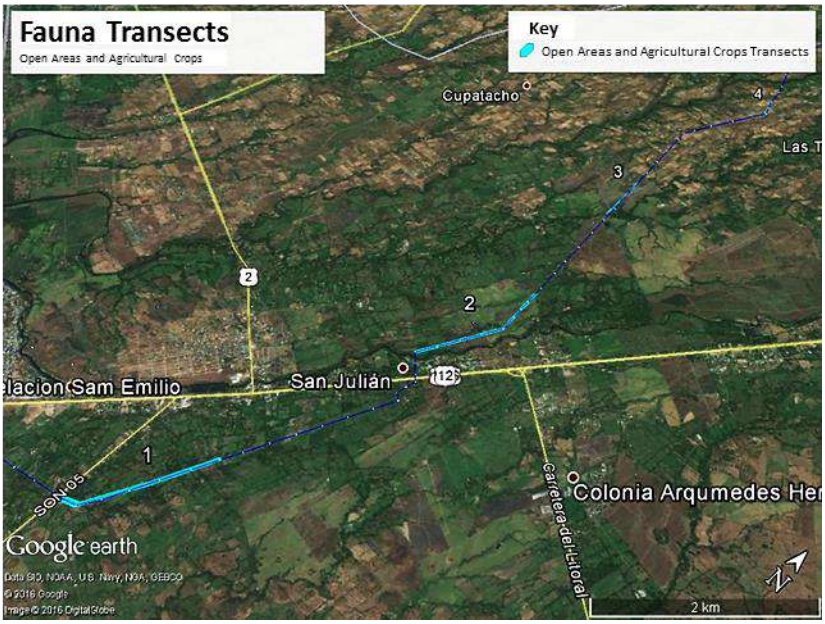


Figure 4.2-6 Transects Established for Herpetofauna Sampling in the Acajutla Sector towards Santo Domingo de Guzmán for the Project, May-June 2016

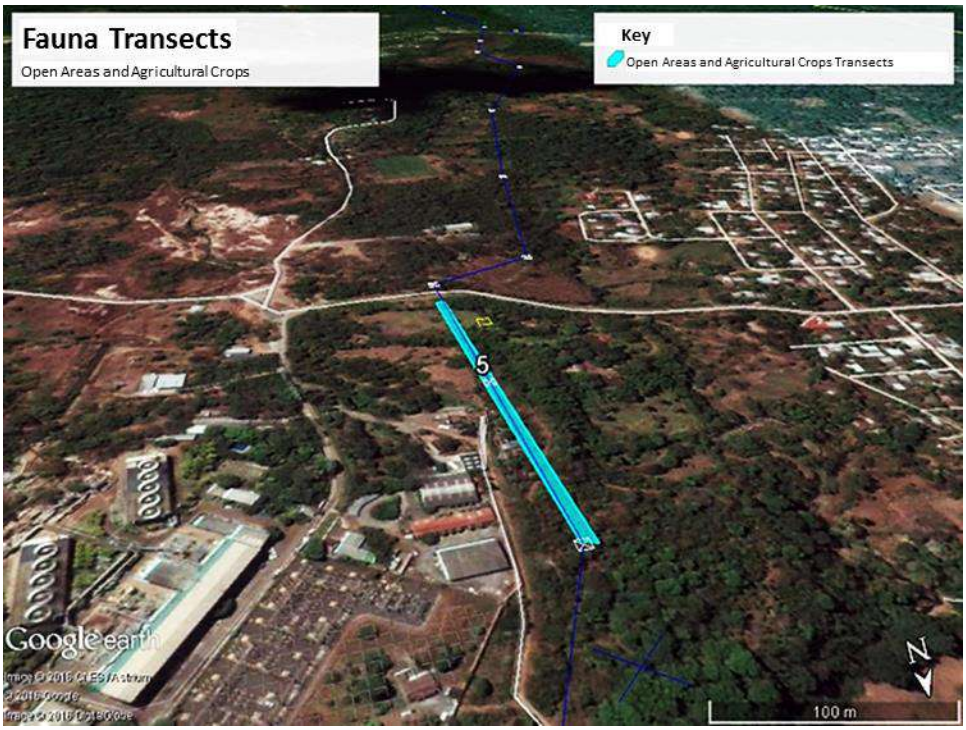


Figure 4.2-7 Transects Established for Herpetofauna Sampling in the Ahuachapán Sector for the Project, May-June 2016

Samplings for the reptile case were conducted from 8:00 am to 1:00 pm and from 2:00 pm to 4:00 pm and for the amphibian case nocturnal sampling was performed from 8:00 pm to 10:00 pm. During amphibian sampling, attempts were also made to locate reptile species with nocturnal habits.

Results

A total of 15 species of amphibians and reptiles were recorded in 11 families and 14 genders (see Table 4.2-3 and Figure 4.2-8). Most of the species recorded are common, with wide distribution at national level and high adaptability to areas disturbed by anthropogenic activity. However, the second most abundant species was the black-eyed tree frog (Agalychnis moreletii), a nationally threatened species that is on the IUCN's red list as a critically endangered species. The habitat with the highest abundance of individuals and species diversity was crop areas and the habitat with the lowest abundance was patches of natural forest (see Figure 4.2-1).

Table 4.2-3 Herpetofauna Species Registered During the Study Completed for the Project, May-June 2016

Order	*Family*	*Specie*	*Common Name*	*ES*	*IUCN*
Class Amphibia					
Anura	Bufonidae	*Incilius coccifer*	Southern Roundgland Toad	NA	LC
		Rhinella marina	Cane Toad	NA	LC
	Craugastoridae	*Craugastor loki*	Common Leaf-litter Frog	NA	LC
	Hylidae	*Agalychnis moreletii*	Black-Eyed Tree Frog	A	CR
		Scinax staufferi	Stauffer's Longnosed Treefrog	NA	LC
		Smilisca baudinii	Common Tree Frog	NA	LC
	Leptodactylidae	*Leptodactylus melanonotus*	Black Jungle-Frog	NA	LC
	Leiuperidae	*Engystomops pustulosus*	Tungara Frog	NA	LC
	Ranidae	*Lithobates maculatus*	Highland Frog	NA	LC
		Lithobates forreri	Forrer's Grass Frog	NA	LC

Order	Family	Specie	Common Name	ES	IUCN
Class Reptilia					
Squamata	Iguanidae	*Ctenosaura similis*	Black Spiny-tailed Iguana	A	LC
	Corytophanidae	*Basiliscus vittatus*	Brown Basilisk	NA	LC
	Dactyloidae	*Anolis wellbornae*	Bebeleche	NA	NE
	Phrynosomatidae	*Sceloporus malachiticus*	Green Spiny Lizard	NA	LC
	Teidae	*Holcolsus undulatus*	Rainbow Ameiva	NA	LC

Key: ES = Category in El Salvador; IUCN = IUCN global category; A = Threatened; LC = Least Concern; CR = Critically Endangered; and NE: Not evaluated.

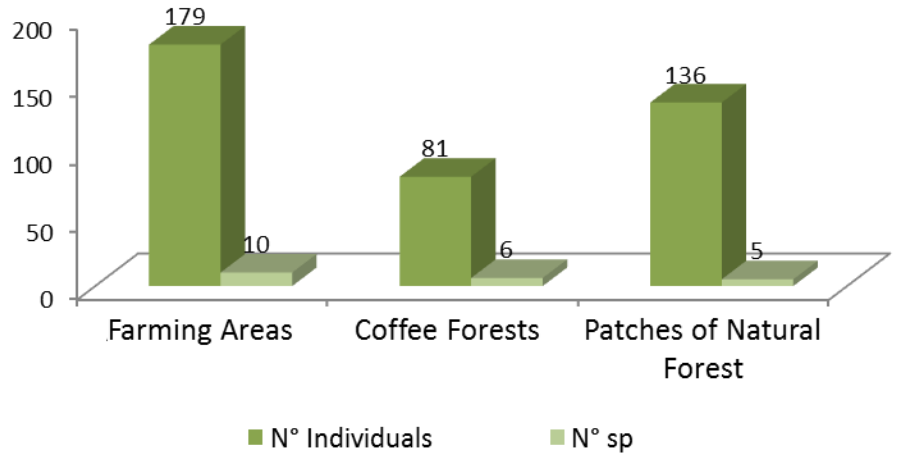


Figure 4.2-8 Numbers of Individuals and Herpetofauna Species Registered in the Various Sampling Habitats, May 2016

As shown in Figure 4.2-9, the species *Craugastor Loki* and *Agalychnis moreletii* (see photos in Figures 4.2-10 and 4.2-11) were the most abundant during the evaluation carried out in the forest and coffee plantation belt.

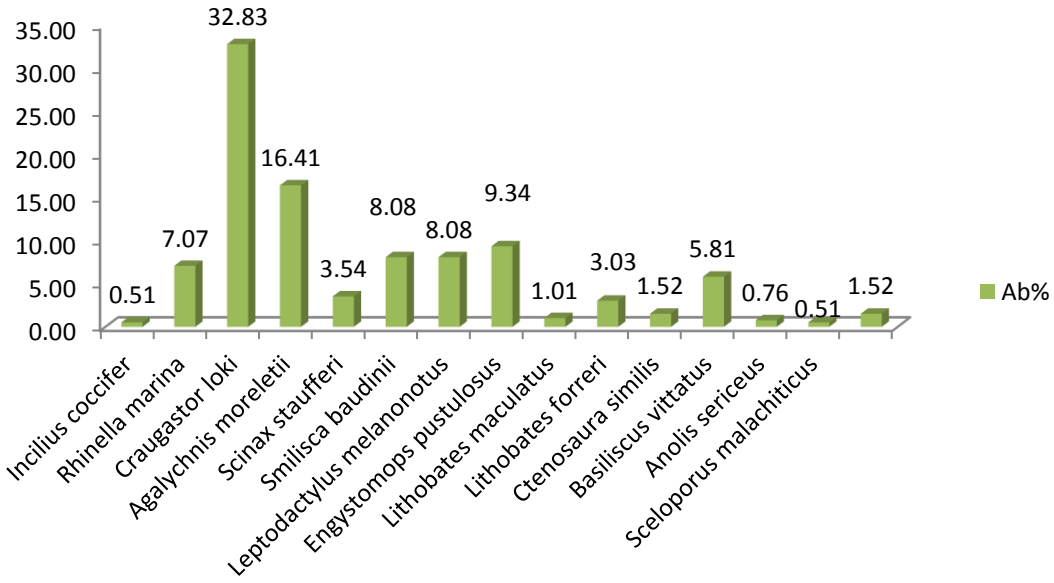


Figure 4.2-9 Relative Abundances of Herpetofauna Species Registered During the Study, May-June 2016



Figure 4.2-10 Individual of Agalychnis moreletii Captured at the Coffee Plantation during the study, May-June 2016



Figure 4.2-11 Craugastor Loki individual in Coffee Plantation Leaf During the Study Realized for the Project, May 2016

4.2.2.2 Birds

Methodology

In order to sample birds, observation points were established in which 15 minute stops per point were recorded and the species identified were recorded either by their morphological characteristics or by their song. The points were established in the previously established transects for the other groups since at these points a high incidence of birds had been determined (see Figures 4.2-12 and 4.2-13).

The tours were made during the hours when the weather conditions were favorable, performing a sampling at dawn from 5:00 am to 8:00 am and in the afternoon from 4:00 pm to 6:00 pm.

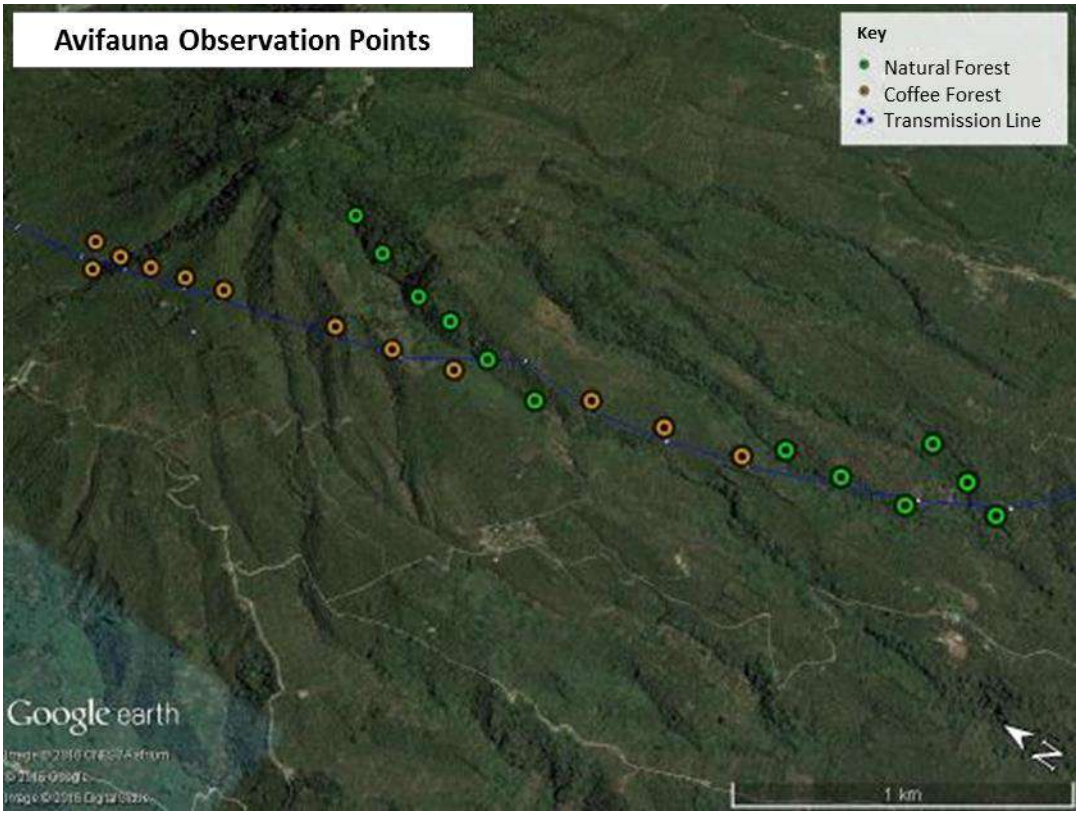


Figure 4.2-12 Observation Points Established for Avifauna Sampling in the Sector of Apaneca to San Pedro Puxtla Project

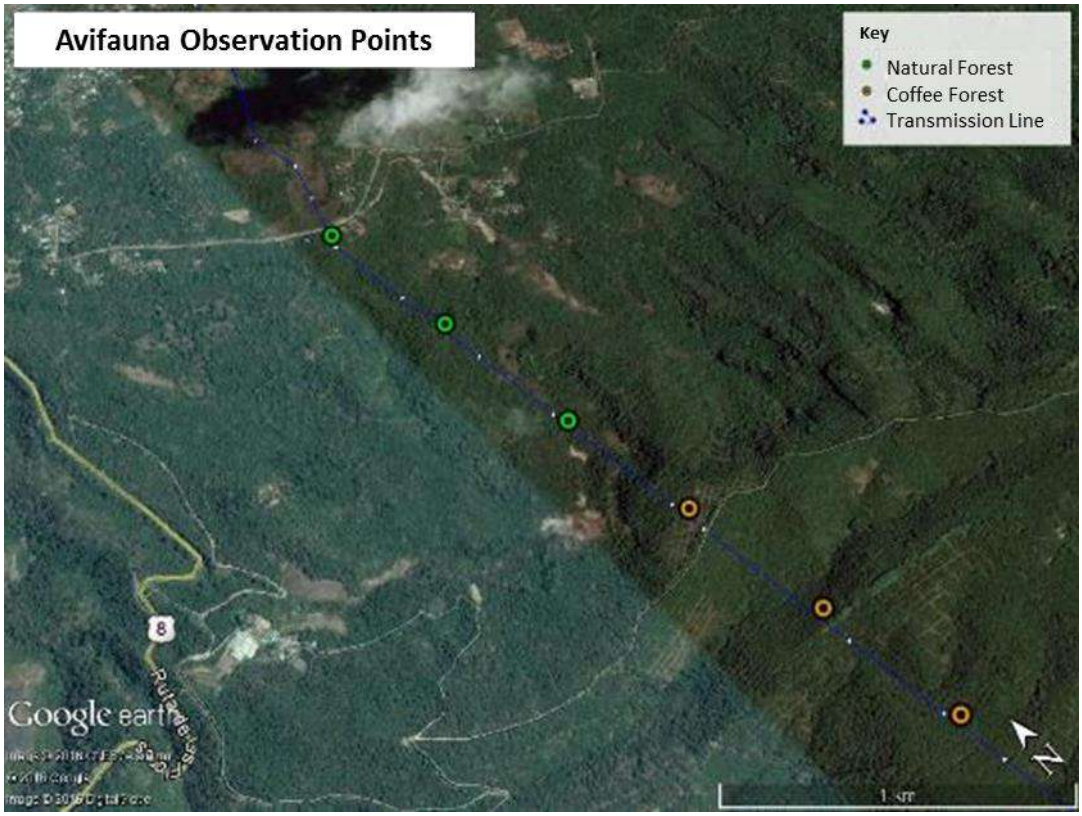


Figure 4.2-13 Observation Points Established for Avifauna Sampling in the Project's Ahuachapán Sector

Results

A total of 39 bird species belonging to 26 families were recorded (see Table 4.2-4). The majority of recorded species are common, with wide distribution at national level and high adaptability to areas disturbed by anthropogenic activity. However, 4 species with threatened status were recorded for El Salvador (MARN, 2015, see Section 4.2.14 - Threatened and Endangered Species). The most abundant species during this study were Zenaida asiatica, Cathartes aura, Quiscalus mexicanus and Brotogeris jugularis. Most species had an intermediate abundance and some had only one observation. The highest number of species and individuals was recorded in areas of agricultural crops with a high degree of anthropogenic activity (see Figure 4.2-14).

Table 4.2-4 Registered Bird Species, May - June 2016

Specie	*Common Name*	*ES*	*IUCN*	*C*	*PB*	*AA*	*Total*	*AG*
Bubulcus ibis	Cattle egret	NA	LC	0	0	6	6	0.98
Cathartes aura	Turkey vulture	NA	LC	0	0	55	55	9.02
Buteo magnirostris	Roadside hawk	NA	LC	0	1	9	10	1.64
Geranospiza caerulescens	Crane hawk	NA	LC	0	0	1	1	0.16
Herpetotheres cachinnans	Laughing falcon	NA	LC	3	0	0	3	0.49
Jacana spinosa	Mesoamerican Jacana	NA	LC	0	0	8	8	1.31
Zenaida asiatica	White-winged dove	NA	LC	9	17	94	120	19.67
Patagioenas flavirostris	Red-billed pigeon	NA	LC	6	5	1	12	1.97
Columbina inca	Inca dove	NA	LC	0	0	12	12	1.97
Columbina talpacoti	Ruddy ground dove	NA	LC	0	0	23	23	3.77
Brotogeris jugularis	Tovi parakeet	A	LC	30	0	0	30	4.92
Eupsittula canicularis	Half-moon conure	A	LC	0	0	7	7	1.15
Piaya cayana	Squirrel cuckoo	NA	LC	2	1	0	3	0.49
Crotophaga sulcirostris	Groove-billed ani	NA	LC	0	0	16	16	2.62
Tyto alba	Barn owl	NA	LC	0	0	1	1	0.16
Nyctidromus albicollis	Pauraque	NA	LC	0	0	2	2	0.33
Amazilia rutila	Cinnamon hummingbird	NA	LC	0	3	0	3	0.49
Trogon elegans	Elegant trogon	NA	LC	6	3	0	9	1.48
Eumomota superciliosa	Turquoise-browed motmot	NA	LC	5	2	7	14	2.30
Chloroceryle americana	Green kingfisher	NA	LC	0	0	3	3	0.49
Aulacorhynchus prasinus	Emerald toucanet	A	LC	0	3	0	3	0.49
Pteroglossus torquatus	Collared aracarí	NA	LC	0	5	0	5	0.82
Melanerpes aurifrons	Golden-fronted woodpecker	NA	LC	3	2	7	12	1.97
Chiroxiphia linearis	Long-tailed manakin	A	LC	0	20	0	20	3.28
Pitangus sulphuratus	Great kiskadee	NA	LC	3	4	12	19	3.11
Calocitta formosa	White-throated magpie-jay	NA	LC	15	3	6	24	3.93
Riparia riparia	Sand martin	NA	LC	0	0	7	7	1.15
Campylorhynchus rufinucha	Rufous-naped wren	NA	LC	5	0	12	17	2.79
Turdus grayi	Clay-colored thrush	NA	LC	5	3	20	28	4.59
Setophaga petechia xantholora	American yellow warbler	NA	LC	8	2	4	14	2.30
Setophaga magnolia	Magnolia warbler	NA	LC	0	10	0	10	1.64
Cyanerpes cyaneus	Red-legged honeycreeper	NA	LC	4	0	0	4	0.66
Thraupis abbas	Yellow-winged tanager	NA	LC	2	0	0	2	0.33
Volatinia jacarina	Blue-black grassquit	NA	LC	0	0	11	11	1.80

Specie	*Common Name*	*ES*	*IUCN*	*C*	*PB*	*AA*	*Total*	*AG*
Sporophila torqueola	White-collared seedeater	NA	LC	0	0	4	4	0.66
Dives dives	Melodious blackbird	NA	LC	2	3	4	9	1.48
Quiscalus mexicanus	Great-tailed grackle	NA	LC	7	3	25	35	5.74
Icterus gularis	Altamira oriole	NA	LC	5	4	14	23	3.77
Euphonia hirundinacea	Yellow-throated euphonia	NA	LC	8	17	0	25	4.10
Total Individuals				128	111	371	—	—
Total Species				20	21	28	—	—

Key: E.S: Salvadoran status: NA: Not threatened; ES: Category in El Salvador; IUCN: IUCN global category; LC: Least Concern; C: Coffee Plantation; PB: Forest patch; AA: Agricultural areas; AG: General abundance (%).

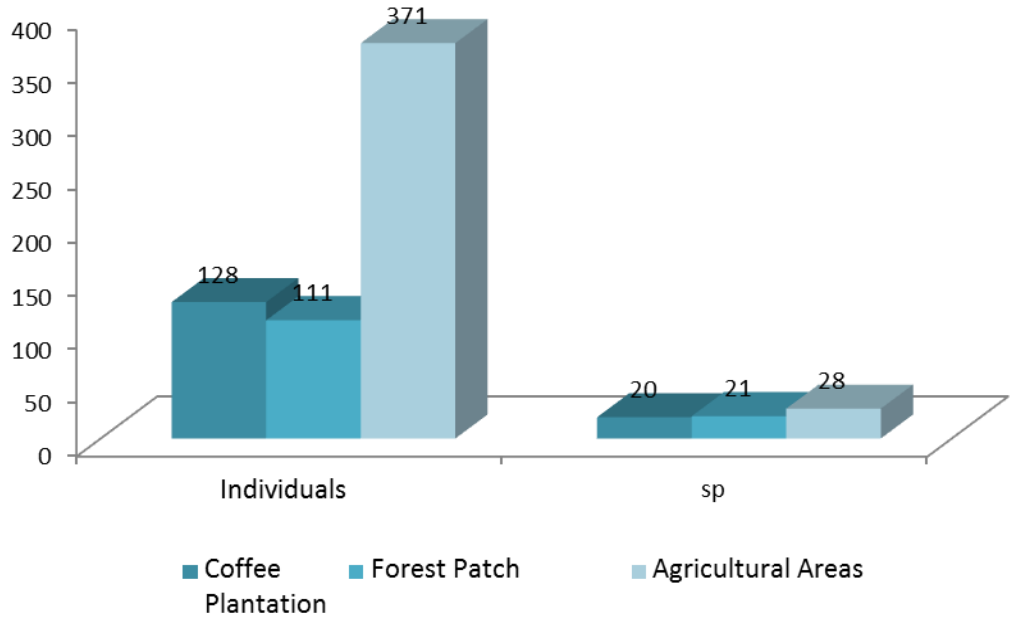
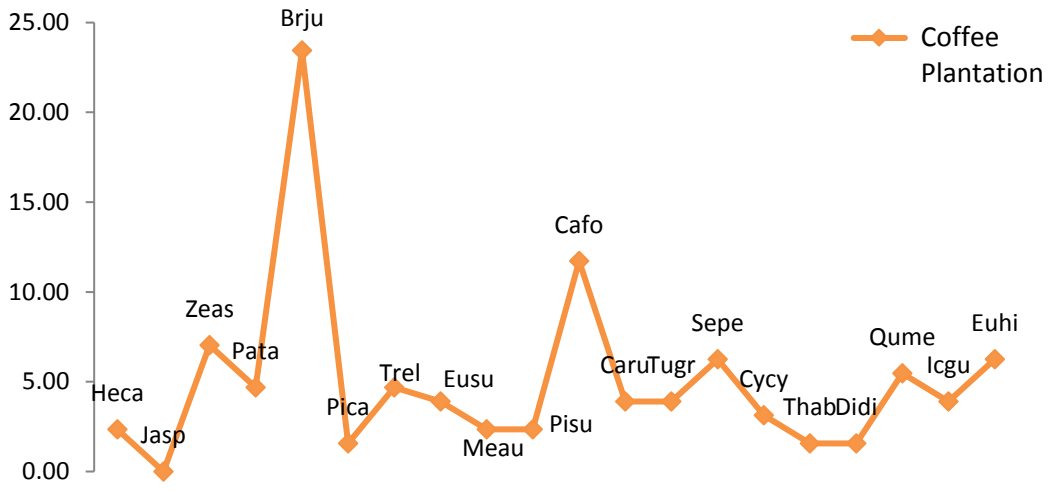


Figure 4.2-14 Numbers of Individuals and Species of Avifauna Registered in the Different Sampling Habitats, May-June 2016

Coffee Plantations

In the coffee plantation area, the species Brotogeris jugularis is the predominant species, followed by Calocitta Formosa (see Figure 4.2-15). The first is the only threatened species at the national level that was recorded in coffee plantations. Tree species that provide shade to coffee provide shelter, food and nesting and resting areas for both resident and migratory species.



Key: Heca: Herpetotheres cachinnans; Zeas: Zenaida asiática; Pata: Patagioenas flavirostris; Brju: Brotogeris jugularis; Pica: Piaya cayana; Trel: Trogon elegans; Eusu: Eumomota superciliosa; Meau: Melanerpes aurifrons; Pisu: Pitangus sulphuratus; Cafo: Calocitta Formosa; Caru: Campylorhynchus rufinucha; Tugr: Turdus grayi; Sepe: Setophaga petechia xantholora; Cycy: Cyanerpes cyaneus; Thab: Thraupis Abbas; Didi: Dives dives; Qume: Quiscalus mexicanus; Icgu: Icterus gularis; Euhi:Euphonia hirundinacea

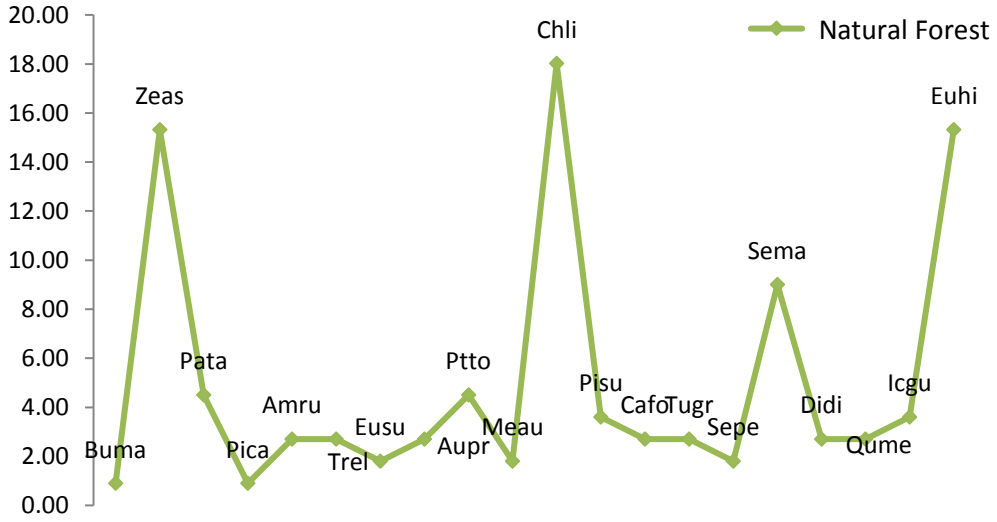
Figure 4.2-15 Rank Chart-Abundance of Bird Species in Coffee Forests (May 2016)

Natural Forest

In the areas of natural forest, 21 bird species were observed, two of which are threatened at the national level: *Aulacorhynchus prasinus* (green toucan) and *Chiroxiphia linearis* (jumping collarejo or Toledo).

The most abundant species were *Chiroxiphia linearis*, *Asian Zenaida* and *Euphonia hirundinacea*, respectively (see Figure 4.2-16).

These forest relics, known as machorras in the coffee plantations, are very scarce since most of the area is cultivated. However, these spaces are not suitable for coffee growing, are important for species of forest specialists and have a greater floristic diversity, including species important for conservation.



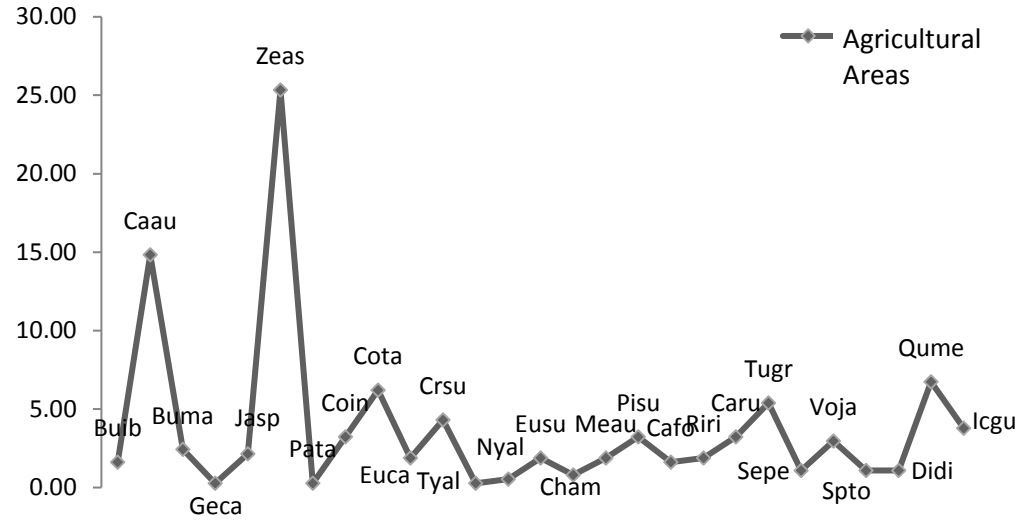
Key: Buma: Buteo magnirostris ; Zeas: Zenaida asiática; Pata: Patagioenas flavirostris; Pica: Piaya cayana; Amru: Amazilia rutila; Trel: Trogon elegans; Eusu: Eumomota superciliosa; Aupr: Aulacorhynchus prasinus; Ptto: Pteroglossus torquatus; Meau: Melanerpes aurifrons; Chli: Melanerpes aurifrons; Pisu: Pitangus sulphuratus; Cafo: Calocitta Formosa; Tugr: Turdus grayi; Sepe: Setophaga petechia xantholora; Sema: Setophaga magnolia; Didi: Dives dives; Qume: Quiscalus mexicanus; Icgu: Icterus gularis; Euhi:Euphonia hirundinacea.

Figure 4.2-16 Rank Chart-Abundance of Species of Birds in Natural Forests (May-June 2016)

Agricultural Areas

This habitat recorded the largest number of species (28), including a threatened species: guayabero or chocoyo (*Eupsittula canicularis*).

The most abundant species for this habitat were *Asian Zenaida* (white-winged dove) and *Cathartes aura* (Redhead aura or zunche) (see Figure 4.2-17).



Key: Buib: Bubulcus ibis; Caau: Cathartes aura; Buma: Buteo magnirostris; Geca: Geranospiza caerulescens; Jasp: Jacana spinosa; Zeas: Zenaida asiática; Pata: Patagioenas flavirostris; Coin: Columbina inca; Cota: Columbina talpacoti; Euca: Eupsittula canicularis; Crsu: Crotophaga sulcirostris; Tyal: Tyto alba; Nyal: Nyctidromus albicollis; Eusu: Eumomota superciliosa; Cham: Chloroceryle americana; Meau: Melanerpes aurifrons; Pisu: Pitangus sulphuratus; Cafo: Calocitta Formosa; Tugr: Turdus grayi; Sepe: Setophaga petechia xantholora; Didi: Dives dives; Qume: Quiscalus mexicanus; Icgu: Icterus gularis

Figure 4.2-17 Rank Chart-Abundance of Bird Species Agricultural Areas (May-June 2016)

Areas of Importance for Bird Conservation

Important Bird Areas (IBAs) are internationally recognized for their biodiversity values but are not protected natural areas by law in El Salvador. The IBA "Los Cobanos" is an area of coastal plain (7,000 ha) containing fragments of savannas (Crescentia alata), secondary dry forest, gallery forest and freshwater marshes scattered in a grazing landscape (BirdLife International, 2016). The fragments of dry forest contain a typical bird community of the Arid Pacific Rim biome. The gallery forests have colonies of the Mexican cacique or Aliamarilla (Cacicus melanicterus), the only population in all El Salvador of a species of wide distribution in Mexico and with category of Least Concern according to the IUCN (BirdLife International, 2016). TL traverses part of the Northeast sector of the IBA between towers TP 136 and TP 145 + 100 m for a distance of approximately 2,890 m.

4.2.2.3 Non-flying Mammals

To sample these species, linear transects were established in which the mammalian species present were recorded through sightings or from traces, excreta or other traces indicating the occurrence of these species.

The same transects destined for herpetofauna were used (see Figures 4.2-4 to 5.2-7). Camera traps placed at strategic sites, such as tracks made by animals, were also used (Figure 4.2-18).



Figure 4.2-18 Camera Trap Used for the Registration of Mammal Species

Sampling Schedules

Mammals were sampled during the day from 08:00 am to 12:00 pm and from 2:00 pm to 4:00 pm. Night sampling were also performed from 8:00 pm to 2:00 am.

Results

A total of 14 species belonging to ten mammalian families were recorded, none of which are threatened or endangered on national or international lists (see Table 4.2-5).

Table 4.2-5 Species of Registered Mammals, May 2016

Family	*Specie*	*Common Name*	*ES*	*IUCN*	*C*	*PB*	*AA*	*Total*
Canidae	*Urocyon cinereoargenteus*	Gray fox	NA	LC	0	0	5	5
Dasypodidae	*Dasypus novemcinctus*	Nine-banded armadillo	NA	LC	7	9	6	22

Family	*Specie*	*Common Name*	*ES*	*IUCN*	*C*	*PB*	*AA*	*Total*
Dasyproctidae	*Dasyprocta punctata*	Central American agouti	NA	LC	0	4	0	4
Didelphidae	*Didelphis marsupialis*	Common oposum	NA	LC	3	1	8	12
Didelphidae	*Philander opossum*	Gray four-eyed oposum	NA	LC	0	0	5	5
Felidae	*Puma yagouaroundi*	Jaguarundi	NA	LC	0	1	0	1
Geomyidae	*Orthogeomys sp*	Pocket gophers	NA	LC	6	4	0	10
Leporidae	*Sylvilagus floridanus*	Eastern cottontail	NA	LC	3	1	5	9
Mephitidae	*Spilogale putorius*	Eastern spotted skunk	NA	LC	0	2	1	3
Mephitidae	*Mephitis macroura*	Hooded skunk	NA	LC	0	0	1	1
Procyonidae	*Procyon lotor*	Raccoon	NA	LC	0	0	11	11
Procyonidae	*Nasua narica*	White-nosed coati	NA	LC	0	6	0	6
Procyonidae	*Potus flavus*	Kinkajou	NA	LC	0	1	0	1
Sciuridae	*Sciurus variegatoides*	Variegated squirrel	NA	LC	1	1	1	3
Total					***20***	***30***	***43***	***93***
Species					***5***	***10***	***9***	***14***

Key: ES: Category in El Salvador; IUCN: IUCN global category; NA: Not threatened; LC: Least Concern; C: Coffee Plantation; PB: Patch of natural forest; AA: Agricultural Areas.

Populations of Mammals in the Different Sampling Habitats

The greatest number of species was located in areas of natural forest. However, a greater number of individuals were obtained in the sampled agricultural areas (see Figure 4.2-19). These areas recorded a high number of individuals due to being adjacent to small rivers and ravines where the species of this group find good conditions for their subsistence.

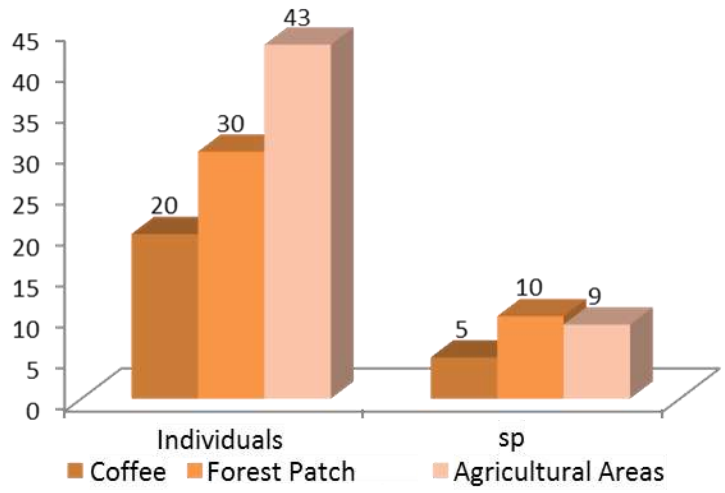
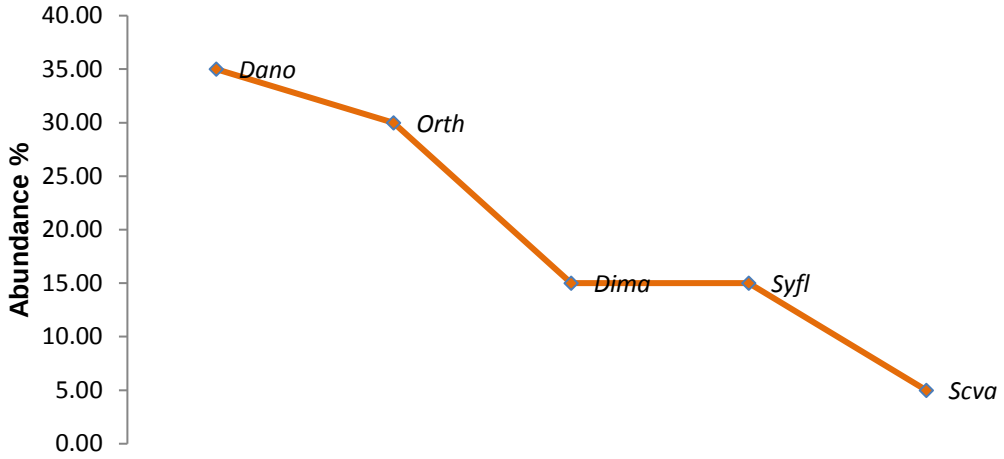


Figure 4.2-19 Numbers of Individuals and Species of Mammals Registered in the Different Habitats, May - June 2016

Coffee Plantation

Coffee plantations are often ideal sites for the occurrence of mammals. In the present study five species were recorded, of which the most abundant were *Dasypus novemcinctus* and *Orthogeomys sp*. (Figure 4.2-20). Most of these individuals were recorded from traces.



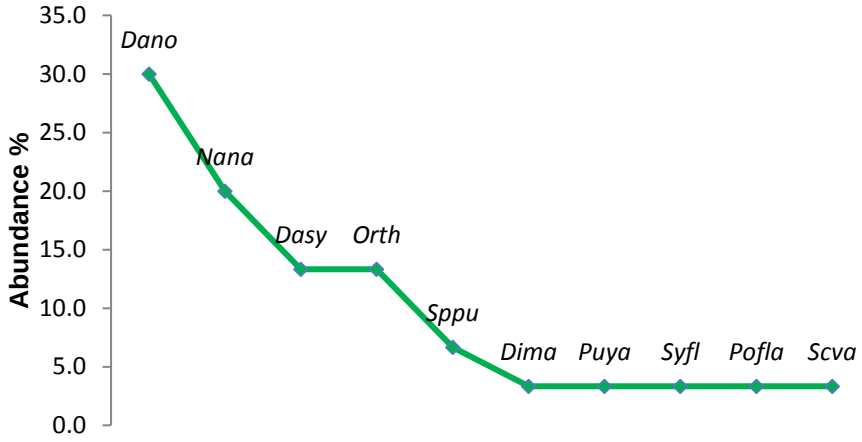
Key: Dano: Dasypus novemcinctus; Dima: Didelphis marsupialis; Orth: Orthogeomys sp; Syfl: Sylvilagus floridanus; Scva: Sciurus variegatoides

Figure 4.2-20 Rank-Abundance Chart of Mammal Species in Coffee Forest (May 2016)

Natural Forest

Ten species were recorded in the natural forest. As in the areas of coffee plantation, the most abundant species was *Dasypus novemcinctus*, a species quite common in the area.

Another abundant species was *Nasua narica* (pezote). This species was recorded in the patch of forest located in the farm El Naranjo. In this same area, we found one more species of the same family (Procyonidae), *Potus flavus*, known as mycoleón (see Figure 4.2-21).



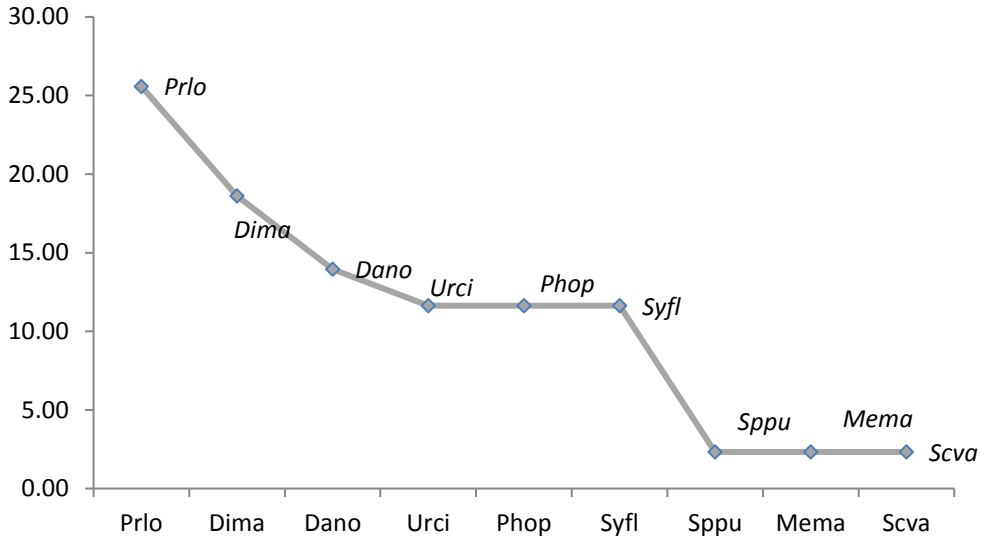
Key: Dano: Dasypus novemcinctus; Dasy: Dasyprocta punctata; Dima: Didelphis marsupialis; Puya: Puma yagouaroundi; Orth: Orthogeomys sp; Syfl: Sylvilagus floridanus; Sppu: Spilogale putorius; Nana: Nasua narica; Pofla: Potus flavus; Scva: Sciurus variegatoides.

Figure 4.2-21 Rank-Abundance Chart of Mammalian Species in Natural Forest Patches (May 2016)

Agricultural Areas

Agricultural areas are usually areas that, because of the food layout, contain many species of mammals. However, these can become a problem because of the damage they cause to crops.

The most abundant species was *Procyon lotor*, which is normally associated with habitats with high availability of water. Less abundant species are *Mephitis macroura* and *Spilogale putorius*, both species of skunks common in these habitat types (see Figure 4.2-22).

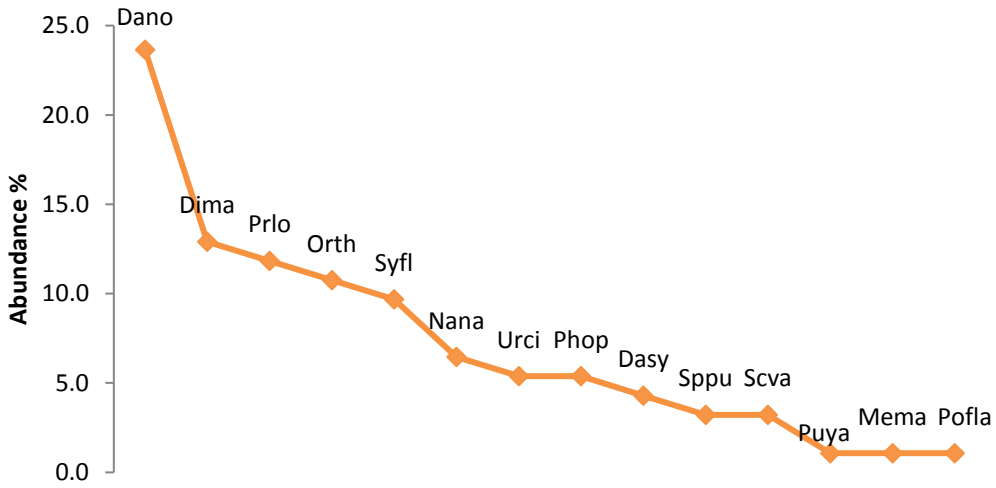


Key: Urci: Urocyon cinereoargenteus; Dano: Dasypus novemcinctus; Dasy: Dasyprocta punctata; Dima: Didelphis marsupialis; Phop: Philander opossum; Puya: Puma yagouaroundi; Orth: Orthogeomys sp; Syfl: Sylvilagus floridanus; Sppu: Spilogale putorius; Mema: Mephitis macroura; Prlo: Procyon lotor; Nana: Nasua narica; Pofla: Potus flavus; Scva: Sciurus variegatoides

Figure 4.2-22 Rank-Abundance Chart of Mammal Species in Agricultural Areas (May 2016)

Abundance of mammal species in the Project's area of influence

A total of 14 mammal species were recorded for the project's area of influence, with the most abundant being *Dasypus novemcinctus* (cuzuco), *Didelphis marsupialis* (tacuazin) and *Procyon lotor* (raccoon). The three species less abundant during this research were *Puma yagouroundi* (cat zonto), *Mephitis macroura* (skylark) and *Potus flavus* (mycoleón, see Figure 4.2-23).



Key: Urci: Urocyon cinereoargenteus; Dano: Dasypus novemcinctus; Dasy: Dasyprocta punctata; Dima: Didelphis marsupialis; Phop: Philander opossum; Puya: Puma yagouaroundi; Orth: Orthogeomys sp; Syfl: Sylvilagus floridanus; Sppu: Spilogale putorius; Mema: Mephitis macroura; Prlo: Procyon lotor; Nana: Nasua narica; Pofla: Potus flavus; Scva: Sciurus variegatoides

Figure 4.2-23 Rank-Abundance of Mammalian Species Chart (May-June 2016)

4.2.2.4 Chiroptera

Methodology

For the sampling of the chiroptera, two mist nets (one of 9 m x 2.6 m and one of 12 m x 2.6 m) were placed at ground level around the points of the towers TP 2 - 3, TP 33 - 34, TP 36 and TP 44-44a (see Table 4.2-6). The distance between each net was at least 150 m and was located in places with a reasonable amount of vegetation and/or on roads that could possibly serve as passage tunnels for bats. Sampling was conducted from 6:30 p.m. to 11:00 p.m., checking each net at 30 minute intervals, removing them from the sites at the end of catches (see Figure 4.2-24).

For each captured bat, measurements of forearm, weight, sex, and reproductive status were recorded using standard methodologies (Kunz, 1988; Jones et al., 1996). Photographs were taken of their characteristic traits and identified using the Medellín field guide, Arita and Sánchez (2007). Later they were released in the neighborhoods where they were captured. In addition, at each sampling site, geographical references were taken from each point with a Garmin eTrex 20 Worldwide Handheld Navigator GPS.



Figure 4.2-24 Positioning of Mist Nets at Sampling Points Near to Proposed Towers TP 2 and TP 3

In the vicinity of TP 139 tower in the Acajutla area an ultrasound recorder for monitoring of Song Meter SM3 bats was used (see Figure 4.2-25). The equipment was located in an open area and was programmed using monitoring methodologies (Víquez & Arias, 2015) and the recordings were made from 6:00 pm to 5:00 am, removing the equipment from the site the following day and georeferenced the sampling point.

Recordings were analyzed using the Analook program to obtain sonograms that were used to identify species of insectivorous bats by Miller (2003).



Figure 4.2-25 Installation of Acoustic Equipment SME3 and Analysis of Sonograms

Table 4.2-6 Geographic Location of Chiroptera Sampling Points

Date	*Sampling Point*	*Sampling Point*	*Coordinate N*	*Coordinate W*	*Height (m)*
05/28/2016	Span TP 2-3	PLT 1	13°55'06.4''	89°49'09.9''	771
05/28/2016	Span TP 2-4	PLT 2	13°55'07.6''	89°49'10.1''	767
05/28/2016	Span TP 2-3	PLT 3	13°55'04.8''	89°49'08.9'	777
05/29/2016	Span TP 33-34	PLT 4	13°50'21.0''	89°48'53.7''	1436
05/29/2016	Span TP 33-34	PLT 5	13°50'20.0''	89°48'54.8''	1435
05/30/2016	TP 36	PLT 6	13°49'26.8''	89°48'42.0''	1179
05/31/2016	Span TP 44-44a	PLT 7	13°48'32.4''	89°48'15.6''	966
06/01/2016	TP139	PLT 8	13°36'04.6''	89°47'49.6''	58

Results

In total, 14 species of bats were recorded (see Table 4.2-7). The most abundant species was *G. commissarisi* (N: 25), a species of nectarivorous habits.

Nine of the registered species are of frugivorous habits, including species of the genera *Artibeus, Dermanura* and *Sturnira* considered as tolerant or adaptable to disturbed environments (Fleming, 1986; Galindo-González, 2004; Sosa *et al*., 2008), so it is considered that the areas could house shrubs (genders *Solanum, Piper, Cestrum*) or trees (genders *Ficus, Inga, Cecropia, Psidium, Spondias, Persea* among others) that can provide food to the frugivorous species (Sosa et al., 2008).

The mist net method yielded a total of 63 individuals belonging to 12 species of bats, eight genders and two families. The method of acoustic monitoring produced 636 recordings belonging to 9 species of insectivorous bats, 6 genders and 4 families.

Nine species were recorded for points VT2-3, VT33-34 and TP 139, being the most diverse. However, it should be considered that for TP 36 (N: 2) and TP 44-44a (N: 5) points, miscalculations were encountered with climatic conditions whereby sampling had to be interrupted prematurely. The complete results of the study of bats are presented in Appendix C.

Table 4.2-7 List of Species of Bats by Points of Placement of Towers in the Project (May 2016)

Family	*Specie*	*Common name*	*Habit*	*MRN*				*MA*
				VT2-3	*VT33-34*	*T36*	*VT44-44a*	*T139*
Phyllostomidae	*Phyllostomus discolor*	Pale spear-nosed bat	OM				X	
	Glossophaga commissarisi	Commissaris's long-tongued bat	NE	X	X			
	Glossophaga soricina	Pallas's long-tongued bat	NE	X				
	Artibeus inopinatus	Honduran fruit-eating bat	FR	X				
	Artibeus jamaicensis	Jamaican fruit bat	FR	X	X	X	X	
	Artibeus lituratus	Great fruit-eating bat	FR	X	X		X	
	Chiroderma salvini	Salvin's big-eyed bat	FR	X	X			
	Dermanura aztecus	Aztec fruit-eating bat	FR				X	
	Dermanura toltecus	Toltec fruit-eating bat	FR		X			
	Platyrrhinus helleri	Heller's broad-nosed bat	FR	X	X			
	Sturnira hondurensis	Honduras yellow-shouldered bat	FR		X	X		
	Sturnira parvidens	Northern yellow-shouldered bat	FR	X	X		X	
Mormoopidae	*Pteronotus davyi*	Davy's naked-backed bat	IN					X

Family	Specie	Common name	Habit	MRN				MA
				VT2-3	VT33-34	T36	VT44-44a	T139
	Pteronotus gymnonotus	Big naked-backed bat	IN					X
	Pteronotus personatus	Wagner's mustached bat	IN					X
Emballonuridae	*Saccopteryx bilineata*	Greater sac-winged bat	IN					X
Molossidae	*Molossus molossus*	Velvety free-tailed bat	IN					X
	Molossus sinaloe	Sinaloan mastiff bat	IN					X
Vespertilionidae	*Myotis nigricans*	Black myotis	IN					X
	Myotis keaysi	Hairy-legged myotis	IN	X				
	Lasiurus intermedius	Northern yellow bat	IN					X
	Rhoggessa bickhami	Beckhams Little Yellow Bat	IN		X			X
Total		**—**	**—**	***9***	***9***	***2***	***5***	***9***

Key: MRN: Mist Net Method; MA: Acoustic monitoring; OM: Omnivore; NE: Nectariferous; FR: Frugivore; IN: Insectivorous; VT2-3; VT33-34; T36; VT44-44a; and T139

4.2.2.5 *Threatened and Endangered Species*

Six species of fauna were identified in the category of Threatened according to the National Official List (MARN, 2015), of which one is Critically Endangered (CR) according to the IUCN Red List (see Table 4.2-8).

Table 4.2-8 Species of Fauna in Threatened or Endangered Categories found on the Transmission Line, May - June 2016

Order	*Family*	*Specie*	*Common Name*	*National Category*	*Category IUCN*
Class Amphibia					
Anura	Hylidae	*Agalychnis moreletii*	Black-eyed tree frog	T	CE
Class Reptilia					
Squamata	Iguanidae	*Ctenosaura similis*	Black spiny-tailed iguana	T	LC
Class Birds					
Psittaciformes	Psittacidae	*Brotogeris jugularis*	Orange-chinned parakeet	T	LC
	Psittacidae	*Eupsittula canicularis*	Orange-fronted parakeet	T	LC
Piciformes	Ramphastidae	*Aulacorhynchus prasinus*	Emerald toucanet	T	LC
Passeriformes	Pipridae	*Chiroxiphia linearis*	Long-tailed manakin	T	LC

Key: T: Threatened; CE: Critically Endangered; LC: Least Concern; IUCN: International Union for the Conservation of Nature.

Amphibians

Agalychnis moreletii

The black-eyed frog (see Figure 4.2-26) is an endemic species of Central America with a category of Critically Endangered (CE) worldwide due to chytridiomycosis (Santos-Barrera et al., 2004), a disease that has caused Extinction of several amphibian species worldwide. In El Salvador, in 2009 it was considered as a common species in the western central zone of the country in natural forests but also in shade coffee farms (Herrera & Henríquez, 2009). It was registered in two places where the transmission line passes on the Santa Rita and Tequendama farms. In both sites, adults and tadpoles were found in reservoir piles, as well as several ovipostures in the leaves of the trees that surrounded the pools. According to Leenders & Watkins-Cowell (2004), most of the tadpoles of this species were collected in artificial ponds and coffee laundries (see Figure 4.2-27) and reproduction seems to be continuous in El Salvador.



Figure 4.2-26 Adult Agalychnis moreletii Frog Registered during the Study, May and June 2016



Figure 4.2-27 Oviposture of Agalychnis moreletii Found in Reservoir Pile during the Study, May and June of 2016

Reptiles

Ctenosaura similis

Garrobo jiote or black iguana is a large lizard that inhabits much of Central America. It is categorized as Threatened Nationwide (MARN, 2015) but is a species of least concern (LC) according to the IUCN Red List. It can be very abundant in anthropized habitats but is sensitive to hunting pressure as it is desirable for domestic and commercial consumption in El Salvador (Stephen et al., 2011).

Birds

Four species with threatened status at the national level were observed (MARN, 2015). None of the bird species is threatened on the IUCN Red List.

Brotogeris jugularis

This is a species of parrot or psittacida, known as "catalnica", which is threatened at national level. The main risks for its conservation are the destruction of the habitat and the human predation since this species is usually captured at an early age in their nests (talchinol), soon to be commercialized in order to be restricted to the captivity.

Eupsittula canicularis

It is another species of parrot threatened at national level and popularly known as "chocoyo" (see Figure 4.2-28). Like the previous species its main risks are predation and habitat loss.



Note: Species Evaluated with Least Concern (LC) by IUCN But is in Appendix II of CITES and Threatened by MARN, 2015e.

Figure 4.2-28 Eupsittula canicularis – Photographed in the Project Area, May-June 2016

Aulacorhynchus prasinus

The green toucan is a nationally threatened species but distributed between Nicaragua and San Luis Potosí in Mexico and of least concern category (LC) at the international level. During the field study, three individuals were observed in the patch habitat of natural forest and none in the shade or pastureland.

Chiroxiphia linearis

The long-tailed manakin is a threatened species at the national level but distributed between Costa Rica and Oaxaca in Mexico and of least concern category (LC) at the international level. During the field study, 20 individuals were observed in patch habitat of natural forest and none in the shade or pastureland.

4.2.2.6 *Endemic or Restricted Distribution Species*

The vast majority of documented species have wide distributions in Central America or even North and South America. No endemic species of the country were registered. However, species with geographically restricted areas of distribution were found. For example, the *Agalychnis* moreletii frog has a global distribution area of less than 36,000 km2 (Morrison et al., 2012) and the *Anolis* wellbornae lizard is located in an

area of less than 48,000 km2 in dry forest remnants of the Pacific, (ERM own elaboration). Species of terrestrial vertebrates with distribution areas have been recognized as potential indicators of sensitive habitats by the multilateral banks and financial institutions of the Principles of Ecuador.

4.2.2.7 Breeding, Mating and Hatching Areas

There were no areas of singular importance for breeding, mating or hatching of fauna species within the Project area. However, two breeding sites of the *Agalychnis moreletii* frogs were found, a species that frequents shade-grown coffee plantations and uses artificial stacks such as egg laying sites and tadpoles.

4.2.2.8 Migratory Corridors

El Salvador is located on an important corridor for migratory birds. However, the Project area is not recognized as an area of particular importance for migratory birds.

4.2.2.9 Important Areas for Fauna

The habitats of the Project area are mostly coffee plantations, anthropogenic grasslands and crop fields that are not relevant to the native fauna of the region. The most important habitats are in creeks forests where species of native fauna can be found. As mentioned above, the most important sites are the habitats of the frogs *Agalychnis moreletii*, a species in critical danger of extinction according to the IUCN.

4.2.2.10 Permissible Limits of Physicochemical Parameters

Regarding potential sources of physicochemical risks of the Project for biodiversity, only the generation of electric and magnetic fields by the high voltage lines can be mentioned. Despite significant research efforts in Europe and the United States, environmental or exposure levels that are harmful to wildlife species have not been documented.

4.2.3 *Terrestrial Ecosystems*

El Salvador is located in the Neotropical region comprising the American tropics from northern Mexico to central Argentina (Morrone, 2001).

Within the project area stands out the volcanic complex of Santa Ana, of which the Santa Ana Volcano or Ilamatepec constitutes the nucleus. This volcano originated in the Pleistocene period (between 2 and 1 million years ago), before the explosive events of the Coatepeque caldera (its last eruption was in 2005). The volcanoes of Izalco, Cerro Verde, San Marcelino and others are "parasitic" to the mother volcano (UNESCO, 2007b).

According to the classification of Dinerstein Ecoregions and terrestrial and aquatic ecosystems of the classification available for the Mesoamerican Region defined by the Central American Commission on Environment and Development (CCAD) in 2000, it is observed that there are three ecoregions present in the Biosphere Reserve Apaneca - Ilamatepec, which is the most important and representative area from the point of biodiversity that crosses the Project: the Central American Montane Forest, which is in a vulnerable state, the Central American Dry Forest and the Central American Oak Forest both in Critical/Vulnerable worldwide.

In Central America, the description of terrestrial ecological formations has been based mainly on the classification system of the Life Zones of Holdridge et al. (1971) and Holdridge (1978).

This method assumes that vegetation classes vary according to certain climatic and altitudinal gradients. Therefore, it should be noted that the Holdridge system is predictive rather than descriptive. Holdridge et al. (1971) state that a global system of life zones can be established on the basis of precipitation and temperature. This classification system uses the concept "biotemperature", which takes into account the optimal temperature range for plants. A second factor of temperature that takes into account is the decrease of the temperature when increasing the elevation. A third factor is evapotranspiration, for which it developed its own formula. Holdridge then associated a typical vegetation type with the different life zones he had identified based on precipitation; biotemperature, altitude, and evapotranspiration (see Figure 4.2-29).

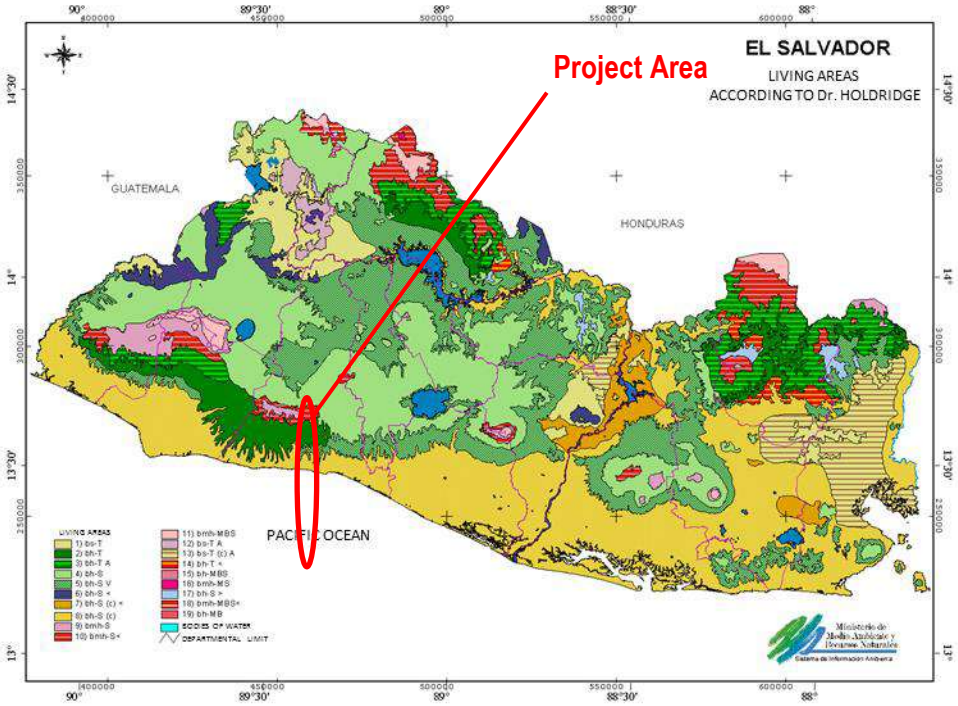


Figure 4.2-29 Life Zones or Plant Formations According to Holdridge

The TL Project crosses the following life zones of Holdridge:

- Hot humid subtropical forest bh-S (c)
- Humid subtropical forest, transition to tropical bh – S
- Tropical humid forest bh – T
- Tropical humid forest, transition to subtropical bh – T
- Very humid subtropical forest, transition to humid bmh – S
- Very humid subtropical low montane forest bmh – MBS
- Subtropical very humid forest bmh – S

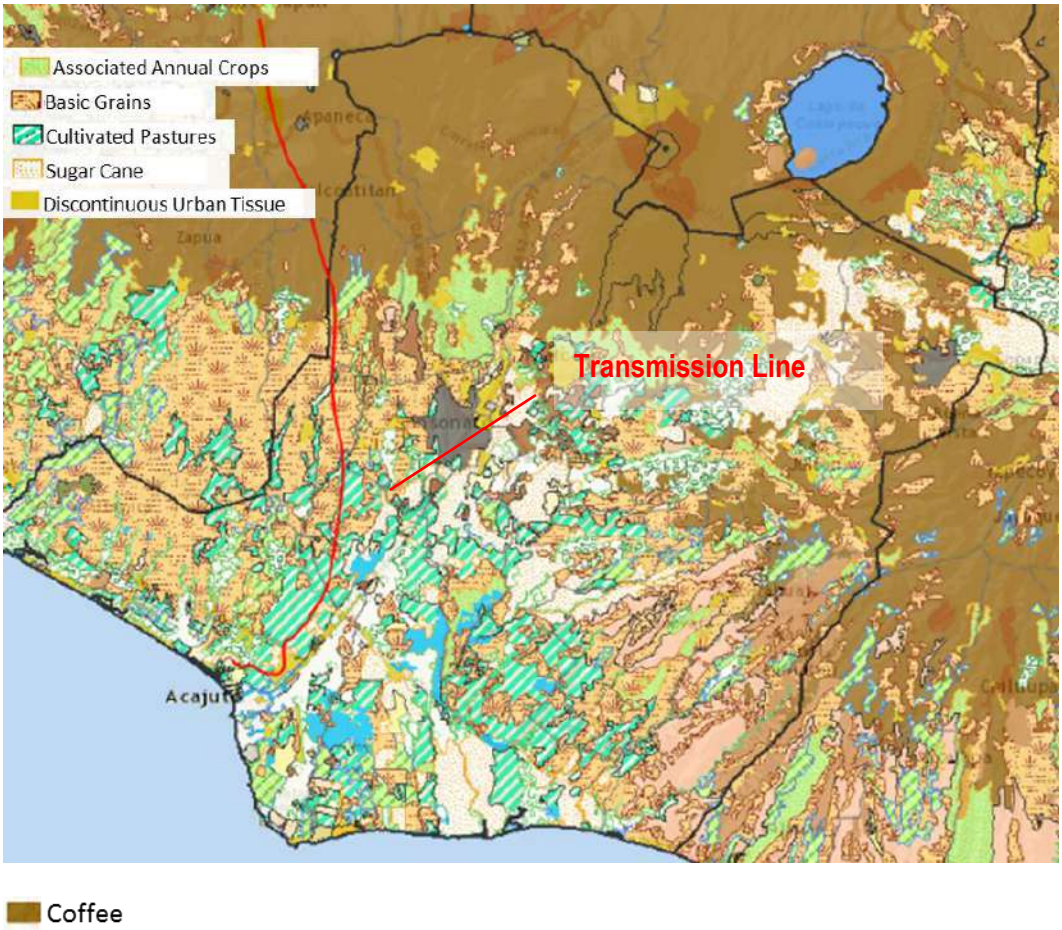
Koeppen classification is based on temperature and annual rainfall distribution. In view of the relationship between temperature and height, the latter can also be taken as a criterion of climatic division.

Most of El Salvador is included in the type of climate of warm tropical savannas, with dry season with average temperatures of the coldest month greater than 18˚C and average temperatures of the hottest month above 22˚C, coastal plains up to 200 m and inland valleys up to 800-900 m.

In the mountains and valleys between 800 and 1,200 m, the climate of warm tropical savannas predominates, with average temperatures of the warmer month lower to 22.0 ˚C, and above the 1,200 m, the high tropical climate with average temperatures of the coldest month below 18.0˚ C. According to Sapper-Lauer, three high-temperature floors can be identified, or levels with the same temperature conditions: hot land up to 900 m, soil temperate and cold ground above 1,800 m.

Due to the special conditions caused by the presence of the ocean, with its damping effect, the coastal zone up to 200 m can be considered as a special climatic unit, which is differentiated by the attenuated temperature regime compared to the interior valleys.

Currently agricultural ecosystems or agro-ecosystems represent the main land use in El Salvador; three quarters of the national territory would be occupied by agro-ecosystems (National Biodiversity Strategy, 2013). According to the above, the project traces through agro-ecosystems: coffee, annual crops associated with permanent crops, basic grains, cultivated pastures, sugar cane and discontinuous urban fabric (see Figure 4.2-30).



Source: Map of the own elaboration with base data of the Program of Visualization of Geographic Information of Environmental Assessment (VIGEA), MARN. June 23, 2013.

Figure 4.2-30 Land Use in the Project Influence Area

4.2.4 *Aquatic Ecosystems*

4.2.4.1 Context

The slopes of the volcanic sierras of the Pacific slope of Central America make up generally small river basins with rivers and ravines of relatively short length. This region is known ictiogeographically as the Chiapan-Nicaraguan Province and is characterized as relatively poor with few species and low level of endemism (Bussing, 1998; Chicas Batres & Gonzálvez Leiva, 2009).

4.2.4.2 Methodology

Through a preliminary route of the TL proposed route, five representative rivers were chosen for the characterization of the aquatic ecosystems of the Project's area of influence (see Figure 4.2-31).

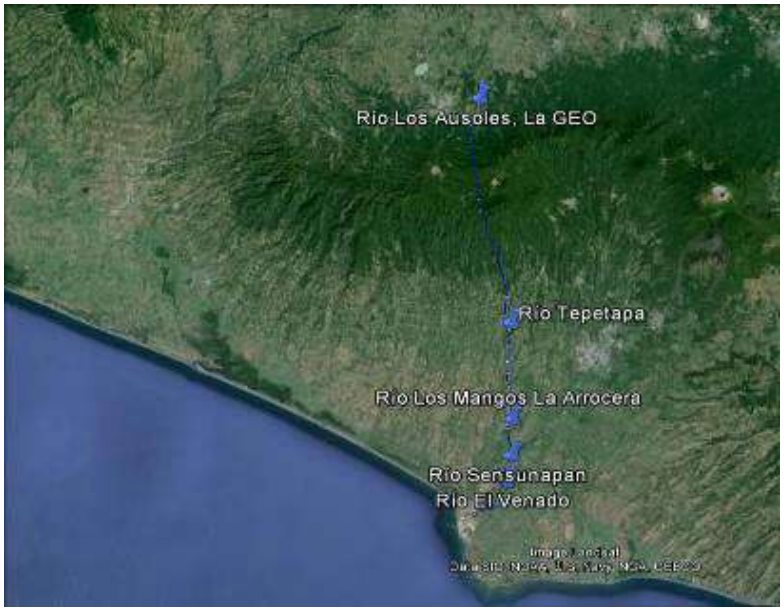


Figure 4.2-31 Identification of Sampling Sites in the Influence Area of the Project

The sampled sites are:

- **Site 1:** Los Ausoles River: 753 meters above sea level (masl), 13°43'0.7; 89°49'10.2"
- **Site 2:** Tepetapa River: 233 meters above sea level (masl), 13°44'01.2"; 89°47'40.4"
- **Site 3:** El Mango River – La Arrocera: 77 meters above sea level (masl), 13°39'12.8"; 89°47'36.2"
- **Site 4:** Sensunapan River: 73 meters above sea level (masl), 13°37'23.2"; 89°47'37.6"
- **Site 5:** El Venado River: 58 meters above sea level (masl), 13° 36'04.2"; 89°47'51.2"

The description of each of the sampled sites is presented in Appendix D.

Sampling of Aquatic Plants

Five sampling sites were selected along the project's area of influence, identifying for each sampling site a location representative of the conditions of the section of the river to be sampled. 50 m long sections

were selected that reflect the floristic composition and abundance of species in moderate rapids, backwaters, pools and riparian conditions that generate shade and light zones.

In each site a non-destructive quantitative sampling was performed with the aid of a PVC tube quadrant of 50 cm per side with twelve replicates (Lot and Chiang, 1986); placing the quadrant on the aquatic vegetation at each sampling site (see Figure 4.2-32). The aquatic plants contained in each quadrant were reviewed and they were taken to a procedure of identification of species for later statistical analysis to estimate frequency and percentage of abundance.



Figure 4.2-32 Quadrant Used to Measure the Coverage of Aquatic Vegetation at Each Sampling Site

Fish Sampling

Firstly, representative sections of the river were identified approximately 50 m linear with typical features, considering fast, moderate displacement waters, backwaters and pools, and shady and luminous environments. For fish sampling, two sampling techniques were combined: 1) a total of 12 effective hauls were carried out in each section with cast-net of a 2.6 x 4.5 m wingspan, a 0.3 mm gauge monofilament thread and 1/4" mesh light (See Figure 4.2-33) and 2) Use of the "D" net, performing samplings of five minutes with three repetitions until covering all the micro habitat of the section of the river. After identifying and photographing the fish, they were returned to the aquatic ecosystem.



Figure 4.2-33 Cast-net Hauls for Sampling Fish

Sampling of Aquatic Macroinvertebrates

We proceeded to select a section of river not exceeding 50 m in length. The river section of the selected site was divided into three parts as closely adjacent as possible and in each of these parts was intensively sampled for a period of five minutes per sub-sample, for a total of 15 minutes for the three sub-samples.



Figure 4.2-34 Multihábitat Sampling of Aquatic Macroinvertebrates Through the Use of "D" Net

Sorting and Processing of Data Obtained in Field

All information obtained at the field level was duly ordered in Excel databases for analysis and interpretation. With the information recorded in the samples, it was possible to determine the abundance, richness and diversity value index, which were processed in Excel spreadsheets. For alpha diversity, the Shannon-Wiener and Simpson indices were used, depending on the data obtained. The absolute (n) and relative (%) abundance of aquatic organisms recorded in the study were determined. The description of the calculations is presented in Appendix D.

4.2.4.3 *Results and Discussion*

Estimating Diversity and Abundance of Aquatic Vegetation

The information reflects that there is little variability among the five rivers sampled, either in terms of the number of species or the number of plants found. The largest number of species with the highest number of plants was found in Quebrada El Venado (Site 5, see Table 4.2-9). This site has abundant sunlight and vegetation around the river (see Figure 4.2-35), unlike the other sites, which are totally shaded. The shade is usually limiting for the growth of some aquatic plants.

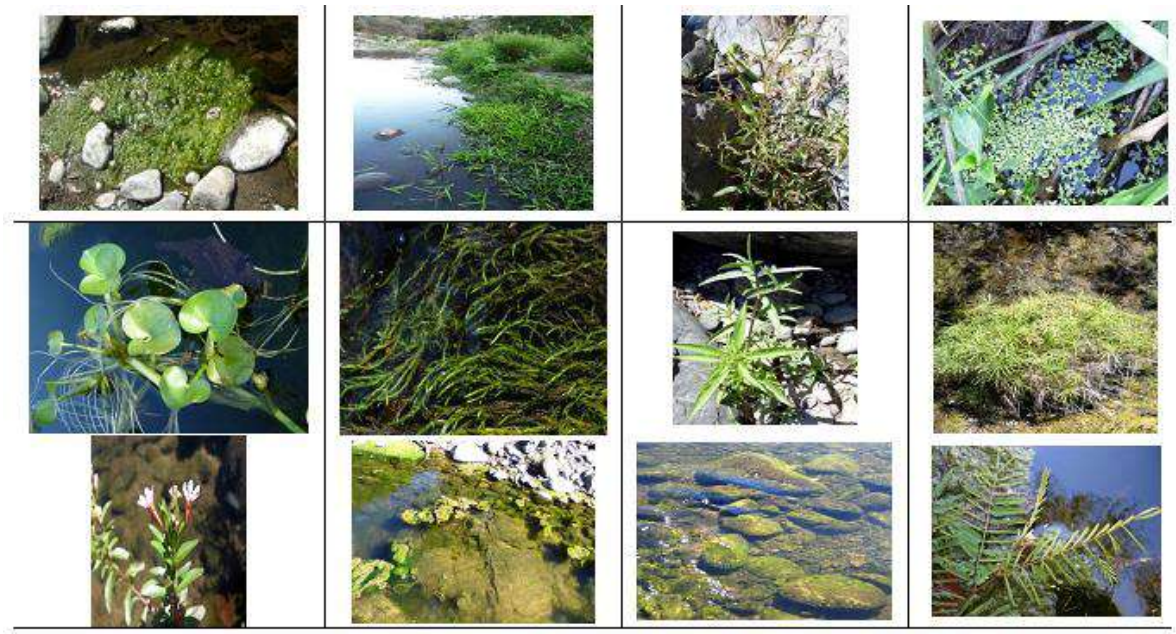
Table 4.2-9 Amount and Percentage of Dominance of Aquatic Plants Found at Each of the Sampling Sites of the Influence Area of the Project

Species	Amount and Percentage of Plant Dominance by Species									
	S1		S2		S3		S4		S5	
	#	%	#	%	#	%	#	%	#	%
Aeschynomene sensitiva	0	0	0	0	5	18	0	0	7	14
Cuphaea carthagenensis	0	0	4	8	0	0	2	17	0	0
Fontinalis bogotensis	0	0	1	2	9	32	3	25	2	4
Heteranthera reniformis	0	0	0	0	0	0	0	0	3	6
Lemna aequinoctialis	0	0	1	2	2	7	5	42	2	4
Eclipta prostrata	2	6	4	8	0	0	0	0	3	6
Ludwigia erecta	2	6	5	10	0	0	0	0	2	4
Cyperus alternifolius	3	9	4	8	1	4	0	0	2	4
Paspalum repens	4	12	4	8	3	11	2	17	8	16
Spirogyra sp and *Cladophora sp* (lama)	6	18	8	17	1	4	0	0	5	10

Species	Amount and Percentage of Plant Dominance by Species									
	S1		S2		S3		S4		S5	
	#	%	#	%	#	%	#	%	#	%
Spirogyra sp (Algae)	7	21	9	19	0	0	0	0	6	12
Cladophora sp (Algae)	10	29	8	17	7	25	0	0	10	20
Number of species per site	***7***	**—**	***10***	**—**	***7***	**—**	***4***	**—**	***12***	**—**
Total plants per site	***34***	**—**	***48***	**—**	***28***	**—**	***12***	**—**	***50***	**—**

Key: S= Sampling site; #= Amount/Number; %= Percentage

The most abundant plants and/or algae in each of the sites sampled with their respective percentage of predominance among plant organisms found (see Figure 4.2-35) were: in Site 1: *Cladophora sp.* (29%) and *Spirogyra sp*. (21%); Site 2: *Spirogyra sp*. (19%) and *Cladophora sp*. (17%); Site 3: *Cladophora sp* (25%); and *Aeschynomene sensitive* (18%); Site 4: *Lemna aequinoctialis* (42%) *Fontinalis bogotensis* (25%), *Paspalum repens* (17%) and Site 5: *Cladophora sp.* (20%) and *Paspalum repens* (16%). Table 4.2-10 details the species with their respective families.



Key: a) Spirogyra sp and Cladophora sp (lama), b) Paspalum repens, c) Ludwigia erecta, d) Lemna aequinoctialis, e) Heteranthera reniformis, f) Fontinalis bogotensis, g) Eclipta prostrata, h) Cyperus alternifolius, i) Cuphaea carthagenensis, j) Spirogyra sp. (algae), k) Cladophora sp. (algae) and l) Aeschynomene sensitiva

Figure 4.2-35 Different Kinds of Aquatic Plants and Algae Found in the Samples of the Five Rivers within the Area of Influence of the Project

Table 4.2-10 Species and Families of Aquatic Flora of the Rivers Sampling in the Trace of the Project

Species	*Families*
Aeschynomene sensitiva	Fabaceae
Cladophora sp. (Algae)	Cladophoraceae
Spirogyra sp. (Algae)	Zygnemataceae
Cuphaea carthagenensis	Lythraceae
Cyperus alternifolius	Cyperaceae
Eclipta prostrata	Asteraceae
Fontinalis bogotensis	Fontinalaceae
Heteranthera reniformis	Pontederiaceae
Lemna aequinoctialis	Lemnaceae
Ludwigia erecta	Onagraceae
Paspalum repens	Poaceae
Spirogyra sp. and Cladophora sp. (lama)	Cladophoraceae and Zygnemataceae

Diversity and Abundance of Fish

We found between 20 and 69 individuals in Sites 1, 2, 3 and 5, but only 3 individuals were found in Site 4. Two to six species were found at each site (see Table 4.2-11).

Table 4.2-11 Number of Species and Individuals of Fish Found at the Hydrobiological Sampling Sites of the Project Influence Area

Family	*Specie*	*Site 1*	*Site 2*	*Site 3*	*Site 4*	*Site 5*
Aroidea	*Ariopsis guatemalensis* (Blue sea catfish)	0	0	0	0	0
Cichlidae	*Amatitlania nigrofacsiata* (Convict cichlid)	6	1	22	0	20
Cichlidae	*Amphilophus macracanthus* (Blackthroat cichlid)	0	0	1	0	0
Cichlidae	*Cryptoheros cutteri* (Blue Eyed Cichlid)	0	0	0	0	9
Characidae	*Astyanax aeneus* (Banded tetra)	16	0	2	1	2
Poeciliidae	*Heterandria anzuetoi* (chimbolo)	10	8	33	2	3
Poeciliidae	*Poecilia gillii* (Mollies)	0	1	0	0	2
Poeciliidae	*Poeciliopsis pleurospilus* (Largespot livebearer)	0	10	11	0	16
Number of species per site		***3***	***4***	***5***	***2***	***6***
Total fish sampled per site		***32***	***20***	***69***	***3***	***52***

Estimates of the Diversity and Abundance of Aquatic Macroinvertebrates

The diversity of macroinvertebrates at the family level was similar among the five sampling sites, ranging from 22 to 24 families per site (see Table 4.2-12). However, an appreciable variation was found in the abundance of sampled individuals, with 672 organisms collected in Río El Mango-La Arrocera and only 122 organisms in Río Tepetapa, with between 195 and 290 in the other sites. In addition, dominant families vary at each site (see Table 4.2-12).

Table 4.2-12 Diversity and Abundance of Aquatic Macroinvertebrates of the Rivers of the Area of Influence of the Project

	Sampling places				
	Site 1	***Site 2***	***Site 3***	***Site 4***	***Site 5***
Ratings	***Río Los Ausoles***	***Río Tepetapa***	***Rio El Mango – La Arrocera***	***Río Sensunapán***	***Río El Venado***
Total families of aquatic macroinvertebrates	22	23	24	24	24
Total abundance of aquatic macroinvertebrate individuals	234	122	672	195	290
Relative abundance of aquatic macroinvertebrate individuals	0.88	1.05	1	0.95	1
Dominant aquatic macroinvertebrate families	Staphylinidae (37.18%), Leptohyphidae (17.52%), Hydropsychidae (11.54%)	Dryopidae (40.52%), Coenagrinidae (8.62%), Leptophlebiidae (7.76%), Hebridae (6.90%)	Hydropsychidae (27.98%), Gerridae (12.05%), Philopotamidae (10.12%), Leptohyphidae (9.97%), Dryopidae (8.78%), Baetidae (5.65%), Elmidae (5.51%)	Veliidae (36.92%), Caenidae (22.05%), Leptohyphidae (10.77%), Baetidae (7.69%), Coenagrionidae (3.08%)	Veliidae (20.00%), Hydropsychidae (15.17%), Calopterygidae (10.69%), Gomphidae (6.55%), Leptophlebiidae (6.55%)
Shannon Index H[a]	***2.21***	***2.29***	***2.45***	***2.08***	***2.65***
Simpson Index	***Dominance***	***0.19***	***0.2***	***0.13***	***0.21***
	Diversity	***0.81***	***0.8***	***0.87***	***0.79***

Key: Shannon Index H[a]: The value of the index is normally represented as H and in natural ecosystems varies between 0 and 6. The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.

4.2.5 *Protected Natural Areas and Fragile Areas*

4.2.5.1 Delimitation of Protected Natural Areas, Buffer Zones, Areas of Influence and Areas of Conservation

The area of the Project crosses in the northern part the Apaneca-Ilamatepec Biosphere Reserve which has seven core zones, with different conservation objectives, represented ecosystems and extensions. Los Volcanes Complex with 2,185 ha is the largest protected area of the Apaneca Biosphere Reserve - Ilamatepec and has an approved Management Plan within the Biosphere Reserve. In 2003, and according to the Management Plan (MARN - AECI, 2003), it was assigned the category of National Park. It has two main objectives: the protection of natural resources and access by the public for recreational purposes.

There are two bodies of water that are national assets established as protected natural areas of the state. The land areas bordering these bodies of water are also protected areas, but the territory is owned by the Municipal Governments. The body of water and its basin form part of the core areas of the Biosphere Reserve. They are Laguna Las Ninfas with 124 ha, and Laguna Verde with 115 ha.

The remaining three protected areas are small patches of remnant ecosystems, surrounded by shaded coffee plantations. These protected natural areas, which constitute the terrestrial ecosystems that surround Laguna Las Ranas, a small body of water in the north-central area of the Biosphere Reserve in the vicinity of Laguna Las Ranas; are the following: 1) Buenos Aires and El Carmen of 66 ha, with remnants of evergreen forest and marshy meadows surrounding Laguna Las Ranas; 2) San Francisco El Triunfo with 35 hectares of evergreen forest, and 3) San Rafael Los Naranjos, a small patch of evergreen forest of 38 ha, located a little further away from the body of water (UNESCO, 2007a) (see Figure 4.2-36).

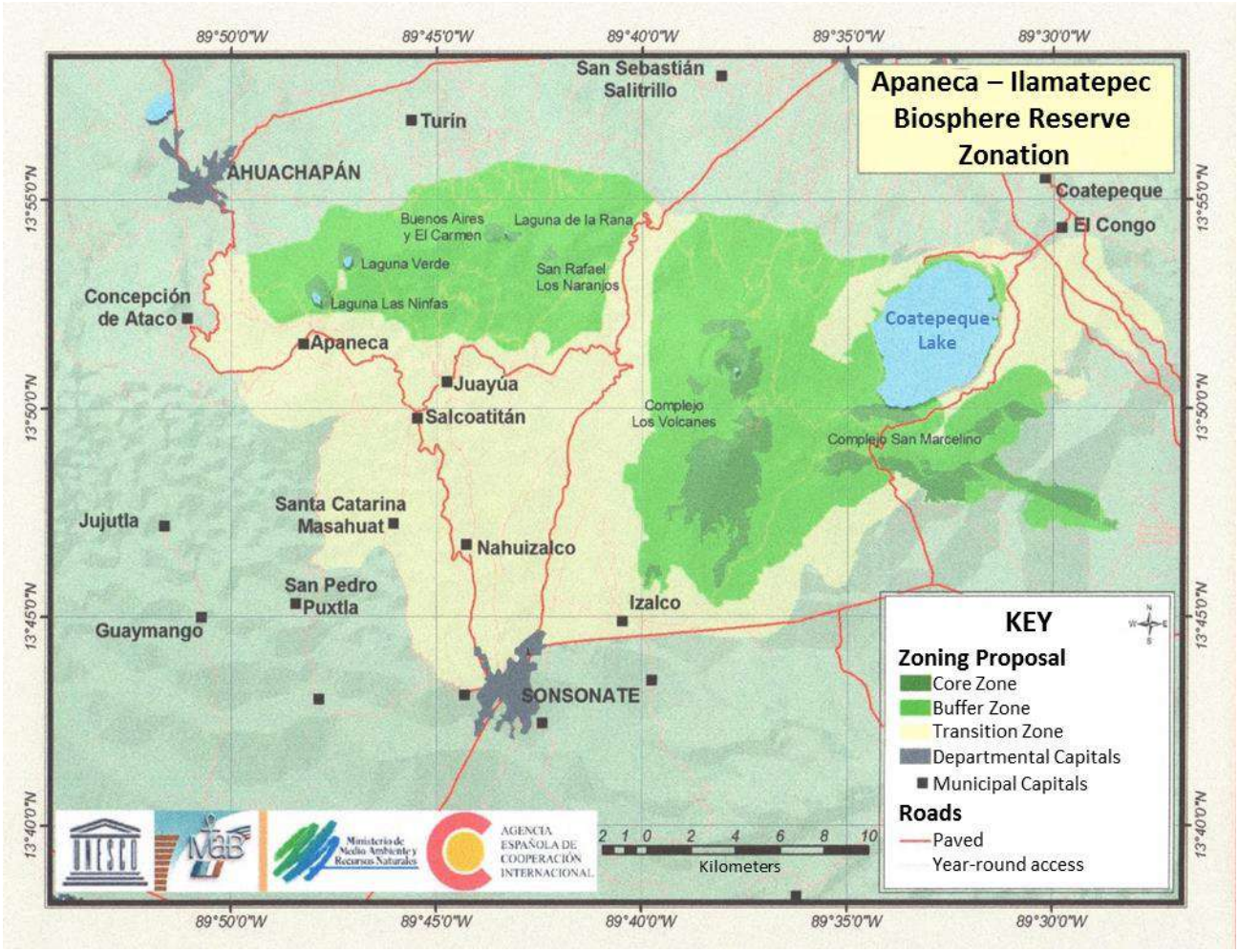


Figure 4.2-36 Zonation of the Apaneca Biosphere Reserve - Ilamatepec

The buffer zones are shaded coffee plantations (74%), aquatic ecosystems (9%) and natural terrestrial ecosystems (10%). Considering the portions of plantations and agroforestry systems, 85% of the buffer zone area maintains a forest structure that favors the reduction of the edge effect on the core areas of the Reserve and the connectivity of the natural ecosystems that these contain (UNESCO, 2007a).

In transition areas, as in buffer zones, the landscape matrix is shaded coffee plantations that account for 68% of the area in transition zones. Except for small spaces of non-interconnected gallery forests, there are no remnants of natural forests in this sector. Almost 12% is destined to crops of basic grains, and it is in this sector that the most important settlements are located covering 3% of the area of this zone.

The Protected Natural Area closest to the trajectory of the transmission line is Laguna de Las Ninfas, passing this approximately 1.1 km west-northwest of the protected area.

South of Acajutla, the northwestern boundary of "Complejo Los Cobanos" Protected Natural Area, which protects coastal and marine habitats, is located about 3.8 km south of the last TL tower.

4.2.5.2 *Specific Location and Boundaries of Protected Natural Areas and Other Fragile Areas*

TL traverses the Apaneca - Ilamatepec Biosphere Reserve (AIBR) in two sectors: 9.28 km between towers TP 14 and TP 30 and 0.89 km between towers TP 56a and TP 59 (see Figure 4.2-37).

In the southern sector, the TL would be within the Transition Area of the AIBR. In the northern sector, it would be within the Transition Area between TP 14 and TP 28 and within the Buffer Area between TP 28 and TP 39.

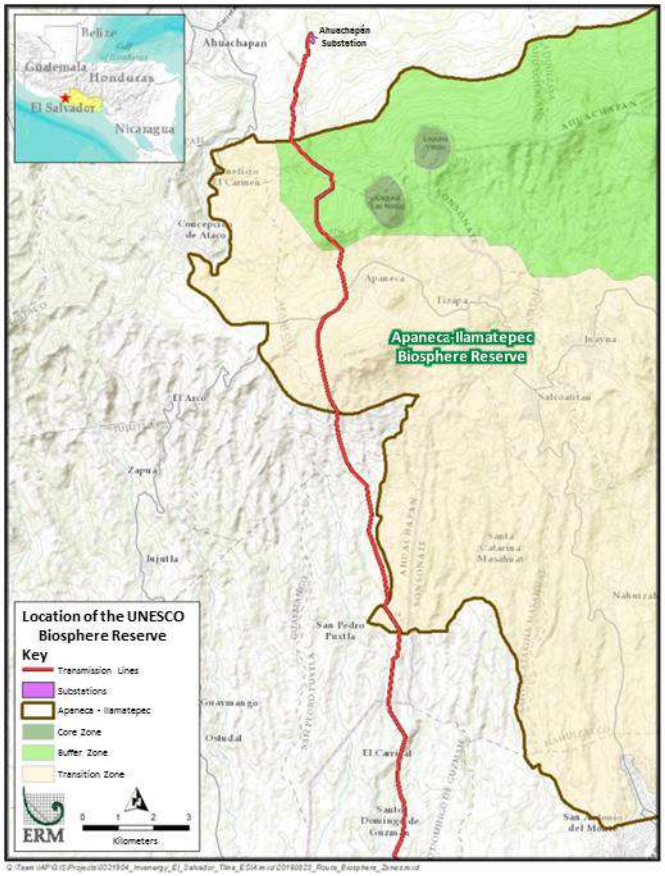


Figure 4.2-37 Zones of the Apaneca-Ilamatepec Biosphere Reserve and the Proposed Transmission Line

Although it has no legal status, we consider here the "IBA" as a fragile area. IBAs are internationally recognized for their biodiversity values but are not natural areas protected by law in El Salvador. The IBA "Los Cóbanos" is a terrestrial zone other than "Complejo Los Cóbanos" Protected Natural Area that protects coastal and marine habitats. According to BirdLife International (2016), this area of coastal plain (7,000 ha) contains fragments of savannas (*Crescentia alata*), secondary dry forest, gallery forest and freshwater marshes scattered in a grazing landscape. The fragments of dry forest contain a community of birds typical of the Arid Pacific Rim biome, and the gallery forests have colonies of the mexican cacique or aliamarilla (*Cacicus melanicterus*), the only population in all of El Salvador (BirdLife International, 2016), a kind of widespread distribution in Mexico with the category of Least Concern according to the IUCN. The TL crosses part of the IBA sector between the TP 136 and TP 145 + 100 m towers for a line distance of approximately 2,890 m, near the routes CA 12 and SON 05.

4.2.5.3 *Priority Status of Protected Natural Area and Ecosystem Services Provided*

According to the Enterprise for the Americas Initiative (EAI [3]), coffee plantations predominate in the vegetation of the transition zone of the AIBR and are part of the Mesoamerican Biological Corridor, whose function is to contribute to the flow of species of flora and fauna. The AIBR is one of two Biosphere Reserves in El Salvador.

The IBA "Los Cobanos" in one of 20 IBAs in El Salvador. It does not present populations of globally threatened species. In terms of ecosystem services, the IBA provides services associated with open grazing landscapes and agriculture with remnants of forests and natural savannas.

4.2.5.4 *Special Management Considerations Established for the Conservation of the Protected Natural Area and/or Fragile Area*

Within the AIBR and the IBA "Los Cóbanos", it will be sought to avoid and minimize the felling and clearing of natural vegetation in the right of way belt. In consultation with the MARN and the EAI, it will seek to reforest areas that reestablish the connectivity of the forest ecosystem

[3] http://www.fiaes.org.sv/apaneca-ilamatepec/

within the AIBR. These measures will result in net gains for the flora, fauna and ecological processes of these areas through an increase in the area of forest habitats and populations of threatened species.

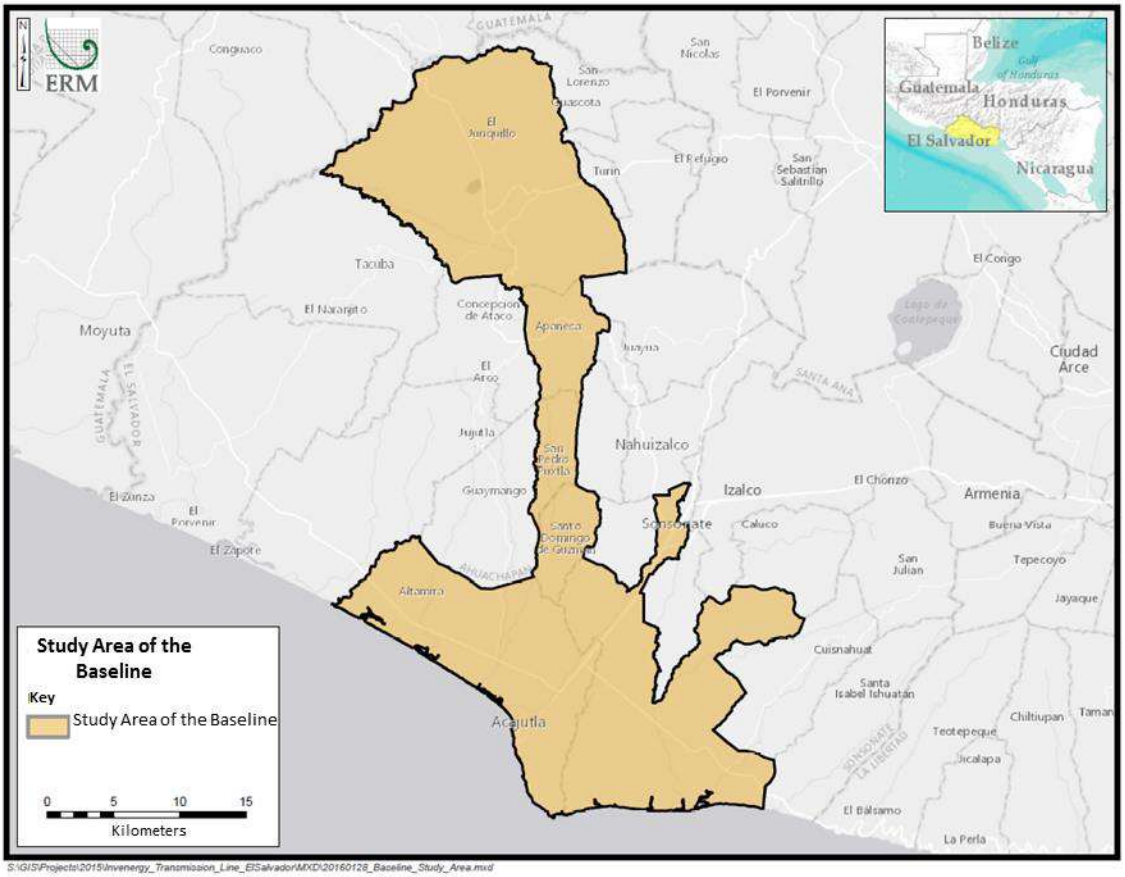
4.3 *SOCIOECONOMIC AND CULTURAL ENVIRONMENT*

4.3.1 *Social Actors*

The Project carried out activities of identification and mapping of the social actors relevant to the Project, as well as those that have interest or influence in the Project. Those who have representations or actions in the area of influence were mapped and with them were carried out semi-structured interviews, participatory rural diagnostic workshops and focus groups. The section below explains the methodology used and a detailed description of the process of identification and relationship with social actors is presented in *Section 6 - Citizen Consultation*.

4.3.2 *Introduction*

This section describes the socio-economic conditions in the Project's area of study. The social and economic baseline focuses on the six municipalities within two departments within which the Project is located. The six municipalities are: Ahuachapán, Apaneca, San Pedro Puxtla, Acajutla, Sonsonate and Santo Domingo de Guzmán. These municipalities are within the departments of Ahuachapán and Sonsonate. Acajutla and San Pedro Puxtla are the largest populated centers in the study area. See Figure 4.3-1 for more information on the study area.



Source: ERM, 2016

Figure 4.3-1 Baseline Study Area

The communities through which the Project passes in each municipality are listed in Table 4.3-1.

Table 4.3-1 Communities through which passes the Project

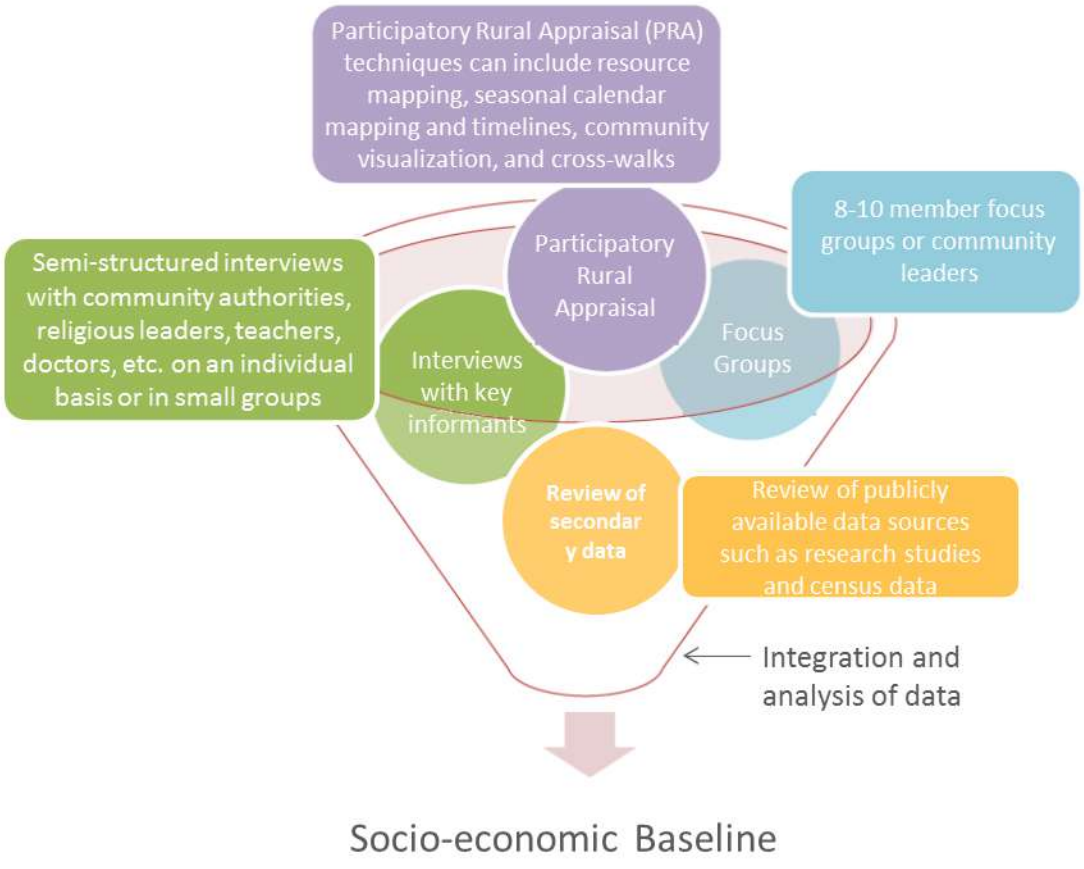
Municipality	*Communities*
Ahuachapán	• Cantón Santa Rosa Acacalco • Cantón Los Magueyes • Cantón El Barro: Bélgica, La Conejera, Barro Blanco and Agua Caliente • Lotificación Las Arboleda
Apaneca	• Cantón El Saltillal: Fincas El Saltillal, Finca El Naranjo • Cantón San Ramón: Finca Himalaya, El Paraje, Los Claveles (or as Sintegual) • Cantón San Ramoncito: El Cerro, San Francisco, Las Brisas, Sisiniapa • Cantón El Tronconal • Cantón Quezalapa: Cerro Grande, Sihuata • Cantón Tequendama
San Pedro Puxtla	• Finca Miramar • San Rafael, La Concepción

Municipality	*Communities*
	• Cantón El Durazno: Los Cocos, Los Limos, El Rosario • Finca Santa Elena 1 • Cantón Huachipilin: Las 4 Reinas, Las Tres Ceibas • Cantón Texispulco: The second
Santo Domingo de Guzmán	• Cantón El Carrizal: El Camalote, Tepechapa • Cantón El Caulote: Portion 2, Las Cruces, Sesecapa • Los Arcos, La Barranca • Cantón El Zope • Cantón Las Tablas
Sonsonate	• Cantón: El Carrizal • Cantón Las Tablas: Hacienda Santa Clara, Caserío La Barranca • Cantón El Coyol
Acajutla	• Hacienda El Coyol • Hacienda Jordania • Cantón San Julián: Hacienda San Jorge, Kilo 5, Hacienda Kilo 5, Lotificación El Corralón

Source: ERM, 2016

4.3.3 *Methodology*

The baseline of socioeconomic factors was developed using mixed methods (see Figure 4.3-2). The approach emphasized the convergence of diverse sources of information, each with its individual strengths and limitations.



Source: ERM, 2016

Figure 4.3-2 Methods of Data Collection

Table 4.3-2 lists the departments, municipalities, populations and communities in the Project study area and indicates the sources of data and methods used in each.

Table 4.3-2 Methods of Collecting Primary Information Employed in the Project Area

Municipality	*Focus Groups*	*Number of Interviews with Key Informants*	*Participatory Rural Diagnostic Workshops*	*Impact Workshops*
Department of Ahuachapán				
Ahuachapán		21	1	1
Apaneca		4	1	1
San Pedro Puxtla	1	4	1	1
Department of Sonsonate				
Acajutla		10	1	1
Santo Domingo de Guzmán		8	1	1
Sonsonate		7	1	1
Total	***1***	***54***	***6***	***6***

Source: ERM, 2016

4.3.3.1 Interviews with Key Informants

Interviews were conducted with key informants in order to gain a better understanding of the issues that demanded greater knowledge. These interviews were conducted with community leaders, municipal officials, doctors, priests and teachers, among others. The information obtained from these interviews complemented the results of household surveys, since they provided more integrated perspectives on the conditions in the municipalities, often focusing on specific topics (eg health, transportation, education).

The consultant team conducted 54 interviews with key informants. See *Section 4.3.1, Social Actors*, for more information and Appendix E, Focus Group Minutes and Key Informant Interviews, to learn the documentation of interviews with key informants.

4.3.3.2 Participatory Rural Diagnosis (PRD)

Three PRD workshops were held. The general objective of the PRD was to obtain information about the community through a representative group from each community. Through this exercise, we sought to obtain firsthand information on the socio-economic and ecological situation of the communities. In addition, it sought to identify development opportunities in the communities, so that the Project could begin to define its social investment program.

4.3.3.3 *Focus Groups*

Focus group sessions were held to better understand the views, concerns and priorities of specific groups that could be affected by Project activities.

4.3.4 ***Political-Administrative Division in the Study Area***

The departments of Ahuachapán and Sonsonate are located in the western part of the Republic of El Salvador (see Figure 4.3-3). The Department of Ahuachapán has an extension of 1,239,60 km² and limits to the north and west with the Republic of Guatemala, the northeast with the department of Santa Ana, the east with the department of Sonsonante and the south with the Pacific Ocean.



Source: SNET, 2016

Figure 4.3-3 Political-Administrative Division of El Salvador

The department has 12 municipalities: Ahuachapán, Apaneca, Atiquizaya, Concepcion de Ataco, El Refugio, Guaymango, Jujutla, San Francisco Menéndez, San Lorenzo, San Pedro Puxtla, Tacuba and Turin. The three municipalities that are within the area of influence of the Project are: Ahuachapán, Apaneca and San Pedro Puxtla (see Figure 4.3-3).

The Department of Sonsonate covers an area of 1,225.77 km2 and is bordered to the north and west by the department of Ahuachapán, to the north by the department of Santa Ana, to the east by the Department of La Libertad, and to the south by the Pacific Ocean. The department has 16 municipalities: Acajutla, Armenia, Caluco, Cuisnahuat, Izalco, Juayúa, Nahuizalco, Nahuilingo, Salcoatitan, San Antonio del Monte, San Julián, Santa Catrina Masahuat, Santa Isabel Ishuatán, Santo Domingo de Guzmán, Sonsonate and Sonzacate. The three municipalities that are within the area of influence of the Project are: Acajutla, Santo Domingo de Guzmán and Sonsonate (see Figure 4.3-4).

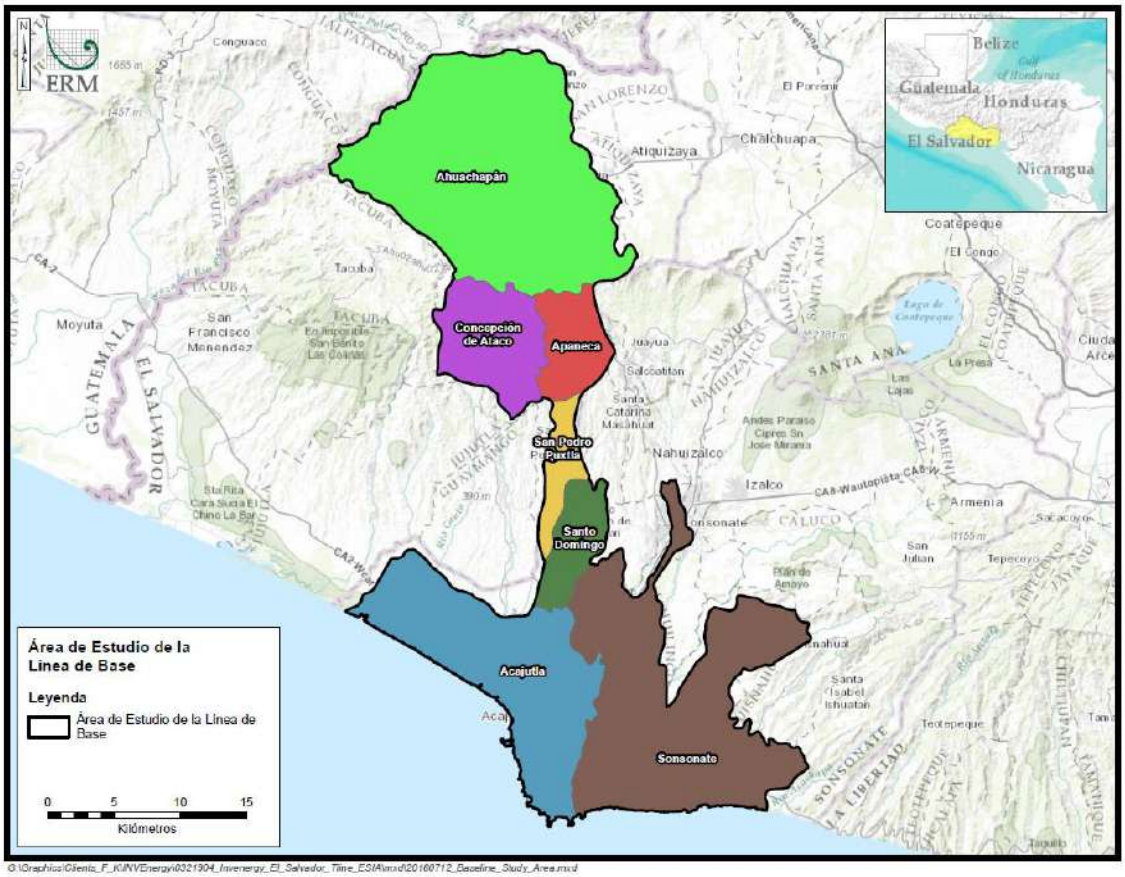


Figure 4.3-4 Municipalities in the Area of Influence

4.3.5 *Population and Demography*

4.3.5.1 Population and Growth Trends

According to the last census of 2007, the population of El Salvador is 5,744,113 inhabitants. According to projections made by the General Directorate of Statistics and Censuses (DIGESTYC), it is estimated that in 2016 the total population of the country will be 6,520,675 inhabitants. The average annual growth rate for El Salvador was 0.3% for the period 2011-2015 (IBRD 2015); In line with the projected decline in the overall fertility rate of 2.5 children per woman in the period 2003-2008 (FESAL 2008) to 1.87 children per woman in the period 2015-2016 (DIGESTYC 2014) . El Salvador is considered an expulsion country, confirmed by the total population born in El Salvador and registered in the US, which increased from 787,711 in 2000 to 1,146,688 in 2010 (DIGESTYC, 2014). See Section 5.4.5.8 Migration for more information on national and departmental migration.

The population density in El Salvador is 304 inhabitants per km2. 62.3% of the population are in the urban area and 37.7% in the rural area (EHPM, 2015). There are departments that concentrate large population groups (such as San Salvador, La Libertad, Sonsonate, Santa Ana and San Miguel) and others that are sparsely inhabited (such as Cabañas, San Vicente, Morazán and Chalatenango). 27.5% of the country's total population (EHPM, 2015) is concentrated in the Metropolitan Area of San Salvador (AMSS).

Life expectancy at birth has been steadily rising and, according to the most recent projections, is estimated to be 66.5 years for men and 75.9 for women (DIGESTYC 2014). The infant mortality rate is 23.0 of deaths of children under one year for every 1000 live births for males and 18.8 for deaths of children under one year for every 1000 live births for females.

According to the 2007 census, the population of the department of Ahuachapán was 319,503 inhabitants, with a projected population of 359,418 inhabitants in 2016 (DIGESTYC 2014). The population growth rate in the period 1992-2007 was 1.38% (DIGESTYC, 2007), in line with the overall fertility rate of 2.5 children per woman (FESAL, 2008), which is one of the highest in the country (see Table 4.3-3).

Table 4.3-3 Population for Department and Municipality - Ahuachapán

Departments/ Municipalities	Total			Area					
				Urban			Rural		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Department of Ahuachapán	319,503	155,159	164,344	134,925	63,620	71,305	184,578	91,539	93,039
Municipality of Ahuachapán	110,511	52,808	57,703	63,981	29,898	34,083	46,530	22,910	23,620
Municipality of Apaneca	8,383	4,088	4,295	2,943	1,380	1,563	5,440	2,708	2,732
Municipality of San Pedro Puxtla	7,773	3,880	3,893	1,887	936	951	5,886	2,944	2,942

Source: DIGESTYC, 2007

The population density in the department of Ahuachapán is 258 inhabitants per square kilometer (km2); with 42.2% of the population in urban areas and 57.8% in rural areas (DIGESTYC, 2007). The municipality of Ahuachapán is the most populous municipality in the department. The municipality of San Pedro Puxtla is one of the least populated municipalities in the department.

According to data from the 2007 census, the population in the department of Sonsonate is 438,960 inhabitants, with a projected population of 501,780 inhabitants in 2016 (DIGESTYC, 2014). The population growth rate for the period 1992-2007 was 1.35% (DIGESTYC, 2008). Sonsonate had a total fertility rate of 2.5 children per woman in 2007 (FESAL, 2008) and 2.03 children per woman for the period 2015-2016 (DIGESTYC, 2014, see Table 4.3-4).

Table 4.3-4 Population for Department and Municipality - Sonsonate

Departments/ Municipalities	Total			Area					
				Urban			Rural		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Department of Sonsonate	438,960	212,252	226,708	261,348	123,954	137,394	177,612	88,298	89,314
Municipality of Sonsonate	71,541	34,117	37,424	49,129	22,943	26,186	22,412	11,174	11,238
Municipality of Acajutla	52,359	25,561	26,798	25,237	12,146	13,091	27,122	13,415	13,707
Municipality of Santo Domingo de Guzmán	7,055	3,398	3,657	2,277	1,054	1,223	4,778	2,344	2,434

Source: DIGESTYC, 2007

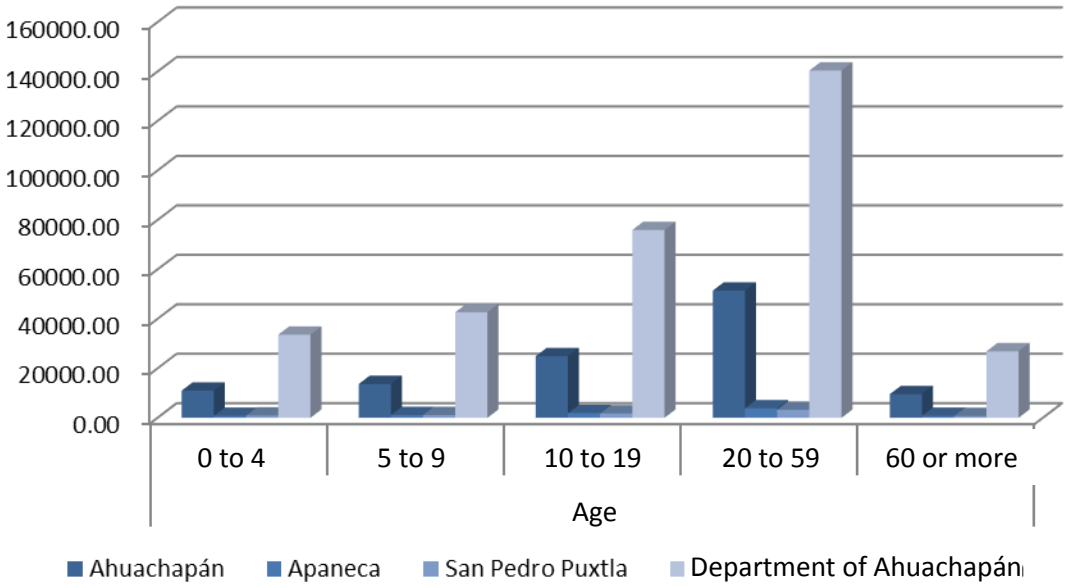
The population density in the department of Sonsonate is 358 inhabitants per km2, with 59.5% of the population in urban areas and 40.5% in rural areas (DIGESTYC, 2007). The municipality of Acajutla is the second most populous municipality in the department, after the municipality of Izalco. Salcoatitán is the municipality less populated in the department of Sonsonate followed by the municipality of Santo Domingo de Guzmán.

4.3.5.2 Distribution of Population by Sex and Age

The 2007 census reported a higher number of women (52.7%) than men (47.3%) (DIGESTYC, 2007), which is a change from the 1992 census which reported approximately the same number of men as women. This change may reflect the emigration of Salvadorans to the outside, which is greater among men. The change may also reflect increased male mortality due to armed conflict, suicides, motor vehicle crashes, occupational accidents, and other factors affecting males rather than females.

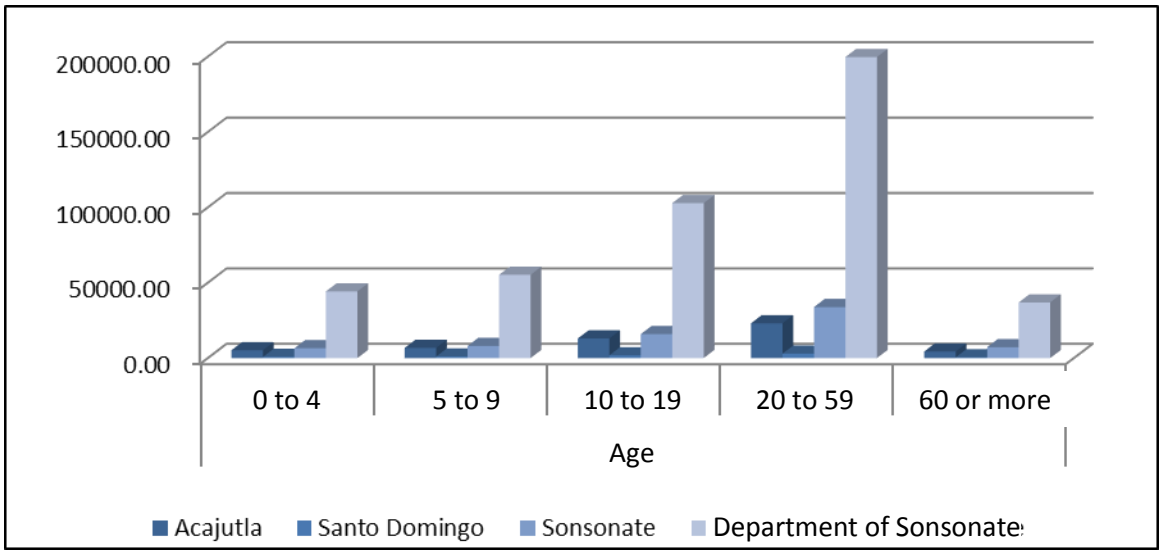
In relation to the distribution of the population by age, El Salvador continues to be a relatively young country, although the base of the pyramid has been reduced as a result of the decrease in the fertility rate. However, the vast majority of the population continues to be in the age range of 0 to 20.

Consistent with the results at the national level, the departments of Ahuachapán and Sonsonate reported a higher number of women than men in the 2007 population census. Likewise, these departments are mostly young areas with a large part of the population concentrated in the ages 0 to 19. See Figures 4.3-5 and 4.3-6 for more information on the distribution of the population by age in the different municipalities in the area of influence.



Source: Prepared by ERM with information from DIGESTYC, 2007

Figure 4.3-5 Distribution of Population by Age in the Department of Ahuachapán by Municipalities



Fuente: Prepared by ERM with information from DIGESTYC, 2007.

Figure 4.3-6 Distribution of Population by Age in the Municipalities of Acajutla, Santo Domingo and Sonsonate, Department of Sonsonate

4.3.5.3 Ethnicity

During the 2007 census, information was collected on the race and/or ethnic group of the Salvadoran population. This information was obtained

from self-identification by individuals as belonging to an ethnic group. The vast majority of Salvadorans identify them as "mestizos" (see Figure 4.3-7). A small percentage of the population identified as "black" (0.13%) or belonging to an "ethnic group" (or indigenous people) (0.2%).

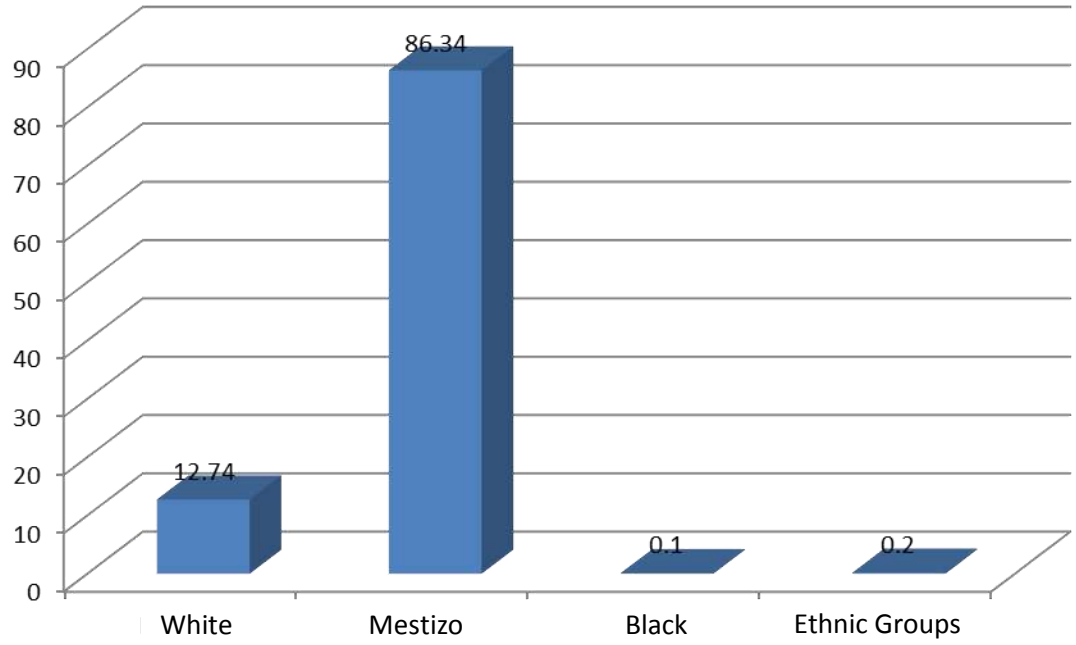


Figure 4.3-7 Percentage Distribution of Population by Race and Ethnic Group, 2007 Census

At the municipal level, the population is classified according to the data presented in Figure 4.3-8 below.

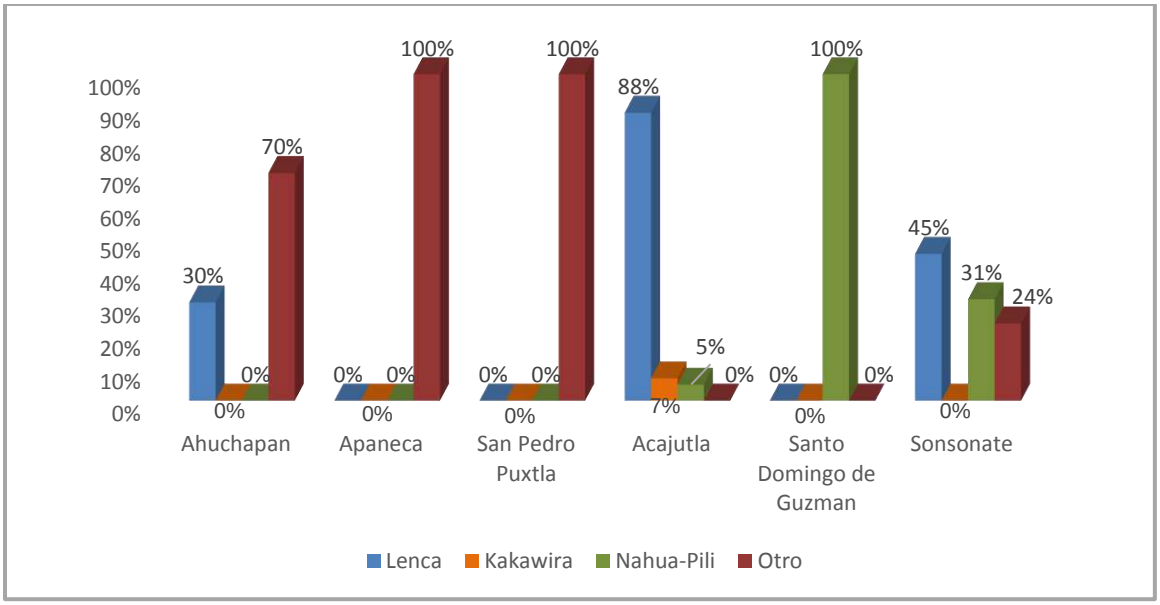


Figure 4.3-8 Percentage Distribution of Population by Race and Ethnic Group at Municipal Level, 2007 Census

4.3.5.4 Indigenous Populations

The categories of people are defined as ethnic groups that are denominated based on the perceptions of social experiences and ancestry, whose members belong to ethnic groups that consider themselves as participants in a history and cultural traditions that distinguish their group of others. The three largest indigenous peoples in El Salvador are: Lenca, Kakawira (also known as Cacaopera) and Nahua-Pipil. See Table 4.3-5 for more information on the number of people living in municipalities influenced by the indigenous population to which they belong.

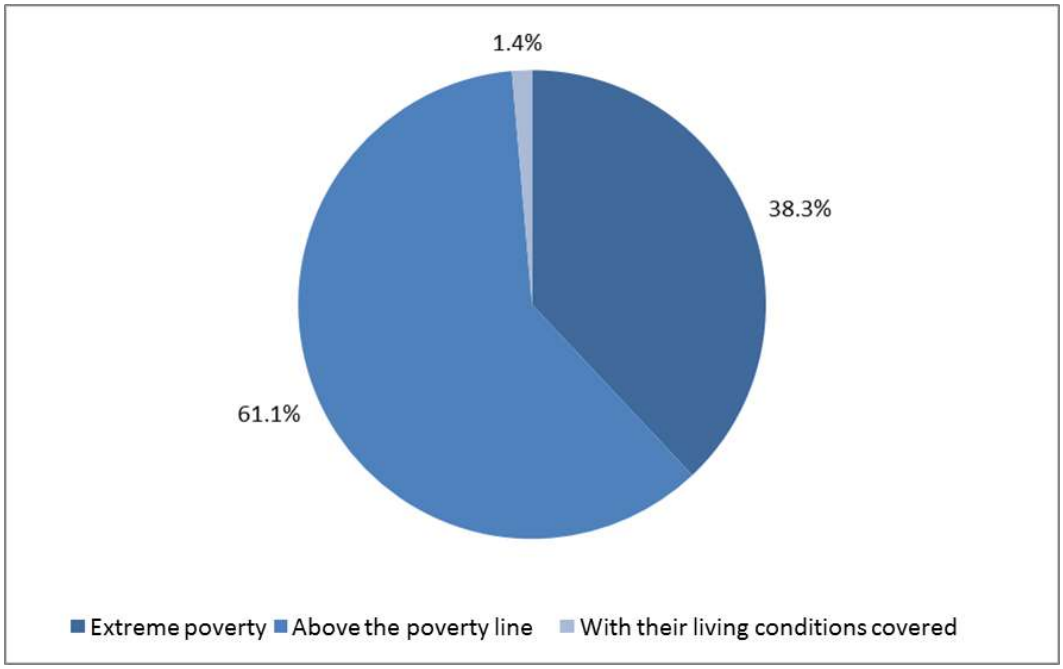
Table 4.3-5 Indigenous Population by Sex and Municipality

Departments/Municipalities	*Indigenous Population*											
	Lenca			*Kakawira (Cacaopera)*			*Nahua-Pipil*			*Other*		
	Total	*Men*	*Women*	*Total*	*Men*	*Women*	*Total*	*Men*	*Women*	*Total*	*Men*	*Women*
Department of Ahuachapán	44	23	21	2	1	1	17	9	8	99	51	48
Municipality of Ahuachapán	16	11	5	-	-	-	-	-	-	37	20	17
Municipality of Apaneca	-	-	-	-	-	-	-	-	-	1	-	1
Municipality of San Pedro Puxtla	-	-	-	-	-	-	-	-	-	1	-	1
Department of Sonsonate	207	102	105	13	9	4	1,403	688	715	321	156	165
Municipality of Acajutla	90	46	44	7	5	2	5	2	3	-	-	-
Municipality of Santo Domingo de Guzmán	-	-	-	-	-	-	8	7	1	-	-	-
Municipality of Sonsonate	91	45	46	-	-	-	63	29	34	48	27	21

Source: ERM 2016 based on 2007 census

In 2003, the World Bank estimated the percentage of indigenous people in El Salvador between 10 and 12% (IBRD, 2003). However, this percentage was not verified by a population census. The 2007 census reported that ethnic groups (or indigenous peoples) account for only 0.2% of the total population.

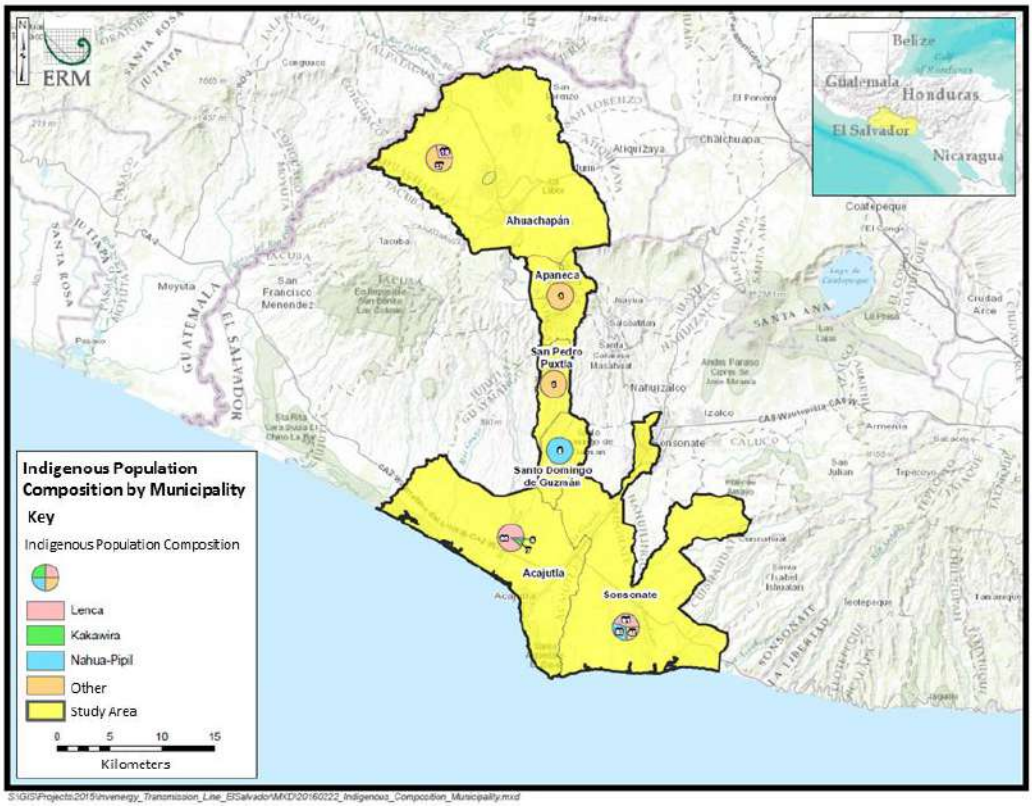
Indigenous peoples and communities in El Salvador live in extreme poverty (IBRD, 2003). 61.1% of indigenous peoples in 2003 were classified as living "in poverty" according to their working conditions, housing and their access to public services (IBRD, 2003, see Figure 4.3-9). The main source of income for these peoples is the subsistence agricultural economy, specifically the cultivation of corn and beans. Other sources of income include hourly work on coffee farms or as agricultural laborers during the growing season. A small number of indigenous people work as artisans.



Source: ERM developed with IBRD information, 2003

Figure 4.3-9 Socioeconomic Classification of the Indigenous Family

According to Table 4.3-5 a number of indigenous communities inhabit the municipalities in the study area; specifically the municipalities of Ahuachapán, Acajutla, and Sonsonate. The highest concentration of indigenous communities is in the municipality of Sonsonate (see Figure 4.3 10).



Source: ERM, 2016

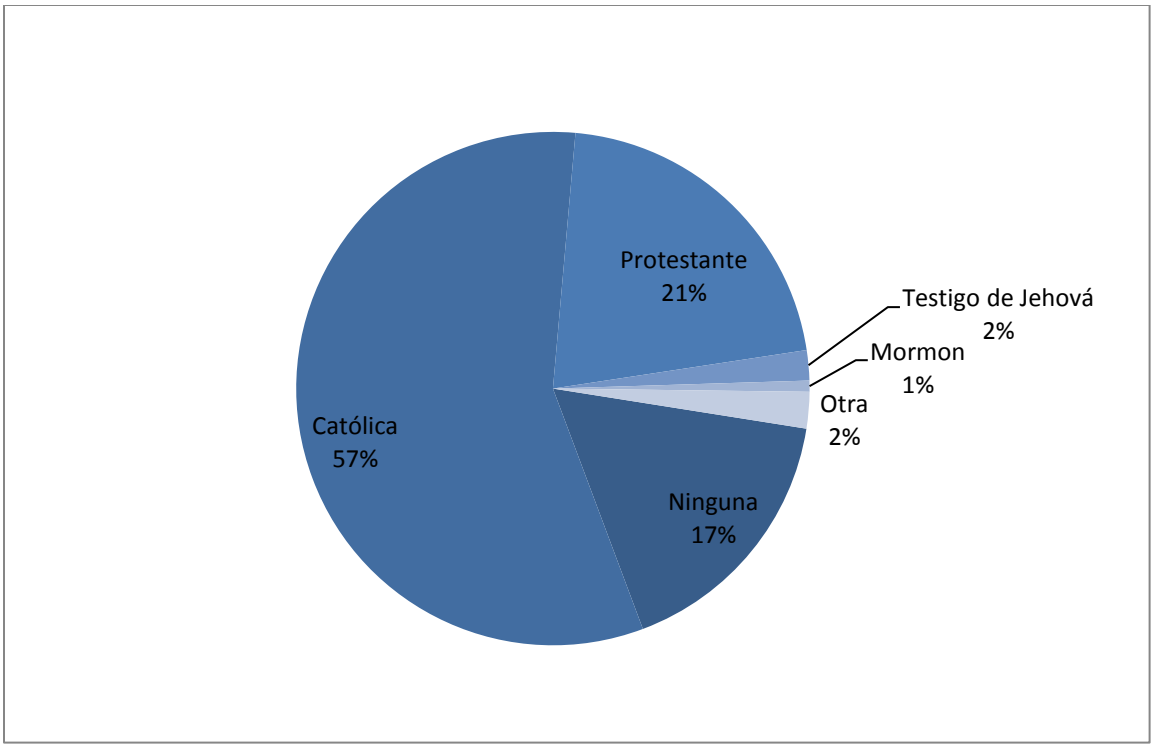
Figure 4.3-10 Map of the Indigenous Territories in the Area of Influence

4.3.5.5 Language

Spanish is the official language in El Salvador, with a small percentage of indigenous communities whose first language is Nahuat. This indigenous language survives only among some Nahuatl families mainly in the western part of the country. Between the Lencas and the Kakawira survive only a few words. However, there is evidence of the struggle for their language by Lencas and Kakawira who have used information from the results of anthropologists working in the region to develop worksheets for learning and spreading their language (IBRD, 2003).

4.3.5.6 Religion

The great majority of the inhabitants of El Salvador identify themselves as Catholics, followed by Protestants and those who do not profess any religion (see Figure 4.3-11).



Source: ERM developed with information from the CIA, 2003

Figure 4.3-11 Religion that Professes the Population in El Salvador, 2003

4.3.5.7 Level of Poverty and Human Development

The World Bank classifies El Salvador as a "middle-income" country. In 2015 the government adopted a new poverty measurement methodology called the Multidimensional Poverty Index (MPI) which considers social and economic factors (eg food insecurity, unemployment and exposure to environmental damage and risks, among others) to determine if a home is poor or not. According to the results of multidimensional poverty measurement, of the total Salvadoran households, 35.2% are multidimensionally poor (STTP and MINEC-DIGESTYC, 2015). This is equivalent to approximately 606,000 households, where about 2.6 million people reside.

The multidimensional poverty rate in rural areas is 58.5%, and in urban areas it is 22.5% (STTP and MINEC-DIGESTYC, 2015). At the national level, four departments recorded more than half of the households in situations of multidimensional poverty: La Paz, La Unión, Morazán and Ahuachapán.

The department of Ahuachapán reported a MPI of 52.7%, with 66.1% of poor households located in rural areas and 36% in urban areas. In the department of Sonsonate, the MPI was 41.5%, with 59.7% of poor households located in rural areas and 29.7% in urban areas (STTP and MINEC-DIGESTYC, 2015).

In 2013, the Human Development Index (HDI) in El Salvador was 0.662 points, an improvement over the year 2012, when it stood at 0.660 (UNDP, 2014). At the departmental level, the HDI is 0.694 in the department of Ahuachapán and 0.731 in the department of Sonsonate (UNDP, 2009). Even with an improvement in the national HDI, El Salvador remains one of the countries in the region with the lowest economic growth, and where more than half of the population that is of working age continues to be underemployed or unemployed (UNDP, 2014). See *Section 4.3.9.1 Economically Active Population*, for more information.

4.3.5.8 Migrations

El Salvador is the Central American country with more migrants per year. It is estimated that between 1970 and 1990 approximately 10% of the country's total population migrated (Funkhouser 1995). According to the percentage of the population of Salvadoran origin registered in other countries, it is believed that the number of annual emigrants continues to be significant, with an estimated 300 daily people leaving El Salvador (La Opinión 2013), although this number has not been verified by a population census. The country of preference for Salvadoran emigrants is the United States. Other popular destinations are Spain, Guatemala, and Mexico. According to the immigration figures estimated in the 2007 census, the vast majority of Salvadoran emigrants are men, although the last five years have seen an increase in the number of women and children emigrants due to gang violence and organized crime.

At the national level, the transfer of individuals from rural to urban areas has been increasing in search of better work and access to public services.

> *"There is a lot of migration from other areas. People come to have a safe place to live (Lourdes, Colon)."(Participatory Rural Diagnosis, Apaneca, June 2016).*

The departments of Ahuachapán and Sonsonate experience high levels of emigration (see Table 4.3-6). This Table 4.3-6 does not include individuals who emigrated to another country, therefore, it is considered that the number may be significantly higher. No updated information was found at the departmental level for the last eight years. However, during the participatory rural diagnoses developed in Ahuachapán and Apaneca, it

was indicated that there was a flow of population favored by the greater security of these populations, and in the specific case of Apaneca, because of its location in the commercial transportation lines with Guatemala.

Table 4.3-6 Internal Migratory Balance: Ahuachapán and Sonsonate - 2007 Census

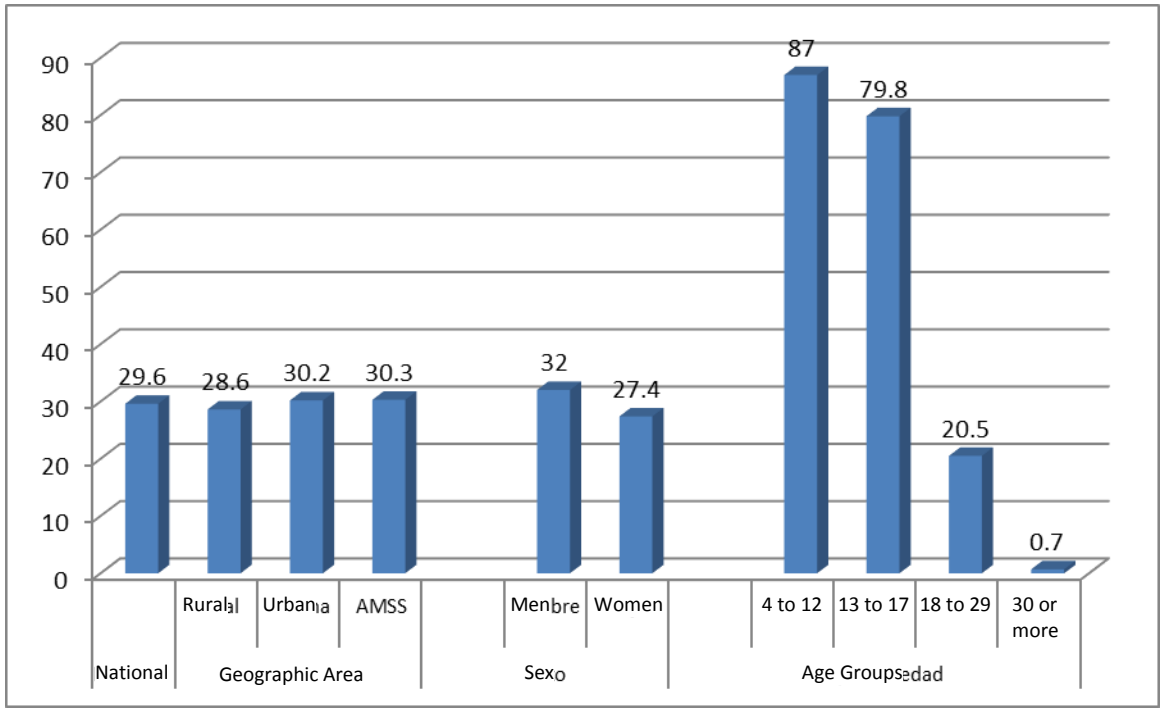
Departments	*Internal Migratory Balance*	*Foreign Population*	*Total Migrants*
Ahuachapán	-25,343	1,363	-23,980
Sonsonate	-9,808	1,170	-8,638

4.3.6 *Education*

4.3.6.1 Schooling and Attendance

Despite a substantial improvement in coverage, literacy levels and access to education centers between 2000 and 2014, education in El Salvador still shows a low level of schooling, high rates of grade repetition, high drop out rate (The higher the grade, the lower the number of students) and large gaps between urban and rural areas.

The school attendance rate of the population of four years and more for 2014 was 29.6%, which represents a total of 1,768,346 people attending a formal educational center in El Salvador (EHPM, 2012). There are gaps in school attendance rates by geographic area and sex. Figure 4.3-12 shows the school attendance rate of the population aged 4 and over by area, sex, and age group.

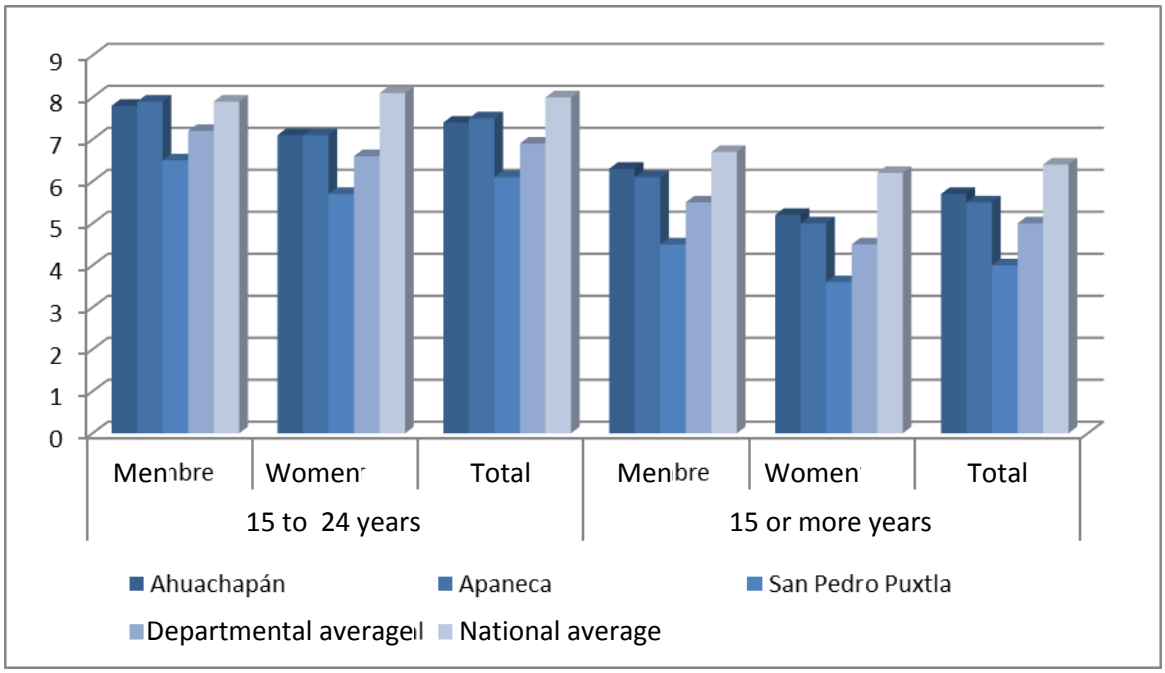


Source: ERM developed with information from EHPM, 2012

Figure 4.3-12 ***Rate of School Attendance of the Population of Four Years and More by Area, Sex and Age Groups in El Salvador***

Between 2000 and 2014, there were great advances in the net rates of school attendance in the country, particularly with respect to the net attendance rate in the third cycle (from 70 to 90), which increased by 17.9 percentage points and with respect to the net high school attendance rate, which increased by 10.7 percentage points (EHPM, 2012). In addition, these increases show the almost absence of gender disparities, which means that there is a significant increase in the number of women attending one or more levels of education.

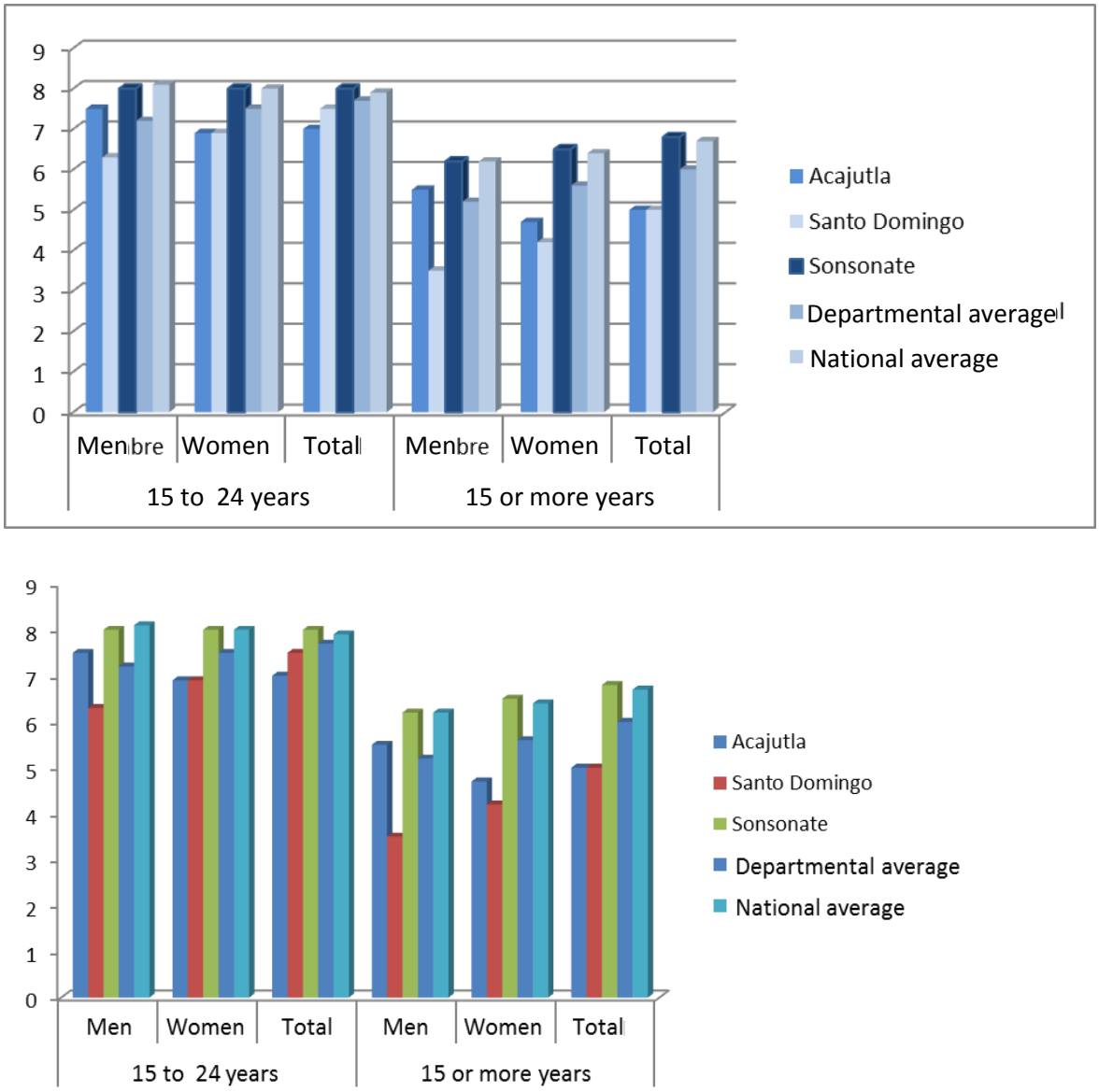
According to 2007 census data, the population aged 15-24 has a 6.9 grade level average, which means they are 1.5 degrees below the national average in that age range (MINED, 2009). This number is lower for women who reported in 2009 an average schooling of 6.6 versus an average schooling of 7.2 years reported by men. Figure 4.3-13 shows the average schooling in the department of Ahuachapán for the municipalities in the study area.



Source: Elaboration by ERM based on DIGESTYC data, 2007

Figure 4.3-13 Years of Average Schooling of the Three Municipalities in the Department of Ahuachapán, by Sex and Age, 2007

In the department of Sonsonate, the population aged 15-24 years of age has 7.5 degrees of schooling on average, which means they are 0.5 degrees below the national average in that age range (MINED, 2009). As in the case of the department of Ahuachapán, this number is lower in the case of women who reported, in 2009, an average schooling of 7.2 against 7.7 years reported by men. Figure 4.3-14 shows the average schooling in the department of Ahuachapán for the municipalities in the study area.



Source: Elaboration by ERM based on DIGESTYC data, 2007.

Figure 4.3-14 Years of Average Schooling of the three Municipalities in the Department of Sonsonate in 2007 according to Sex and Age Ranges

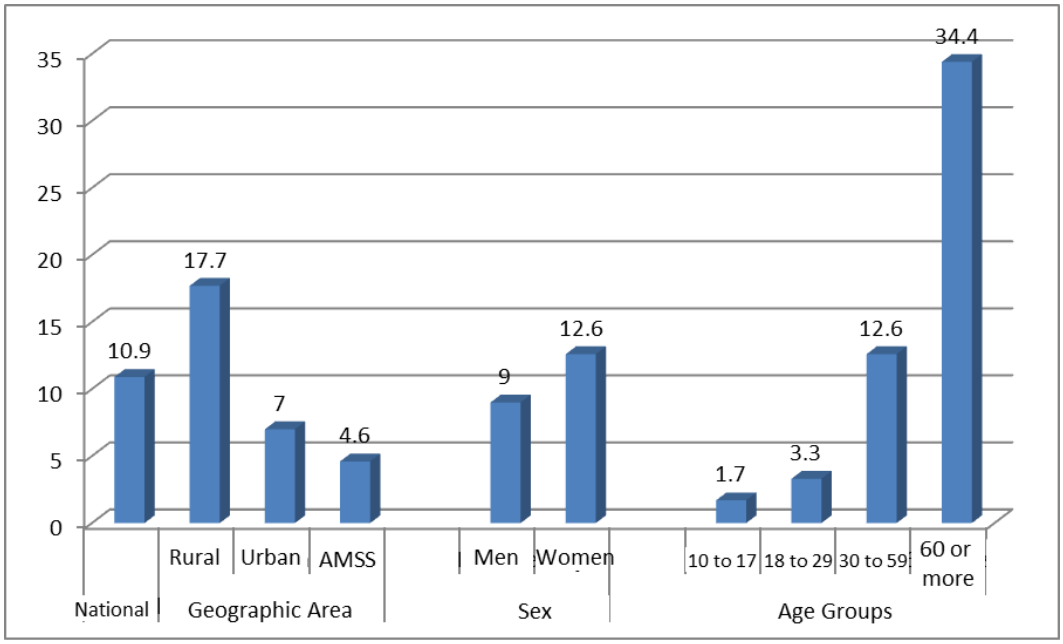
Data collected as part of the individual interviews, corroborated the existence of large gaps in school coverage between urban and rural areas. In the municipalities of Ahuachapán and Santo Domingo de Guzmán, the average transit time between home and school is between 30 and 40 minutes and the vast majority of schools are located in urban areas. All people consulted during the data collection process rated the education their children have access to as "good."

The three schools visited during the field work in the municipalities of Ahuachapán and Santo Domingo de Guzmán reported a dropout rate of 2 to 7 percent. The main causes of school dropout, identified in interviews with key informants were: change of address, delinquency and family breakdown. Based on the pedagogical services available in these two municipalities only the people in the municipality of Ahuachapán answered "yes" to the following question: do you consider that there are prepared professionals who will be able to benefit from the job offer generated by the Project? Those interviewed in Santo Domingo de Guzmán do not consider that residents of this municipality can benefit from the project's labor supply with the exception of some jobs that do not require specialization.

According to the EHPM of 2012, El Salvador needs to make a great effort and dedicate enough investment to prepare the young population of these municipalities, so that they can take advantage of the opportunities emanated from new economic activities and more lucrative jobs, based on the dynamics of Import and export of goods, and the provision of services.

4.3.6.2 Literacy and Education Level

The total illiteracy rate of the population aged 10 years and over in El Salvador is 10.9%. By sex, the illiteracy rate of the female population is 12.6%, while for male peers it is 9.0% (EHPM, 2012). There are also gaps in terms of geographic area of residence and age group (see Figure 4.3-15). Differences were also reported in the illiteracy rate among the different departments of the country.



Source: ERM developed with information from EHPM, 2012

Figure 4.3-15 Population Illiteracy Rates of 10 Years and More by Area, Sex and Age Groups - El Salvador

The department of Ahuachapán reported a high illiteracy rate, in relation to the national average, with a 13.6% illiteracy rate for the population aged 10 years and over (EHPM, 2012). This rate is 4.1 percentage points higher than was reported in the 2007 population census. The most recent information on illiteracy rates at the municipal level (see Table 4.3-7) corresponds to the 2007 population census. Both these numbers have certainly increased in the last eight years based on the new rate of illiteracy at the departmental level.

Table 4.3-7 Literacy and Illiteracy of the Department of Ahuachapán Year 2007, by Municipalities in the Area of Study and Age Ranges

Municipality	15 to 24 years				15 or more years			
	Literate		Illiterate		Literate		Illiterate	
	Population	%	Population	%	Population	%	Population	%
Ahuachapán	19,758	92.3	1,645	7.7	57,629	79.5	14,869	20.5
Apaneca	1,440	92.3	120	7.7	4,386	80.3	1,076	19.7
San Pedro Puxtla	1,372	89.1	167	10.9	3,373	70.2	1,430	29.8
Departmental Rate	**55,869**	**90.3**	**5,992**	**9.7**	**151,537**	**75.1**	**50,158**	**24.9**
National Rate	**894,564**	**93.3**	**64,268**	**6.7**	**2991,963**	**81.5**	**676,908**	**18.5**

Source: ERM based on DIGESTYC data, 2007.

The level of illiteracy is higher in women than in men. In the municipalities of Ahuachapán, Apaneca and San Pedro Puxtla both sexes reported, in 2007, illiteracy rates higher than the national average.

The department of Sonsonate reported an illiteracy rate of 12.1% among the population aged 10 years and over, a figure that is moderately high in relation to the national average (EHPM, 2012). This rate is 7.5 percentage points higher than in the 2007 population census. The most recent information on illiteracy rates at municipal level (Table 4.3-8) corresponds to the 2007 population census; therefore, these numbers have certainly increased in the last eight years based on the new rate of illiteracy at the departmental level.

Table 4.3-8 Literacy and Illiteracy of the Department of Sonsonate Year 2007, by Municipalities in the Area of Study and Age Ranges

	15 to 24 years				*15 or more years*			
	Literate		*Illiterate*		*Literate*		*Illiterate*	
Municipality	*Population*	*%*	*Population*	*%*	*Population*	*%*	*Population*	*%*
Acajutla	8,323	91.1	813	8.9	24,780	77	7,306	22.8
Santo Domingo	1,168	92.1	100	7.9	2,848	69	1,269	30.8
Sonsonate	11,669	93.9	761	6.1	39,427	84	7,693	16.3
Departmental Rate	***70,668***	***92.5***	***5,723***	***7.5***	***217,620***	***79.4***	***56,440***	***20.6***
National Rate	***894,564***	***93.3***	***64,268***	***6.7***	***2991,963***	***81.5***	***676,908***	***18.5***

Source: ERM based on DIGESTYC data, 2007.

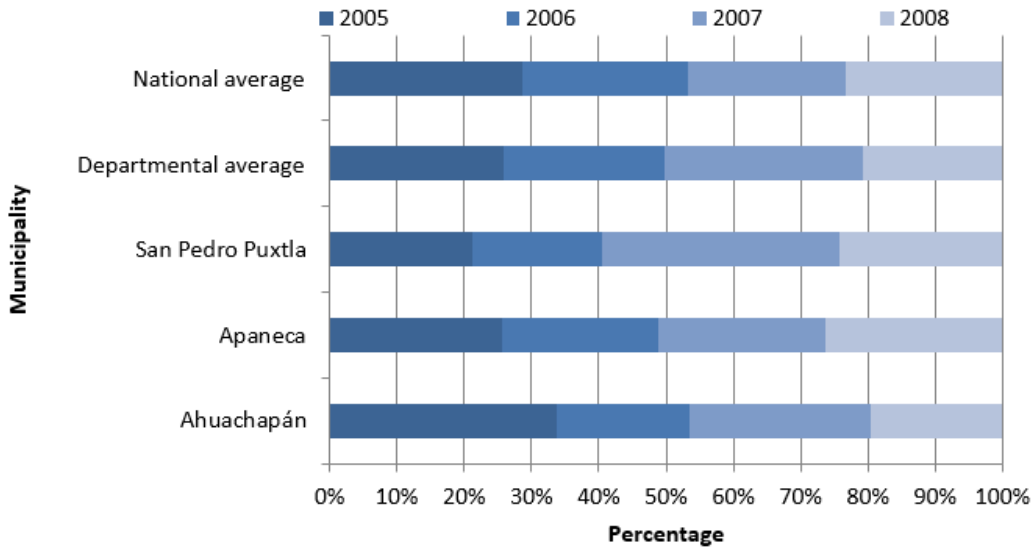
As in the department of Ahuachapán, illiteracy levels in the department of Sonsonate are higher in women than in men. Both sexes reported illiteracy rates higher than the national average in the three municipalities in the study area, although not at the same level as the department of Ahuachapán.

4.3.6.3 School Dropout Rates

The dropout rate in El Salvador is high relative to other countries in the Latin American and Caribbean region. 64% of young people enter secondary school in El Salvador, while the region's average is close to 89% (MINED, 2014). In 2008, only 60% of people between the ages of 20 and 24 completed at least nine years of education while 40% had at least 11 years of education. The high dropout rate has economic and social consequences in the country. For example, a considerable number of young people with no secondary education encounter difficulties in finding employment and usually end up working in the informal sector (MINED, 2014). The main reason for dropout in the last five years is delinquency, which has resulted in home and/or school changes which increase the chances of school

dropout. At the departmental level, the most recent data correspond to 2009.

Traditionally, the dropout rate in the department of Ahuachapán is below the national average. The dropout rate of the traditional education system is higher in women than in men and more significant for those attending a public rather than a private school. Figure 4.3-16 shows the dropout rate for municipalities in the area of influence.



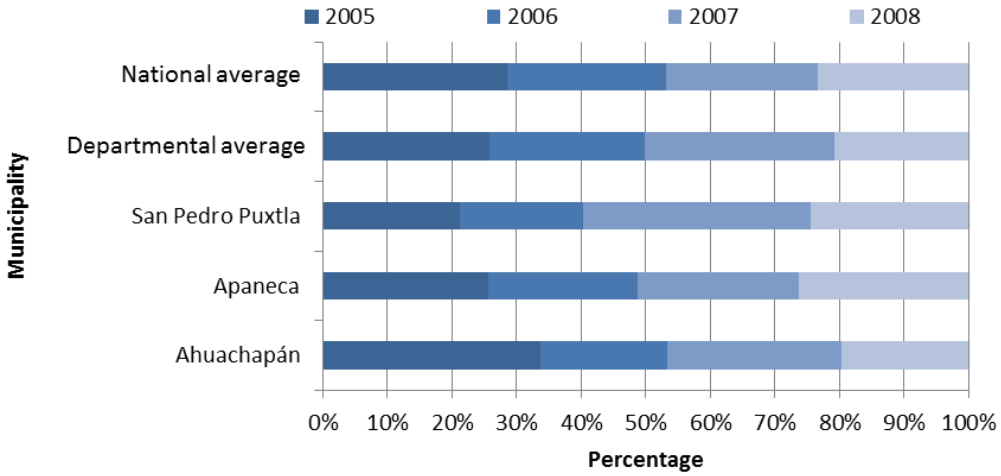
Source: Prepared by ERM with information from MINED, 2009

Figure 4.3-16 Percentage of Desertion of the Traditional Education System in the Department of Ahuachapán, by Municipality (2005 - 2008)

In the department of Sonsonate, the dropout rate is also below the national average. As in the case of Ahuachapán, the number of women dropping out of school is higher than the number of men and there is a lower number of school dropouts in those who attend private rather than public schools. During the participatory rural diagnosis, it was suggested that lack of access to educational institutions, and early pregnancy in some cases, were common causes of school dropout.

> *"There is enough desertion, there are families that have to move, and there is no university. When they finish, the young people go to Sonsonate or to San Salvador. "(Participatory Rural Diagnosis, Acajutla, June 2016).*

Figure 4.3-17 shows the dropout rate for municipalities in the area of influence.

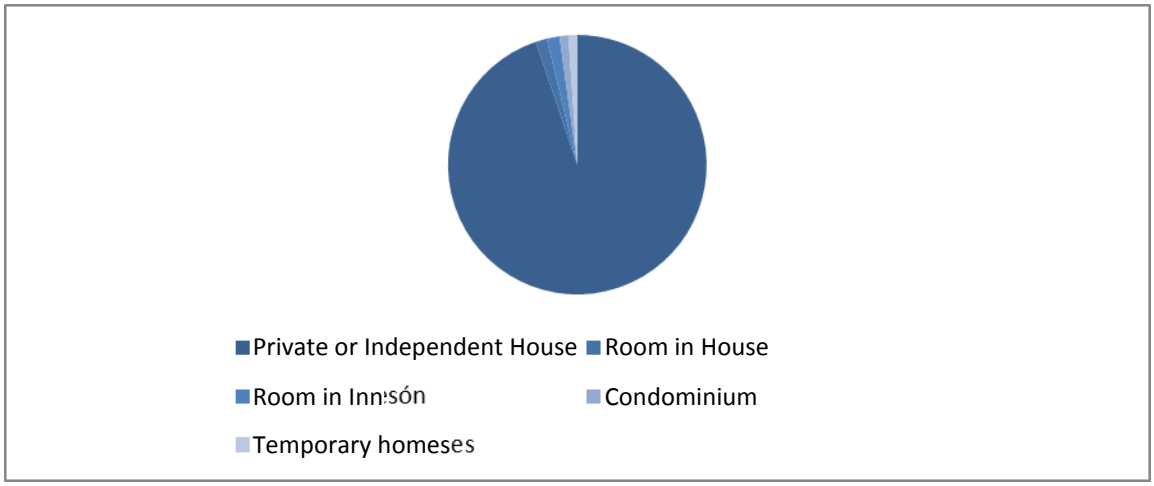


Source: Prepared by ERM with information from MINED, 2009

Figure 4.3-17 Percentage of Desertion of the Traditional Education System in the Department of Sonsonate, by Municipality (2005 - 2008)

4.3.7 *Housing*

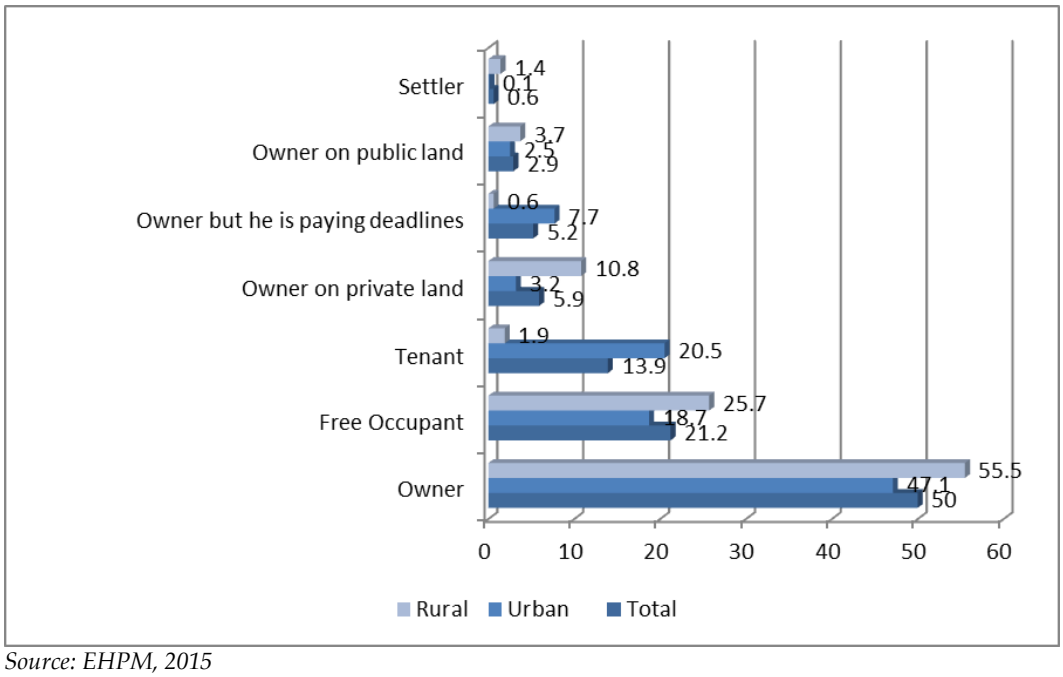
The number of households at the national level is 1,722,075 (EHPM, 2012). The majority of these households correspond to a private or independent house with a small percentage of households corresponding to a piece at home, piece in porterhouse and to condos. Also, a limited percentage of inhabitants reported living in temporary homes (for example, apartments, houses or makeshift ranches). According to data from the Social Mobility Survey (PNUD and ESEN, 2013), the rural population has fewer opportunities to improve their housing than the urban population (44% versus 61%). Figure 4.3-18 reflects the type of housing at the national level.



Source: EHPM, 2012

Figure 4.3-18 Type of Housing Nationwide, 2014

At the national level, more than half of the inhabitants own their homes (EHPM, 2015). Most homeowners who report ownership of their homes are located in rural areas. The number of free residents is also higher in rural areas. Figure 4.3-19 reflects households by tenure, by urban or rural area.



Source: EHPM, 2015

Figure 4.3-19 Percentages of Households by Type of Housing, According to Geographical Area, 2014

4.3.7.1 *Housing Characteristics*

At the national level, most homes have concrete walls, cement brick floors, and metal foil roofs. Variations in housing construction materials are significant between urban and rural areas. Specifically, housing in urban areas has more durable materials such as concrete walls and cement floors. Table 4.3-9 indicates the percentage and frequency, by materiality, of households at the national level.

Table 4.3-9 Materials Used for the Construction of Houses, by Department, 2014

Predominant Material		Geographic area					
		Frequency			Percentage		
		National	Rural	Urban	National	Rural	Urban
Walls	***Total***	***1722,075***	***609,310***	***1112,765***	***100***	***100***	***100***
	Concrete	1261,978	314,129	947,849	73.3	51.6	85.2
	Bahareque	47,763	34,520	13,243	2.8	5.7	1.2
	Adobe	259,345	174,386	84,959	15.1	28.6	7.6
	Wood	25,648	19,395	6,253	1.5	3.2	.6
	Metal Sheet	103,863	49,528	54,335	6.0	8.1	4.9
	Thatch or palm	5,187	4,930	257	0.3	0.8	0.0
	Waste materials	10,221	6,627	3,594	0.6	1.1	0.3
	Other	8,070	5,795	2,275	0.5	1.0	0.2
Floor	***Total***	***1722,075***	***609,310***	***1112,765***	***100***	***100***	***100***
	Ceramic brick	274,369	52,273	222,096	15.9	8.6	20
	Ladrillo de cemento	718,308	136,975	581,333	41.7	22.5	52.2
	Clay brick	6,968	4,444	2,524	0.4	0.7	0.2
	Cement	416,087	207,735	208,727	24.2	34	18.8
	Dirt	298,843	201,735	97,108	17.4	33.1	8.7
	Other	7,500	6,523	977	0.4	1.1	0.1
External Roof	***Total***	***1722,075***	***609,310***	***1112,765***	***100***	***100***	***100***
	Concrete slab	34,336	1,841	32,495	2.0	0.3	2.9
	Clay or cement roof tile	420,442	251,134	169,308	24.4	41.2	15.2
	Asbestos or cement fiber sheet	578,205	66,849	511,356	33.6	11	46
	Metal Sheet	684,542	286,301	398,241	39.8	47	35.8

Predominant Material		Geographic area					
		Frequency			Percentage		
		National	Rural	Urban	National	Rural	Urban
	Thatch or palm	1,638	1,379	259	0.1	0.2	0.0
	Waste materials	2,324	1,437	887	0.1	0.2	0.1
	Other	588	369	219	0.0	0.1	0.0

Source: EHPM, 2015

At municipal level, the municipalities of Apaneca and Acajutla have the highest percentage of houses with concrete walls (75 and 73.5% respectively). On the other hand, the municipalities of Santo Domingo de Guzmán and San Pedro Puxtla have the highest percentage of wood walls (50 and 60% respectively). The municipality of San Pedro de Puxtla also has the highest percentage of dirt floors (66.7%) followed by the municipality of Ahuachapán (34.5%). The municipality of Apaneca has the highest percentage of brick floors (58.3%) and most of the homes in the six municipalities have metal sheet roofs. Table 4.3-10 indicates the percentage and frequency, by materiality, of households at the municipal level.

Table 4.3-10 Materials Used for the Construction of Houses, by Municipality, 2014

Walls							
Municipality	Concrete	Bahareque	Adobe	Wood	Metal Sheet	Thatch or Palm	Waste Materials
Acajutla	73.52%	0.38%	12.91%	2.27%	9.86%	0.35%	0.00%
Ahuachapán	55.77%	0.69%	32.94%	2.74%	5.26%	-	0.68%
Apaneca	75.00%	-	-	25.00%	-	-	-
San Pedro Puxtla	26.67%	-	-	60.00%	13.33%	-	-
Santo Domingo de Guzmán	41.67%	-	50.00%	8.33%	-	-	-
Sonsonate	77.45%	-	11.22%	2.67%	7.95%	-	0.72%
Floor							
Municipality	Ceramic brick	Cement brick	Clay brick	Cement	Dirt	Other	
Acajutla	9.15%	32.45%	0.39%	39.28%	18.17%	0.56%	
Ahuachapán	11.40%	27.11%	-	26.55%	34.50%	0.44%	
Apaneca	25.00%	58.33%	-	16.67%	-	-	
San Pedro Puxtla	6.67%	6.67%	-	20.00%	66.67%	-	
Santo Domingo de Guzmán	33.33%	-	-	41.67%	25.00%	-	
Sonsonate	15.5%	47.9%	-	16.8%	19.8%	-	

Roof							
Municipality	*Concrete slab*	*Clay or cement roof tile*	*Asbestos or cement fiber sheet*	*Metal Sheet*	*Thatch or Palm*	*Waste Materials*	*Other*
Acajutla	-	8.65%	35.83%	55.24%	0.27%	-	-
Ahuachapán	0.68%	13.96%	10.53%	74.55%	-	-	0.28%
Apaneca	-	25.00%	16.67%	58.33%	-	-	-
San Pedro Puxtla	-		6.7%	93.3%	-	-	-
Santo Domingo de Guzmán	-	16.7%	25.0%	58.3%	-	-	-
Sonsonate	1.96%	7.00%	36.73%	54.04%	-	0.28%	-

Source: EHPM, 2015

Participants in the Participatory Rural Diagnosis attributed the poor quality of housing and the lack of health of the dwellings to the incidence of diseases:

> *"We have an epidemic of influenza by the climate, we create ourselves an unhealthy environment, for example the walls in the houses are of sheets and they become an oven. There is a climate change, companies have a lot to do and the same farmers as well and there should be more awareness."*
> *(Participatory Rural Diagnosis, Santo Domingo de Guzmán, June 2016.)*

4.3.7.2 *Types of Housing Ownership*

Of the national households, 50% own their homes, 21.2% are free occupants, 13.9% are tenants, 5.9% are owners in private land, 5.2% are owners and are still paying their home, 2.9 % owned on public land (EHPM, 2015, see Table 4.3-11 and Figure 4.3-20).

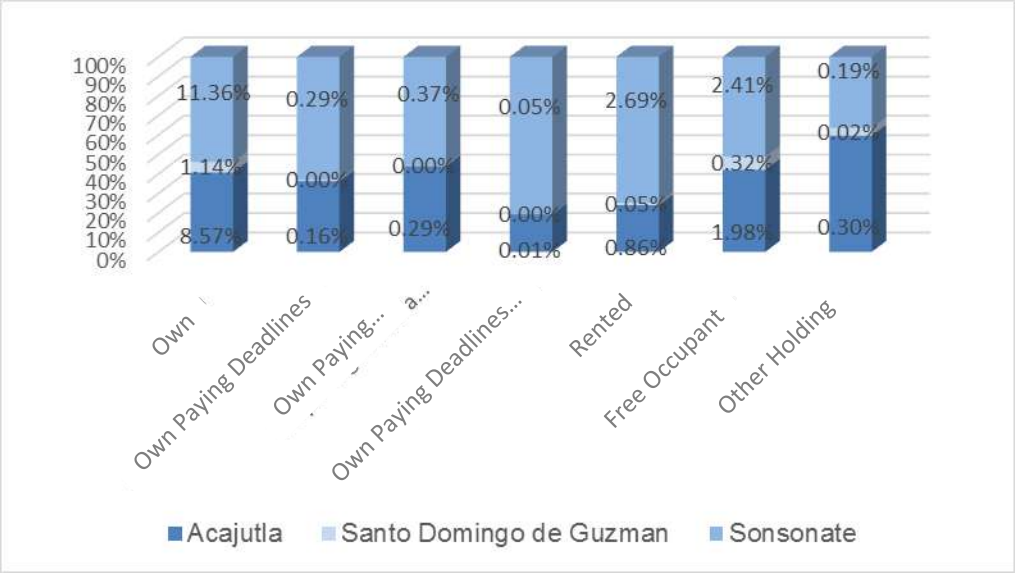
At the departmental level, in the department of Ahuachapán the property of the house is greater than in Sonsonate, although with a small difference.

Table 4.3-11 Types of Housing Ownership

Types of Housing Ownership	*Department*	
	Ahuachapán (%)	*Sonsonate (%)*
Proper	67.40	67.16
Own Paying Deadlines to Public Institutions	1.38	1.87
Own Paying for Private Institutions	2.14	4.21
Own Paying NGO Deadlines	0.13	0.34
Rented	7.44	9.76
Free Occupant	18.32	15.24
Other Holding	3.19	1.42
Total	***100***	***100***

Source: Census of Population and Housing, 2007.

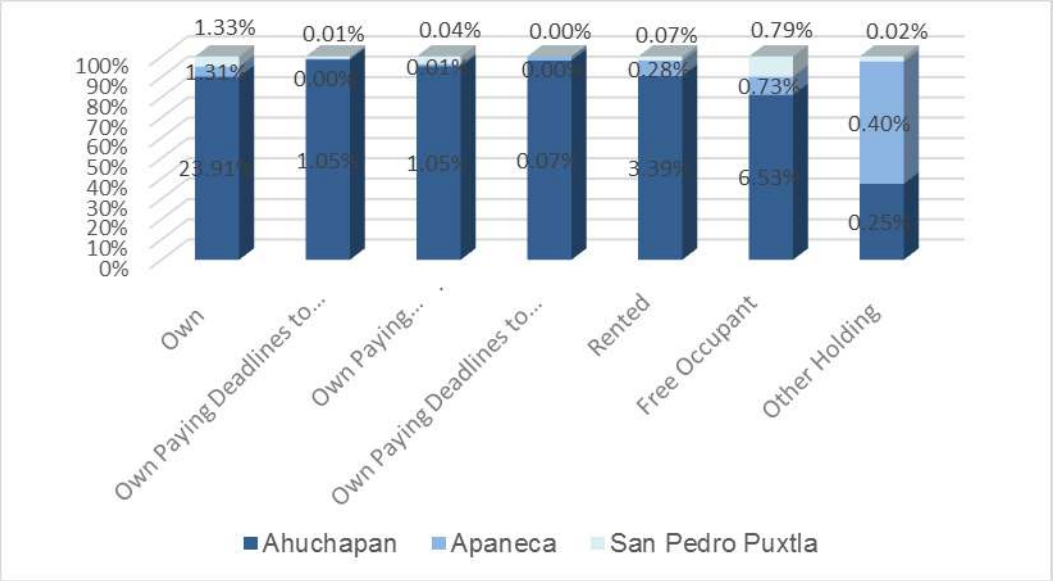
At the municipal level, the Tables below present the property data.



Source: Census of Population and Housing, 2007

Figure 4.3-20 Types of Housing Tenure by Municipality. Municipalities of the Department of Sonsonate

In the department of Ahuachapán, tenure is more common, with Ahuachapán being the municipality with the highest number of houses owned as shown in Figure 4.3-21 below.



Source: Census of Population and Housing, 2007

Figure 4.3-21 Types of Housing Tenure by Municipality. Municipalities of the Department of Ahuachapán

4.3.7.3 Further observations on the relocation of dwellings due to the Project

For the preparation of this baseline, the route of the transmission line was crossed and a reconnaissance visit (June 2016) was carried out to the farms and cantons near the transmission line. The proposed line would follow, in large part, a route away from houses and towns. The length of the TL is 44 km approximately, and passes through the municipalities of Ahuachapán, Apaneca and San Pedro Puxtla in the department of Ahuachapán, and the municipalities of Santo Domingo de Guzmán, Sonsonate and Acajutla in the department of Sonsonate, with a total of 269 properties identified under the map.

It has been identified a house that is located within the right of way strip and that will be necessary to resettle to realize the work. This case is located in parcel of land 246 in which tower 128 is projected, boundary between Section B and Section C in the Acajutla Exit sector, identified as Rea-6. Figure 4.3-22 below shows the location of the dwelling.

The collection of information has been carried out, in order to socio-economically characterize the family to be displaced and thus define their eligibility, compensation and assistance. This information is presented in Appendix F - Letters Interviews.



Source: GRIS, 2016

Figure 4.3-22 Location of the Houses within the Right of Way Strip in Ahuachapán

4.3.8 *Health*

The Public Health System in El Salvador is made up of the Ministry of Health (MINSAL), the Salvadoran Social Security Institute (ISSS), the Solidarity Fund for Health (FOSALUD), the Military Health Command (CSM), the Salvadoran Institute of Welfare Magisterial (ISBM) and the Salvadoran Institute for Integral Rehabilitation (ISRI).

Mortality and Morbidity

The epidemiological profile of the country shows infectious diseases, mainly of the respiratory and digestive apparatus. In recent years, injuries from external causes as a result of violence have increased.

The list of leading causes of mortality in El Salvador reflects an increasing prevalence of noncommunicable diseases and injuries. In women, the first causes of death are acute myocardial infarction and diabetes mellitus. Among men the two leading causes of death are gun injuries and motor vehicle accidents, which together account for almost 20% of total deaths. The third leading cause of death is chronic renal failure.

At the departmental level, perinatal mortality-related causes continue to be highest among women. However, deaths from cancer such as leukemia and lymphomas and other chronic diseases such as diabetes mellitus and AIDS have all become relevant. Other diseases, common in the area of influence, include diseases like dengue, pneumonia, tuberculosis and HIV/AIDS.

During participatory rural diagnosis, participants identified kidney disease, diabetes, high blood pressure, intestinal parasitism and respiratory diseases and skin infections as common diseases. During the interview with Acajutla's intermediate family health unit, the first four causes of mortality in 2015 were acute myocardial infarction, unspecified septicemia, renal failure and other heart diseases. In 2016 the leading causes of mortality so far this year are septicemia in the first place, ischemic heart disease, head trauma and endocrine, nutritional and metabolic diseases.

It was also indicated that the most common causes of morbidity in the year 2016 were acute upper respiratory infections, acute pharyngitis and tonsillitis, dental caries, diarrhea of presumed infectious origin, diabetes mellitus, essential hypertension and parasitism.

4.3.8.1 Health Facilities

Health facilities in the area of influence are limited. The municipalities of Ahuachapán, Apaneca and San Pedro Puxtla, in the department of Ahuachapán, have a total of eleven health facilities, while the municipalities of Acajutla, Santo Domingo de Guzmán and Sonsonate, in the department of Sonsonate, and have eight health facilities according to available information. Most health facilities correspond to Health Units or to Health Homes. The municipalities of Ahuachapán and Sonsonate each have one hospital. The type of health service by municipality is presented in Table 4.3-12.

Table 4.3-12 Type of Health Service by Department and Municipality

Department	*Municipality*	*Hospitals*	*Health Units*	*Health House*	*Integral Center for Maternal and Child Health and Nutrition (CIAMIN)*	*Rural Nutrition Centers (CRN)*
Ahuachapán	Ahuachapán	1	2	2	0	0
	Apaneca	0	2	1	1	0
	San Pedro Puxtla	0	2	0	0	0
Sonsonate	Acajutla	0	2	Information not available	0	1
	Santo Domingo de Guzmán	0	1	0	0	0
	Sonsonate	1	2	0	1	0

Source: Prepared by ERM with data of the EHPM, 2015

As shown in Table 4.3-12, the number of Units and Homes of Health means that this is the type of health institution most frequented in the departments of Ahuachapán and Sonsonate, followed by hospitals and private clinics. At the municipal level, the most consulted health facilities continue to be the Units and Homes of Health with the exception of the municipality of Apaneca where the most visited health facilities are hospitals. Table 4.3-13 presents information on the type of health facility consulted by individuals with a disease or symptom. No information was found for the municipality of San Pedro Puxtla.

Table 4.3-13 Place Where People with Any Disease or Symptom, by Sex According to Department, were consulted, 2014a

Department[b]	*Place where consulted*	*Sex*		
		Men	*Women*	*Total*
Ahuachapán	MSPAS Hospital	441	1727	2168
	Health unit or health home of MSPAS	7636	8541	16177
	ISSS Hospital	214	648	862
	Medical units, community or business clinics ISSS	690	1115	1805
	Military Hospital	0	0	0
	Public Hospital	2128	1898	4026
	Magisterial Welfare	180	182	362
	NGO´s	333	333	666

Department[b]	Place where consulted	Sex		
		Men	Women	Total
	Pharmacy	0	0	0
	House of the healer or natural clinic	43	0	43
	House of the sick or injured	37	113	150
	Others	123	0	123
	Total	***11825***	***14557***	***26382***
Sonsonate	MSPAS Hospital	1288	1695	2983
	Health unit or health home of MSPAS	7805	9684	17489
	ISSS Hospital	2567	1036	3603
	Medical units, community or business clinics ISSS	1487	1102	2589
	Military Hospital	112	0	112
	Public Hospital	2421	3576	5997
	Magisterial Welfare	58	290	348
	NGO´s	422	346	768
	Pharmacy	466	0	466
	House of the healer or natural clinic	0	0	0
	House of the sick or injured	42	0	42
	Others	142	58	200
	Total	***16810***	***17787***	***34597***

Source: EHPM, 2015
Key: MSPAS = Ministry of Public Health and Social Assistance.
[a] The data presented in this Table corresponds to the number of visitors, to different health facilities, by gender. It is possible that an individual has visited more than one medical facility.
[b] The department corresponds to the domicile of the visitor and not to the location of the medical facility.

Table 4.3-14 shows the places of consultation by municipality, according to disease or symptom and disaggregated by sex.

Table 4.3-14 Place Where People with Any Disease or Symptom, by Sex According to Municipality, were consulted, 2014a

Municipality[b]	Place where consulted	Sex		
		Men	Women	Total
Acajutla	MSPAS Hospital	160	107	267
	Health unit or health home of MSPAS	1407	1193	2600
	ISSS Hospital	145	76	221
	Medical units, community or business clinics ISSS	114	0	114
	Military Hospital	0	0	0
	Public Hospital	401	504	905
	Magisterial Welfare	0	0	0

Municipality[b]	*Place where consulted*	*Sex*		
		Men	*Women*	*Total*
	NGO´s	237	61	298
	Pharmacy	0	0	0
	House of the healer or natural clinic	0	0	0
	House of the sick or injured	42	0	42
	Others	32	0	32
	Total	***2538***	***1941***	***4479***
Ahuachapán	MSPAS Hospital	195	1163	1358
	Health unit or health home of MSPAS	2443	2686	5129
	ISSS Hospital	0	333	333
	Medical units, community or business clinics ISSS	575	920	1495
	Military Hospital	0	0	0
	Public Hospital	508	407	915
	Magisterial Welfare	0	97	97
	NGO´s	333	333	666
	Pharmacy	0	0	0
	House of the healer or natural clinic	0	0	0
	House of the sick or injured	0	0	0
	Others	0	0	0
	Total	***4054***	***5939***	***9993***
Apaneca	MSPAS Hospital	78	0	78
	Health unit or health home of MSPAS	0	78	78
	ISSS Hospital	0	0	0
	Medical units, community or business clinics ISSS	0	0	0
	Military Hospital	0	0	0
	Public Hospital	78	78	156
	Magisterial Welfare	0	0	0
	NGO´s	0	0	0
	Pharmacy	0	0	0
	House of the healer or natural clinic	0	0	0
	House of the sick or injured			
	Others	0	0	0
	MSPAS Hospital	0	0	0
	Total	***156***	***156***	***312***
San Pedro Puxtla	MSPAS Hospital	-	-	-
	Health unit or health home of MSPAS	-	-	-
	ISSS Hospital	-	-	-
	Medical units, community or business clinics ISSS	-	-	-
	Military Hospital	-	-	-
	Public Hospital	-	-	-

Municipality[b]	*Place where consulted*	*Sex*		
		Men	*Women*	*Total*
	Magisterial Welfare	-	-	-
	NGO´s	-	-	-
	Pharmacy	-	-	-
	House of the healer or natural clinic	-	-	-
	House of the sick or injured	-	-	-
	Others	-	-	-
	Total	***-***	***-***	***-***
Santo Domingo de Guzmán	MSPAS Hospital	0	0	0
	Health unit or health home of MSPAS	720	180	900
	ISSS Hospital	0	0	0
	Medical units, community or business clinics ISSS	0	0	0
	Military Hospital	0	0	0
	Public Hospital	0	0	0
	Magisterial Welfare	0	0	0
	NGO´s	0	0	0
	Pharmacy	0	0	0
	House of the healer or natural clinic	0	0	0
	House of the sick or injured	0	0	0
	Others	0	0	0
	Total	***720***	***180***	***900***
Sonsonate	MSPAS Hospital	0	537	537
	Health unit or health home of MSPAS	1302	1658	2960
	ISSS Hospital	878	322	1200
	Medical units, community or business clinics ISSS	0	360	360
	Military Hospital	112	0	112
	Public Hospital	625	1173	1798
	Magisterial Welfare	0	0	0
	NGO´s	185	122	307
	Pharmacy	0	0	0
	House of the healer or natural clinic	0	0	0
	House of the sick or injured	0	0	0
	Others	0	0	0
	Total	***3102***	***4172***	***7274***

Source: EHPM, 2015

[a] The data presented in this Table corresponds to the number of visitors, to different health facilities, by gender. It is possible that an individual has visited more than one medical facility.

[b] The municipality corresponds to the domicile of the visitor and not to the location of the medical facility.

According to information gathered in the field, the municipality of Ahuachapán has all basic medical services (eg, pediatrics, dentistry, mental health services and radiology); however, in cases of emergencies "red code", which corresponds to potentially fatal emergencies, the medical units of the municipality of Ahuachapán transfer the patients to the regional hospital in the Department of Santa Ana. Both institutions consulted in the municipality of Ahuachapán reported public health programs, such as vaccination brigades, and access to the necessary training to carry out their work. This information was also expressed during the participatory rural diagnosis, where some of the participants in all the workshops agreed on a decrease in the quality of medical care.

> *"The medical attention is deplorable. To get to the health unit takes you from 6 am to 7 pm. In San Salvador [for example] a man died waiting to be attended. I went into an operation at 6 am and was attended the next day at 6 am [24 hours later]."(Participatory Rural Diagnosis, municipality of Sonsonate, June 2016).*

However, most participants agreed that there have been health programs and improved access to health services, especially in rural areas.

> *In reality, there have been good health programs, such as the ECOS [Community Health and Family Specialized Teams] (health program towards the cantons). (Participatory Rural Diagnosis, municipality of Sonsonate, June 2016).*
>
> *"Now the approach is preventive, education we want to reduce maternal and child mortality has been reduced. There are health promoters, in places where they did not arrive before. Now they come."(Participatory Rural Diagnosis, Acajutla municipality, June 2016).*

4.3.8.2 Medical Insurance

Most people in the departments of Ahuachapán and Sonsonate do not have any type of medical insurance. In those cases, where individuals do have health insurance, the most common type of health insurance is national health insurance provided by the Salvadoran Institute of Social Security (ISSS). In both departments, the number of men with some form of health insurance is higher than the number of women. Table 4.3-15 presents the type of health insurance by department, by sex.

Table 4.3-15 Type of Medical Insurance by Sex According to Department

Department	*Health insurance that the population has* [a]	*Sex*		
		Men	*Women*	*Total*
Ahuachapán	ISSS quotient	15427	4628	20055
	ISSS beneficiary	5794	14359	20153
	ISSS retired	1250	379	1629
	Welfare magisterial	858	1538	2396
	IPSFA	1939	218	2157
	Collective	0	0	0
	Individual (Private)	0	210	210
	Does not have	145579	159401	304980
	Other	0	0	0
	Total	***170847***	***180733***	***351580***
Sonsonate	ISSS quotient	34962	14456	49418
	ISSS beneficiary	10107	30395	40502
	ISSS retired	3257	2020	5277
	Welfare magisterial	2310	3534	5844
	IPSFA	1994	1767	3761
	Collective	0	0	0
	Individual (Private)	539	113	652
	Does not have	181440	205610	387050
	Other	0	0	0
	Total	***234609***	***257895***	***492504***

Source: EHPM, 2015

[a] *The different categories of health insurance have been established according to the data provided by the Ministry of Health.*

At the municipal level, the medical coverage data is similar to that at the departmental level. The vast majority of people do not have any type of health insurance and the most common type of medical coverage is provided by the ISSS. In two of the municipalities, Ahuachapán and Sonsonate, individuals with individual private health insurance were found. According to the sample design of the Multiple Purpose Household Survey (EHPM), not all municipalities have the volume of data necessary to establish that, statistically, the results reflect the socioeconomic conditions of the vast majority of households. For this reason, some of the information presented in Table 4.3-16 shows anomalies. However, the EHPM is one of the few sources of information available in El Salvador at the municipal level.

Table 4.3-16 Type of Health Insurance According to Municipality

Municipality	*Health insurance that the population has* [a]	*Sex*		
		Men		*Men*
Acajutla	ISSS quotient	3738	1033	4771
	ISSS beneficiary	1273	4173	5446
	ISSS retired	683	0	683
	Welfare magisterial	58	294	352
	IPSFA	158	314	472
	Collective	0	0	0
	Individual (Private)	0	0	0
	Does not have	22915	24306	47221
	Other	0	0	0
	Total	***28825***	***30120***	***58945***
Ahuachapán	ISSS quotient	7749	2253	10002
	ISSS beneficiary	3379	7945	11324
	ISSS retired	730	188	918
	Welfare magisterial	194	485	679
	IPSFA	898	145	1043
	Collective	0	0	0
	Individual (Private)	0	210	210
	Does not have	48898	47409	96307
	Other	0	0	0
	Total	***61848***	***58635***	***120483***
Apaneca	ISSS quotient	312	0	312
	ISSS beneficiary	156	234	390
	ISSS retired	0	0	0
	Welfare magisterial	0	78	78
	IPSFA	0	0	0
	Collective	0	0	0
	Individual (Private)	0	0	0
	Does not have	1248	1092	2340
	Other	0	0	0
	Total	***1716***	***1404***	***3120***
San Pedro Puxtla	ISSS quotient	0	192	192
	ISSS beneficiary	192	0	192
	ISSS retired	0	0	0
	Welfare magisterial	0	0	0
	IPSFA	0	0	0
	Collective	0	0	0
	Individual (Private)	0	0	0

Municipality	Health insurance that the population has [a]	Sex		
		Men		Men
	Does not have	4992	8256	13248
	Other	0	0	0
	Total	***5184***	***8448***	***13632***
Santo Domingo de Guzmán	ISSS quotient	1080	0	1080
	ISSS beneficiary	180	1080	1260
	ISSS retired	0	0	0
	Welfare magisterial	0	0	0
	IPSFA	0	0	0
	Collective	0	0	0
	Individual (Private)	0	0	0
	Does not have	2700	4320	7020
	Other	0	0	0
	Total	***3960***	***5400***	***9360***
Sonsonate	ISSS quotient	6490	2605	9095
	ISSS beneficiary	1320	5786	7106
	ISSS retired	562	715	1277
	Welfare magisterial	496	988	1484
	IPSFA	173	224	397
	Collective	0	0	0
	Individual (Private)	539	113	652
	Does not have	26305	30947	57252
	Other	0	0	0
	Total	***35885***	***41378***	***77263***

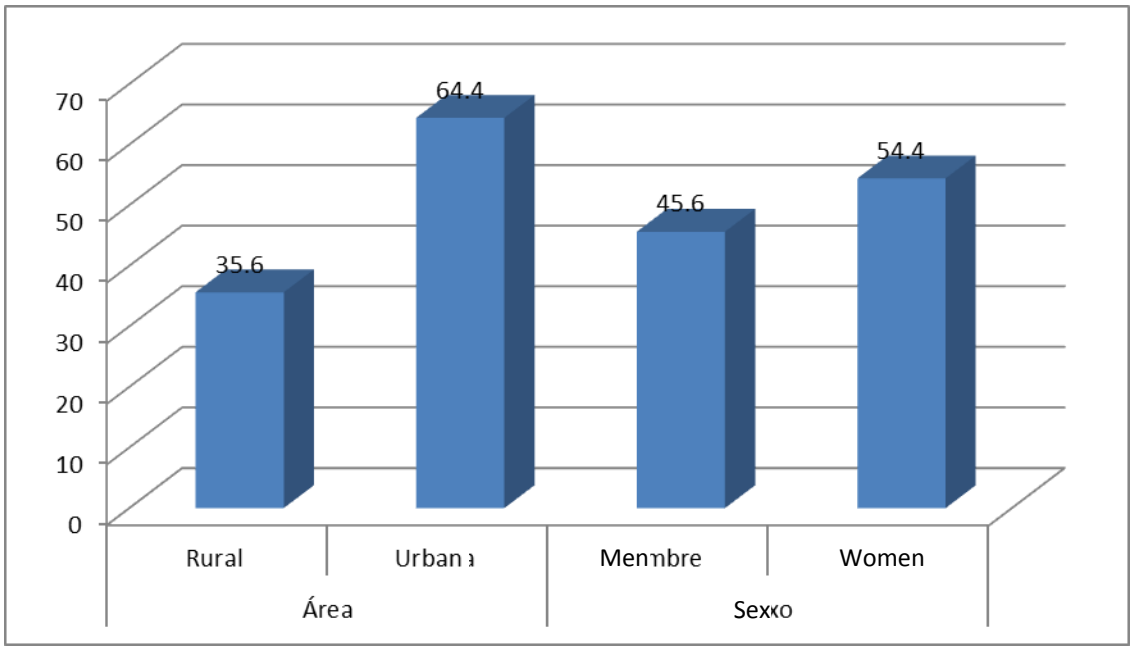
Source: EHPM, 2015

[a] The different categories of health insurance have been established according to the data provided by the Ministry of Health.

4.3.9 ***Productivity and Economy***

4.3.9.1 Economically Active Population

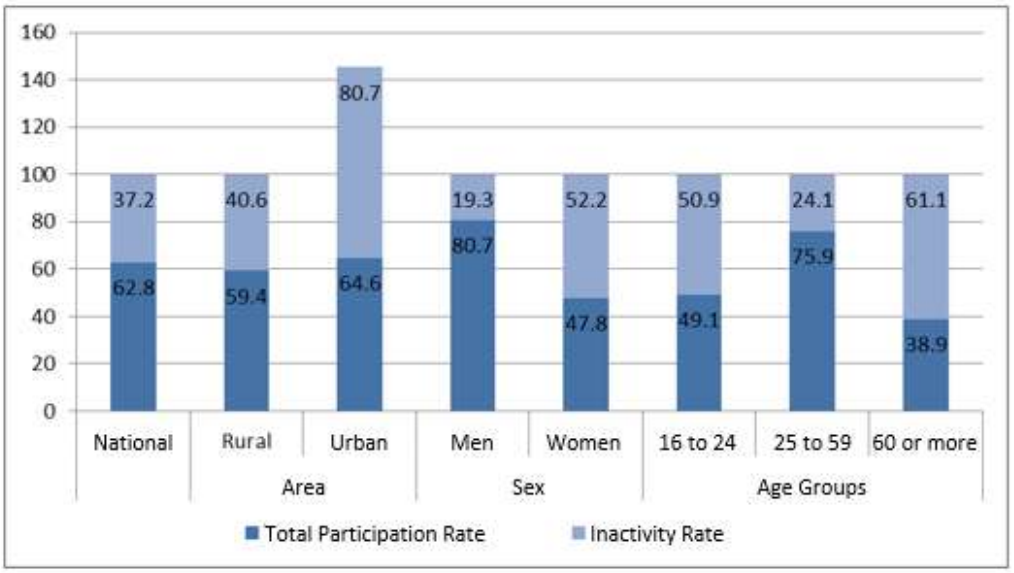
In El Salvador, the Working-Age Population (WAP) is defined as 16 years old. According to the EHPM 2015, WAP represents 71% (4,527,736) of the total population. The vast majority of this population resides in urban areas and, as shown in Figure 4.3-23, are women. The vast majority of WAPs are young people between the ages of 16 and 39 (56.8%) followed by people between 40 and 59 years of age (27%) and finally people aged 60 and over (16.2%). This distribution is similar between men and women (see Figure 4.3-23, EHPM, 2015).



Source: EHPM, 2015

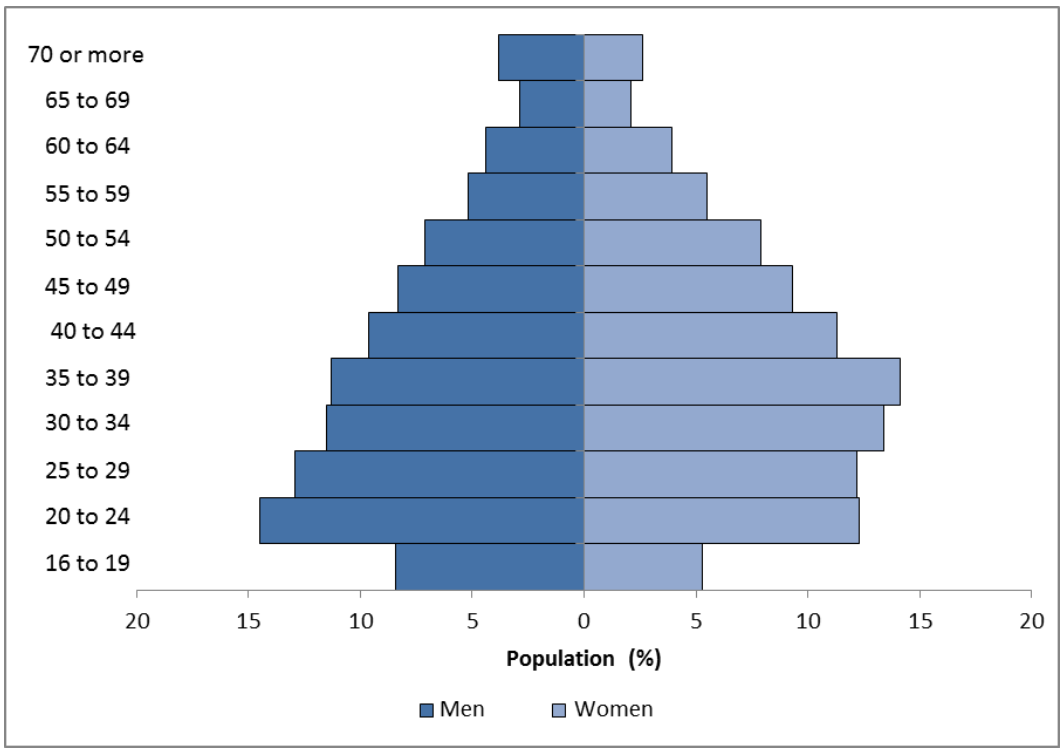
Figure 4.3-23 Distribution of Working-Age Population (WAP) According to Geographic Area and Gender, 2014

A comparison between WAP and the Economically Active Population (EAP) shows that at the national level of every 100 people who form WAP, 63 are employed and offer their labor force to the labor market; while 37 are not actively working, or looking for work and are therefore classified as Economically Inactive Population (EIP). This situation is repeated at the departmental level, where the number of EIPs is higher among women than men (EHPM, 2015). Figure 4.3-24 reflects the WAP by activity condition, according to area, sex and age groups. The EAP in El Salvador consists of 2, 842,997 people, of whom 58.5% are men and 41.5% are women (EHPM, 2015). 66.3% of the EAP resides in the urban area while 33.7% reside in the rural area. Figure 4.3-25 reflects the age ranges of the EAP. The behavior of this distribution is similar between men and women.



Source: EHPM, 2015

Figure 4.3-24 Working Age Population (WAP) by Activity Condition, by Area, Sex and Age Groups (Percentage), 2004



Source: EHPM, 2015

Figure 4.3-25 Pyramid of the Economically Active Population, 2014

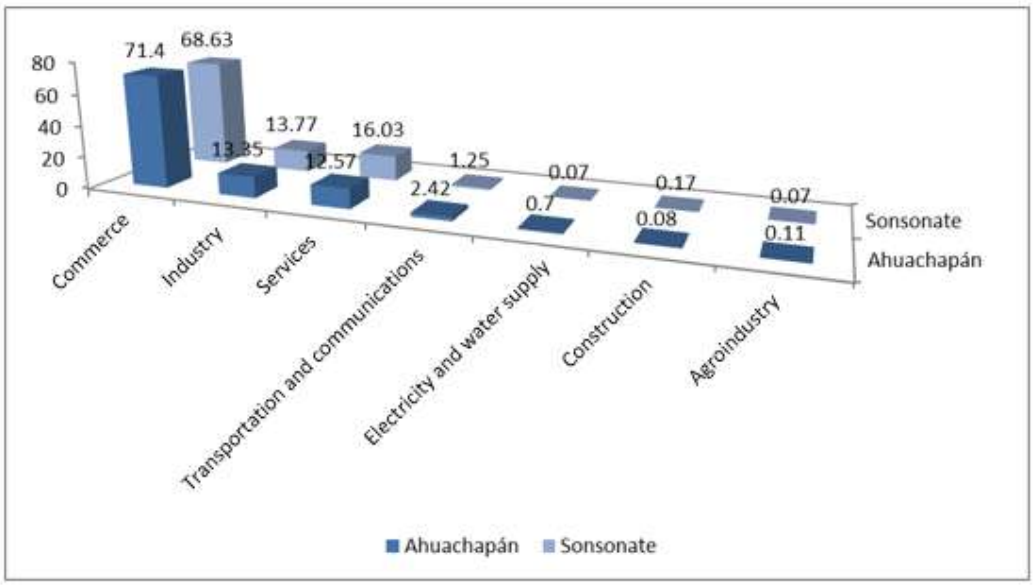
The occupancy rate of the EAP for 2014, which represents the degree of effective use of human resources available for work, is 93%. This means that out of every 100 people 93 are employed (EHPM, 2015). The percentage of persons employed was higher in the urban area (93.3%) than in the rural area (92.5%); and higher among women (95.3%) than among men (91.4%) (HHPM, 2015). These figures reflect, in turn, the unemployment rate, which in 2014 was 7%. The unemployment rate varies by department; Ahuachapán is one of the departments with the highest unemployment rate (9.3%). For its part, the department of Sonsonate reported an unemployment rate of 7% (EHPM, 2015).

4.3.9.2 Branches of Economic Activity

The four most important branches of economic activity in El Salvador are commerce, hotels and restaurants (30.5%), agriculture and livestock (17.9%), manufacturing (15%) and communal health and social services (7.7%) (EHPM, 2015). Disaggregation by geographical area reflects slight differences. In the rural area, the three branches that absorb the largest number of employed population are agriculture and livestock, commerce, hotels and restaurants, and manufacturing. In the urban area, the branches that absorb most of the employed population are: commerce, hotels and restaurants, manufacturing industry, and communal, social and health services (EHPM, 2015).

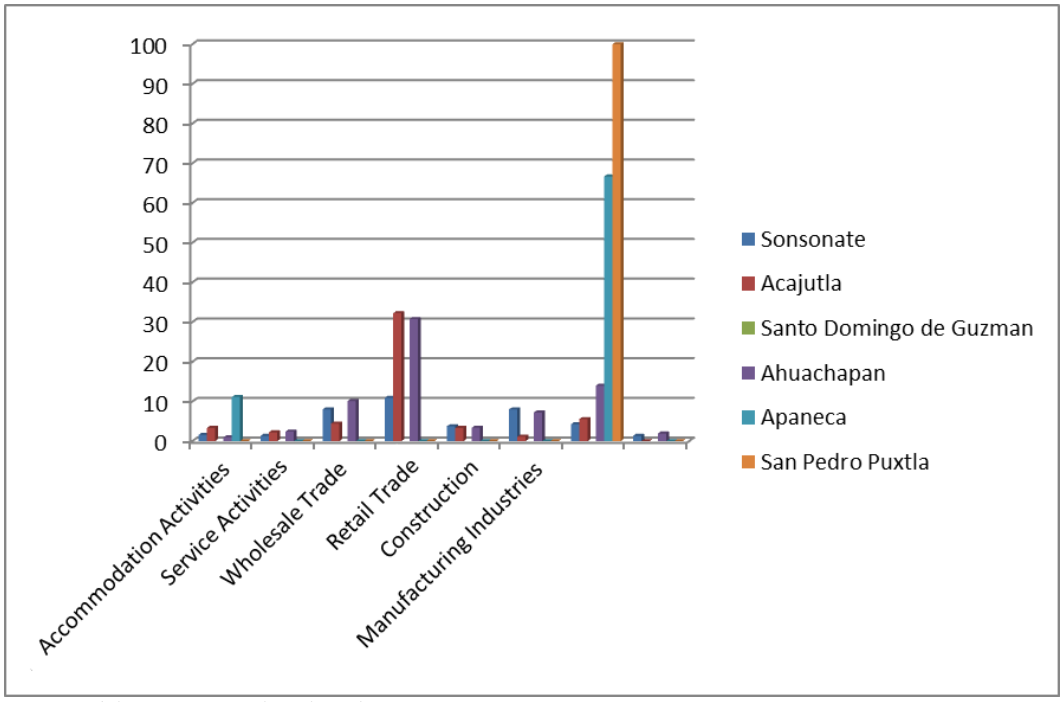
The main economic activity in the departments of Ahuachapán and Sonsonate is retail trade, manufacturing and services. Figure 4.3-26 shows the percentage of these activities in the area of influence.

At the departmental level the main economic activities are agriculture and trade. Industrial activities have also gained momentum, especially in the areas of: food products (coffee, sugar and preserves), textiles (cotton processing) and tobacco (cigarette) manufacturing. Both departments have the optimum conditions for this type of industries (like climate and labor market); the department of Sonsonate that has the port of Acajutla (see Figure 4.3-27).



Source: Prepared by ERM with data of DIGESTYC, 2009 – 2011

Figure 4.3-26 Main Economic Activities, by Department 2009 - 2011



Source: Elaboration ERM based on the EHPM, 2011
[a] No information found for Santo Domingo de Guzmán

Figure 4.3-27 Main Economic Activities, by Municipality, 2011[a]

At the municipal level, the most common economic activity is agricultural production, followed by retail trade. In the municipalities of Ahuachapán and Apaneca, the businesses associated with accommodation, food and beverage services are also relatively significant, while construction in the departments of Acajutla, Sonsonate and Santo Domingo de Guzmán is the third most important economic activity (DIGESTYC, 2011). According to information collected in the field, a high percentage of women participate in agricultural production in the municipalities of San Pedro Puxtla and Santo Domingo Guzmán.

4.3.9.3 Business Network

The six municipalities in the area of influence have four types of companies: big, medium, small and microenterprise. Big companies are those with more than 100 employees; medium, if they have 50 to 99; small, those with 10 to 40 employees and micro enterprises that work with less than 10 people. Table 4.3-17 reflects the type of company by number of employees in the reference municipalities.

Table 4.3-17 Type of Companies by Number of Employees

Municipalities	*Big*	*Medium*	*Small*	*Micro Enterprises*
Ahuachapán	22.0%	1.3%	10.85	65.9%
Apaneca	22.7%	0.0%	4.50%	72.7%
San Pedro Puxtla	5.30%	0.0%	5.30%	89.50%
Acajutla	19.1%	3.2%	11%	66.7%
Santo Domingo de Guzmán	30.0%	0.0%	0.0%	70.0%
Sonsonate	25.75	3.60%	8.30%	62.5%

Source: Prepared by ERM based on the EHPM, 2015.

Small and micro enterprises predominate in the business structure in Central America, representing a high percentage of existing units, with a significant contribution to employment. Table 4.3-18 below provides data for members of the Chamber of Commerce by municipality.

Table 4.3-18 Distribution by Sector of Affiliates to the Chamber of Commerce, by Municipality[a]

Sectors	*Municipalities*											
	Ahuachapán		*Apaneca*		*San Pedro Puxtla*		*Acajutla*		*Santo Domingo de Guzmán*		*Sonsonate*	
Service	63	30.29%	3	33.33%	0	0%	48	53.33%	—	—	125	33.33%
Commerce	128	61.54%	6	66.67%	2	100%	41	45.56%	—	—	216	57.60%
Industry	17	8.17%	0	0%	0	0%	1	1.11%	—	—	34	9.07%
Total	208	100%	9	100%	2	100%	90	100%	—	—	375	100%

Source: Prepared by ERM based on the Economic Directory, 2011

[a] The percentages are based on the total economic activity of the municipality.

[b] No information was found for the municipality of Santo Domingo de Guzmán.

4.3.10 *Agricultural and Industrial Activity*

Until the late 1970s, El Salvador was considered a predominantly agricultural country, since the agricultural sector accounted for about 25% of the Gross Domestic Product (GDP) and was responsible for more than 50% of jobs in the country (MAG, 2007). The importance of the agricultural sector began to decline in the 1980s, partly as a result of the loss of human capital caused by the massive internal and external migration of rural youth. However, the agricultural sector continues to be an important sector in the national economy as seen in Tables 4.3-19 and 4.3-20. In 2007, the agricultural sector accounted for about a quarter of the country's labor force and a third of export earnings (MAG, 2007).

Table 4.3-19 Number of Exports by Department, according to Agricultural Items, May 2006 to April 2007

Agroindustriales Annually	*Total Exports - Ahuachapán*	*Total Exports - Sonsonate*
Sesame	***95***	***94***
Peanut	***11***	
Tobacco		***2***
Jamaica Rose	***2***	***5***
Soy	***3***	***6***

Semi-Permanent and Permanent Agroindustrial	*Total Exports - Ahuachapán*	*Total Exports - Sonsonate*
Sugar Cane	133	160
Balm	2	85
Cashews		1
Tule		71
Noni	6	13
Cocoa		3
Achiote		2
Castilla Rod or Wicker		2
Eucalyptus	4	1
Common reed		9
Macadamia	2	
Balsam (organic)		1
Other agroindustrial crops	*Total Exports - Ahuachapán*	*Total Exports - Sonsonate*
Bamboo, Long curcum	2	
Total	260	455

Source: Agricultural Census, 2007

Table 4.3-20 presents the agroindustrial production by municipality, according to the agricultural census of 2007.

Table 4.3-20 Semi-Permanent and Permanent Agroindustrial Production, by Municipality, May 2006 to April 2007[a]

Semi-Permanent and Permanent Agroindustrial	*Ahuachapán*	*Apaneca*	*San Pedro Puxtla*	*Santo Domingo de Guzmán*	*Sonsonate*	*Acajutla*
Sugar cane	449.28	0	0	20	6047.4	370.52
Noni	1.50	0	0	0	0.47	1.30

Source: Agricultural Census, 2007
[a] Production in apples

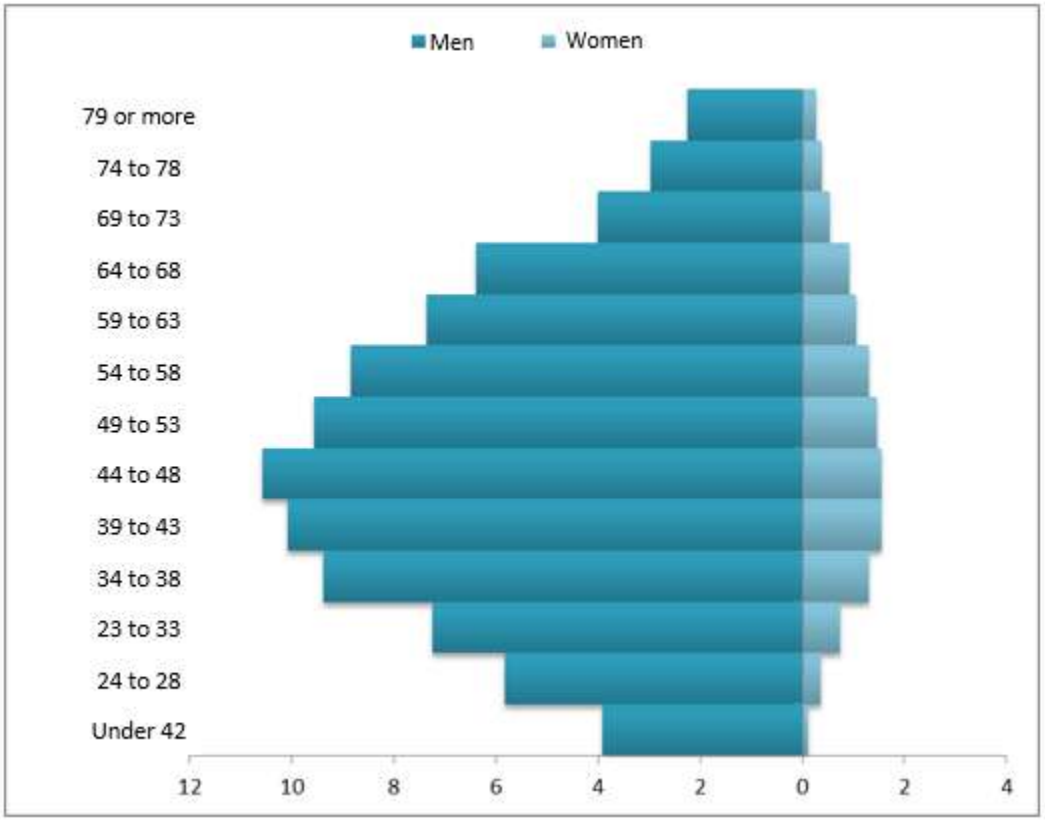
During the participatory rural diagnosis, the participants indicated that in general the areas of cultivation were mixed, which included vegetables, basic grains and livestock. Burning was also recognized as a standard practice, although there are initiatives of new practices of municipalities for soil protection. A participant from Santo Domingo de Guzmán, relates the agricultural calendar as follows:

> *"Corn crops (April-May); Sorghum (September-October); Grass (cattle pasture) (April - October); soazo; peppers, tomatoes, beans "(Participatory Rural Diagnosis, Santo Domingo de Guzmán, June 2016).*

The industrial activity in El Salvador is established during the first half of the twentieth century with the production of beer for local consumption. Beginning in 1950, Salvadoran industry expanded rapidly with the establishment of sugar mills and the production of cigarettes and cement, among others (ASI, 2005). Today, industry continues to be significant in the national economy and represents an important sector for the country's workforce.

4.3.10.1 Crops

In general, the most cultivated agricultural products in El Salvador are basic grains, coffee, sugar cane and cotton. According to the agricultural census of 2007 - 2008, the vast majority of producers in El Salvador are small producers with backyard production. These producers are mostly men, with an average age of 49 years (MINE, 2008). Figure 4.3-28 reflects the main characteristics of agricultural producers at the national level, by age group according to sex.

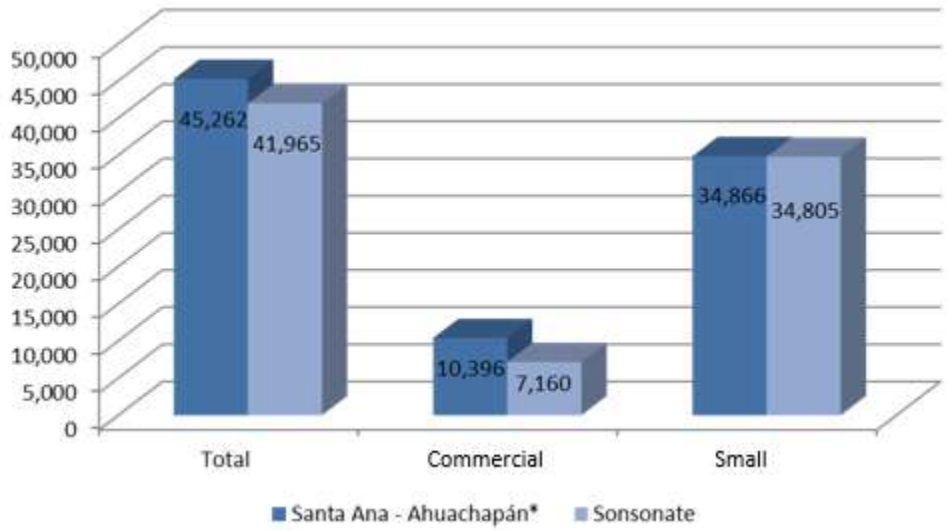


Source: Prepared by ERM based on information from MINE, 2008

Figure 4.3-28 Salvadoran Producers by Age Group According to Sex (2007 - 2008)

At the departmental level, the 2007 - 2008 agricultural census reported a total area planted between 48,587 - 68,385 Acres[4] (Ac) for the department of Ahuachapán and between 39,466 - 48,586 Ac for the department of Sonsonate, suggesting that these are agricultural departments (MINE, 2008). In the department of Ahuachapán, the basic grain crop represents between 25% and 34% of the area sown, while in the department of Sonsonate, basic grains represent between 20% and 24% of the area planted (MINE, 2008). For example, in Santo Domingo, as reported in the participatory rural diagnostic workshop, corn crops are made from April to May, sorghum between September and October and grass, or pasture for cattle is left between April and October.

In line with the results at the national level, most of these producers are small commercial producers. Figure 4.3-29 shows the number of commercial and small agricultural producers by department.

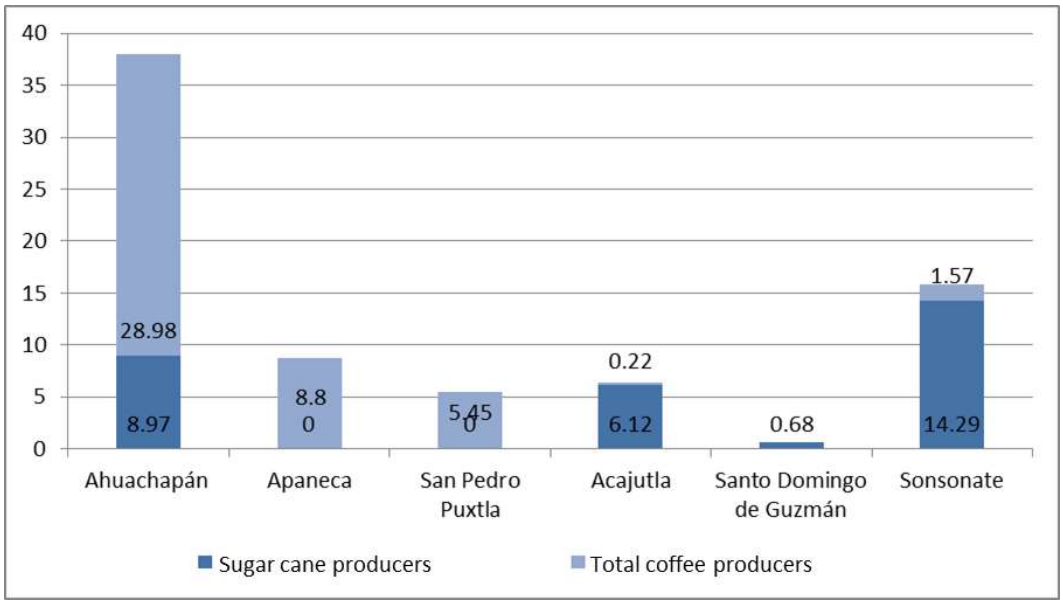


Source: Prepared by ERM with MINE data, 2007 - 2008
** The agricultural census 2007 - 2008 does not disaggregate the data for the departments of Santa Ana and Ahuachapán*

Figure 4.3-29 Commercial Agricultural Producers and Small Producers, by Department (2007 - 2008)

[4] One acre in El Salvador equals 0.7 hectares.

Coffee and sugarcane crops are also important at the municipal level, particularly in the department of Ahuachapán where there are 28.98% of coffee producers and 8.97% of sugarcane producers. Figure 4.3-30 shows the percentage of coffee and sugar producers by municipality.



Source: Prepared by ERM based on information from the Agricultural Census, 2007-2008

Figure 4.3-30 Percentage of Producers of Coffee and Sugar Cane by Municipality, 2007 – 2008

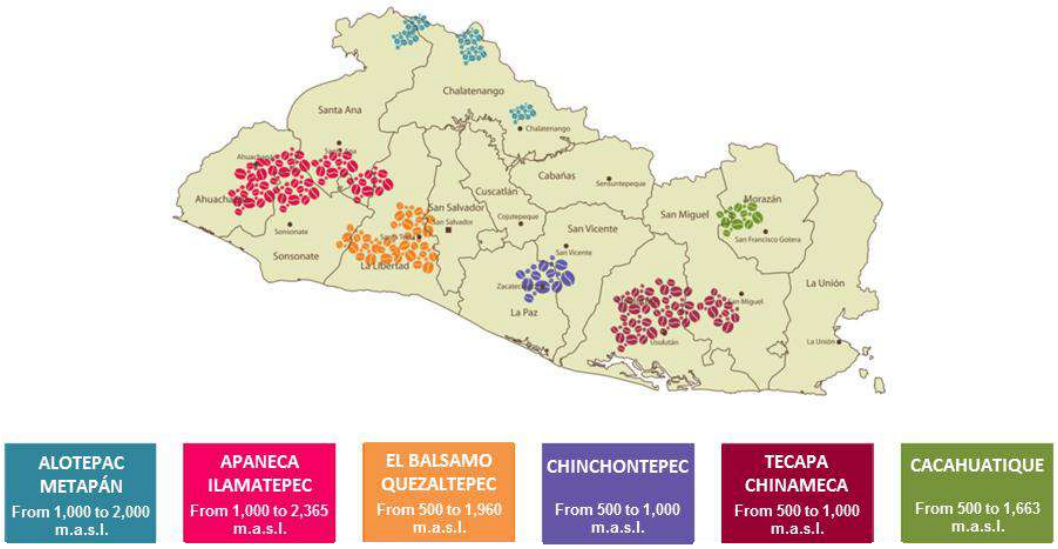
In general terms, the use of productive resources in the municipalities in the area of influence, respond to the quality of the soil present, in particular considering that the management of the indicated crops, is carried out with little or no technology that allows greater advantage.

4.3.10.2 Coffee

For many years, coffee has been one of the main export agricultural products in El Salvador. In the 70's, El Salvador was able to position itself among the three largest coffee producers in the world, exporting more than 230 million gold kilograms in the 70's. Currently, El Salvador exports an average of 69 million gold kilograms to the main coffee consuming countries, which comes mainly from 6 coffee-growing mountains with more than 160,000 hectares. El Salvador is globally recognized for the Bourbon variety, which positions the country as a gourmet coffee niche.

Figure 4.3-31 reflects the different coffee varieties and their growing areas in the national geography.

In addition, coffee growing in El Salvador is an important activity for the economic, social and environmental sustainability of the country. According to PROCAFE, coffee production in El Salvador is the main source of income for more than 23,000 producers, of which 77.24% are represented by small and micro-producers with farms of up to 7 hectares (PROCAFE, 2005). It is estimated that of these producers depend on a total of 77,652 people from their family group based on the EHPM in which each household integrates 4.28 members (DIGESTYC, 2007). In terms of employment, it is estimated that the coffee crop generated a total of 46,258 jobs in the period 2014/2015 with a projected increase of approximately 3,700 jobs for the coffee year 2015/2016 (CENTA, 2015).

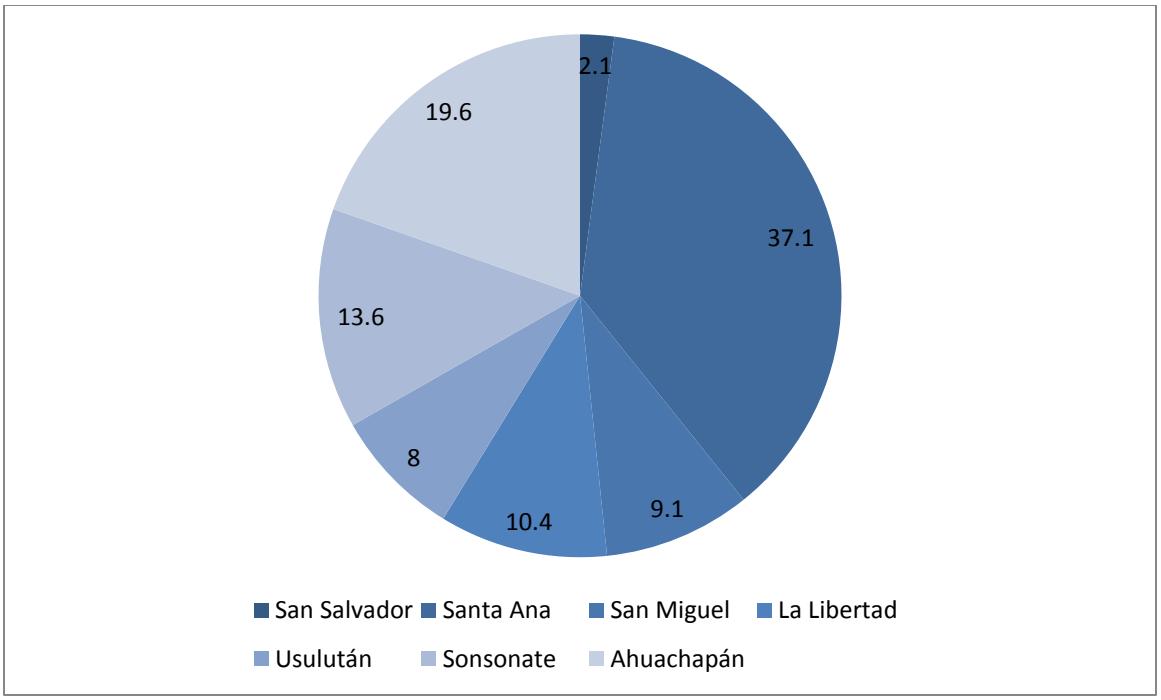


Source: Comercial Exportadora S.A. de C.V.

Figure 4.3-31 Coffee Growing Areas El Salvador

At the departmental level, the Apaneca-Ilamatepec mountain range, which passes through the departments of Ahuachapán and Sonsonate is one of the main coffee regions in the country. In line with this, the main coffee producing departments in El Salvador are Santa Ana, Ahuachapán and Sonsonate (CSC, 2013).

Figure 4.3-32, reflects an approximation of coffee production in El Salvador by department.



Source: Prepared by ERM based on date of CSC, 2013

Figure 4.3-32 Coffee Production in El Salvador by Department, 2013

Salvadoran coffee in the area of the Apaneca-Ilamatepec sierra received in May 2014 the inscription of the securitization of the grain with denomination of origin (DO). The DO serves to designate the origin of a product, whose quality or characteristics are due only to the geographical environment where it is cultivated, including climate and soil. In addition, it certifies that the producers comply with the international quality standards. According to La Prensa, the potential of producers with DO is 3,100 in approximately 3,170 coffee farms distributed in the chain of hills[5]. At the national level, 31 coffee growers have the Rainforest Alliance (RA) label which recognizes sustainable agricultural, environmental and economic yields[6]. Many of these coffee growers are located in the Apaneca-Ilamatepec mountain range where coffee is grown in forests with protected species.

During the participatory rural diagnosis, it was reported that in Ahuachapán coffee cultivation had declined due to the value quotation and that instead it had been migrated to cocoa cultivation.

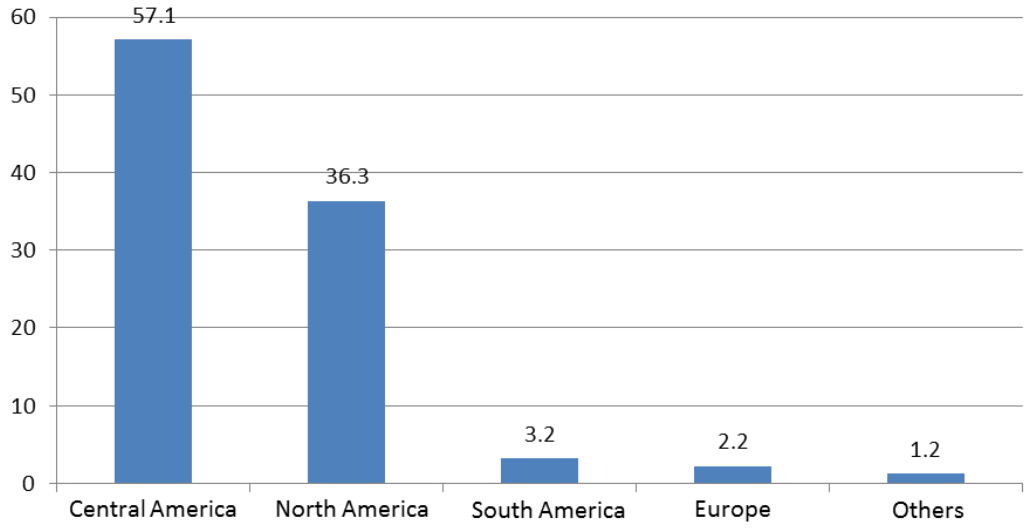
[5] *La Prensa,* Visited: http://www.laprensagrafica.com/2014/05/26/cafe-apaneca-ilamatepec-respaldado-por-su-origen

[6] *El Financiero* http://www.elfinancierocr.com/ef_archivo/2011/diciembre/25/negocios3007542.html

"Coffee crops have declined by 50% because of the value of coffee, the descendants of coffee growers have migrated, cocoa is being sown, and production is paralyzed when they no longer receive support."(Rural Diagnosis Participatory, Ahuachapán, June 2016.)

4.3.11 *Tourism*

Tourism, as an economic activity in El Salvador, has been developing during the last decade acquiring greater relevance for the economy of the country. According to data from the Ministry of Tourism (MITUR), tourism management indicators in El Salvador show an increase in the income level to US $ 1,107.43 million, the highest in the last 11 years, and the arrival of visitors to more than 1,886 thousands with growth of 3.5%, compared to 2013 (MITUR, 2014). In addition, this same industry generated on average 48,415 direct jobs during 2014, equivalent to 7.2% of total national employment (MITUR, 2014). Figure 4.3-33 reflects the regions where these tourists are received.



Source: Prepared by ERM with date of MITUR, 2014

Figure 4.3-33 Regions Where Tourists Arrive in El Salvador, 2014

Within the area of influence of the Project, the municipalities of Apaneca and Ahuachapán are the touristiest. The municipality of Apaneca is one of the pioneer municipalities in the tourist development of the country, which has generated a benefit for the entire western region as it is a source of work and investment. The city of Acajutla is also a relevant tourist area, because of its location along Ruta de las Flores. The Table 4.3-21, reflects the tourist attractions, by municipality.

Table 4.3-21 Atractivos Turísticos, por Municipio, 2009

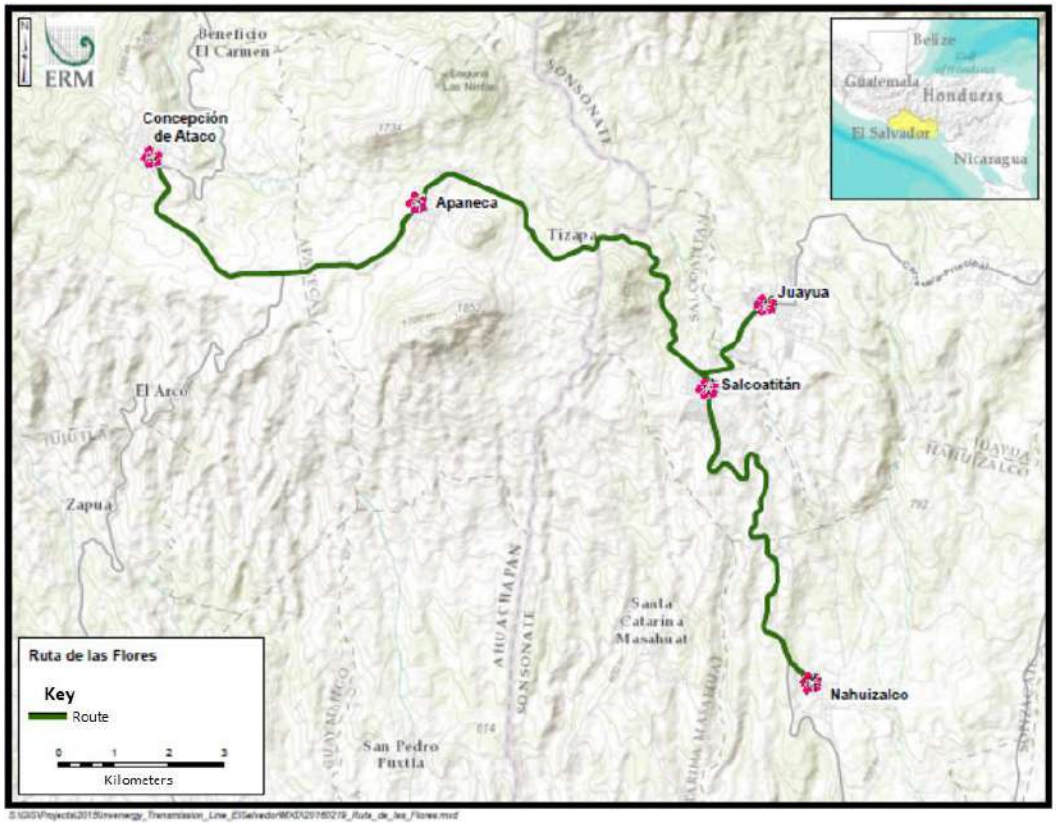
Municipality	*Tourist Attractions*
Ahuachapán	• Ausoles (inc. Central geothermal) • Laguna el Espino • Lagunas del Llano and de Morán • The jumps of Atehuacillas and Malacatiupán • Pasaje la Concordia • Cultural murals • La Asunción church
Apaneca	• Balneario de San Andrés (source of hot springs) • Laguna verde of Apaneca • Laguna las Ninfas • Archaeological site Santa Leticia • The Ruta de las Flores
San Pedro de Puxtla	• Jump of Tequendema (Located on the Zahuapan River) • Viewpoint of La Cruz
Acajutla	• Acajutla port and dock.
Santo Domingo de	• Walter falls: El Saltón and El Escudo • Cueva del Ishtishe • El Arco (Rock formation) • Jumps Texishpulco and Tepechapa
Sonsonate	• Colonial churches of El Pilar, La Santísima Trinidad and Santo Domingo • Beaches: Barra Salada, Barra Ciega and Los Cóbanos

Source: Prepared by ERM with data from UNDP, 2009

4.3.11.1 Tourist Attractions

Ruta de Las Flores

Ruta de Las Flores is a tourist route of 36 km along the Apaneca Mountain Range (see Figure 4.3-34). The route includes stops in different colonial cities, including the cities of Apaneca and Acajutla in the area of influence of the Project. The route is known for the beauty of its coffee plants when they bloom and the markets for handicrafts and typical furniture. A number of associated establishments, such as restaurants, hotels and providers of additional activities (eg. mountain biking, horse riding and hiking to waterfalls) benefit from Ruta de Las Flores, which is the largest tourist attraction in the region (MITUR, 2014).



Source: ERM, 2016

Figure 4.3-34 Map of "Ruta de Las Flores"

Hot Springs

In the department of Ahuachapán, the hot springs are another tourist attraction in the region (see Figure 4.3-35). Based on an analysis of the area around one of the most well-known hot springs - Santa Teresa Hot Springs, near the city of Ahuachapán - there is a relatively established tourist infrastructure including a series of hotels and recreation centers.



Source: La Prensa Gráfica, 2016

Figure 4.3-35 Santa Teresa Hot Springs in Ahuachapán

According to information collected in the field, the most common type of tourism in the municipalities of Ahuachapán, San Pedro Puxtla and Santo Domingo de Guzmán is ecotourism and holiday tourism. The tourism unit in the municipality of Ahuachapán reported between 20,000 to 30,000 tourists a year, while the municipalities of San Pedro Puxtla and Santo Domingo de Guzmán reported between 1,000 and 5,000 visitors per year. The hot springs mentioned above are the main tourist attraction in the municipality of Ahuachapán and one of the reasons why the number of tourists to this municipality is significantly higher.

4.3.11.2 Origin and Destination of the Tourist

There were discrepancies in the information related to the percentage of foreign and domestic tourists in the municipality of Ahuachapán. According to the tourism unit in the national mayoralty, 70% of visitors to the municipality of Ahuachapán are foreigners while dating from the hot springs of Santa Teresa, the main tourist attraction in the municipality, reported a total of 40% of foreign visitors. In the municipalities, San Pedro Puxtla and Santo Domingo de Guzmán 90% of the visitors are national.

In the municipality of Ahuachapán, the municipal mayoralty reported that the vast majority of visitors come from the US, France and Japan and that the average time in the municipality is one month. On the other hand, data from the hot springs of Santa Teresa, suggest that most foreign visitors come from other countries in Latin America. In the municipalities of San Pedro Puxtla and Santo Domingo de Guzmán most of the foreign

visitors come from the US, Canada and Spain and the average stay is 8 to 15 days.

In conversations with key informants, an increase in hotel demand was reported in the municipality of Ahuachapán, while the municipalities San Pedro Puxtla and Santo Domingo Guzmán reported no changes in the hotel profile in the last five years. According to the information gathered in the participatory rural diagnosis, in Sonsonate the tourist area is being implemented, which includes a historical park and focuses on providing a cultural tourism experience. Table 4.3-22 describes the main tourist destinations in the municipalities of Ahuachapán, San Pedro Puxtla and Santo Domingo de Guzmán identified in conversations with key informants.

Table 4.3-22 Top Tourist Destinations by Municipality According to Key Informants, 2016

Municipality	*Main Tourist Destination*
Ahuachapán	• Ruta Termal • Ruta del Café • Alicante • Cabañas de los ausoles
San Pedro Puxtla	• Mirados de la Cruz • Pool of Zapote • Colonial Church • El Salto de Tequendama
Santo Domingo de Guzmán	• El Salto Escuco, • Salto de Tepechame • La Poza Encantada • Colonial Church • El Arco Natural • La Alfarería • La Cuna Natural

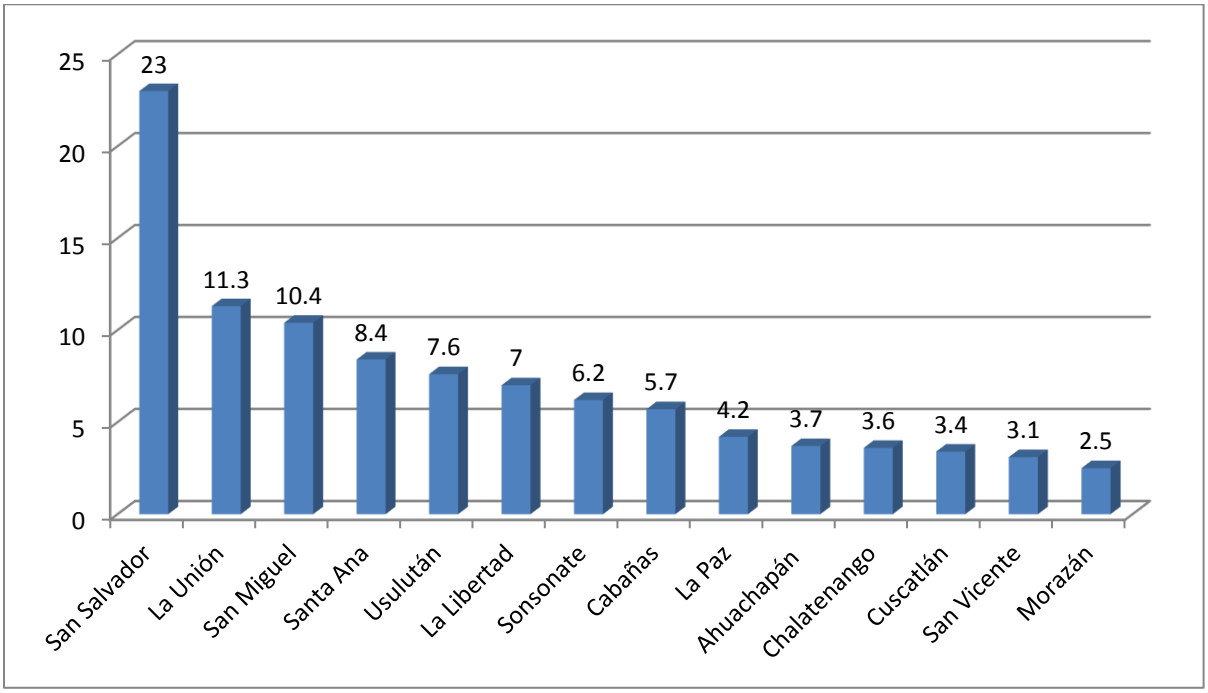
Source: ERM, 2016

According to information collected in the field, the time of greatest tourist activity in the municipality of Ahuachapán is from May to September, particularly the month of August. Similarly, the time of greatest tourist activity in the municipalities of San Pedro Puxtla and Santo Domingo are Easter, the month of August and the holidays at the end of the year.

None of the three municipalities (Ahuachapán, San Pedro Puxtla and Santo Domingo) reported threats to the tourism sector following the Project, although the individuals interviewed in the municipalities of San Pedro Puxtla and Santo Domingo de Guzmán stated that they did not know the Project in detail.

4.3.12 *Remittances*

El Salvador is one of the countries with the largest remittances in the world. The Central Bank estimates that remittances in El Salvador reached USD $ 3,969.1 million for 2013, equivalent to more than 16 GDP points (BCR, 2015). Approximately 19.8% of Salvadoran households are recipients of remittances (DIGESTYC, 2012). Between 10,000 and 20,000 households receive remittances in the departments of Ahuachapán and Sonsonate, a relatively small number when compared to the departments of Santa Ana, San Miguel and San Salvador where between 30,000 and 60,000 households receive remittances (BCR, 2015). The total population of these departments is one of the reasons for the high percentage of annual remittances and the fact that the migration phenomenon has been more intense in some departments than in others. Figure 4.3-36 shows the percentage of remittances by department.



Source: Prepared by ERM with data of BCR, 2015

Figure 4.3-36 Percentage of Remittances by Department, 2012

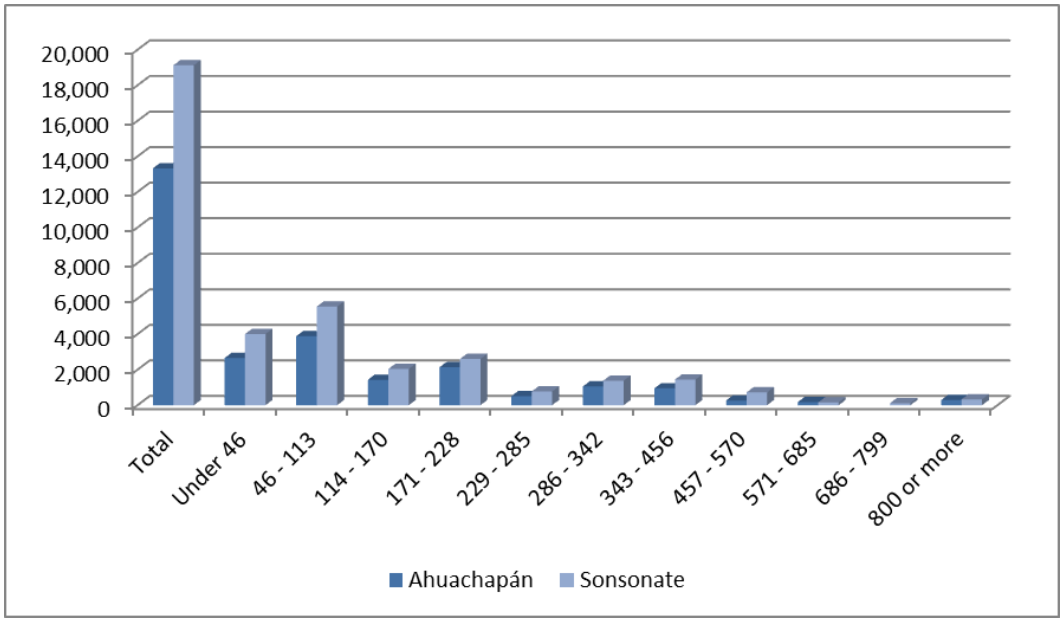
La Table 4.3-23 a continuación muestra el porcentaje de personas receptoras de remesas en el área de influencia del Proyecto.

Table 4.3-23 Percentage Remittance Receivers by Municipality

Municipalities	*Number of People*	*% Of People Receiving Remittances*
Ahuachapán	110511	5.80%
Apaneca	8383	4.50%
San Pedro Puxtla	7773	3.30%
Santo Domingo de Guzmán	7055	5.70%
Sonsonate	71541	9.90%
Acajutla	52359	8.30%

Source: Elaborated by ERM with database of the Almanac Human Development Status in El Salvador January 2009

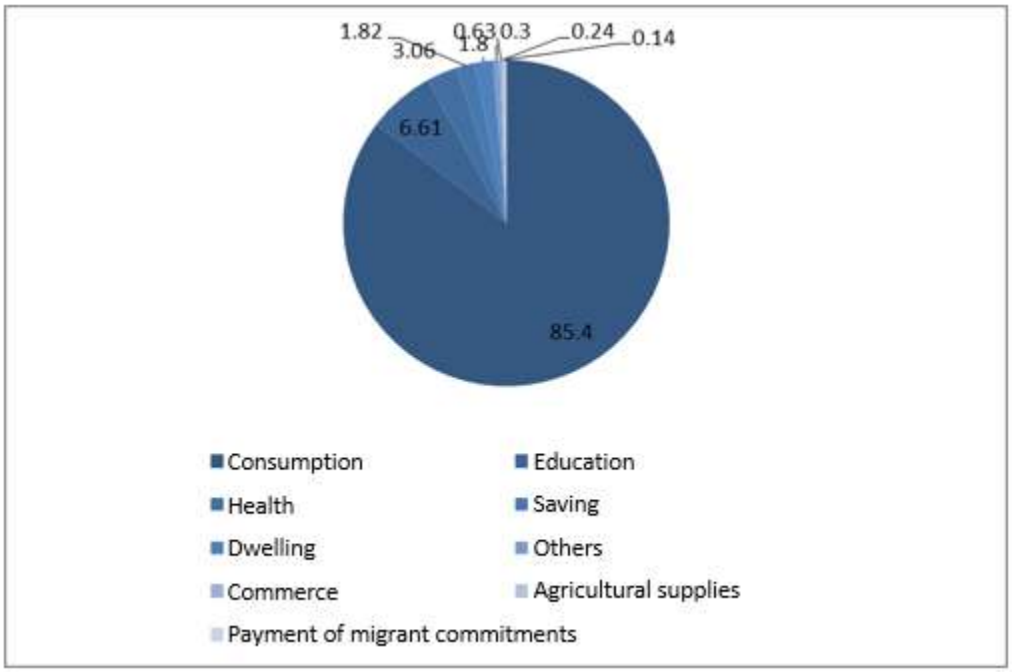
Of the households in the departments of Ahuachapán and Sonsonate receiving remittances, the vast majority receive between $ 46 to $ 113 USD (EHPM, 2012). Figure 4.3-37, reflects the total number of households receiving remittances monthly for tranches of remittances in dollars, according to department in 2012.



Source: EHPM, 2012

Figure 4.3-37 Households receiving Monthly Remittances for tranches of Remittances in US Dollars, according to Department, 2012

The main use of remittances is consumption, with 85.4% of the total. Other destinations of remittances are education, health and housing, as can be seen in Figure 4.3-38.



Source: EHPM, 2012

Figure 4.3-38 Destinations of Family Remittances, 2012

At the municipal level, the municipality of Ahuachapán receives the highest number of remittances by number of people, while the municipality of Santo Domingo de Guzmán receives the lowest percentage of remittances. The main use of remittances at the municipal level is consumption followed by health and housing.

4.3.13 *Social Infrastructure*

4.3.13.1 Access Roads

In the last 10 years, El Salvador has managed to build a road network paved with reasonable levels of service. However, the distribution throughout the territory is not uniform, particularly in the rural area. The state of the rural network becomes critical in the six months of rainy season each year, reducing accessibility, limiting the development of productive activities or access to basic social services, as well as increasing transportation costs and travel times.

In general, the territory seems to be articulated "outwardly" as detailed in the Monograph on Human Development and the Millennium Development Goals for the Municipality of Acajutla (2006). The main roads are the CA-8 that runs from San Salvador to the Department of Sonsonate, through Ataco Connection and Apaneca.

Route RN 15Sr, which runs close to San Pedro Puxtla and Santo Domingo de Guzmán, and which connects to Acajutla with the Carretera del Litoral and CA 12S, also known as Carretera Acajutla, which connects to the CA-8. In the vicinity of Ahuachapán, route 13. And undoubtedly, the best known is La Ruta de Las Flores, which runs for 36 km along the mountain range of Apaneca. Figure 2.2-4 shows the main access roads in the municipalities of the project's area of influence.

In relation to the internal roads of the municipalities, most of the roads are in bad condition or are inaccessible at some times of the year. During the baseline interviews, numerous accesses and roads were mentioned that had little or no signaling, gutters or pavement. For example, in Apaneca, the urban road network consists of 70% of paved streets, 15% of cobbled streets and 15% of rocky streets mostly in poor condition. There is also a system of rural streets and a network of neighborhood roads that unites and communicates in an accessible way the majority of Cantons and Hamlets of the Municipality. 90% of the streets are dirt, generally easily passable in the summer but become difficult to access during the winter, so you need four-wheel drive vehicles in the area.

4.3.13.2 Traffic and Vehicle Flow

During the interviews, the opinions regarding the flow of vehicles were varied. In Acajutla, we were informed that they did not have statistics in the municipality, that the data were at the national level managed by the deputy ministry of transport. However according to their own calculations, 100% of the traffic, 60% was industrial, 25% of inhabitants, 10% of collective services and 5% corresponding to passenger cars (Interview with municipal mayor representative, June 2016) . Santo Domingo and Sonsonate did not have statistics or information on traffic and vehicle flow; however, we were told that traffic accidents were not common.

4.3.13.3 *Traffic Accident Statistics*

There are no specific statistics of the Project area and the access roads to this area. However, according to the information collected in the field, in the department of Ahuachapán approximately 35 traffic accidents per month occur. The vast majority of these accidents are minor (or "slight") collisions. The main causes of these collisions are excessive speed or drunk drivers. In the first three months of 2016, 148 accidents were reported in the department of Ahuachapán.

According to information provided by the social promoter of the municipality of Acajutla, most traffic accidents are caused by speeding, lack of respect for traffic signage, lack of road education and pedestrian imprudence.

4.3.13.4 *Public Transport*

According to statistics from the general direction of land transport, the existing public transport terminals at the departmental level are located in (see Figure 4.3-39):

Sonsonate

- SEDAS, S.A. DE C.V. calle a Nahuilingo, cantón Las Delicias, contiguous to municipality and department of Sonsonate
- ETA, S.A. DE C.V. Final calle 15 de Septiembre, colonia Angélica, municipality and department of Sonsonate

Ahuachapán

- METAPAN- SAN FRANCISCO MENENDEZ CARRETERA CA-2 kilómetro 110, cantón Cara Sucia
- UTUA, S.A. de C.V. Kilometro 99, carretera Panamericana municipality and department of Ahuachapán

According to the Apaneca Municipal Strategic Plan 2008-2017, the municipality has a public transport service that carries out the Sonsonate-Juayua-Apaneca-Ataco-Ahuachapán Route and vice versa, through route 249, which establishes a route every 45 Minutes, being Terminal de Sonsonate its exit point.



Source: ERM, 2016

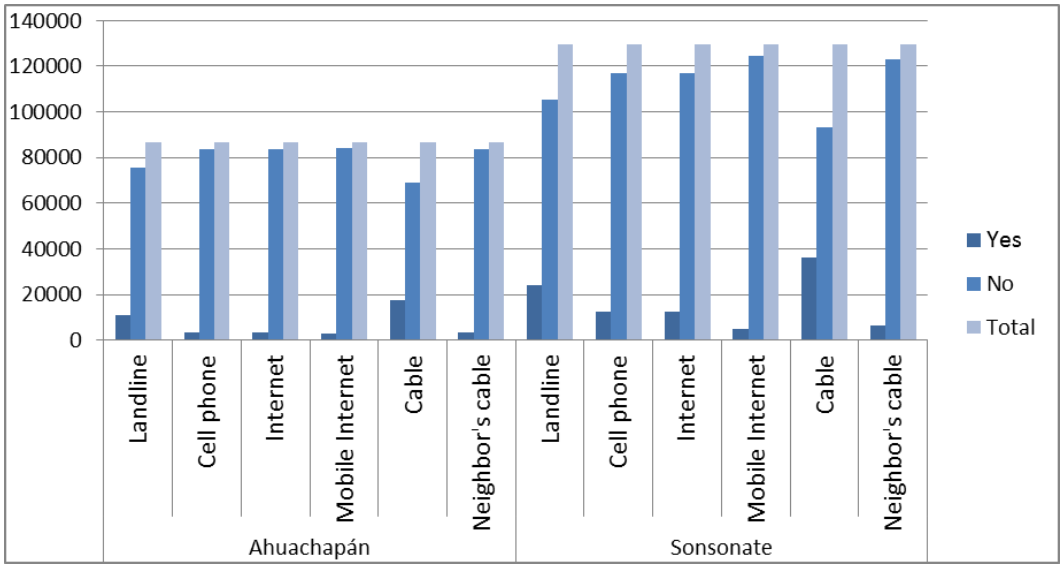
Figure 4.3-39 Apaneca Route Public Transport

In addition, there is urban transport that runs the Ahuachapán-Ataco-Apaneca route and vice versa, which establish a route every 30 minutes, being the point of departure and arrival, the Salvadoran Institute of Social Security Ahuachapán. The municipality does not have mototaxis service at an internal level. There is no public transport service to the different cantons and hamlets of the municipality.

During the interviews conducted it was possible to find out that in San Pedro Puxtla public transport connects mainly with Sonsonate and that it is limited. So, other means that are used are bicycle, car, truck or by horse. Also in Sonsonate, there is only one bus that offers services with specific schedules from 6 am, 1 pm and 4 pm.

4.3.13.5 *Telecommunications*

Telephone coverage is widespread in the area for both cell phones and landlines. This coverage is more extensive in Sonsonate than in Ahuachapán, as can be seen in Figure 4.3-40.



Source: Prepared by ERM with data of the EHPM, 2015

Figure 4.3-40 Types of communication and number of households by department, 2014

Table 4.3-24 below presents data on the type of communication of households by municipality.

Table 4.3-24 Tipos de Comunicación and Número de Hogares por Municipio, 2014

Municipality	*Type*	*Types of Communication that Homes Have by Town*		
		Yes	*No*	*Total*
Acajutla	Landline	2708	13006	15714
	Cell Phone	1201	14513	15714
	Internet	1201	14513	15714
	Mobile Internet	553	15161	15714
	Cable	5316	10398	15714
	Neighbor's Cable	661	15053	15714
Ahuachapán	Landline	4057	26702	30759
	Cell Phone	896	29863	30759
	Internet	896	29863	30759
	Mobile Internet	818	29941	30759
	Cable	6880	23879	30759

Municipality	Type	Types of Communication that Homes Have by Town		
		Yes	No	Total
	Neighbor's Cable	706	30053	30759
Apaneca	Landline	390	546	936
	Cell Phone	156	780	936
	Internet	156	780	936
	Mobile Internet	78	858	936
	Cable	390	546	936
	Neighbor's Cable	156	780	936
San Pedro Puxtla	Landline	0	2880	2880
	Cell Phone	0	2880	2880
	Internet	0	2880	2880
	Mobile Internet	0	2880	2880
	Cable	0	2880	2880
	Neighbor's Cable	0	2880	2880
Santo Domingo de Guzmán	Landline	360	1800	2160
	Cell Phone	180	1980	2160
	Internet	180	1980	2160
	Mobile Internet	0	2160	2160
	Cable	720	1440	2160
	Neighbor's Cable	0	2160	2160
Sonsonate	Landline	6608	15415	22023
	Cell Phone	3985	18038	22023
	Internet	3985	18038	22023
	Mobile Internet	546	21477	22023
	Cable	8913	13110	22023
	Neighbor's Cable	1791	20232	22023

Source: Prepared by ERM with data of the EHPM, 2015

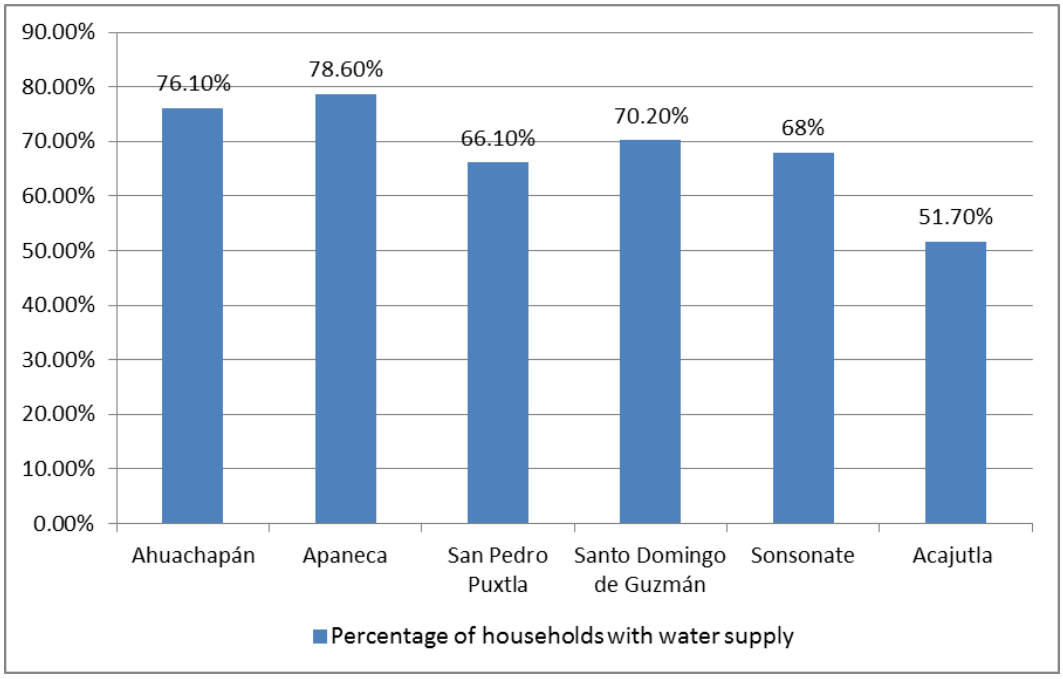
4.3.14 ***Public Health Infrastructure***

4.3.14.1 Water and Drinking Water Treatment

Access to water and sanitation is quite limited in the country. In 2007, only 44% of rural households were supplied with water through pipeline, of

which not all were regularly served, and 18% did not have any type of health service (DIGESTYC, 2007) . Despite an urban coverage of 81% of potable water services, the continuity of drinking water supplied in most of the towns served by the National Water and Sewer Administration (ANDA) varies from 16 hours to less than 4 hours per day.

Figure 4.3-41 reflects deficiencies in the availability of drinking water in the municipalities of Acajutla and San Pedro Puxtla. The municipalities with the highest percentage of household water are the municipalities of Ahuachapán and Apaneca, with 76.10 and 78.60% respectively. To complement the analysis, Figure 4.3-41 presents the type of water supply in homes without water in the departments of Ahuachapán and Sonsonate. In the department of Ahuachapán, the vast majority of people use the haulage of a neighbor's pipeline as their main source of water, followed by the water eye, river or ravine and the use of a pillar or public jets. In the department of Sonsonate, a large number of people use a private protected well, followed by the use of a neighbor's pipeline and, finally, the use of a well with private pipe.

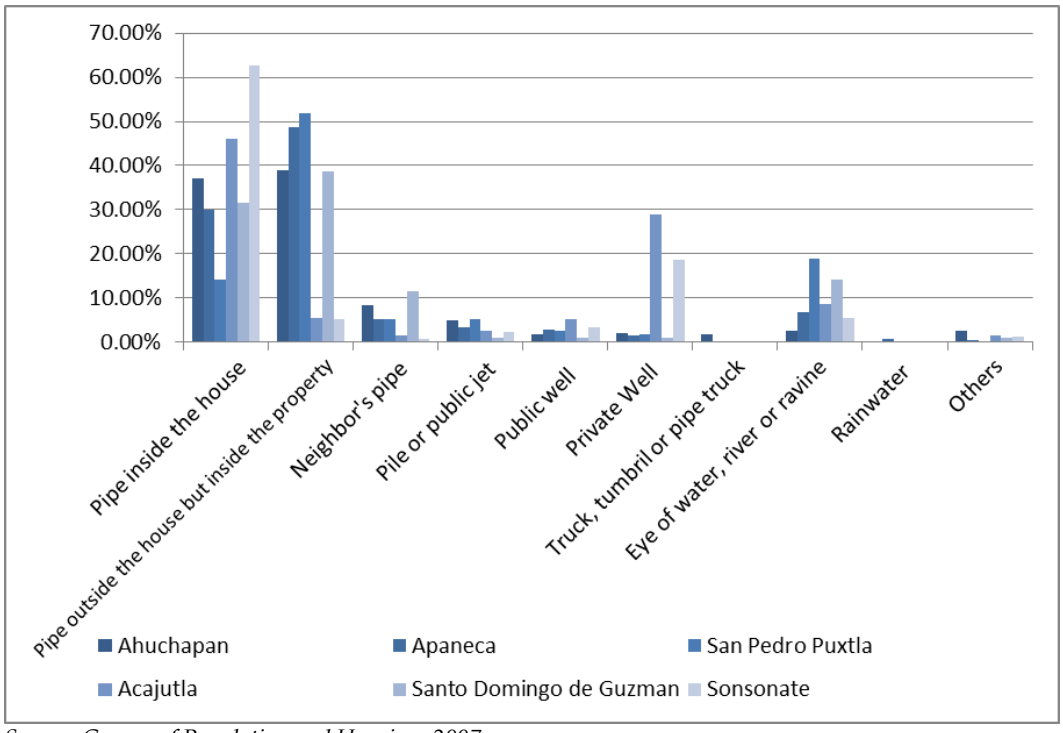


Source: Elaboration of ERM with database of the Almanac Status of Human Development in the Municipalities of El Salvador, 2009

Figure 4.3-41 Percentage of Homes with Household Water by Number of Homes, 2009

According to the participants of the participatory rural diagnosis, in Santo Domingo the quality and quantity of water has decreased due to the drought of the upper parts of the river basin. In Sonsonante, indicated that depending on the geography did have water resources but that is not suitable for human consumption because it is contaminated by pesticides and coliforms. In Apaneca it was indicated that the water comes from the sector of Ataco and that the water of the birth La Gloria is of good quality as the eyes of water.

Figure 4.3-42 presents the type of water supply in homes that do not have household water, according to the municipality.

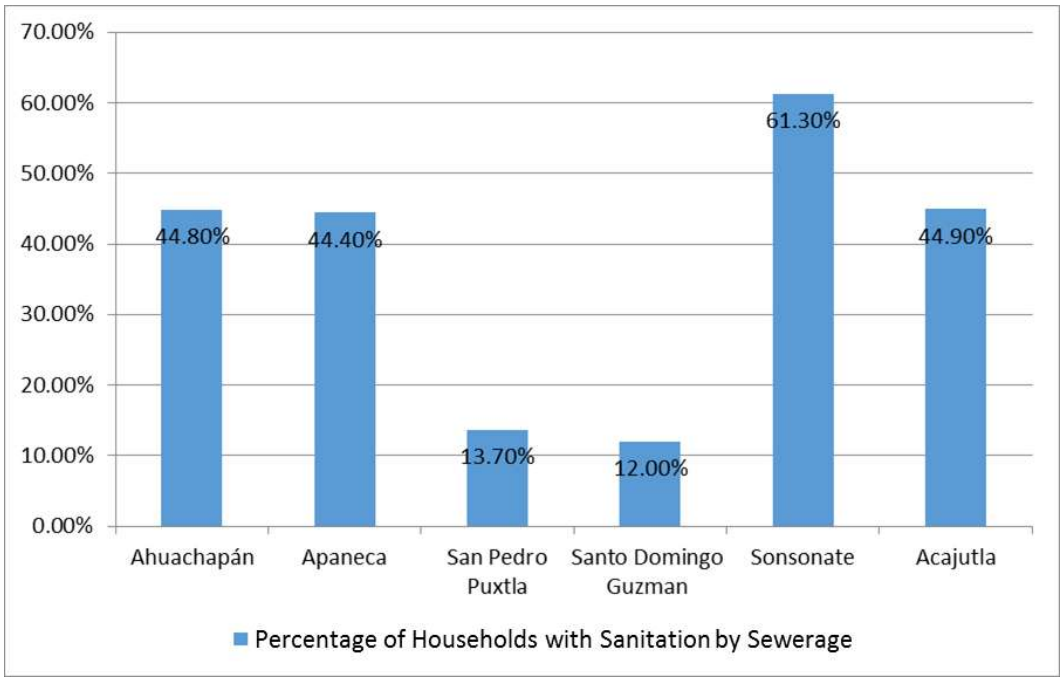


Source: Census of Population and Housing, 2007

Figure 4.3-42 Type of Water Supply in Homes without Home Water, by Municipality

4.3.14.2 Treatment and Management of Wastewater

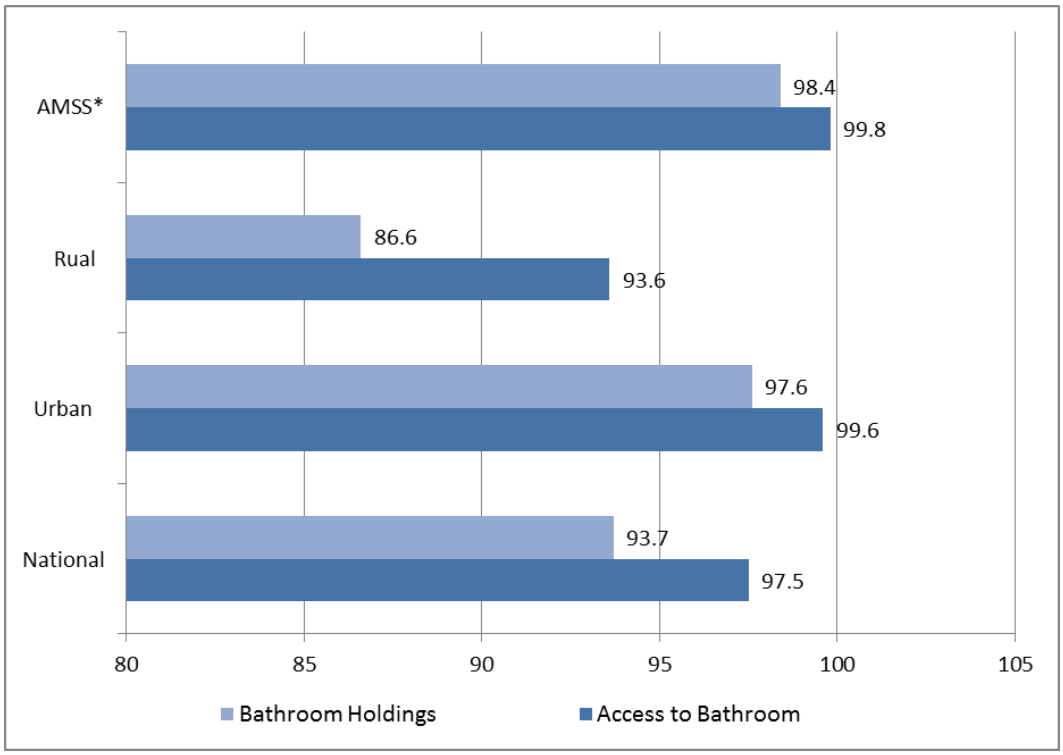
The percentage of dwellings with sanitation by sewage in the six municipalities in the area of influence is limited. In the municipalities of Santo Domingo de Guzmán and San Pedro Puxtla less than 15% of the houses have sanitation by sewage system and only in the municipality of Sonsonate more than 50% of the houses have this type of service. Figure 4.3-43, details the percentage of houses with sewerage sanitation.



Source: Elaboration of ERM with database of the Almanac Status of Human Development in the Municipalities of El Salvador, 2009

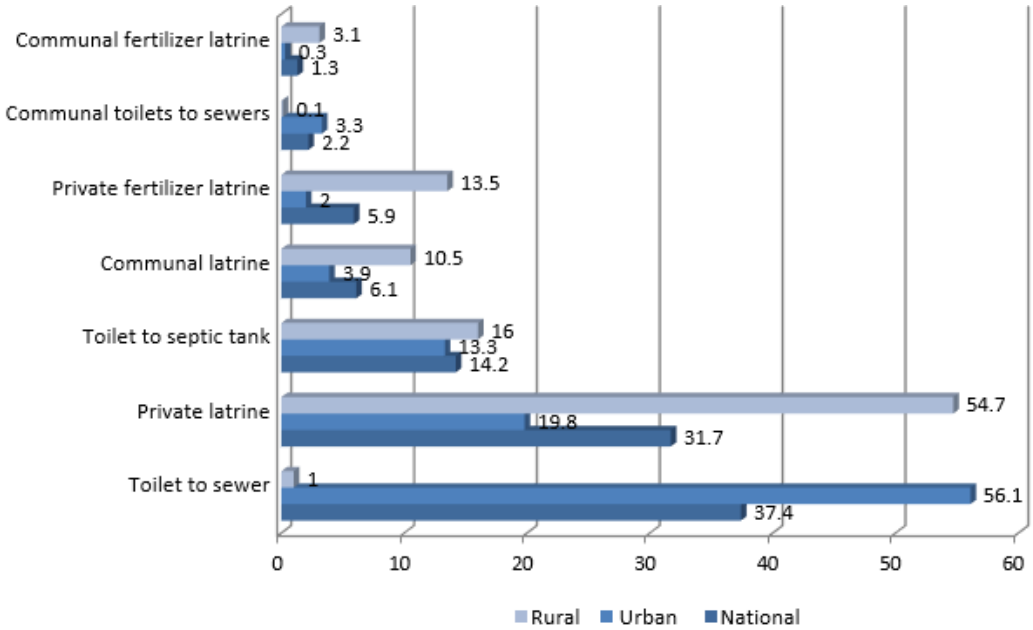
Figure 4.3-43 Percentage of Housing with Sanitation by Sewage, 2009

EHPM of 2014 reveals that the percentage of households with health service tenure (inside or outside the home) is 93.7% nationally. Access to health services, including through a relative or friend, is highest in the metropolitan area of San Salvador, followed by urban areas and, finally, rural areas. The type of health services that are accessible also varies according to the national geography. In urban areas, 56.1% of inhabitants have access to a toilet in the sewage system, while in urban areas 54.7% of the inhabitants have access to private latrines. Figures 4.3-44 and 4.3-45, reflect the percentage of households with access and possession of health services, by geographical area, and the type of health service.



Source: EHPM, 2015
Key: AMMS = Metropolitan Area of San Salvador*

Figure 4.3-44 Homes with Access and Tenancy of Health Service, According to Geographical Area, 2014

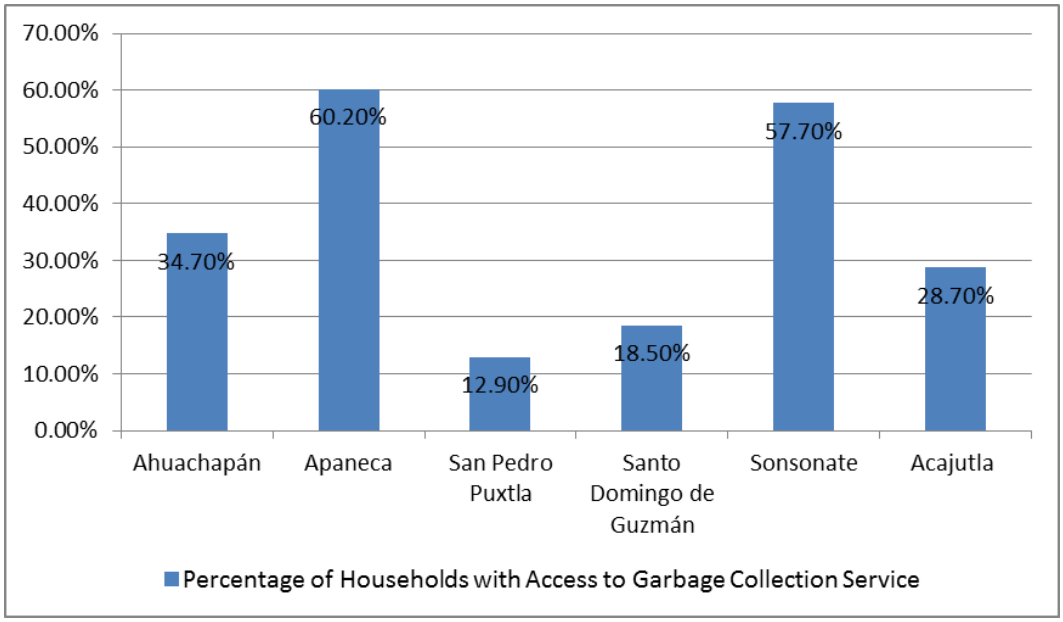


Source: EHPM, 2015

Figure 4.3-45 Households by Type of Health Service to Which They Have Access, According to Geographical Area, 2014

4.3.14.3 Solid Waste Management and Treatment

In Apaneca 60.20% of homes have a garbage collection service and in Sonsonate the percentage reaches 57.70%. However, data for the other four municipalities continues to indicate gaps in household infrastructure. In the municipalities of San Pedro Puxtla and Santo Domingo de Guzmán, less than 15% of the homes have garbage collection services. Figure 4.3-46, details the percentage of households with access to this service by municipality.



Source: Elaboration of ERM with database of the Almanac State of Human Development in the Municipalities of El Salvador, 2009

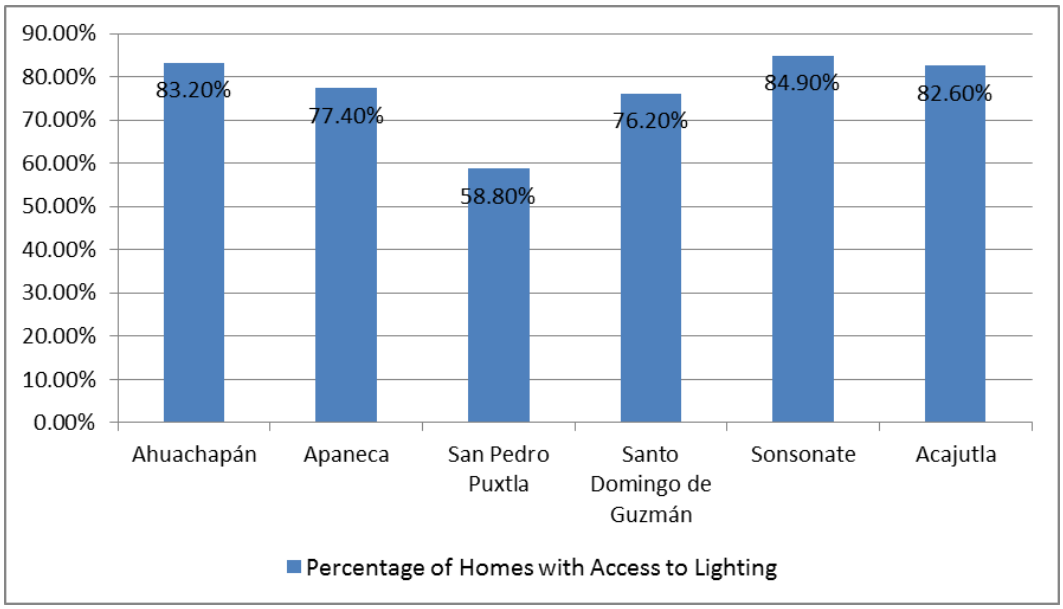
Figure 4.3-46 Percentage of Households with Access to Garbage Collection Service, 2009

4.3.15 *Energy Infrastructure*

4.3.15.1 Electricity

Despite an improvement in electricity supply in the country, it is still limited compared to other countries in the area, mainly in rural areas. During the 2007 Census, about 87,000 households had no access to electricity. Figure 4.3-47, reflects the percentage of households with access to lighting service by municipality.

According to the official report on the State of Human Development in El Salvador (2009), more than half of the homes in the municipalities in the area of influence have lighting. The municipality of Sonsonate has the highest percentage of houses with lighting (84.90%) and the municipality of San Pedro Puxtla has the lowest percentage (58.80%). Despite having a low percentage of homes with access to waste collection and sewage collection services, the municipality of Santo Domingo de Guzmán reported a significant number of homes with lighting (76.20%).



Source: Elaboration of ERM with database of the Almanac Status of Human Development in the Municipalities of El Salvador, 2009

Figure 4.3-47 Percentage of Homes with Lighting, 2009

4.3.15.2 Fuel

In all municipalities in the Project's area of influence, propane gas was reported as the most commonly used fuel type. Fuelwood was also recorded as a common fuel type and, for example, during the participatory rural diagnosis in Ahuachapán, it was reported that fuelwood consumption has increased by 80-90%. A small number of people reported not using any fuel.

Table 4.3-25 shows the type of fuel used in the houses in the area of influence of the Project.

Table 4.3-25 Type of Fuel Used by Households, by Municipality, 2009

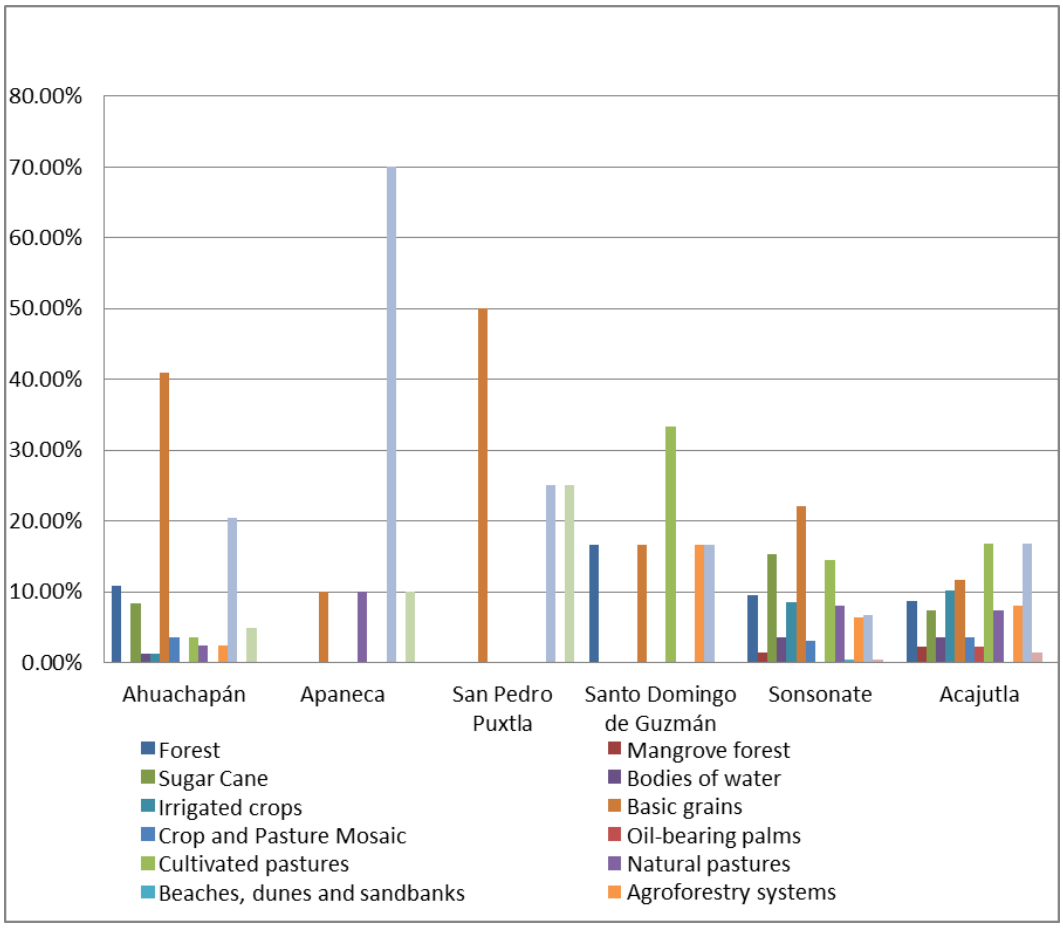
Municipality	*Detail*	*Number of households*
Acajutla	Electricity	0
	Kerosene (gas)	0
	Propane gas	12,966
	Firewood	2,415
	Charcoal	0
	None	333
	Other	0
	Total	***15,714***
Ahuachapán	Electricity	0
	Kerosene (gas)	0
	Propane gas	25,469
	Firewood	3,820
	Charcoal	0
	None	1,470
	Other	0
	Total	***30,759***
Apaneca	Electricity	0
	Kerosene (gas)	0
	Propane gas	780
	Firewood	156
	Charcoal	0
	None	0
	Other	0
	Total	*936*
San Pedro Puxtla	Electricity	0
	Kerosene (gas)	0
	Propane gas	1,920
	Firewood	960
	Charcoal	0
	None	0
	Other	0
	Total	***2,880***
Santo Domingo de Guzmán	Electricity	0
	Kerosene (gas)	0
	Propane gas	1,620
	Firewood	540
	Charcoal	0
	None	0
	Other	0
	Total	***2,160***

Municipality	*Detail*	*Number of households*
Sonsonate	Electricity	237
	Kerosene (gas)	0
	Propane gas	18,727
	Firewood	2,451
	Charcoal	0
	None	608
	Other	0
	Total	***22,023***

Source: Almanac Status of Human Development in the Municipalities of El Salvador, 2009

4.3.16 *Soil Use*

According to data from the European Environment Agency, soil uses in El Salvador vary significantly between rural areas, where the most common use corresponds to productive activities (agriculture), and urban areas, where most common soil use is a mixture of urban tissue, crops and pastures. In the municipalities of the area of influence, with the exception of the municipality of Apaneca, agriculture (specifically the cultivation of basic grains) is the most common land use. The cultivation of sugar cane is significant in the municipalities of Santo Domingo de Guzmán, Sonsonate and Acajutla, while the use of soil in the municipality of Apaneca is, in the majority, urban fabric. Only the municipalities of San Pedro Puxtla and Ahuachapán have a significant percentage of forest. Figure 4.3-48 illustrates the type of soil uses by municipality.



Source: ERM, 2016

Figure 4.3-48 Types of Uses of Soils by Municipality

Figure 4.3-49 shows the soil uses in the area of influence of the Project, as well as the type of crop that is carried out.

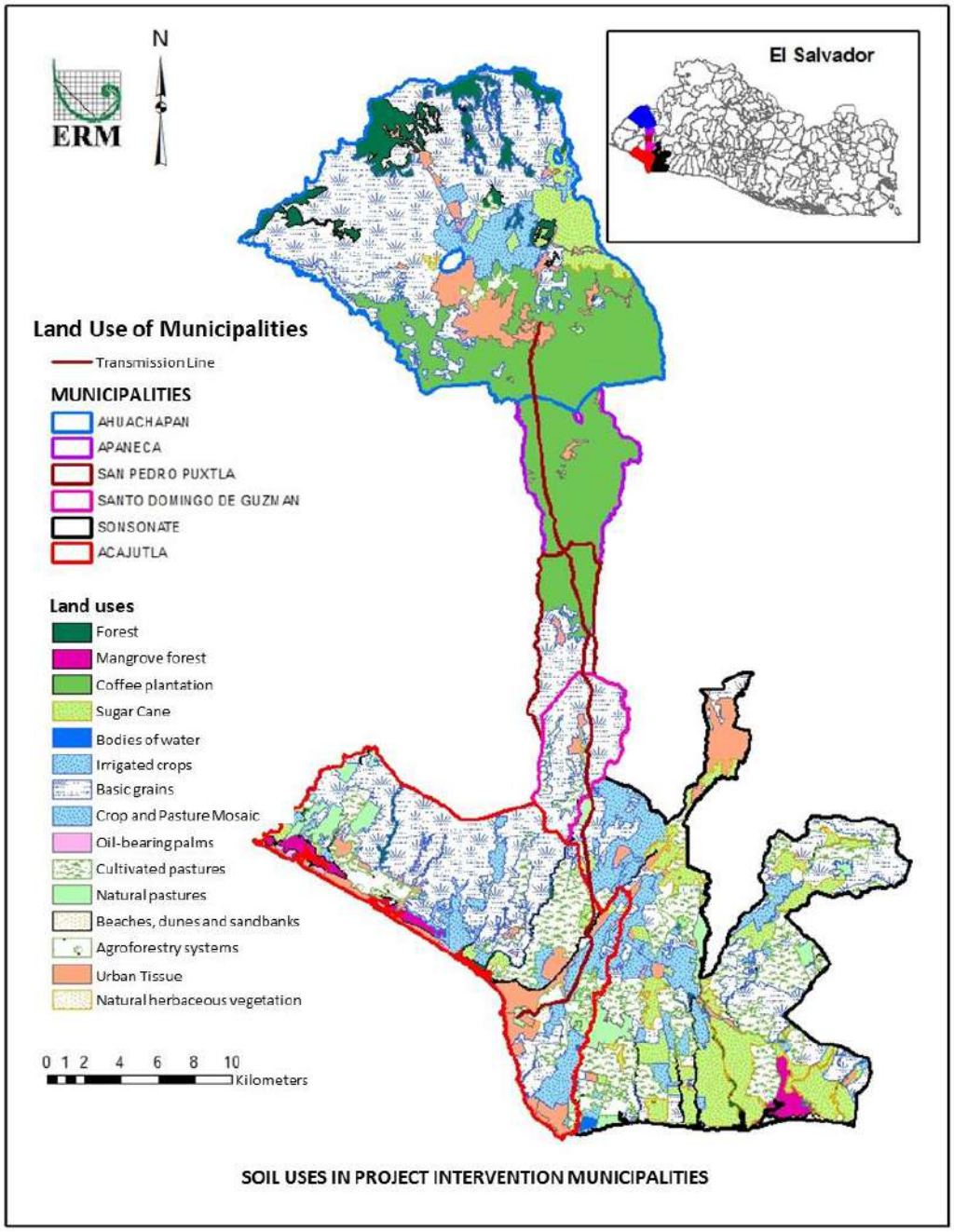


Figure 4.3-49 Soil Use in Municipalities

4.3.17 *Institutions and Social Networks*

4.3.17.1 Religious Organizations

The main social networks in El Salvador were identified as the family and the church. In the area of influence of the Project these conditions are similar to the rest of the country. As mentioned above, the Catholic religion continues to be the most predominant religion in El Salvador. Cultural expressions and festivals of the municipalities of the area of influence are intimately related to Catholicism. Based on fieldwork, it is known that there are a multitude of churches in the area of influence. The Church of God, the Jehovah's Witnesses, the Apostles and Prophets Church, the Adventist Church, the Lutheran Church, the Holy Baptist Church, the Prince of Peace Church, the Pentecostal Church, the Assemblies of God, the Church of Universal Prophecy and the Church of Latter-day Saints. Figure 4.3-50 shows some of the churches in the municipalities of Ahuachapán, San Pedro Puxtla and Santo Domingo de Guzmán.

Ahuachapán	
	
Catholic Church	*Amosite Church*
	
First Baptist Church	*Church of the Saints of the Last Days*

	
Elim Church	*Universal Church*
Santo Domingo de Guzmán	
	
Seventh-day Adventist Temple	*Evangelical Monte Gerizim Temple, Assemblies of God*
	
Glory to Christ, Christ Calls You	*Prince of Peace Church*

	
Catholic Parish Church	*Mount Horeb Evangelical Church, Mission*
San Pedro Puxtla	
	
God's Church	*Church of God is Love*

Source: ERM, 2016

Figure 4.3-50 Churches, by Municipality, 2016

According to interviews with representatives of three religious institutions in the municipalities of Ahuachapán and Santo Domingo de Guzmán there are four Catholic parishes in the municipality of Ahuachapán while the municipality of Santo Domingo de Guzmán has only one evangelical church. The great majority of those attending these churches correspond to individuals of various Christian denominations who attend the parish closest to their home. In the two municipalities Sunday is the day where the highest percentages of individuals gather in the parishes.

4.3.17.2 Civil Society Organizations

In the municipalities of the area of influence there are different non-governmental organizations dedicated to the provision of social services, such as Doctors of the World, Geologists of the World, Red Cross or Funsalproded, among others. Other civil organizations include community associations, where community dwellers in neighborhoods, settlements, villages and cantons meet to discuss problems and needs of their community. Generally, mayoralties municipalities are in charge of accrediting and encouraging the formation of these Salvadoran Community Development Associations (ADESCOS) in the cantons and hamlets that request it. The establishment as ADESCOS allows these organizations to seek financing for their communal projects of water, electricity and latrines, among others. Chapter 8 Public Participation describes the identified organizations. Table 4.3-26 lists the organizations present in the municipalities of Ahuachapán, San Pedro Puxtla and Santo Domingo de Guzmán according to interviews with key stakeholders.

Table 4.3-26 Present Organizations in the Municipalities of the Area of Influence

Institution	*Performing Main Activity*
Ministry of Livestock (MAG)	Provide assistance to programs of agricultural development and control and management of natural resources.
Ministry of Health (MINSAL)	Provide medical assistance to urban and rural areas.
Attorney General of the Republic	Persecute federal order crimes.
Attorney for the Defense of Human Rights	Ensures the rights of men, women, children and young people.
Salvadoran Institute of Social Security (ISSS)	Health care service for public employees and affiliated private sector.
Integral Youth Development Center (CID)	It helps young people with behavior problems.
National Center of Agricultural Technology	Technical assistance to farmers.
Immigration Office	Assistance on the customs measures of entry and exit of the country.
Terrestrial Customs	Control the inputs and outputs of both goods and individuals.
Fire Department	Ensure the safety of the population and of the forest areas in irrigation of fires and other emergencies.
Departmental Governance	Control the work carried out by the different communes of the different municipalities.
Salvadoran Foundation for the Elderly (FUSATE)	Provide support and security to the elderly.
Civil National Police (PNC)	Provide security to the entire population.
National Post Office Branch	Provide national and international courier service.
Citizen Security	Form citizen security groups in the urban and rural sector to safeguard their resources.
Social Investment Fund for Municipal Development	Provide financial support to a variety of projects including local development assistance.
Ministry of Tourism	Information and assistance on tourist sites of the municipality.
Ministry of Education (MINED)	Assistance to the educational centers of the municipality.
Corporation of Municipalities of El Salvador (COMURES)	Support of guilds of the municipalities.
Departmental Council of Mayors	Support to municipal mayoralties.
Salvadoran Ecological Unit (UNES)	NGO dedicated to the protection and conservation of the environment in El Salvador.
Foundation for Socioeconomic Development (FUNDESYRAM)	Assistance for socioeconomic development and environmental restoration (urban and rural).
CARITAS	Assistance to vulnerable people.
Cooperative of the United States of America (CLUSA)	National cooperation for corporate assistance.
Salvadoran Pro-Health Association (ASAPROSAL)	Medical assistance in rural areas.
Social Investment Fund for Local Development (FISDL)	Financial investment for local development.
Salvadoran Red Cross	Prevent and alleviate human suffering.
Korea International Cooperation Agency (KOICA)	Financial assistance for social development programs.

Institution	*Performing Main Activity*
Japan International Cooperation Agency (JICA)	Financial assistance for development programs.
German Cooperation (GIZ)	Financial assistance for development programs.
Salvadoran Foundation for Coffee Research (PROCAFE)	Private institution dedicated to the research and transfer of technology related to coffee.

Source: ERM, 2016

4.3.18 *Citizen Security and Crime*

The deteriorating economic situation in the country has exacerbated the lack of opportunities for access to formal employment and social services for the general population and for young people in particular. Since the beginning of this decade, violence in El Salvador has been increasing, especially since 2008. The most prevalent crimes in the country, according to data from the General Direction of Prisons are homicide and robbery (Ministry of Justice and Public Security, 2012). The phenomenon of maras[7] and extortion are common, to such an extent that in August 2015 the Supreme Court declared terrorist groups to the so-called Mara Salvatrucha and Barrio 18 (BBC Mundo 2015) gangs. With some 72,000 members, the Salvadoran gangs are responsible for 16 daily murders, 220 in just one week - the deadliest of the century and 3,828 dead in 2015 (BBC Mundo, 2015).

At the national level, 12.46% of Salvadorans reported being victims of a robbery (LAPOP, 2012). This is equivalent to approximately 779,000 Salvadorans. However, there were only 5,521 denunciations reported in official administrative records (Judicial Branch 2012). As to the homicide rate, in January 2010, 72 homicides were reported for every 100,000 people (UNDP 2011). In addition, 90% of the population reported feeling insecure in public places (IUDOP, 2009, Prado, 2009).

According to interviews with representatives of the national police (PNC) in the municipalities of San Pedro Puxtla, Santo Domingo de Guzmán and Ahuachapán, the municipality of Ahuachapán has the highest number of security personnel (80 security agents), who are sometimes accompanied by soldiers of the Military Detachment No. 7. In 2014, 130 homicides were reported in the department (see Tables 4.3-27 and 4.3-28).

[7] Those stable youth groups that have a group identity built through participation in violent or criminal acts, and which offer patterns of identification to their members that allows them to organize their daily lives.

Table 4.3-27 Homicides in the Department of Ahuachapán, by Municipality and Sex, 2014

Department	Municipality	Year	Sex			
		Number	M	W	NA	Total
Ahuachapán	Ahuachapán	23	22	1		23
	Apaneca	1	1			1
	Atiquizaya	19	17	2		19
	Concepción De Ataco	2	2			2
	El Refugio	8	8			8
	Guaymango	3	3			3
	Jujutla	12	9	3		12
	San Francisco Menéndez	28	24	4		28
	San Lorenzo	9	9			9
	San Pedro Puxtla	2	2			2
	Tacuba	16	15	1		16
	Turín	7	6	1		7

Source: PNC, 2016
Key: M = Men; W = Women; NA = Not Available.

On the other hand, the municipality of Santo Domingo de Guzmán has the lowest number of security personnel (10 security agents). In Acajutla they have 15 national and 6 municipal police. The number of homicides in 2014 in Acajutla was 24 (see Table 4.3-28). The total departmental reached 299 people.

Table 4.3-28 Homicides in the Department of Ahuachapán, by Municipality and Sex, 2014

Department	Municipality	Year	Sex			
		Number	M	W	NA	Total
Sonsonate	Izalco	68	64	4	—	68
	Nahuizalco	50	47	3	—	50
	Armenia	43	41	2		43
	Sonsonate	33	28	5	—	33
	Acajutla	24	20	4	—	24
	San Julián	18	16	2	—	18
	Juayua	15	15	—	—	15
	Caluco	14	14	—	—	14
	Nahulingo	11	11	—	—	11
	Sonzacate	7	5	2	—	7
	San Antonio Del Monte	5	5	—	—	5
	Santa Isabel Ishuatan	4	4	—	—	4
	Salcoatitan	3	3	—	—	3
	Cuisnahuat	2	2	—	—	2

Department	Municipality	Year	Sex			
		Number	M	W	NA	Total
	Santa Catarina Masahuat	1	1	–	–	1
	Santo Domingo De Guzmán	1	1	–	–	1

Source: PNC, 2016
Key: M = Men; W = Women; NA = Not Available.

All municipalities reported not having the necessary staff to cover all areas. The most relevant safety aspects in these three municipalities are: accident prevention, homicide and robbery. In Acajutla, vehicle theft and gang activity were reported as common crimes. Extortions were mentioned as common. The municipality of Ahuachapán also reports the drug traffic in the borders as one of the main security problems in the municipality. In interviews with the secretary of the Court of Peace in Santo Domingo, it was pointed out that the main problem in the municipality is the friction between the neighbors for property issues and trespassing, inheritance and land rights disputes, among others.

Data collected in the field suggest changes in crime rates in the last five years. All municipalities reported a significant increase in the number of homicides in rural areas as a result of gangs or criminal gangs (maras). In addition, there was an increase in the presence of gangs (maras) in rural areas. Table 4.3-29 illustrates those sites in the municipalities of Ahuachapán, San Pedro Puxtla and Santo Domingo de Guzmán, which were reported during interviews with key informants as particularly dangerous.

Table 4.3-29 High Risk Areas, by Municipality, 2016

Municipality	*High Risk Areas*
Ahuachapán	• Colonia Zacamil • Los Magueyes • Colonia San José • Markets • Casería La Laguna • Rural área of El Barro, El Campestre, Tacuba and Atiquizaya • The road Santa Ana – Ahuachapán.
San Pedro Puxtla	• El Cortez • El Durazno • La Concepción
Santo Domingo de Guzmán	• El Zarsal • The border between San Pedro Puxtla and Santo Domingo de Guzmán.

Source: ERM, 2016

4.3.18.1 Gender Violence

The second national report on the situation of violence against women in El Salvador (ISDEMU, 2010) identifies gender violence as a public security problem in the country. In 2010 there were 33 violent deaths of women in Ahuachapán, and 79 in Sonsonate (ISDEMU, 2010). There are no data at the municipal level.

The women's unit in Acajutla is created in 2009. In the interview with the Coordinator of the Unity of Women in Acajutla tells us that:

> *"Through the collection of statistical data from some institutions (Courts, Police, and ISDEMU-Salvadoran Institute for the Development of Women), on the demands made by women who have suffered some type of violence, have succeeded in supporting these women, offering Information on their rights, alternatives for economic independence and finally including them in small business development programs "(Semi-structured interview, June 2016).*

A series of programs have been developed, such as training programs to obtain economic autonomy or the formation of student circles in violence prevention with schools.

4.3.19 ***Landscapes and Views***

The area where the project will be developed is located in the departments of Ahuachapán (in the municipalities of Ahuachapán, Apaneca and San Pedro Puxtla) and Sonsonate (in the municipalities of Santo Domingo de Guzmán, Sonsonate and Acajutla). This part of the western section of the Sierra de Apaneca, in the southwest of El Salvador, houses an extensive

coffee growing landscape and contains patches of natural forest located between the coffee plantations.

Throughout the project line, three well-defined topographic (altitudinal) scenarios were identified, constituting three relatively homogeneous regions in landscape and agricultural management (see *Section 4.1.2.2 - Topography and Soils*). These three regions are:

Middle-High Mountain Region: This region is mainly made up of mountain landscapes, hills and slopes of the Salvadoran volcanic mountain range that generate a profuse network of shallow drainage and almost parallel or slightly radiate. These are oriented parallel to the TL axis, and are located mainly in the northern region of the trace, which belongs to the Humid Forest and Mountain ecosystem. In this region, the TL corridor crosses first-line coffee plantations in the municipalities of Ahuachapán and Apaneca (see Figure 4.1-4).

Lower Mountain Region: This region is characterized by a slightly undulating relief that, within the corridor of the TL, corresponds to the terminal areas of the system of low hills that move from the northern slopes of the mountain range and are located mainly in the central sector of the TL in east-west direction of its axis. This region belongs to a Humid Forest ecosystem, and the TL corridor crosses by minor or seasonal crops in the municipality of San Pedro de Puxtla and seasonal crops and pastures in the municipality of Santo Domingo de Guzmán (see Figure 4.1- 4).

Coastal Plain Region: This region is characterized by a flat relief and the topographic configuration that varies from flat to slightly undulating, with slopes that do not exceed 15%. In this region, the corridor of the TL crosses the municipalities of Sonsonate and the northern part of Acajutla by seasonal crops and pastures. In the southern part of the municipality of Acajutla, the corridor crosses the urban area of Acajutla. This region belongs to a dry forest ecosystem (see Figure 4.1-4).

4.3.20 *Cultural, Archaeological, Ceremonial and Historical Resources*

The systematic record of cultural, archaeological, ceremonial and historical (cultural heritage) resources in El Salvador is limited and most formal studies and their results remain the exclusive domain of a relatively small group of specialists. Monumental settlements such as San Andrés, Tazumal and Cerén of the Post-Classic Maya Period are widely considered significant. However, the Pipiles (Nahoa) are the pre-Hispanic group with which the Salvadorans identify more strongly. With a boom around 1200 AC, the Pipil material culture is quite common, although

scarcely associated with monumental architecture. The Pipiles arrived in El Salvador from the central valley of Mexico after the Mayan decline and their lithic and ceramic artifacts are highly valued for their aesthetic quality as well as indicators of regional chronological horizons.

The corridor proposed for TL is relatively close to significant pre-Hispanic resources such as Santa Leticia, San Benito, El Carmen, Tacuzcalco and Los Tablones. Of these, Santa Leticia is a place of first order in the vicinity of the present town of Apaneca, especially recognized by its "Barrigones," anthropomorphic sculptures carved on basalt or andesite and the remains of a village of hundreds of hectares of extension.

The baseline description below was developed from the following sources:

- Current knowledge about the region as identified through bibliographic search and consultations and conversations with national and international experts.
- Findings of a field survey campaign in the Project's area of influence.
- Estimation of baseline conditions from the first two partial sources; that is, to calculate a possible but not yet confirmed inventory of resources present in the Project area for terrestrial and underground resources.

Through the bibliographic search and consultation with experts, 30 archaeological sites were identified and cataloged in the National Cultural Heritage Registry in the vicinity of the Project area. To these are added the results of the baseline recognition, which identified 13 new terrestrial cultural resources, all of them archaeological prehispanic. No living heritage resources or architectural heritage resources were identified. It is considered that all cultural resources identified in the Project area are of medium or low sensitivity.

A bibliographic search and consultations with the Directorate and specialists of the Museum of Natural History of El Salvador were also carried out to complete the paleontological inventory of the project area.

4.3.20.1 *Methodology*

The baseline study of cultural heritage was carried out in three phases:

- Background Investigation
- Field Surveys
- Data Analysis

In the following sections, a brief explanation of each of these phases is provided.

Definitions of Cultural Heritage Resources

In the study, the following definition of cultural heritage is used:

- Objects, properties, sites, structures or groups of tangible structures, movable or immovable structures with archaeological (prehistoric), paleontological, historical, cultural, artistic and religious values.
- Natural features or unique tangible objects embodying cultural values, such as landscapes, groves, rocks, lakes and waterfalls.

Based on baseline field results, the following project specific resource categories have been used:

- **Isolated Cultural Heritage Resource:** An individual cultural resource not associated with any additional cultural resource or feature of cultural landscape. Examples of isolated cultural heritage resources include individual archaeological artifacts, an individual sanctuary along a path, an isolated tomb, an isolated rock cairn or a small mound of stones. It is also called an "isolated finding".
- **Cultural Heritage Site:** A group of resources or related cultural heritage artifacts, or a single or complex large cultural heritage resource, with well-defined boundaries. Examples of cultural heritage sites include a spatially discrete archaeological dispersion of artifacts, a dispersion of artifacts and associated mounds, a historical dwelling and associated structures, a cemetery, a church and associated structures, or a group of works 9f historical engineering associated with a banana plantation. It is also called "site".
- **Group of Cultural Heritage Sites:** A group of cultural heritage resources or related cultural heritage sites. Examples include multiple artificial mounds connected by a diffuse dispersion of artefacts, a series of dispersions of archeological artifacts separated by arbitrary boundaries created by differences in surface visibility, a group of historical constructions and structures (eg a historic district), a series of

archaeological sites temporarily related to adjacent geographic features, or a group of sites or locations or ritual sites that include a sacred landscape.

Cultural Heritage Site Groups usually consist of multiple Cultural Heritage Sites and Isolated Cultural Heritage Resources; here is called each part of the whole greater "Site Group Component". These categories encompass a wide variety of archaeological, historical and living cultural heritage resources.

Background Investigation

A cultural heritage background survey was conducted prior to field surveys with these objectives:

- Collect information on the location and characteristics of known cultural heritage resources.
- Identify specific known cultural heritage resources in areas affected by the Project.
- Determine the geographic coverage of previous cultural heritage surveys.
- Develop a cultural context for El Salvador in which to assess the importance of the new resources identified during the field survey.

The background research was divided into three categories: archeology, architectural heritage and paleontological heritage.

Archeology

Bibliography and reports of previous academic research in El Salvador were examined. The objectives of the bibliographic analysis were to confirm and document our understanding of the regional cultural context, to gather details about the chronological periods established in the archeology of El Salvador and to gather information on archaeological resources previously identified in the country. The bibliographic analysis provided data on the geographical extent of previous archaeological research. He also confirmed that much of the best-known research has focused on the remnants of Mayan communities and monumental

architecture; while relatively little research has been conducted focusing on the later Pipil-Nahoa occupation.

The governing body for matters related to tangible cultural heritage is the Secretary of Culture of the Presidency (SECULTURA) through its archeology section. SECULTURA has established a classification based on the chronology, scale and monumentality of cultural heritage sites. However, classification procedures, regulations or formal rules have not been published. However, it is routine that only archaeological sites with a certain level of monumentality (first order) are excavated or investigated, while the rest are only located, classified and recorded.

In total, 26 categories of possible archaeological resources were identified, including: isolated finding, artifact dispersal, stone mound, mound of dirt, isolated megalith, megalith complex, sepulcher, tomb, cemetery, cave, rock shelter, shells, rock carvings, cave paintings, camp, farmhouse, workshop, elite residence, room to be determined, fortress, domestic structure, religious structure, dump, open oven, closed oven, ball court.

In this way, a total of 30 sites previously documented in the National Cultural Heritage Registry were reviewed, all included in Appendix J, Previously Documented Cultural Heritage Resources. SECULTURA classifies one of these pre-hispanic sites, Santa Leticia in Apaneca, as first order, the rest are classified as pre-hispanic second order.

Architectural Heritage

Prior to the field survey, the team contacted staff from the Department of Archeology of the Ministry of Culture (SECULTURA), the Head of the National Museum of Natural History (who coordinates Paleontology activities in the country), and internationally recognized experts on cultural heritage resources and the archaeological potential of the direct influence area. The team also carried out a cabinet study to identify heritage resources with historical value for El Salvador, whether officially recognized or not.

Paleontological Heritage

Before the field survey, the team contacted the Director of the National Museum of Natural History (who coordinates Paleontology activities in the country) and internationally recognized experts on the paleontological

heritage resources of the direct influence area. A joint study of field and cabinet was coordinated, to be carried out by assigned personnel of the Museum.

Field Surveys

The baseline team consisted of three Salvadoran specialists and the Principal Investigator, who has a PhD specialized in Latin American archeology, with extensive experience in Central America. The baseline survey consisted of two field survey efforts: one for archeology and one for paleontological heritage. The archaeological survey along the trajectory on which the right of way of the right of way could be established was divided into sections defined by the location of the proposed towers. The paleontological heritage field survey consisted of a baseline survey register in parallel with the archaeological work. Sites of living heritage, such as cemeteries, shrines and monuments, were recorded as they were being found.

Archeology

The archaeological survey was of non-intrusive pedestrian or "on foot" recognition. The field team systematically walked through the prospection areas and surveyed the soil surface for evidence of cultural heritage resources, such as dispersions of artifacts, remnants of structures or ruins, or modifications of the natural landscape features made by humans. When archaeological resources were found, they were documented in the field through narrative notes, digital photographs and portable Global Positioning System (GPS) units. A systematic strategy established by Sanders, Parsons and Santley (1979) but quantitatively developed (Drennan et al., 2003; Haller, 2004; Roman-Lacayo, 2013) was used to establish a comparative numerical figure for the relative densities of the findings. In summary, surface fragments were interpreted as indicators of pre-Columbian and historical human activity. The distribution density thereof can be used as a measure of relative occupancy intensity. In general, more intensive occupations are related to greater permanence over time, or greater access to these resources or both. The areas to be characterized were divided into arbitrary parcels of land of 100 meters long by 38 meters wide of the right of way (0.38 ha). Two types of surface materials were collected: general and systematic. The entire route was made in 25 sections, called T1-T25 and associating each finding with its georeferenced position, parking in accordance with the topographic demarcation and assigning a corresponding single ordinal.

When a member of the team found ceramic or lytic fragments, the point was marked with GPS (using WGS84) and the surrounding area was examined more closely to establish if the density was greater than 1 m2. If the density was lower, a general collection was made, marking the area of the parcel of land up to 20 objects per parcel. When the density was higher, a systematic collection was made at a point where a circle of three meters in diameter (7,065 m2) could be established within which all anthropic materials were collected. In this way, it is possible to establish the relative density for each parcel of land in a systematic way, including distributions of diagnostic materials. This general field survey strategy was adapted to the local conditions of each section in the trace.

Each lot, representing a collection unit, was labeled with its position, date, method of collection (general or systematic) in a bag (or more when the quantity or size of objects required it).

In addition to the surface collections, observations were made of vestiges such as mounds, peculiar distributions of materials, and other features that in El Salvador typically indicate anthropic activity in the historic and pre-Columbian past. All of them were photographed and georeferenced to facilitate future use of the information.

A broad criterion was used in the classification of the region of the direct impact area of the project, using as main indicators the use of the soils and associated vegetation, as well as their elevation, precipitation regime and average temperature. Because of the ease of mobilization on the ground, three areas were established to simplify the context on which the field work was developed:

- **Lowlands (about 24 km):** The flatter terrain (between 0 and 600 meters above sea level) and relatively with less vegetation in the Project area allowed the prospecting team to easily move along the road network and close to the urban areas of Acajutla and Sonsonate, wich allowed the team to examine a wide variety of types of archaeological sites. The transects covered a lot of agricultural land in dry weather. This area begins in Acajutla, through Sonsonate and ends within the municipality of San Pedro Puxtla.

- **Forested Transition (approximately 5 km):** This area is characterized by a remarkable increase in both vegetation density and elevation (from 600 to 900 meters above sea level). Similarly, a change in crops and species is apparent. The road network is still extensive and reliable enough to provide access to the proposed route. The nearest towns are Ahuachapán, Santa Catarina Masahuat and San Pedro Puxtla.

- **Highlands / Plateau (12 km):** Due to the usually thick vegetation of this area of study that exceeds 900 meters above sea level, the ubiquity of coffee plantations, decidedly different precipitation regime and topographic accidents, this area was the one that comparatively more time required to transit it. The team had to identify and focus on areas where vegetation was limited (as this allowed for sufficient surface visibility to inspect the ground for artifacts and other evidence of cultural heritage resources). As a result, prospecting focused on areas where vegetation had been cleared. The nearest towns are Apaneca and Quezalapa.

Historical Heritage

The historical heritage field survey was carried out along with the work of archaeological reconnaissance, taking into account the current norms, the type of representative buildings that have been recognized or studied, retained or preserved. No additional buildings or resources of interest, such as cemeteries, statues, parks, roads or landscape features, were documented.

Living Heritage

The specific value and sensitivity of living cultural heritage sites in El Salvador is based on a combination of aspects of local and regional communities, including spiritual, cultural and historical traditions. As the patterns of use and sensitivity of the sites may be much localized, they are not usually documented. No churches, sanctuaries or cemeteries were identified either during reconnaissance or in the relevant documentation.

Paleontological Heritage

The specific value and sensitivity of paleontological heritage sites in El Salvador is based on opportunistic findings and the corresponding

mapping of the geological profiles corresponding to the paleontological study. The reasoning is that soils created in the last 10 millennia, through volcanism and sedimentation will scarcely contain fossiliferous resources. No paleontological resources were identified either during reconnaissance of land or the revision of relevant profiles, maps or documentation.

Analysis of Data

After the field component of the baseline survey, the team synthesized the information collected, generating a database (see Appendix K), which contains locations and general descriptions of each of the archaeological heritage sites that were found. The team also analyzed and, when possible, established associated dates for artifacts collected at archaeological sites found throughout the Project area. Photographs of the sites and data collected at each site were compared with existing historical and archaeological records from the pre-hispanic period and other historical periods in order to obtain comparative conclusions and to evaluate the findings.

Archeology

The archaeological survey team recorded thirteen archaeological sites. The boundaries of site groups were determined, in part, by a dense concentration of ceramic dispersions, termed "site group components". It was determined that five of the findings require a second polling phase prior to the construction of the towers to comply with SECULTURA guidelines and the spirit of the applicable law.

Architectural Heritage

No architectural heritage site locations were recorded during the field work.

Artifact Analysis

At the conclusion of the field effort, all archeological artifacts were transported to the Archeology Workshop I, located at the Technological University of El Salvador in San Salvador. There, the artifacts were washed, cataloged and analyzed. Two major types of artifacts were analyzed: ceramic artifacts, such as pottery fragments, and stone or "lytic" artifacts. Lithic artifacts consisted mainly of two categories: worked and polished stone. Lithic artifacts consisted of stone tools, carving residues,

chips and debris created during the manufacture of stone tools. The polished stone is formed by wearing or smoothing the surface of the stone to make tools, such as hoes and metates (ancient grinding stones).

Among ceramic artifacts, various design elements and ceramic technology were examined, including pulp and paste materials, slip, application features, carving, etching, painting and any other ornamental feature present. Later, these characteristics were compared with typologies of pre-Columbian ceramics to establish the dates of each piece. The references used for the classification are widely accepted as for the cataloging and regional chronology of diagnostic materials (Balfet, Fauvet-Berthelot and Monzón, 1992, Heras and Martínez, 1992, Sharer 1978, Valdivieso, S.F.). Once assigned to a period, ceramic artifacts were used to determine the approximate dates of occupation or use of the sites from which they were extracted.

Limitations

The greatest limitation was the method of non-intrusive surface survey. Several cultural heritage resources in the study area were identified through fortuitous "windows", such as agricultural quarries, trenches or roadblocks. These fortuitous findings confirmed the presence of under-surface cultural materials that could not be detected by surface recognition. Access to some areas was not allowed by landowners. The impassable terrain, such as very dense weeds and areas of extreme slope, also limited the areas that the prospecting team was able to investigate.

The paleontological heritage resources were documented opportunistically during the baseline survey of archaeological heritage and through a screening of the data of the National Museum of Natural History and its possible intersection with the project trace. The baseline survey clearly identified the absence of paleontological or fossiliferous stratigraphic profiles exposed in the project area.

4.3.20.2 Sensitivity Assessment of Cultural Heritage Resources

The sensitivity of a resource was evaluated taking into account its scientific, historical, cultural, artistic or religious importance for local, national and international stakeholders. This methodology was developed combining the guidelines of national cultural heritage legislation and international good practices.

The Salvadoran cultural heritage legislation was used to determine the importance of the cultural heritage resource for local and national stakeholders. The Law on Protection of Cultural Patrimony of the Nation (LPPCN), published in 1993 (Legislative Decree No. 513 Special Law on the Protection of the Cultural Heritage of El Salvador (April 22, 1993). The LPPCN defines cultural property as:

- Paleontological: all fossilized organisms;
- Archaeological: all pieces, instruments, structures, remains or vestiges from extinct cultures;
- Historical: real estate or part of them, and movable property that are directly linked to the political, economic or social history of El Salvador; and
- Artistic: the properties or objects that, due to their origin as a product of human activity, constitute true values of the fine arts or national art, whether plastic, literary, architectural, etc.

The definition of cultural property of the LPPCN was used to identify the types of cultural heritage resources that the government of El Salvador considered of national importance sufficient to guarantee national protection. In consideration of the level of national protection established by the LPPCN, any cultural heritage resource that complies with the definition of cultural property was evaluated at least as a low sensitivity resource. In addition, international standards were applied to determine which of the resources identified were of medium or high sensitivity, including the concepts of replicable, non-replicable and fundamental cultural heritage of the International Finance Corporation (IFC, 2012):

- **Replicable cultural heritage:** Tangible forms of cultural heritage that can be transferred to another location or can be replaced by a similar structure or natural features to which cultural values can be transferred through appropriate measures. Archaeological or historical sites may be considered replicable when the eras and particular cultural values they represent are already well represented in other sites or structures that have been studied or recorded.

- **Non-replicable cultural heritage:** Can be related to the social, economic, cultural, environmental and climatic conditions of past peoples, their evolving ecologies, adaptation strategies and old forms

of environmental management, where cultural heritage is unique or relatively unique in the period it represents, or cultural heritage is unique or relatively unique in linking several periods in the same site.

- **Fundamental cultural heritage:** Consists of one or both of the following types of cultural heritage: the internationally recognized heritage of communities that use or have used cultural heritage for long-term cultural purposes or legally protected cultural heritage areas, including those proposed by local governments for such designation.

In order to evaluate the possible scientific or cultural value of a resource according to whether it represented common or unique resources, the concepts of replicable, non-replicable and fundamental cultural heritage were used. The degree to which particular types were well represented or recognized at the local, national and international level was incorporated into the resource sensitivity assessment. One type of resource that is well known in the Lowlands prospecting area, for example, could be rare or unique in the Highlands prospecting area, which would result in different levels of sensitivity of specific resources.

Table 4.3-30 is a summary of the different categories and characteristics of each level of cultural heritage sensitivity that was used during the baseline survey.

Table 4.3-30 Summaries of Categories and Characteristics for Each Level of Sensitivity or Value of Cultural Heritage

Sensitivity of Cultural Heritage Resource	*Definition*
Low	The resource is a cultural property as defined by the LPPCN. The resource can be moved to another location or can be replaced by a similar resource, or is of a type that is common in the surrounding region; the resource has no cultural or historical value for local, national or international stakeholders, or has limited value; or the resource has limited scientific value or similar information can be obtained from numerous resources. The resource is classified as replicable cultural heritage.

Sensitivity of Cultural Heritage Resource	*Definition*
Medium	The resource is a cultural property as defined by the LPPCN. The resource can be moved or replaced, or data and artifacts can be retrieved with the advice of the stakeholders; the resource also has considerable cultural or historical value for local or national stakeholders; or the resource has considerable scientific value but similar information can be obtained from a limited number of other resources. The resource is classified as non-replicable cultural heritage.
High	The resource is a cultural property as defined by the LPPCN. In addition, the resource can not be transferred or replaced without a great loss of historical value or culture, the specific legal situation of the site prohibits the direct impact or invasion of the area of the resource or protection; the resource has considerable value for local, national and international stakeholders; or the resource has exceptional scientific value and the types of similar resources are rare or non-existent. The resource is classified as fundamental cultural heritage.

4.3.20.3 Cultural Heritage Resources Identified Previously

As part of the baseline study, an extensive literature review was conducted to obtain available information on the cultural heritage resources previously recorded in the Project area. Information collected included data on resources such as pre-Columbian and historic archaeological sites, both existing and previously demolished structures, and settlement patterns and trading routes of the pre-Columbian and historic periods that were used throughout the extensive history of the country.

Archeology

In the analysis of the bibliography data were recorded on 30 archaeological resources previously recorded in the municipalities of Acajutla, Santo Domingo de Guzmán, Apaneca and Ahuachapán (see Appendix J and Appendix K). These include a rock art site, three Colonial archaeological sites and 26 prehispanic archaeological sites. Santa Leticia in Apaneca is considered of first order and is inside a private archaeological park. The rest are considered second order. Up to fourteen attributes could be documented for each resource, including: Site

identification; name of the site; reference; site function; site use behavior; type of site; artifact density; site size; site significance, date of foundation; date of abandonment; cultural period; latitude; length. However, because of the type of resources, the methodology of analysis and the relative scarcity of diagnostic material, in all instances only nine were documented. The chronological detail will be available in the final report including Phases I and II of recognition, which will be delivered to SECULTURA at the conclusion of the second Polling Phase.

The database indicates the locations of known archaeological resources compared to the Project area to identify possible impacts on previously recorded sites.

4.3.20.4 Field Prospecting Results

The baseline field survey identified a total of 13 archaeological resources. Table 4.3-31 provides a summary of the amount of total resources in the survey area of the prospection.

Table 4.3-31 Number of Patrimonial Resources Identified in the Area of Influence by Region

Area	*Cultural Heritage Resources*			*Total*
	Archaeological	*Living Heritage*	*Architectural Heritage*	
Lowlands	9	-	-	9
Forested Transition	3	-	-	3
Highlands	1	-	-	1
Total	**13**	**-**	**-**	**13**

5.0 IDENTIFICATION, DESCRIPTION AND EVALUATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

5.1 *INTRODUCTION*

This section examines the potential impacts, both positive and negative, of the construction and operation of the proposed Project; also describes the control and mitigation measures that will be developed by EDP and other recommended complementary measures to avoid, minimize or mitigate the possible negative impacts and expand the positive ones.

5.1.1 *Methodology for Impact Assessment*

Information on the possible impacts generated by the activities necessary to construct and operate the Project was obtained from various sources, including consultations with EDP and local sources; meetings with local interest groups; scientific studies and environmental impact studies for similar projects around the world.

For the evaluation of the impacts associated with the activities of the Project, professional criteria, fieldwork and the analysis of the professional team's office were used. The following sections define the methodology used to identify and evaluate the possible impacts of the Project.

Impact assessment was done through the following steps:

1. Characterization of the baseline: the conditions existing before the Proyect is developed and its effects occur;
2. Identification of the sources of impacts and impacts that are produced by the Project;
3. Classification of impacts before applying any mitigation measure;
4. Mitigation measures to attend the impact; and
5. Classification of impacts after mitigation in order to produce a classification of the "residual".

5.1.2 *Criteria for Classification of Impacts*

The impacts were classified based on (1) the magnitude of the potential impact and (2) the Sensitivity/Vulnerability/Importance of the Resource/Receptor.

The magnitude of each impact was assessed using criteria identified in the Table 5.1-1. Criteria may vary as resource-specific criteria exist to determine the magnitude of an impact (eg, water quality criteria). Colors are used to help the reader review the relative magnitude of impacts.

The magnitude is a function of the following characteristics of impacts:

- Reach/Coverage
- Duration
- Scale
- Frequency
- Probability (only for those unplanned events)

The magnitude of impacts takes into account the different dimensions of a particular impact in order to classify the impact in a spectrum ranging from insignificant to large. Some of the impacts will translate into changes in the environmental and socio-economic environment that may be immeasurable, undetectable or within a normal range of natural variation. These impacts are characterized as of insignificant magnitude. In the case of positive impacts, it is sufficient to indicate that the Project will have a positive impact, without characterizing the exact degree of positive change that is likely to occur.

Table 5.1-1 Classifications of Magnitude

Insignificant	Ningún cambio perceptible en las condiciones de línea base.
Small	Noticeable change in baseline conditions and/or is likely to be within the applicable rules and standards for the use mode.
Medium	Obvious change of baseline conditions and/or is likely to approximate applicable rules and standards for the use mode.
Big	Significant change compared to baseline conditions and/or is likely to exceed applicable rules and standards for the use mode.

5.1.3 *Sensitivity / Vulnerability / Importance of Impact*

There are several factors that define the sensitivity/vulnerability/importance of the resource/recipient, which can be physical, biological, cultural or human.

- When the resource is physical (for example, a body of water), its quality, sensitivity to change and importance at local, national and international scale is considered.
- When the resource/receptor is biological or cultural (for example, the aquatic environment), its importance and sensitivity to the specific type of impact (eg local, regional, national or international importance) is considered.
- When the receptor is human, the vulnerability of the larger person, community or social group is considered.

There are other factors that can also be taken into account to characterize sensitivity/vulnerability/importance, such as legal protection, government policy, stakeholder opinion and economic value. As in the case of magnitude, sensitivity/vulnerability/importance classifications are universally consistent, but the definitions of these classifications may vary according to the type of resource/receptor. The universal sensitivity/vulnerability/importance classifications are:

- Low
- Medium
- High

5.1.4 *Determination of Significance of Impact*

Once the characterization of the magnitude of the impact and the sensitivity/vulnerability/importance of the resource/receptor is completed, the significance can be assigned for each of the impacts. The significance of the impact can be assigned by an array similar to Table 5.1-2.

Table 5.1-2 Classification of Significance of Impact

		Sensitivity / Vulnerability / Resource/Receptor Importance		
		Low	***Medium***	***High***
Magnitude of Impact	Insignificant	Insignificant	Insignificant	Insignificant
	Small	Insignificant	Minor	Moderate
	Medium	Minor	Moderate	Higher
	Big	Moderate	Higher	Higher

The significance of the impacts considered the application of certain control measures and therefore the resulting significance is residual (after the application of the measures).

5.1.5 *Matrix of Potential Interactions*

As a first approximation for impacts identification, the matrix of interactions of type Leopold modified was used. Table 5.1-3 presents the interactions between Project activities and environmental factors assigned to environmental and social impacts.

In each of the tables that are crossed in the matrix, the combinations of factors and components are indicated according to the possibility of identifying a possible significant or non-significant affectation. The boxes marked in blue represent those interactions whose effects are expected to be significant. The gray boxes represent those interactions whose effects are not expected to be significant and the blank cells represent the absence of interaction. Within each cell is identified whether the possible effect has a positive (P) or negative (N).

Table 5.1-3 Matrix of Interactions

Receptor Group			*Environmental Aspects (Biological and Physical)*									*Socioeconomic and Cultural Aspects*							
Activities		Geology and Topography	Soils	Natural Threats (Volcanic Eruptions, Earthquakes and Landslides)	Air Quality	Water Resources	Noise and Vibrations	Flora	Fauna	Aquatic Ecosystems	Protected and Fragile Areas	Landscape	Land Use	Traffic	Tourism	Jobs	Economy	Community Health	Cultural Resources
Construction Stage	Demolition and dismantling of previous structures		P		N		N												
	Flattening, leveling and compaction	N	N		N	N	N	N	N	N	N	N							
	Cutting and stripping of right-of-way wiring towers and substations		N		N	N	N	N	N	N	N	N	N						
	Previous studies and topography															P			
	Mobilization of resources (equipment, materials, posts, etc.)		N		N		N		N	N				N				N	
	Construction of internal roads		N		N		N	N	N	N	N		N	N					N
	Construction of internal roads		N		N		N						N						N
	Grouting and assembling of support towers and other equipment in the substations		N				N					N	N						
	Construction of concrete bases for towers and equipment in substations		N				N		N				N						
	Dress of the structures		N		N		N					N							
	Aerial network stretching and tensioning						N					N						N	
	Handling and disposal of waste and cutting and stripping material				N	N		N	N	N	N			N		P		N	

Receptor Group			*Environmental Aspects (Biological and Physical)*									*Socioeconomic and Cultural Aspects*							
Activities		Geology and Topography	Soils	Natural Threats (Volcanic Eruptions, Earthquakes and Landslides)	Air Quality	Water Resources	Noise and Vibrations	Flora	Fauna	Aquatic Ecosystems	Protected and Fragile Areas	Landscape	Land Use	Traffic	Tourism	Jobs	Economy	Community Health	Cultural Resources
	Recruitment and transportation of personnel (administration, operatives, labor, etc.).				**N**									**P**		**P**	**P**		
Operation Stage	Electrical transmission and substations								**N**			**N**					**P**		
	Correction, cleaning and maintenance				**N**			**N**	**N**	**N**	**N**	**N**	**N**			**P**			
Stage of Abandonment	Dismantling of electrical equipment, poles and wiring						**N**											**N**	
	Waste management and disposal		**N**			**N**												**N**	
	Cleaning and rehabilitation of the site		**P**		**P**	**P**		**P**	**P**	**P**	**P**	**N**	**N**			**P**			

5.2 *IMPACTS ON THE PHYSICAL ENVIRONMENT*

5.2.1 *Geology, Topography and Soils*

5.2.1.1 Potential Impacts on Geology

Leveling works, where required depending on the slope of the area, soil compaction and formwork; as well as the foundation of the towers and substations will not have significant impacts in the geology of the Project area. Excavations for each tower will occur within an area of approximately 10 m wide by 10 m long, with a depth varying between 3 and 6 m, depending on the type of soil. Once the tower is built, the footprint area is 7.5 m wide by 7.5 m long, giving an area of approximately 56 square meters (m2). Therefore, the impacts to the geology and topography of the region caused by the construction of TL and infrastructure are expected to be insignificant (insignificant or small magnitude, low sensitivity).

5.2.1.2 Potential Impacts on Topography and Soils

During construction, the following project activities may affect soils: installation of towers and equipment in substations, removal of vegetation in substations and in the area of towers and right of way; the construction of access roads to the TL construction zone; leveling, filling and compaction of the terrain; the waste and disposal of excavated material; the formwork and foundation of towers, poles and patios; as well as the assembly of structures. Potential impacts include mainly erosion, compaction and soil contamination.

During the operation of the Project, maintenance activities, mainly periodic traffic of vehicles can affect the soils in the access roads and right of way.

Erosion

The construction of the Project will result in the alteration of approximately 34 hectares (ha) of land, mainly the area around towers, substations, sites and access roads (see Table 5.2-1). Potential impacts of soil erosion are greater in areas with moderately sloping hillsides (hillsides with slopes equal to or greater than 30 percent) and where soil erosion potential is medium to high. Within the Project area, there are areas that have hillsides with slopes greater or equal to 30 percent and where the potential for soil erosion is medium or high because of its nature. Approximately 7 ha of slope soils with slopes greater than or equal

to 30 percent will be affected by the Project's proposed construction activities (see Table 5.2-1).

Table 5.2-1 Summary of Total Hectares Potentially Affected by Project Construction

Installation	*Total Area Altered Approximate (ha)*	*Altered Area with Slopes> 30% and with Medium or High Erosion Potential (ha)*	*Percentage of Total Affected Area that Has High or Medium Erosion Potential*
Towers	1.4	0.3	0.9
Proposed Roads	9.4	2.6	7.8
Roads to be improved	15.2	3.3	9.9
Campuses	4.5	0.5	1.5
Substations	3.0	0.0	0.0
Total	***33.5***	***6.7***	***20.0***

ha = hectares

Approximately 20% (per area) of the soils to be altered are in steep slopes with medium or high erosion potential (see Table 5.2-1). Without additional mitigation measures, soil erosion caused by construction activities would have an impact of moderate significance (meadium magnitude, meadium sensitivity) on the grounds of the Project.

To reduce the significance of soil erosion impacts during TL construction, EDP will implement best practices in the industry. The following mitigation measures will be incorporated during the design and construction of the Project:

- Especially in areas with steep slope, the possibility of building the bases of the towers on the existing relief will be evaluated or installed on piles, without leveling the area. In this way, the amount of soil to be affected is minimized.
- Implement measures to control soil erosion, rainwater management and sedimentation. These measures include the use of sediment fences, the installation of permanent and temporary drainage systems to manage runoff from construction sites and the use of sediment capture trenches; as well as the use of regulation dams to control water runoff, among others.

- Use appropriate management practices during deforestation activities. For example, as far as possible, schedule construction activities during the dry season, especially in areas with steep slopes; limit deforestation and alteration only to the approved work area; minimize the area of vegetated soil within the approved work area as much as possible; and stabilize and progressively reforest altered areas.
- Revegetate slopes in required areas.
- Deposit surplus material in properly approved areas or reuse it as filling material.
- Compress all material properly at the end of activities.
- Once the construction phase is completed, those access routes and service routes that are not necessary for the project operation stage will be closed and restored to their original or better conditions; and
- Community requests to maintain an open service path or route will be evaluated jointly with the competent authorities.

With the implementation of these measures, the magnitude of the impact is expected to be reduced to small, reducing the significance of the impact to *minor*.

Compaction

The movement of heavy machinery needed to support construction activities can also increase the risk of soil compaction. At the same time, soil compaction can affect hydrology and water infiltration and lead to loss of soil productivity. Since the soils of the Project area are mainly clays and sands, which are less susceptible to compaction, and considering the surface area that could be affected by the movement of limited machinery, it is expected that the risk of compaction of soils during construction and project operation is *insignificant* (insignificant magnitude; low sensitivity).

Soil Potential Contamination

During construction and operation of TL, there is also the risk of contamination of soils by accidental spills of fuel and lubricants of equipment and machinery.

To minimize the possibility of contamination of soils by accidental spills, control measures will be implemented, including:

- Maintenance of the equipment in good mechanical conditions, to avoid losses of fuel and lubricants that can contaminate the floors and be washed by the rains;
- Any major maintenance of the equipment should be carried out in specialized workshops and not in the Project site;
- Adequacy of a specific area, with waterproofing protection, to carry out minor maintenance activities; and
- Implementation of the Contingency Plan in case of spills (*see Section 7.0 - Environmental and Social Management Program*).

According to the implementation of these measures, the risk of spills is estimated to be reduced to insignificant (insignificant magnitude, low sensitivity).

5.2.2 *Natural Threats*

Due to its geographical location, El Salvador is exposed to geophysical threats, such as volcanic eruptions, seismic movements and landslides (*see Section 4.1.3 - Natural Threats*). The Project itself is vulnerable to these natural disasters, which could affect the TL, substations and proposed infrastructure during its construction and operation.

According to MARN records on the volcanic threat in El Salvador, Santa Ana volcano (approximately 19 km distance to the TL) and Izalco volcano (approximately 18 km of distance) are located in the Volcanic Mountain Range in the Northern area of the trace, are the closest active volcanoes that could affect TL (*see Figure 4.1-7*). In addition, seismicity in the region where the Project will be located is characterized, like the rest of the country, by the periodic occurrence of earthquakes and a high seismicity rate.

As described in *Section 4.1.3.3 - Landslides*, landslides are the other natural hazard occurring in the Project region. The only areas with high and moderate susceptibility to landslides are located north of the TL, in the hills and mountain slopes, and in the central area where TL crosses areas with alluvial formations.

To minimize the risk of natural threats, EDP has designed and constructed all facilities associated with the proposed TL considering high safety factors and under local and international seismic protection codes and standards. In addition, EDP has located the path of the TL trace outside the path of the lava flows and lahars of the two volcanoes near the TL (*see Figure 4.1-7*), and will revegetate the slopes where excavation work has been carried out. In case of landslide-prone areas, which to date after several visual scans have not been found, stabilizations would be made.

In addition to the risk prevention measures incorporated into the project design, EDP will prepare an emergency plan to respond to any natural disaster. During the construction and operation of the Project, EDP and its contractors will apply the emergency plan in case of a natural disaster (*see Section 7.0 - Environmental Management Program*).

The implementation of these control measures incorporated in the TL construction will diminish the potential effect of natural threats to a *minor* significance (small magnitude, medium sensitivity/vulnerability).

5.2.3 *Air Quality*

The electricity transmission and distribution sector does not usually generate significant levels of emissions to the atmosphere or effluents (IFC, 2007). Potential impacts on air quality will occur mainly during the construction phase of the Project. Air quality could be altered due to emissions of gases and particulates from equipment, machinery and vehicles (mobile sources) that use hydrocarbons as a source of fuel. In addition, it will be generated. Atmospheric pollutants that could be generated during construction activities include mainly hydrocarbons (HC), carbon monoxide (CO), carbon dioxide (CO2), oxides of nitrogen (NOx), sulfur oxides (SO2) and particulate matter (PM10).

The transit of vehicles through the different accesses to the construction zones for the transportation of the construction material and the equipment that compose the Project, the removal of the waste material from the construction area; as well as equipment, machinery and vehicles involved in all Project activities, will generate emissions that will temporarily increase the concentration of particles in the air (particles, dust and soil, among others).

Another activity that has the potential to alter the quality of the air, are dirt movements for the preparation of the site where it is proposed to locate the facilities of the towers for the TL and the equipment for

proposed substations. This activity also has the potential to contribute to the increase of emissions of particulate matter to the atmosphere.

It is anticipated that the construction of the TL and proposed infrastructure will be extended for a period of twenty-four months. During this time, it is estimated that the vehicular flow will be about 10 trucks per day per sector and/or tower. On the other hand, during the maintenance stage, a truck flow is estimated for each month or two months. Some of the vehicles and machinery being used are included in Table 5.2-2.

Table 5.2-2 Vehicles and Machinery to be used during Construction

Vehicles and Machinery	
• 5 backhoe loaders • 4 bulldozers • 4 shovel loaders (front-end loaders) • 1 scraper • 3 motor graders • 12 dump trucks • 2 vibrating roller compactors • 1 pneumatic roller • 1 single drum road roller • 5 manual road roller • 1 hydraulic rock drill • 3 water tank trucks • 2 trucks for fueling machinery	• 3 75 ton cranes • 2 200 ton cranes • 3 forklifts • 2 tanker trucks for asphalt mixtures • 1 cement floor stabilizer • 1 concrete plant • 10 concrete trucks • 3 autobombes • 3 hydraulic elevators with basket for workers • 6 gondolas to transport equipment and electrical material

Fuel consumption is estimated to be as follows:

- Estimated consumption of 2500 cubic meters (m3) of diesel during the construction stage for cranes and excavation equipment.
- Estimated consumption per day of 5 m3 of diesel.
- Estimated gasoline consumption has not been defined to date by the developer.

Without the implementation of any mitigation measures, the significance of the impact on air quality by the emission of hydrocarbon combustion pollutants and the air pollution by suspended solids is *moderate*. This significance of the impact is based on a) the high sensitivity of social receptors (as certain stretches of the TL are close to population nuclei) and

environmental (flora and fauna species), and b) The small magnitude of the impact because the effects on the environment will be temporary, direct and localized.

EDP will implement the following control and mitigation measures to minimize impacts to air quality during the construction, operation and abandonment stages of the Project:

- The dust generated by the construction and transit of material loading trucks will be mitigated by the irrigation of the roads and access to the right of way and within the right of way. This irrigation will be by means of water tank trucks.
- The use of any machinery, equipment or vehicles that have fuel leaks, ruptures in the combustion and exhaust systems, or problems in the catalyst systems will not be allowed.
- Concentrations of PM10, particulate matter less than 2.5 microns aerodynamic diameter (PM2.5), volatile organic compounds, SO2, NO2 and CO will be monitored.
- The box of vehicles transporting debris, soil or construction material must have a canvas cover adjusted to prevent the dust from escaping during its journey. In addition, tires will be covered during loading and unloading of materials to prevent them from throwing material when spinning.
- Any vehicle, whether for transportation, forklift or maneuvering equipment, shall be driven into the designated tracks, gaps and paths previously opened.
- The equipment that operates with diesel and gasoline, must have a preventive maintenance to comply with the applicable environmental regulations.
- The gas equipment will have catalytic converters in good condition. Those that are maneuverable equipment (for example, forklifts and cranes) will adjust their operation to the guidelines of these measures. Catalytic converters or filters for diesel will be incorporated, according to the case.
- Establish speed limits for vehicles traveling in both populated areas and access to the Project (maximum speed of 25 km/h).
- Ensure that the vehicles and equipment to be used comply with the maintenance required by each equipment and will have: 1) specific maintenance requirements for each equipment, 2) inventory of

equipment, spare parts and materials needed for maintenance; and 3) periodic lubrication.

- Perform resistance testing of materials, galvanizing impregnation and other tests at the factory and not on site.

The implementation of these control measures to reduce the emissions of gases produced by the combustion of hydrocarbons in motors and by suspended solids will reduce the significance of the impact to *insignificant*.

5.2.4 ***Water Resources***

Potential impacts of the construction and operation of the Project on water resources include change in surface runoff, water availability and alterations to surface water quality.

Transmission line projects may require the construction of corridors that could disrupt watercourses and require the removal of riparian vegetation (IFC, 2007). Besides, there is the potential that sediment and erosion from construction activities and runoff from rainwater may increase the turbidity of surface watercourses.

5.2.4.1 Change in Surface Runoff

Changes in surface runoff due to the construction of transmission line towers and substations will be minimal. The permanent compaction and waterproofing of surfaces, mainly at the base of the towers and substations, reduces infiltration and, therefore, increases surface runoff. Also, the construction of temporary facilities (maximum of 9 proposed work fronts) will create impermeable surfaces. The affected areas are localized and it is estimated that the effect on runoff in the total area of the Project is of *minor* significance, since the magnitude of the impact is considered small and the rivers and/or ravines close to the impermeable surfaces of the Project have a medium sensitivity, considering its environmental and social importance.

EDP will implement and incorporate the following control and mitigation measures to minimize impacts on water resources:

- Campuses should have roof drains that collect the runoff water and direct it to the ground where they can follow their normal course.

- Canalizing rainwater in substations to roads through ditches, sewers, sediment barriers and settlers, among other devices, so as to reduce the entrainment of solids to rivers and/or ravines.
- In the outdoor parking and storage areas of machinery/equipment, suitable control systems such as hay bales should be placed to avoid contamination of the runoff water.
- In case it is necessary to carry out ground leveling work for the foundation surface, these must be done in a way that does not alter the surface drainage conditions and do not leave areas that in the future compromise the stability of the structure.

The implementation of these control measures to mitigate changes in surface runoff will reduce the impact to *insignificant*.

5.2.4.2 Changes in Water Quantity and Quality

Due to the nature of the proposed Project, it is anticipated that the main impacts on water quality will be generated mainly during the construction phase. As described in *Section 4.1.5 (Water Resources)*, the Project's area of study crosses three important hydrographic regions; Paz (region B), Cara Sucia-San Pedro (region C) and Grande de Sonsonate-Banderas (region D), which are shown in Figure 4.1-14. According to *Section 2.0 (Project Description and its Alternatives)*, of the 139 towers to be constructed, only 24 will be placed close to a permanent water course (at a distance of 100 m or less), as shown by Figure 4.1-14. Besides, the two new access roads are adjacent to bodies of water and another crosses San Rafael river. Substations are not located near watercourses.

Three of the nine proposed sites or temporary storage areas are located within 100 m of a body of water and they also present a risk of contamination if adequate prevention and control measures are not implemented.

Potential impacts on rivers include deterioration of water quality due to runoff from soil contaminated by unforeseen events, such as accidental spills of chemicals, hazardous materials and fuels associated with the operation of heavy machinery and equipment will be used mainly during the construction phase of the Project. Another factor that has the potential to alter the water quality of these watercourses is the increase of solids produced by the morphological modification and/or drainage patterns in

flooded areas, the clearing of the areas where these towers would be located near to bodies of water, including their areas of right of way, as well as the preparation of the foundation surface.

It is expected that without the implementation of any mitigation measures, the significance of changes in water quality will be *insignificant-minor* because the magnitude of the impact is small and the water quality of the rivers or ravines near the towers of the TL proposed, have a medium sensitivity for their importance of aquatic biodiversity.

Although no significant impacts on the water quality of the rivers and/or ravines near the towers or areas used as right of way are expected, preventive measures will be applied for the crossing of such watercourses. Some of these measures are:

- The material generated from the excavation work will be removed from the excavation and deposited at a safe distance to avoid material falling into nearby rivers and/or ravines. The collection area of the material must be selected before starting the excavation work to avoid that the mounds of accumulated material produce any impacts on the nearby rivers and/or ravines.
- Canalize rainwater on roads through ditches, sewers, sediment barriers and settlers, among other devices so as to reduce the entrainment of solids to rivers and/or ravines.
- In the outdoor parking and storage areas of machinery/equipment, suitable control systems such as hay bales should be placed to avoid contamination of the runoff water.
- Perform the management of domestic water during the construction phase using portable sanitary modules, as described in *Section 2.0 (Description of the Project and its Alternatives)*. Use at least one portable toilet for every 15 people and give daily treatment with detergents and biodegradable additives to these sanitary modules. The solid waste from these toilets will be extracted by the company that rents these devices, as well as their disposal.
- Comply with manufacturer's guidelines for machinery and equipment used to prevent fuel spills.
- Avoid vehicular traffic in riparian areas and avoid the use of machinery in the vicinity of watercourses.

- Have a prevention plan; control and response to risks of spills including emergency response, cleaning and recovery of contaminated soils *(see Section 7.0 - Environmental and Social Management Program)*.
- Use sealed barrels with device for the transfer of fuel for power generators.

The implementation of these control measures to mitigate potential impacts on water quality will reduce the impact to *insignificant*.

5.2.4.3 Water Availability

According to *Section 2.0 (Project Description and Alternatives)* of this report, cement and concrete curing and cementing activities require the use of water to be taken from small cisterns mounted on trucks. The total water consumption during the tasks that comprise the construction phase (construction machinery, concrete processing, various mixtures, as well as compaction of terraces and others) of the Project is estimated at a total of 19,051 m3 which represents an estimated daily consumption of 38 m3 that will be obtained from the municipalities of Sonsonate or Acajutla. Non-potable water tank trucks will be used for works that require water to moisten the soil; while water for the consumption of workers will be treated drinking water. Other tasks that will require water consumption include drinking water, food preparation and sanitary facilities. During the construction phase, the construction of temporary or permanent camps for the accommodation of personnel is not contemplated due to the proximity of the Project area to urban centers. However, nine temporary sites will be built for the storage of tools and equipment. These establishments will include spaces for workers (approximately 200 workers at the peak of work spread across all work fronts) to change their clothes and clean them as well as portable toilets. The facilities will have the water supply that will also be supplied through cisterns mounted on trucks.

Considering the above and the fact that the use of water from rivers and/or ravines is not contemplated for the tasks of the construction phase, the impact on the availability of water is *insignificant*. On the other hand, during the operation of the Project, the supply requirements are minimal so no impacts on the availability of water are foreseen.

5.2.5 *Noise and Vibrations*

During the TL operation, noise generation is not envisioned above permitted limits and may affect neighboring properties and communities. According to the IFC (2007), there is often a buzzing or humming noise and the generation of ozone in the vicinity of transformers or high voltage cables that produce a corona effect. The noise caused by the corona effect is caused by the movement of ions and a crackling produced by the electric shocks. They are noises of small intensity, imperceptible in many cases. When the relative humidity is high, the effect increases resulting in a significant increase of audible noise. It is estimated that the corona effect can produce a rumble of 20 dB, although little noticeable, can cause alterations to the natural environment. However, this effect will be prevented by the design and proper thickness of the wiring used by the Project. This impact is considered *insignificant*.

Therefore, it is anticipated that impacts to noise levels will occur only during the construction phase of the Project. The noise will come from the use of mobile machinery such as excavators, cranes and mechanical excavation equipment with sound levels of approximately 89 dBA.

Construction activities, specifically the use of heavy machinery and trucks, the increase of human activity in the area, the preparation of the terrain and the lifting and installation of transmission lines will cause an increase in sound levels, thus creating a negative and direct impact. According to the Project Description (*see Section 2.0*), conventional construction techniques and equipment will be used and are presented in Table 5.2-2.

Conventional construction activities at the Project site will result in an increase in short-term and temporary environmental noise levels. The increase in noise levels will be experienced mainly in the proximity of the emitting sources. The magnitude of the noise will depend on factors such as the specific construction activity developed, the noise level emitted by various construction equipment, the duration of the construction phase and the distance between the noise source and the receptors.

The noise levels produced by typical construction equipment range from about 65 dBA to 95 dBA at a distance of 15.2 m from the source, with an average noise level of 89 dBA at that distance during the noisiest activities (HMMH, 2015) . Due to the intermittent nature of the construction work and to the topography of the route where the Project will be constructed, it

is expected that the average noise level for an 8-hour working day will be less than 70 dBA at the residential receivers closest to the Proyect.

The Project will have nine facilities that will be installed for the storage of tools and equipment and that, among other things, will include spaces for workers to change clothes and clean up, besides to portable toilets. These facilities could be a source of noise according to the activities that are developed according to the movement of materials, machinery, equipment and the dynamics among the workers who access them. There will also be parking zones in areas near the campuses to house vehicles and other equipment that are used. It is anticipated that these activities will not contribute significantly to the total noise impacts generated by construction. This is due to the fact that the sites will be raised in areas distant from residences.

Access to TL construction areas will be via roads, paved streets or dirt roads. The workforce (approximately 200 people) required for construction will arrive at the Project site in private vehicles provided by EDP. Due to the high number of trucks currently traveling on this route, it is not considered that there will be an appreciable difference due to the noise generated by the vehicles used to transport the personnel who will work in the Project.

The Project has the potential to generate increases in the vibration transmission conditions and the attenuation of the waves will depend on the heterogeneous characteristics of the soil and subsoil and the type of material on which the construction works are carried out. The main activities that can produce changes in vibrations are also the movement of machinery and the transport of materials.

Considering the above and without the implementation of any mitigation measures, the significance of the impact due to contamination of noise and vibrations is *moderate*. This significance of the impact is based on the high sensitivity of social (human) and environmental receptors (species), because certain stretches of the proposed TL are close to population nuclei (*see Section 5.2*); and to the small magnitude of the impact because the effects on the environment will be temporary, direct and localized, since they would particularly affect the Project area and surrounding areas with a low intensity.

EDP will implement the following control and mitigation measures to minimize and, as far as possible, eliminate the impacts of noise pollution during the construction, operation and abandonment stages of the Project:

- Maintain maximum permitted noise levels within the values indicated by Salvadoran authorities or threshold levels of noise established by IFC (see Table 4.1-14).
- Indicate all sites where they emit noises above 85 dBA, to avoid exposure of persons without properly certified hearing protection equipment..
- Train all workers on techniques for the use and maintenance of hearing protection equipment (occupational safety) that must be required at all times during the exposure period.
- Set speed limits for vehicles traveling in populated areas (maximum speed of 25 km/h).
- Maintain in good condition the damping systems of all vehicles, machinery and equipment used during the Project phases.
- Design and implement a contingency plan and corrective measures to meet eventualities.
- Study and use noise barriers or acoustic noise suppression devices when necessary.

The implementation of these control measures to reduce noise pollution along the TL and proposed infrastructure will reduce the significance of impacts to *minor* and in some cases *insignificant*. The monitoring of noise levels during the construction and operation phases of the Project will allow the assessment of the correct functioning of the mitigation measures and determine if any additional measures are necessary to maintain the significance of the impact as *minor* or *insignificant*.

5.3 *IMPACTS ON THE BIOTETIC MEDIUM*

5.3.1 *Loss of Plant Cover*

As described in *Section 2.0 - Description of the Project and its Alternatives*, the available information on the design of the Project indicates that a total of 115 towers will be installed between the electrical Ahuachapán SE of the geothermal plant and the CA-12 and other 24 Towers between this route and the Acajutla SE. For each tower, an area of 10 m x 10 m will be used during construction and an area of 7.5 m x 7.5 m during the life of the Project, and a maximum area 35 m x 35 m around each tower to allow lifting maneuvers and tensioning of the cables during construction. For the construction and operation of the Ahuachapán SE it is planned to use a maximum area of 5,330 m2 and for the Acajutla SE a maximum area of 24,500 m2 (see Figures 2.2-1 and 2.2-2).

Using data from the topographic studies for the design of the Project, a total of 1,408 trees were counted within a radius of 24.75 m around the central point of each tower between the towers TP 1 and TP 128, with a global average of 11.93 trees per tower. This circle of 49.5 m in diameter covers the area of 35 m x 35 m of logging for each tower in a conservative way, given the uncertainty as to the orientation of each tower. Between the towers TP 129 and TP 151, the average value for towers TP 100 to TP 128 (2.96 trees per tower) was used, and a total of 71 additional trees is estimated, presuming a total of 24 towers in this segment.

Using satellite imagery from 2016, a total of 25 trees were counted in the expansion area of Ahuachapán SE and in the area of the new Acajutla SE a total of 65 trees.

The average tree density calculated for TP 1 and TP 128 is 0.00620 trees per square meter. For purposes of estimating tree density, the high coverage zone corresponds to towers TP 1 to TP 58, with a density of 0.010205 trees per m2 and the low coverage area corresponds to towers TP 59 to TP 128, with density of 0.001914 trees per m2.

In addition to the right of way, it will be necessary to construct a total of 64 new accesses with a total length of approximately 18.8 km and will rehabilitate approximately a total of 75.7 km of existing roads to allow temporary access of vehicles and machinery for the construction and lifting of the towers. The new accesses will have a width of 5 m and it was estimated a tree felling in a strip of one meter on each side of the accesses to be improved. Using the averages of the segments described in the

previous paragraph, the number of trees to be felled for new and improved accesses was estimated in the following table (see Table 5.3-1).

Table 5.3-1 Estimated Number of Trees to be Felled for New and Improved Access

Type	*Coverage (%)*	*Length (Km)*	*Surface (ha)*	*Estimated Trees*
New accesses	High: 50-100	11.7	5.9	598.0
	Low: <50	8.0	3.4	68.0
	Total	***19.7***	***9.4***	***666.0***
Improved accesses	50-100	48.1	9.6	981.0
	<50	27.7	5.5	106.0
	Total	***75.8***	***15.2***	***1,087.0***

Key: km = Kilometers; ha = Hectare; % = Percentage.

Other areas will be temporarily converted to storage areas (facilities) during construction and dismantling of the Project. It is estimated a total of nine storage areas in towers TP 1 and TP 127, with measures of 100 m x 50 m, for a total approximate of 4.50 ha. It is estimated that it will be necessary to cut about 280 trees in total, applying the average density for towers TP 1 and TP 127.

In total, it is estimated that the Project will require the logging of some 3,599 trees (see Table 5.3-2).

Table 5.3-2 Estimated Number of Trees to be Felled by the Construction of the Project

Installation	*Approximate Number of Trees*
Foundations of towers and temporary areas for lifting and tensioning	1,476
Access	1,753
Storage áreas	280
Ahuachapán Substation	25
Acajutla Substation	65
Total	***3,599***

The significance of the impact on vegetation cover is classified as minor (minor magnitude, medium sensitivity).

EDP will implement the following control and mitigation measures to minimize and, as far as possible, eliminate impacts on plant cover:

- Optimize the design of the route to minimize impacts to natural forests.

- EDP will implement an environmental compensation program through the reforestation of trees (10 trees per cut tree) and shrubs (1 shrub per cut shrub).

According to the implementation of these measures, the significance of the impact on the vegetation cover is expected to be reduced to *insignificant* (insignificant magnitude, medium sensitivity).

In areas where trees and/or shrubs are felled, the following measures will be taken to manage the plant material generated:

- If trees whose timber is of commercial or utilitarian value are cut, it will be consulted with landowners to inquire if they are interested in retaining timber. The contractor will cut logs to segments of appropriate size.
- If the landowner is not interested in wood, the contractor may seek other ways to distribute the wood to entities that can use it.
- Other generated plant materials can be crushed on site and used to provide a layer of protection against erosion.

5.3.2 *Loss of Individuals Threatened or Endangered Species*

As described in *Section 4.2.1*, the Project will locally cause the logging of trees and shrubs within the right of way strip and other areas necessary for the construction and dismantling of the Project. Although the baseline of the biotic environment documented the presence of threatened or endangered species of flora, no details are available on how many individuals of such species are within the areas subject to felling or clearing by the Project. However, the numbers of individuals to be removed by the construction of the Project will be insignificant in the context of the global, regional and local populations of these species; therefore, the impact is considered *insignificant*.

EDP will implement the following control and mitigation measures for trees and shrubs categorized as threatened and endangered:

- Optimize the design of the route and substations to minimize impacts to natural forests.
- Prior to construction, count individuals of threatened and endangered species to be logged.

- Implement an environmental compensation program through reforestation of trees (10 trees x cut tree) and shrubs (1 shrub per shrub cut).

With the implementation of these measures, the impact on threatened and endangered species of trees and shrubs is expected to be positive because of the increase in populations of these species in reforestation areas.

5.3.3 *Pollution and Degradation of Aquatic Habitats*

Earth movements and loss of vegetation cover can cause soil erosion and the introduction of sediment and organic material into bodies of water. Besides, the crossing of ravines by vehicles and machinery can introduce contaminants. The two new access roads are adjacent to bodies of water and another crosses San Rafael river.

Three of the nine campuses or temporary storage areas are located within 100 m of a body of water and they also present a risk of pollution and degradation of aquatic habitats if adequate prevention and control measures are not implemented.

Without mitigation, the potential impact on aquatic habitats is considered moderate (medium magnitude, medium sensitivity).

Control and mitigation measures for aquatic habitats are presented in *Section 5.2.4.2 - Alterations in Water Quantity and Quality*. With the proper application of these measures, the Project's residual impact on aquatic habitats will be *insignificant* (insignificant magnitude, medium sensitivity).

5.3.4 *Disruption and Displacement of Fauna*

The infrastructure construction of the Project and maintenance of the lines and the right of way strip will generate noise, vibrations and movement that may cause the disturbance of movement of fauna outside the work areas. The good practices of maintenance of vehicles and machinery, the respect of work areas and the minimization of the felling of vegetation will contribute to minimize the impacts. These impacts will be of brief duration and limited in area, by which it is classified as of low magnitude and of low sensitivity in regard to the receiving species, resulting in an *insignificant* impact.

5.3.5 *Loss of Habitat and Individuals of the Black-eyed Frog*

Site preparation and construction work on wildlife habitats may lead to habitat loss and mortality of individuals from low mobility wildlife species, such as amphibians, reptiles, small mammals and bird chicks in their nests. The species of low mobility fauna of greatest concern for its state of conservation is the black-eyed frog (*Agalychnis moreletii*), which is classified as Critically Endangered according to the IUCN (2016) and Threatened according to MARN (2015). However, these habitats and individuals represent an insignificant fraction of their local population and will not affect the survival of the species. The impact is classified as *moderate* (low magnitude and high sensitivity because it is a Critically Endangered species according to the IUCN).

In order to avoid, minimize and compensate the impacts on the black-eyed frog and its habitat, EDP will strictly apply the following preventive and compensatory measures:

- Campaigns for the capture and relocation of frogs in habitats to be affected by the Project.
- Avoid impacts to its existing breeding sites.
- Construct two piles of water catchment in each area where the presence of the frog was documented to increase the availability of habitats for the reproduction of the species (Santa Rita and Tequendama farms). The "piles" are craft structures used by coffee producers in the region to store water. Frogs use these piles as shelters and breeding grounds. It should be installed four piles built according to local custom with the following dimensions and materials: approximate dimensions - 2.5 m long x 1.5 m wide x 1.6 m deep with, corrugated aluminum sheet roof with gutter and down tube; and materials - building bricks, cement, sand, corrugated aluminum sheets, nails and/or screws, with cement refining.
- Reforestation of forest habitats in the Biosphere Reserve.
- Educational conservation campaigns on the importance of the frog and the advantages of organic coffee cultivation without agrochemicals.

With the application of the measures detailed in *Section 7 - Project Environmental and Social Management Program*, the residual impact on the black-eyed frog will be *positive* because of the greater availability of habitats for its reproduction and the increase in forest cover in The Biosphere Reserve by the Ecological Compensation Program.

5.3.6 *Bird Collisions with Cables*

For big birds, such as raptors and waterfowl, there is a risk of collision with TL cables, mainly in guard cables because they are of smaller diameter and less visibility. This risk is greater in crossings of water bodies, high relief canyons and crosses of the peaks of the Apaneca mountain range within the Apaneca-Ilamatepec Biosphere Reserve. There are no major populations of raptors or waterfowl of high conservation importance (endangered species or species with significant concentrations during annual migrations) in the Project area. Nor are there areas of importance for the congregation of migratory species; according to Komar & Ibarra-Portillo (2009), there are no sites in El Salvador that meet the criteria A4 for Ramsar sites and Important Bird Areas ("IBAs").

Although the IBAs of El Imposible Forest and Los Volcanes Complex and San Marcelino, located to the west and east of the Project area, respectively, are of importance to boreal migrants, the Project area has not been identified as such. Small migratory birds are less likely to collide with transmission lines and in the particular case of the Project, the lines are oriented generally north-south, parallel to the migration route.

Although the last tower (TP 151) is located about 1.3 km from the Pacific coast, the transmission line is not located in areas frequented by seabirds or coastal birds and there is a separation by urbanized areas between the coast and the line.

Considering that the sensitivity of bird populations to collisions with the lines is considered average and that the magnitude of the impact is low, the impact is classified as *minor*.

Although the significance of impact without mitigation is classified as minor, EDP will implement the following control and mitigation measures to minimize the risk of bird collisions with transmission lines:

- Installation of bird flight deterrents throughout the section of the transmission line inside the IBA "Los Cóbanos."
- Installation of dissuasors in the main crossings of rivers and ravines.

With the application of the proposed measures, the residual impact on birds by collision with the lines is classified as *insignificant* (insignificant magnitude, medium sensitivity).

5.3.7 *Electrocution of Birds*

Although transmission lines may present high electrocution hazards for big birds such as raptors, this risk is minimal for transmission lines because the size of the structures because the distances between electrified elements and earth elements are large enough to be risk free of contact for birds (APLIC, 2006). This risk does not require mitigation because it is *insignificant* (insignificant magnitude, medium sensitivity) and does not require specific measures of control and mitigation.

5.3.8 *Impacts to the Apaneca-Ilamatepec Biosphere Reserve*

The Project will be built and operated, mostly within the Transition Zone:

- Buffer zone: TP 14 to TP 28 (11 towers).
- Transition Zone: TP 28 to TP 39 (16 towers) and TP 56 to TP 60 (1 tower in forest).

The construction of the towers and the laying of the lines require the felling of trees and shrubs in areas of 10 m x 10 m for the foundation of each towers and temporary areas of approximately 35 m x 35 m around each tower. According to the topographic studies carried out for the design of the Project, 194 trees will be felled in the Buffer Zone and 248 trees in the Transition Zone. Temporary areas will be rehabilitated and revegetated at the end of construction of the Project.

In addition, it is proposed to open new temporary access roads from existing roads. The accesses within the Buffer Zone will be rehabilitated and revegetated at the end of construction of the Project.

EDP will implement the following control and mitigation measures to minimize impacts on the Apaneca-Ilamatepec Biosphere Reserve:

- Installation of bird flight deterrents along the entire length of the transmission line within the IBA.
- Minimize felling of trees and shrubs by positioning towers outside areas of woody vegetation.
- Minimization of the opening of new accesses and their rehabilitation and revegetation to finalize the construction of the Project.

- Restoration of forests within the Reserve through the Environmental Compensation Program.
- Training of workers on the importance of the Reserve and its conservation objectives.
- Installation of information signals on public roads on the Reserve and its biodiversity values.

With the application of the measures detailed in *Section 7 - Project Environmental and Social Management Program*, the residual impact of the Project on the Apaneca - Ilamatepec Biosphere Reserve is rated as *positive.*

5.3.9 *Impacts to the Important Bird Area "Los Cóbanos"*

A section of approximately 2,890 m of transmission line crosses part of the northwest section of the IBA between towers TP 136 and TP 145.The construction of the towers and the laying of the lines require the felling of trees and shrubs in areas of 10 m x 10 m for the foundation of each towers and temporary areas of approximately 35 m x 35 m around each tower. Temporary areas will be rehabilitated and revegetated at the end of construction of the Project. In addition, it is proposed to open new temporary access roads from existing roads.

There is a risk of collision of birds with lines and the construction of towers that may result in the elimination of natural vegetation.

As part of the implementation of the Project's Environmental and Social Management Program (*see Section 7.0*), EDP will implement the following control and mitigation measures to minimize impacts on the IBA Los Cobanos:

- Installation of bird flight deterrents throughout the length of the transmission line within the IBA.
- Minimize felling of trees and shrubs by positioning towers outside areas of woody vegetation.
- Restoration of gallery forests within the IBA through the Environmental Compensation Program.
- Training of workers on the importance of birds and their habitats.
- Installation of informational signals about the IBA and its biodiversity values on Route 12.

With the application of the measures detailed in *Section 7 - Environmental and Social Management Program*, the residual impact of the Project on the Important Bird Area "Los Cóbanos" is rated as *positive.*

5.3.10 *Impacts to the Area between Los Cobanos - Apaneca-Ilamatepec Biosphere Reserve - El Imposible National Park*

The opening of a right-of-way strip, construction and operation of a linear project can cause adverse impacts on the ecological connectivity of the landscape and populations of sensitive organisms. The project traces mainly through areas of pasture and induced pastures, annual crops and coffee plantations, with short sections of natural forests. In its northern part, the trace also overlaps with a section of the Mesoamerican Biological Corridor and the Apaneca-Ilamatepec Biosphere Reserve. These areas are not a corridor of contiguous natural habitats, but include many areas of habitats modified between patches of natural habitats and most of the area is under coffee cultivation. The Impossible National Park is about 8-9 km west of the LDT and about 4-5 km from the western boundary of the Apaneca-Ilamatepec Biosphere Reserve.
At the southern end of the Project, the Area of Importance for Bird Conservation "Los Cobanos" lies on the Pacific coastal plain and is completely isolated from the protected areas of the volcanic mountain range by large tracts of grazing fields and crops. The construction and operation of the LDT will not result in impacts on the connectivity between the conservation areas, considering that, outside the areas around the towers, logging of the right of way strip will not normally be necessary and not Will create a gap of open habitats and also the LDT will not cause barrier effects for the species of flora and fauna of its area of influence. The LDT itself will not present a barrier to the terrestrial, aquatic or aerial fauna of the region, considering that there are no species of open habitats with aversion to high structures. The movements or migrations of fauna from north-south on the mountain and the coast would not be impacted either because the LDT runs parallel to these movements.

Without mitigation measures, the impact of the Project on biological connectivity in the area between Los Cobanos, Apaneca-Ilamatepec Biosphere Reserve, and El Imposible National Park is considered minor. With the application of the measures detailed in *Section 7 - Project Environmental and Social Management Plan*, the residual impact of the Project on this area is rated as *positive*.

5.4 *IMPACTS ON THE SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT*

In general, the impacts of the Project on the socio-economic environment will be positive, mainly due to the demand for labor and the requirement of other services (such as transport and food), especially during the construction phase. At the national level, the major contribution of the Project is the improvement of the reliability of the electricity supply in the national electricity system.

5.4.1 *Generation of Temporary and Permanent Employment*

For the construction and maintenance of TL and infrastructure, the Project will hire a labor force consisting mainly of workers from the towns and municipalities in the area of influence of the Project and national specialized workers. Although the final number of workers will be determined by the contractor, it is expected that at the peak of construction there will be approximately 200 people employed for the construction of TL and infrastructure, which will be divided into five work fronts (one for each section of line, plus substations). The Project will generate 30 indirect jobs, which will correspond to subcontracts and other services related to construction, such as materials transportation, food sales, water supply, among others.

Most of these workers will be hired from nearby hamlets or villages. Unemployment is high in the area of influence of the Project; as transmitted by the respondents during the completion of the baseline. Unemployment is clearly a significant problem in communities, as expressed by unemployed young adults during the participatory diagnosis. Therefore, these jobs will benefit the local economy. As a result, local expectations are high.

For the operation of the Project, it is estimated that the labor requirement will be approximately 3 to 5 people. Majority of the workforce will be used during this phase. Unskilled labor will be used for periodic maintenance of the right of way and support activities (eg pruning and vegetation control in right of way and maintenance of roads).

To be considered for the direct employment of unskilled jobs, individuals must be at least 18 years old and at least be able to read and write, present a record of criminal records and be in possession of the identity card. Positions such as truck driver supervisors and equipment operators require additional and specific requirements.

Depending on the type of work they do, some of the Project subcontractors may have other minimum requirements. Therefore, more unskilled workers could be hired through subcontractors. This impact has been rated as *positive*.

5.4.2 *Regional Economic Stimulus*

As a result of the Project, commercial, industrial and related services are expected to grow. This will be due to the increase in electricity supply, which will allow the growth of large and small companies; the local jobs generated by the Project will imply an influx of resources to be invested in the local economy; and the presence of the labor force for the construction and maintenance of the line will bring with it the demand for transportation, recreational services, meals among others. The economy of the public sector will also benefit from the presence of the Project since during its 20 years of useful life it will contribute its taxes for its operation, the jobs provided and taxes related to the importation of equipment. With the implementation of the TL and the expectations that in the near future improve the service of electricity supply it is possible that new economic actors at local and regional level that promote development appear. This impact has been rated as *positive*.

5.4.3 *Increased Power Supply*

The increase in power supply is one of the main impacts of the Project. It will not only respond to the regional demand for energy, but will also play an important role driving the development of the area within the framework of Government development projects. This impact has been rated as *positive*.

5.4.4 *Risk of Conflicts between the Local Population and the Project*

This risk exists in every project. The character of the relations between the community and the Project depends largely on the fair and respectful treatment of the local population by each member of the Project team and the presence of an open line of communication. This risk is especially sensitive in areas where the houses are closest to the transmission line, since the inhabitants will suffer the inconveniences generated by construction such as congestion or temporary interruption of access, increase of vehicular traffic, noise and dust.

The Project has designed a citizen participation plan that establishes recurrent meetings to inform the progress of the Project. It has also established a complaint mechanism to have an open line of communication with the communities. For more details, refer to *Section 7.0 Environmental and Social Management Program*.

Additionally, the contractors will have to be governed by the workers' code of conduct and all employees will be required an induction in community relations.

The magnitude of this impact for the construction phase has been considered small, and the vulnerability of the population low. With the application of mitigation measures, the impact has been rated as *insignificant*. In the operation stage, impact is considered *insignificant* because the interactions of Project staff with communities will be minimal. Only maintenance personnel will be moving to the area.

5.4.5 *Risk of Traffic Accidents on Public Roads*

One of the main negative effects during the construction phase is the effect on the traffic routes. It is estimated that the vehicular flow will be about 10 trucks per day per sector and/or tower during the construction stage. During the maintenance stage, it will be 1 truck per month or 2 months. Increased traffic of heavy vehicles during construction can increase the possibility of traffic accidents. Likewise, the execution of improvement works on the access roads may temporarily affect the conditions of transitability.

In order to minimize interference with road users, the following mitigation measures will be implemented:

- The works will be programmed so as to always maintain the main communication channels enabled. The necessary precautions will be taken to avoid accidents, maintaining at all times adequate signage, both day and night, according to the rules of the competent authority complying with current regulations. It will be driven at a maximum speed of 25 km/h. At the end of the works to improve the roads, the clearance and cleaning work will be carried out.

- All personnel and Project contractors related to vehicle driving will undergo training for defensive driving (Smith System)[8]. It will ensure that the drivers have the Smith System certificate and if they do not have it, they will take a course.

- All Project staff and Project vehicles will give the right of passage to all local people (for example, inhabitants of communities that are moving on foot). Project employees as well as subcontractors will be responsible for the traffic of their vehicles and will have to comply with the measures proposed in the Environmental Management Plan and the Social Management Plan.

During the construction phase, the impact is estimated to be of medium magnitude due to increased traffic. The vulnerability of the population has also been considered medium, taking into account the greater probability of accidents that the vehicular flow could cause. The impact is categorized as *moderate* during construction and *insignificant* during operation and abandonment.

During the operation phase, activities that generate traffic impacts are not identified. During the abandonment phase, activities associated with the transportation of materials and machinery could temporarily alter the traffic conditions resulting from a greater flow of vehicles.

5.4.6 *Impacts Related to the Purchase of Right of Way*

The trace of the TL is projected with an approximate length of 44 km that will develop of aerial form in its entirety. The projection is developed from the port and city of Acajutla, passing through the municipality of Santo Domingo de Guzmán in the department of Sonsonate, and the municipalities of San Pedro Puxtla, Apaneca and Ahuachapán in the department of Ahuachapán. Along the route, 264 properties have been identified that represent 264 parcels of land.

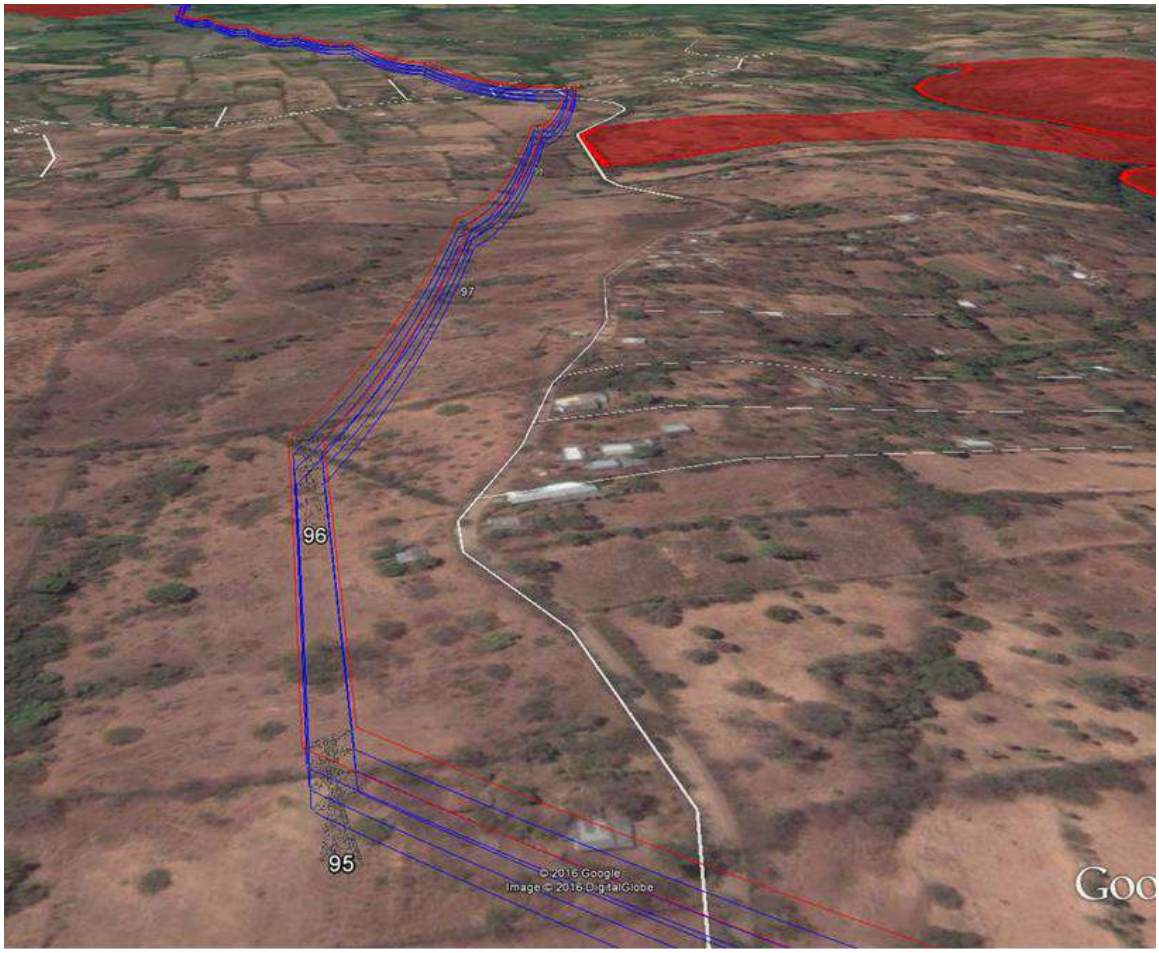
[8] https://www.drivedifferent.com/

For the management of right of way, the trace has been divided into three sections:

- Section A, comprises 77 parcels of land in 17 km within the coffee zone of Ahuachapán and Apaneca.
- Section B, comprises 132 parcels of land in 20 km.
- Section C, comprises 55 parcels of land in 7 km at the exit of Acajutla.

For the construction of the TL it is necessary to negociate the right of way in the estates that are being affected, which consists of the constitution of a tax legally known as right of way of electric conduit. The right of way of electric conduit is equivalent to a permit of passage and construction of the TL for an indefinite time, and by which the owners/possessors will be compensated justly and properly. The negotiation of the segments of land on which the transmission line would pass included an economic recognition by the company, which has been established by means of the current commercial valuation of the square vara in the Department of Ahuachapán and Sonsonate, for which a particular commercial negotiation with each of the owners was carried out or is being carried out. In cases where a price could not be agreed upon, the line had to be redesigned to land where negotiation was possible. Figure 5.4-1 below shows the design of the line avoiding those areas or parcels of land that showed no interest in negotiating with the Project or had land ownership problems.

It should be noted that there is no option of expropriation or other mandatory procedures in El Salvador, so in principle the negotiation is a free business between the representatives of the company and the owner or the representatives of the same. To date, there are 100% of the registry-cadastral verifications of real estate under the map. For more information on right of way management, see *Appendix G - Rights of Way Management Report.*



Source: EDP, 2016

Figure 5.4-1 Avoiding Project-Sensitive Buildings and Parcels of Land

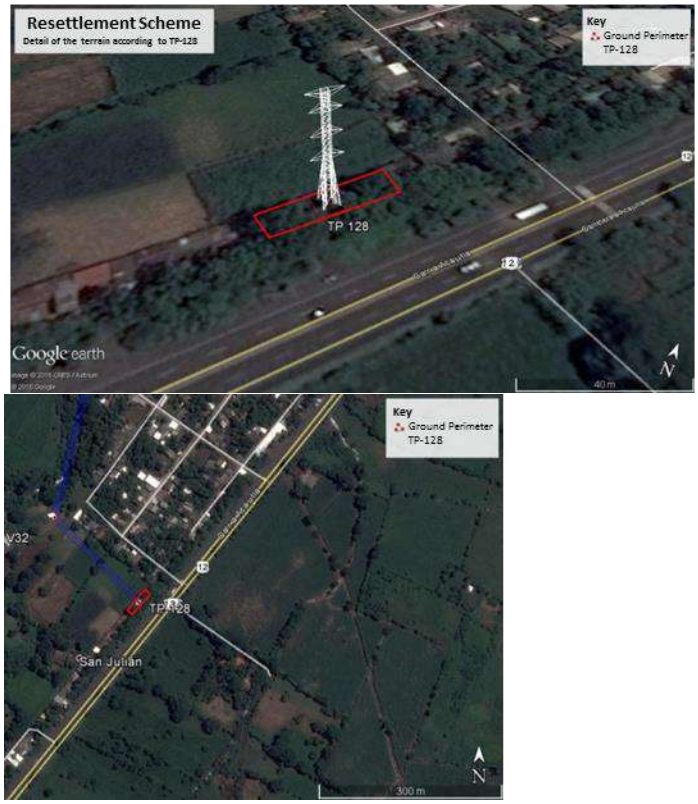
At all times, it was tried to avoid the displacement of families, that is to say, properties in which there were houses. Therefore, numerous alternative layout designs have been explored, as described in *Section 2.4 Considered Alternatives*. Therefore, the Project will only require the rehousing of a family in Acajutla, inside Santa Emilia Lotification. This case is located in parcel 246 where TP 128 is projected, between Section B and Section C, in the Acajutla Exit sector, identified as Rea-6 (see Table 5.4-1). The family data is listed below and in more detail in the socioeconomic data sheet collected during the socio-economic census (see Appendix H)

Table 5.4-1 Rea-6 Resettlement Case

Name	*Parcel according to Project*	*Vertex/ Parking lot*	*Name of Head of Family*	*Head according to Sex*	*No. of Structures (Housing)*	*No. de Grupos Familiares*
Rea-6		18/35+000	Julio Alberto Menéndez Ramírez	Male	1	1

Source: GRIS, 2016. Elaborated with data collected by EDP's Right of Way Management team

This family is made up of 6 members and has been living in the area for 9 years. The land will be bought and is located just in front of the road, having a dimension of approximately 45 m in front and 10 m in depth as shown in the pictures. The land will be used for the installation of one of the towers of the line (see Figure 5.4-2).



Source: EDP, 2016

Figure 5.4-2 Scheme for Property Resettlement in Acajutla

Control and mitigation measures include the following:

- Anticipate and avoid or, where this is not possible, minimize the adverse social and economic impacts arising from the acquisition or restrictions on land use: (i) compensating the loss of property at replacement cost

- The Project will make every effort to improve the living conditions of physically displaced persons by providing them with adequate housing with security of tenure in resettlement sites.
- Development of the document with the methodology for "Zoning of Land Uses, Determination of Securities Ranges for Land and Infrastructure Compensation, Definition of Valuation Parameters and Negotiation Criteria", which establishes the limits or boundaries of classification of ground uses in land, and the ranges of values for fair compensation for acquisitions or restriction of land use, arising from Project implementation.
- Resettlement activities will be carried out with appropriate dissemination of information, consultation and informed participation of the affected persons. The Project Social Management team will ensure that these aspects are met.
- An Office of Attention to Owners has been stablished since September of 2015 that has among its functions:
    - Attention to owners/holders of real estate located under the trace or any other person interested in obtaining project information.
    - Receipt of personal identification and property ownership documents.
    - Receipt of complaints and claims, not only by owners/holders of real property, but also by any person living in the area of influence of the trace, and who are directly involved who consider that they have suffered damage on their property by the work teams that perform in the field. This establishes a mechanism of complaints to file appeals and aims to resolve disputes in an impartial manner. As a reference, the complaints mechanism is centralized through an email (quejas@energiadelpacifico.com) which is located within the web page of Energía del Pacifico:
    - http://energiadelpacifico.com/html/contacto.html

During the construction phase, the impact is estimated to be of medium magnitude and low vulnerability. The impact is categorized as minor to *insignificant* in the stage of operation and abandonment.

5.4.7 *Restrictions on Land Use within the Right of Way*

The construction and operation of a transmission line entail, for safety, the restriction in the use of the ground for activities that are not compatible with the operation of the line. Thus, in the contracts signed between the landowners and EDP (see Appendix I), the following is specified:

- Excavations are prohibited "within 15 m of support structures, constructing buildings for any purpose or use, storing flammable or explosive materials, accumulating materials or other objects, opencast mining or pits, tunnel mining less than fifteen meters from the base of the support structures of the conductors";
- "Planting or permanence of waterlogged crops or vegetation that in their final development are closer to 5 m of cables" is also prohibited.
- Burns are not allowed regardless of their nature or reason.

In addition to these express limitations, other tacit ones are also codified in the agreement between EDP and each owner. In the field purchased, EDP reserves the right to:

- Perform any installation of structures, such as towers or posts, and necessary construction;
- Authorizes to remove any obstacles within the respective path, including trees that approach the wires dangerously, in order to maintain a minimum distance of five meters, as long as this is necessary for the construction and optimal maintenance of the transmission lines;
- Approve or deny excavations that are carried out at a greater distance from the prohibited and the use of agricultural or construction machinery that guarantee a minimum distance of 5 m with the cables.

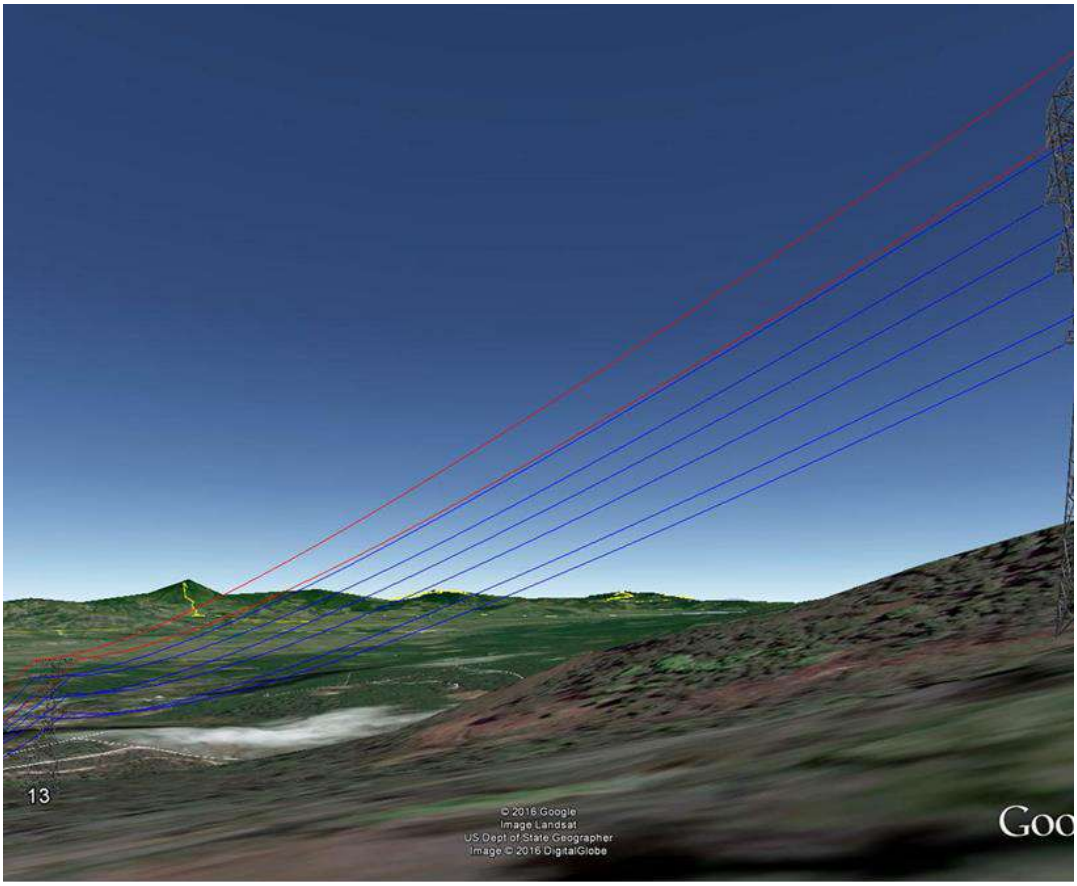
The magnitude of this impact is considered *insignificant* for all the stages, since it will start from a previous agreement, sealed through a legal contract, between the owners and the promoter of the Project.

5.4.8 *Alteration of Visual Quality and Fragility*

The clearance and weeding of vegetation, the extraction of stone material and soil, earth movements, associated with the rehabilitation and construction of access roads will produce a visual alteration of the landscape. The most important activities for visual perception will be the

lifting of 139 towers and the laying of the conductors, as they introduce new elements that are foreign to the natural landscape.

Below is Figure 5.4-3 in three dimensions that capture the visual effect that the transmission line wil produce.



Source: EDP, 2016

Figure 5.4-3 Transmission Line at its Pass through a Ravine

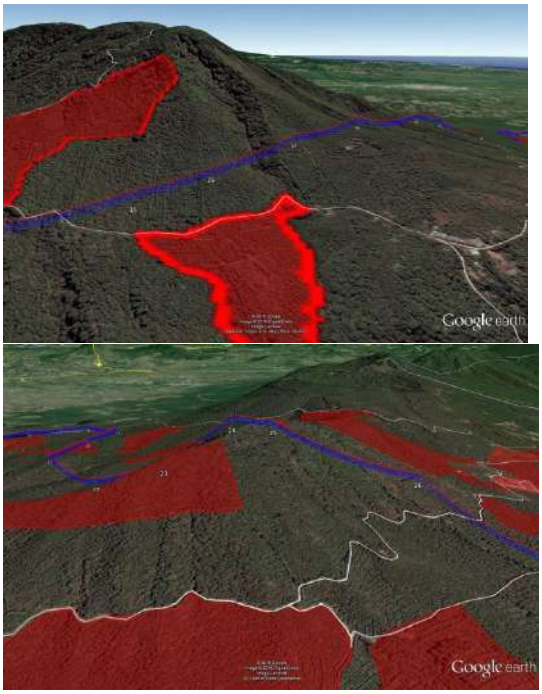
The layout of the line has avoided, as far as possible, passage through populated areas. For example, Figure 5.4-4 depicts how the Project has attempted to avoid populated areas in the approach to Ahuachapán.



Source: EDP, 2016

Figure 5.4-4 Transmission Line Avoiding Approach to Residential Zone in Ahuachapán

The line has avoided passage through sensitive areas, as shown in Figure 5.4-5 below.



Note: areas of coffee plantations in red color
Source: EDP, 2016

Figure 5.4-5 Transmission Line Avoiding Coffee Plantation Areas

The increase of anthropic components in the landscape reduces the visual quality of the area.

The line layout and the right of way corridor design have been optimized to minimize impact to the quality and visual fragility of the landscape and to preserve the visual quality of the natural environment. Elements of the natural environment (for example, points of tourist interest - especially in the northern part of the development of the Project - or natural observation, churches or buildings with historical and heritage value, peaks and mountains, etc.) have been taken into account to avoid intersection with them.

The line layout in the northern part of the Project is located in areas that are not visually sensitive and generally disturbed, moving away from populated centers, avoiding tourist areas (for example, Ahuachapán and the Ruta de las Flores, see Appendix S) and avoiding intersection with coffee growing areas.

Taking into account the mitigation measures integrated in the design of the line layout, the magnitude of the impact is considered medium and the vulnerability is low. Therefore, this impact is considered *minor*.

5.4.9 *Occupational Accident Risk*

During the construction phase, occupational accidents can be generated, as well as effects on the community, such as an increase in the incidence of traffic accidents. Control and mitigation measures include the following:

- The promoter will ensure that the working conditions in the Project comply with the occupational health and labor standards of El Salvador.
- The staff must be qualified to carry out the activities of the Project.
- All employees will receive training in Occupational Health and Safety.
- The contracting company will provide personal protective equipment and tools in good condition to all workers according to the activities they perform.
- Personnel shall wear appropriate personal protective equipment at all times and work at heights shall be carried out with appropriate safety

measures (safety harness, gloves and insulation clothing), in accordance with the applicable legal requirements in this area.

- The staff will have adequate and sufficient means to ensure a proper hydration and at least one hour of rest during the day.
- If torrential rains occur during the laying of the line, the work must be done with extreme caution or even suspended, while the rain lasts to avoid soil trapping and runoff.
- All workers should be made aware of the importance of complying with all the above measures in order to make an adequate waste management, have personal protective equipment and work tools in good condition and take care of and preserve the biological and environmental characteristics of the area.
- All access points to the Project sites will be clearly marked and will have security personnel.

After the application of the mitigation measures the magnitude of this impact is considered medium and the vulnerability is low, reason why the impact is categorized of *minor* significance in the construction stage. For the operation stage the impact is considered *insignificant*. During the abandonment phase, the impact would be reduced to *minor* again and mitigation measures would have to be the same as those detailed for the construction phase.

5.4.10 ***Potential Alteration of Community Health by Phenomena Associated with Transmission Line Magnetic, Electrical and Acoustic Fields***

5.4.10.1 Electrical Conduction - Electromagnetism

In some publications and media there have been talks of health effects by the electromagnetic fields of the electric conduction lines. However, recent research by the World Health Organization[9] concluded that there is no confirmation yet that exposure to low-intensity electromagnetic fields has

[9] http://www.who.int/peh-emf/about/WhatisEMF/es/index1.html Available in September 2016.

health consequences. However, this description is included to clarify the evaluation.

In general, two types of physical impacts must be considered regarding to the transmission of electrical energy by means of transmission lines:

1. The electric field that increases from the conuctor lines to the ground. In this case, the main variable is the electric field strength in kV/m, which is influenced by the electric current, the distance and the shield.

2. The magnetic flow density (colloquially referred to as the magnetic field strength), which is proportionally negative to the current and decreases with the square of the distance. The flow density is measured in microtesla (µT).

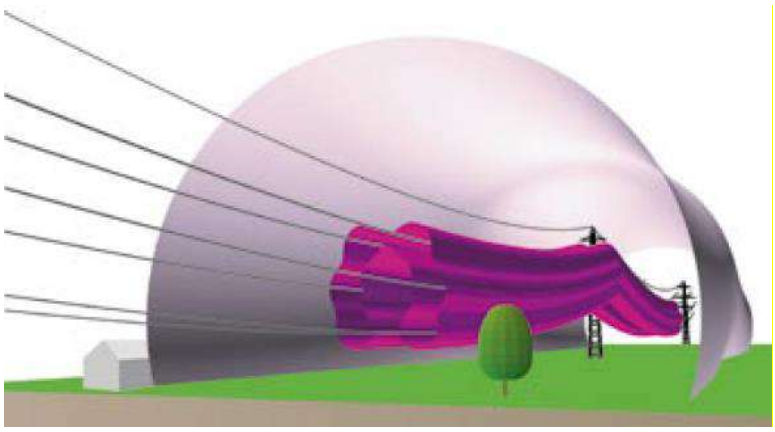
Both fields are of low-frequency oscillation with non-ionizing radiation at 50 Hertz (Hz).

Transmission of electricity by transmission lines can also be associated with noise emissions. These noises are caused by the electric discharges that result from an ionization of the air. This phenomenon is known as the "corona effect".

The noises caused by the wind and the "corona effect" are emitted mainly near the towers of high tension. The noises are perceptible as buzzing or small sparks. An increase in air humidity results in an increase in noise emission due to increased air conductivity.

5.4.10.2 Magnetic Fields of High Voltage Lines

The spatial extent of the magnetic field of a high voltage transmission line increases with the electric current and the distance between the conducting lines. The highest field strengths occur near the ground level midway between two high voltage towers, where the lines have the greatest collapse. The field strength decreases with increasing distance to the conductive lines (see Figure 5.4-6). The impact of the magnetic field can be minimized by optimizing the phase arrangement.



Source: ERM, 2016

Figure 5.4-6 Representation (in Perspective) of the Magnetic Field of a High Voltage Air Line of 380 kV with Two Systems at Maximum Capacity

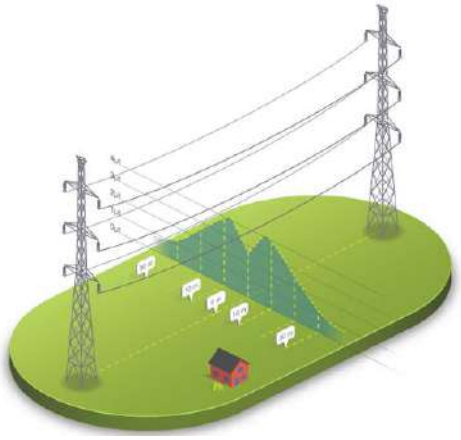
The highest flow density occurs in the vicinity of the six conductor lines. It equates to a value greater than 100 militesla (mT) inside the tubes of garnet color, but with only 1 mT in the mantle of the largest tunnel. The flow density decreases with increasing distance from the conductors and is not influenced by walls or trees.

After more than 30 years of research, scientists have yet to find formal evidence that exposure to magnetic fields poses a health risk. However, they have not been able to rule out any risk either. However, many scientists are still working to determine whether exposure to magnetic fields is harmful, whether in the short or long term.

Epidemiological studies have long suggested that there is a small statistical correlation between long-term exposure to low-voltage magnetic fields in the high voltage network and an increased risk of leukemia in children. Studies of cell and animal cultures since the 1980s have not been able to confirm this theory and, as such, no causal relationship has been established between exposure to magnetic fields and an increased risk of leukemia in children. However, in the absence of any explanation of the statistical relationship presented by epidemiological studies, there are no studies that have been able to rule out this fact.

Figure 5.4-7 represents the typical values for a magnetic field below the 380 kV high-voltage lines, superior to the proposed Project, and shows that the field strength is directly proportional to its distance from the line. The exposure value of the field varies by location and time depending on the voltage, the electricity passing through, and the height of the line. It is

important to note that the levels of exposure anticipated as part of the Project are well below these levels.



Source: ERM, 2016

Figure 5.4-7 Typical Values of Magnetic Field of High Voltage Lines of 380 kV, Superior to the Proposal

Since the magnetic field is not determined by voltage, a high voltage connection with a higher voltage does not necessarily generate a stronger magnetic field. However, in practice, the strongest magnetic fields have been recorded in the vicinity of 380 kV lines. After all, the higher the voltage, the greater transmission capacity of the line and therefore the greater the volume of the electricity it conducts. Magnetic fields of high voltage lines below 380 kV, such as this Project, are usually no more than 4 mT and become increasingly weak the further away from the line are measured.

5.4.10.3 High Voltage Line Electrical Fields

The electric field of a high voltage line is proportional to its voltage. Below 380 kV, the electric field strength can be as high as 5 kV/m. The lower the voltage, the lower the electric field strength.

5.4.10.4 Acoustic Fields of High Voltage Lines

The "corona effect" is increased by:

- Unfavorable conductor geometries;

- Non-circular cross-section of conductive lines;
- Irregularities in the surface of conductive lines;
- Moisture deposits of insulator chains and conductive lines; and
- Wind noise and vibrations in steel beams of high voltage towers at wind speeds exceeding 15 meters per second (m/s).

Based on current scientific knowledge, noise emissions from overhead transmission lines are insignificant and do not pose a significant threat to human health.

5.4.10.5 Anticipated Impacts of the Proposed Line

No impacts related to electromagnetic fields are expected during the construction phase of the Project. It is anticipated that the impacts will be experienced during the stage of operation of the same.

Due to the lack of regulations in El Salvador for the TL design, the existing regulations and limits on electromagnetic fields imposed by the agencies in the United States of America are considered to be the most stringent in the world.

The electric field strength at the axis of the line and at the limits of the safety belt shall be limited to 8 kV/m and 2 kV/m, respectively. The strength of the magnetic field within the limits of the safety belt shall be limited to 150 miliGauss (mG). The safety belt is defined as 19 m on each side of the line axis. Table 5.4-2 only lists the standards of the US states that have some standards for regulating exposure to electromagnetic fields. Also, Table 5.4-3 shows the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines.

Electromagnetic fields are known to decrease rapidly as the distance from the source (in this case the transmission cables) is increased. Also, the height of the cables varies slightly due to the effect of several factors, for example, the temperature of the environment, the temperature of the cable (which in turn varies with the load), wind speed, etc. Therefore, the analysis of the possible impacts is done from a qualitative perspective.

For the analysis of impacts data were taken available in the technical literature. Figure 5.4-8 shows the typical exposure levels from 115 kV and 230 kv transmission lines as proposed, as measured in the USA by the Bonneville Power Administration in 1994. From Figure 5.4-8 it can be seen

how the intensity of the fields decreases with distance. It is important to point out that, these levels are considerably below the levels required by the regulations in the US.

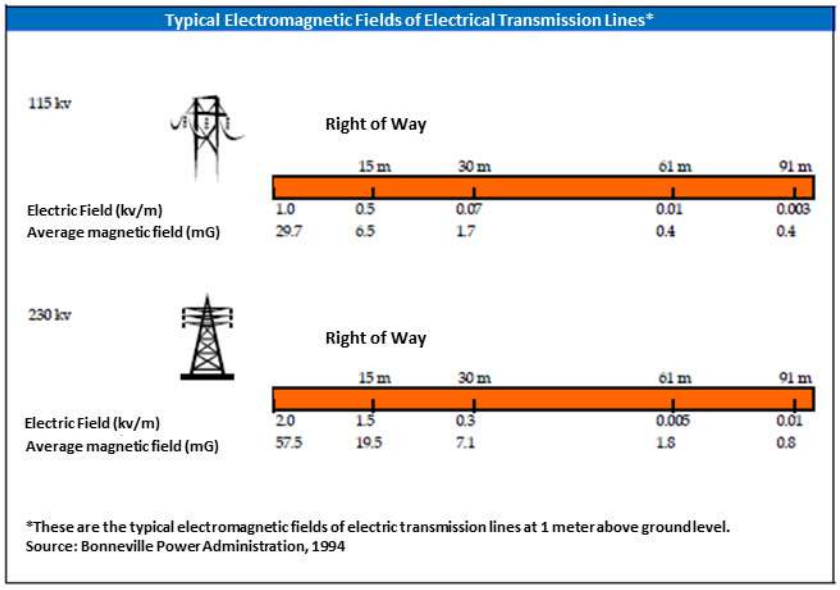


Figure 5.4-8 Typical Electromagnetic Fields of Electrical Transmission Lines

Table 5.4-2 US State Guidelines for Transmission Lines

State	*Electric Field*		*Magnetic Field*	
	In ROW (kV/m)	*ROW in Strip (kV/m)*	*In ROW (kV/m)*	*ROW in Corridor (mG)*
Florida	8[a]	2	–	150[a] (maximum load)
	10[b]	–	–	200[b] (maximum load)
Minnesota	8[c]	–	–	–
Montana	7[d]	1	–	–
Oregon	9	–	–	–

Source: ICNIRP, 1998.
Key: ROW = Right Of Way; k/V = kilovolt; mG= milliGauss
[a] For lines of 69-230 kv.
[b] For lines of 500 kv.
[c] For lines of 500 kv in certain existing ROW.
[d] Maximum for crossings of avenues.

Table 5.4-3 Commission Guidelines on Non-Ionizing Radiation Protection

Exposure (60 Hz)	*Electric Field (kV/m)*	*Magnetic Field (mG)*
Occupational	8.3	4,200
General Public	4.2	833

Source: ICNIRP, 1998.
Key: k/V = kilovolt; mG= milliGauss

The anticipated exposure levels for the nearest residences are considered to be below the International standard (ICNIRP, 1998). Therefore, adverse health impacts as a consequence of the implementation of the Project are classified as *insignificant*.

Therefore, monitoring of the electromagnetic field is not proposed.

5.4.11 *Impacts on Cultural, Archaeological, Ceremonial and Historical Resources*

For the construction of the proposed Project, movement of land in the TL path will be required, in the area where the towers, substations and access roads to the Project will be installed. This will represent a potential risk of impacting archaeological resources. According to the design, for each tower it is necessary to install foundations six meters deep within an area of approximately 100 m2 (10 m x 10 m). After their construction, the towers will enjoy a regime of restricted access, under the control of EDP.

Even after having conducted a surface survey along the entire trace, complemented by cabinet studies and a paleontological survey, there is likelihood that cultural traces will be discovered during the excavation process. In the case of finding archaeological and/or cultural resources during the development of the Project, the necessary measures will be taken to minimize the impact on them. SECULTURA will be contacted to determine the course to follow in order to preserve and protect the resource. For this reason, this impact is classified as: *insignificant* to *minor*, direct, localized, low intensity, of permanent duration, irreversible, mitigable and of possible occurrence.

The restriction of access to the right of way of the Project will minimize the potential for looting of cultural heritage resources, facilitating the follow up and routine monitoring of sites reported during pre-survey, phase II and construction. Therefore, this impact is considered *positive*, indirect, generalized, of relative duration to the useful life of the project, reversible and of probable occurrence.

6.0 CITIZEN QUERY

6.1 *INFORMATIVE AND SOCIALIZATION ACTIVITIES*

6.1.1 *Information to Land Owners*

In September 2015, field activities were started to establish relations with the population of the Project area. Specifically, the first contacts with land owners were established as part of the negotiation process for the purchase and lease of land.

Approaches with owners/holders are numerous, since they include a constant approach and home visits to advance the agreements of use of the right of way with each owner affected.

The purpose of the visits is to generate an information channel and to facilitate participation in all processes and procedures, such as those mentioned below:

- ***Identification of owners/occupants.*** This visit is made once the residence and contact of the owner is identified, this is the first approach where they are informed about the project and all the stages that the right of way management entails.
- ***Collection of personal and property documents, measurement permit.*** This visit allows, once informed and with the approval of the owner, to collect personal documents and the property as: Unique Identity Document (DUI), Tax Identification Number (NIT) and deeds of the property, in turn the permission is requested to carry out the corresponding studies in the property to be affected by the trace.
- ***Follow-up visits.*** They are determined to inform the owner of how the processes are being developed, especially real estate profiled with legal problems, so it is necessary to be studied and according to complexity are determined constant visits to give a favorable resolution.
- ***Disclosure of information on management progress.*** Visit where owners/occupants are informed about each of the stages of the right of way management, allowing the participation and resolution of concerns in this regard.
- ***Cutoff Date Notification.*** After the study stages, in the settlement of cases, the eligibility is determined, so in written note the owner is

informed that he is considered to receive the compensatory measures by collaborating with the constitution of the right of way.

- ***Negotiation and acceptance of appraisal***. In this visit the appraisal of the area to be used is announced and the price for the land for the constitution of the right of way, counting with the agreement of both parties, is closed with the owner's signature.
- ***Signature of deed and payment***. Visit made after the negotiation, proceed to the signing of deed of right of way, the payment is made to the owner.

6.1.2 *Opening of the Project Offices in Sonzacate and Acajutla*

In the continuity of project execution, on September 23, 2015, the Project Office for the relationship with the owners was opened. This is located in Km. 63 ½ of Boulevard Las Palmeras, House No.3, 50 m south of Hotel Las Palmeras, Municipality of Sonzacate, Sonsonate.

The main objectives of the office are:

- Attention to owners/holders of real estate located under the trace or any other person interested in obtaining project information.
- Receipt of personal identification and property ownership documents.
- Receipt of complaints and claims, not only by owners/holders of estates, but also by any person living in the area of influence of the trace, and who are directly involved who consider that they have suffered damage on their property by the work teams who serve in the field.

Also, a job board was opened, where curriculums are received from the general public interested in participating in the project, the resumes received are shared with the Attention Office of Acajutla.

The attention of owners and general public is in charge of a social worker. The staff of the right of way management areas is of 14 people (see Table 6.1-1).

Table 6.1-1 Staff in the Office of Sonzacate

Area	*Number of Employees*
Management and coordination	2
Social	3
Technical	3
Legal	4
Administrative Staff	2
Total	14

Source: GRIS, 2016

Besides to this office, there is also another office in Acajutla. This office has been in operation since July 1, 2014, since it was opened to follow up on the project of the gas plant that EDP is developing in the city. Collaterally, it supports all TL activities. The functions of the office are those of technical, social and administrative coordination of the activities related to the Project. For this, a social manager is responsible for building positive relationships with communities, establishing a transparent dialogue and providing personalized information about the Project. Its activities include addressing the questions of communities and their leaders, visiting communities and monitoring their situation.

Another of the activities carried out by the staff of this office is the reception of resumes of those interested in working for the Project. In this way, the personal data or resumes are collected in the office and recorded in a database. This database focuses on the availability of human resources (qualified or unqualified personnel) in the area and willing to work for the Project, or for its contractors.

6.1.3 *Socialization Activities*

6.1.3.1 Activity with Local Authorities and Community Leaders

Since February 2016, a series of meetings have been held with local authorities and community leaders to present the Project, the process of developing the EIS and to collect information relevant to the baseline and the consideration of impacts. These meetings served the dual purpose of presenting the project formally to representatives of government institutions, while complementing the information necessary for the description of baseline characteristics.

The persons with whom meetings were held are presented in Table 6.1-2 below:

Table 6.1-2 Participating Authorities and Leaders

N°	*Name*	*Institution / Position*	*Municipality*	*Date*
1	Angélica Lopez de Dimas	Mayoralty of Acajutla. Unity of the Woman. Collaborator.	Acajutla	June 14, 2016
2	Vilma Noemí Santos	Mayoralty of Acajutla. Coordinator of the Women's Unit.	Acajutla	June 14, 2016
3	Vilma Noemí Santos	Mayoralty of Acajutla. Coordinator of the Women's Unit.	Acajutla	June 14, 2016
4	María Eugenia Araujo de Menjivar	Mayoralty of Acajutla. Municipal Unit of Tourism and Culture.	Acajutla	June 15, 2016
5	Yolanda del Carmen Garleto Madrid	Mayoralty of Acajutla. Municipal Unit of Tourism and Culture.	Acajutla	June 15, 2016
6	Sandra Elizabeth Abarca Rivera	Mayoralty of Acajutla. Municipal Unit of Tourism and Culture.	Acajutla	June 15, 2016
7	Amelia Cruz	Mayoralty of Acajutla. Social Projection.	Acajutla	June 15, 2016
8	Moises Bonilla	Mayoralty of Acajutla. Social Promotion.	Acajutla	February 29, 2016
9	Mardoqueo Flores	Mayoralty of Acajutla. Municipal Syndic.	Acajutla	February 29, 2016
10	Osmin Antonio Guzmán	Mayoralty of Apaneca. Municipal Mayor.	Apaneca	March 1, 2016
11	Lic. Walter Cardona	Mayoralty of Apaneca. Municipal Syndic.	Apaneca	March 1, 2016
12	Oswaldo Nájera	Mayoralty of Apaneca. Community Support.	Apaneca	March 1, 2016
13	Lic. Rodrigo Alfonso Nerio	Escuela General Francisco Menéndez. Sub Director.	Apaneca	March 1, 2016
14	Manuel de Jesús	School Center El Cafetal, Las Tablas. Principal.	Sonsonate	June 10, 2016
15	Lic. Jaqueline E. Pastore	Mayoralty of Sonsonate. Head of Social Projection and Community Development.	Sonsonate	June 10, 2016
16	Cristina García	Mayoralty of Sonsonate. Councilor and leader of Las Tablas Community.	Sonsonate	June 10, 2016
17	Estela Maritza	In charge of the Health Unit.	Sonsonate	June 10, 2016
18	Noé Genovéz	Pastor of the church of God. El Cafetal.	Sonsonate	June 11, 2016
19	Lic. José Roberto Jovel	Mayoralty of Sonsonate. Administrative Manager.	Sonsonate	June 11, 2016
20	Lic. Joaquín Cerna	Mayoralty of Sonsonate. Auditor	Sonsonate	June 11, 2016
21	Lic. Nelson Darío Magaña	Secretary of the Court of Peace.	Santo Domingo de Guzmán	April 12, 2016

N°	Name	Institution / Position	Municipality	Date
22	José Solís	Pastor	Santo Domingo de Guzmán	April 12, 2016
23	Francisca Vásquez	Mayoralty of Santo Domingo de Guzmán. Municipal Syndic.	Santo Domingo de Guzmán	April 12, 2016
24	Rodrigo Rivas	Mayoralty of San Pedro Putxla. Municipal Mayoralty Secretary.	San Pedro Putxla	April 15, 2016
25	Moises Bonilla	Mayoralty of San Pedro Putxla. Director of Infrastructure.	San Pedro Putxla	April 15, 2016
26	Jesús Romero	Mayoralty of San Pedro Putxla. Project Manager Environment Committee.	San Pedro Putxla	April 15, 2016
27	Claudia Azucena López	Mayoralty of Ahuachapán. Social Promotion.	Ahuachapán	March 1, 2016
28	Jonathan Méndez	Mayoralty of Ahuachapán. Tourism Leadership.	Ahuachapán	April 8, 2016
29	Luis Eduardo Menéndez	Mayoralty of Ahuachapán. In charge of Municipal Observatory	Ahuachapán	April 8, 2016
30	Luis Alfonso Castillo	Mayoralty of Ahuachapán. Responsible for the Environmental Unit.	Ahuachapán	April 8, 2016
31	Roxana Acosta de Rivas	Mayoralty of Ahuachapán. Coordinator of the committee for the prevention of violence and public safety.	Ahuachapán	April 8, 2016
32	Agente Rivera Rivas	Sub delegation Center of the PNC Public Safety	Ahuachapán	April 7, 2016
33	Pedro Armando Silva Castro	PNC Terrestrial Transit, Ahuachapán delegation. Sub head of Ahuachapán Terrestrial Transit PNC delegation.	Ahuachapán	April 7, 2016
34	Ismael Sambran	ASOTRA Association of Ahuachapanecan Transporters. Legal Representative	Ahuachapán	April 7, 2016
35	Luis Ernesto Muños Cañizales	Medical Unit Salvadoran Institute of Social Security. Medical Unit Director	Ahuachapán	April 7, 2016
36	Evelin Saz Madrid	ISDEMU. Departmental Coordinator	Ahuachapán	April 7, 2016
37	Ing. Rene Arnoldo Benavides Larin	ANDA. Western Region Manager	Ahuachapán	April 8, 2016
38	Ing. Héctor Sánchez	ANDA. Operations Department ROCC	Ahuachapán	April 8, 2016
39	Héctor Donald Aquino Pimentel	Ministry of Education (MINED). Departmental Director of Education	Ahuachapán	April 8, 2016
40	Luis Alfredo Gómez	Christian Mission ELIM. Pastor.	Ahuachapán	April 7, 2016
41	Carlos Álvarez M.J	Catholic Church Our Lady of the Assumption. Priest.	Ahuachapán	April 7, 2016
42	Néstor Zamora	Church of Jesus Christ of Latter-day Saints. Pastor.	Ahuachapán	April 7, 2016

N°	*Name*	*Institution / Position*	*Municipality*	*Date*
43	Ing. Santos Rafael Alemán Ortega	''Enrique Alvarez Córdova'' CENTA. Executive Director.	Ahuachapán	April 12, 2016
44	Dra. Cecilia Herrera	Health Unit Ahuachapán. Director	Ahuachapán	April 12, 2016
45	Lic. Beatriz de Contreras	Tours Universales. Gerente General	Ahuachapán	April 12, 2016
46	David Salvador Soles	Salvadoran Red Cross. Departmental Delegation President.	Ahuachapán	April 12, 2016
47	Walter Osmael Medoza Mendoza	Military Detachment Number 7	Ahuachapán	April 12, 2016

6.2 *QUERY ACTIVITIES WITH THE COMMUNITIES*

Consultation with communities is a two-way process that began at an early stage of the Project and included two moments: the presentation and discussion of the baseline and the presentation and discussion of impacts. Consultation activities with communities are described below.

6.2.1 *Participatory Quick Diagnosis*

During the baseline, the Participatory Quick Diagnosis (PQD) methodology was applied in the six municipalities of the Project's area of influence.

The PQD begins with the elaboration of an itinerary of visits to the communities to inform them of this intention. Then, taking into account the criteria of accessibility, closeness between communities, population size and working days, the work program and the dates of the meetings were defined. Subsequently, the participants were identified following the criteria of representativeness of the community, proximity to the layout of the Project and based on feedback from local authorities. Then the invitations were distributed personally a week in advance so that people could schedule their attendance.

The general objective of the PQD was to obtain primary information in the community, with a representative group of members, until a self-diagnosis of their socio-economic and ecological situation was obtained. In addition, it was intended with this activity to identify development opportunities in the communities, so that the Project could begin to define its social investment program.

From June 21 to June 23, 2016, three PQD workshops were held. The first one was developed in Agape Center, in the town of Sonsonate, in the municipality of the same name. In this workshop people from the municipalities of Sonsonate and Santo Domingo de Guzmán congregated. The second workshop was held in the same place mentioned above and people from the municipality of Acajutla were invited. The third workshop was held in El Jardín de Celeste, located on Ruta de las Flores, between the towns of Apaneca and Ataco in the municipality of Ahuachapán. This workshop was attended by guests from the municipalities of Apaneca and Ahuachapán.

On June 23, a focus group was held in the Municipality of San Pedro Puxtla. On August 22, a PQD workshop was held with the municipality, which was attended by 10 people.

6.2.1.1 Results of Participatory Quick Diagnosis

The workshops counted on 81 participants in the 5 municipalities congregated for the PQD and 3 participants in the case of the focal group realized in San Pedro Puxtla. The workshop with the largest number of attendees was the second, attended by 38 attendees of the municipality of Acajutla (see Table 6.2-1).

Table 6.2-1 Implementation of the Participatory Quick Diagnostic Workshops and Number of Participants in June 2016

Date	*Municipalities Served*	*Place of Realization*	*Place of Origin of the Participants*	*Number of Participants*	*Total Number of Participants*
Tuesday 21 June 2016	Workshop 1: Santo Domingo de Guzmán, Sonsonate	Ágape: Km. 63 Carretera Sonsonate San Salvador El Salvador	Sonsonate	8	29
			Santo Domingo de Guzmán (including Cantón Caulote)	8	
			El Cafetal	3	
			El Cellice	1	
			Hacienda La Pradera	1	
			Las Tablas	2	
			Santa Emilia	2	
			Santa Clara	1	
			Other	2	
			No Answer	1	
	Workshop 2: Acajutla		ADESCO Linda Vista	2	38
			Mayoralty of Acajutla	10	
			AMA	2	
			School / Education Center	3	
			C.E.B. El Campamento	1	
			Kilo 2	2	
			Kilo 5	2	
			Línea Férrea	4	
			Lt. El Puerto	2	
			Obelisco	1	
			U.A.M.	1	
			UMM- NA Acajutla	2	
			Other	4	
			No Answer	2	
Wednesday 22 June 2016	Workshop 3: Ahuachapán and Apaneca	Jardín de Celeste: Km. 94 Ruta de Las Flores El Salvador	Mayoralty of Ahuachapán	4	14
			Mayoralty of Apaneca	4	
			Civil National Police (PNC)	3	
			House of Culture Ahuachapán	1	
			Education Center	1	
			MINSDL	1	

Date	*Municipalities Served*	*Place of Realization*	*Place of Origin of the Participants*	*Number of Participants*	*Total Number of Participants*
Thursday 23 June 2016	Focus Groups: San Pedro Puxtla	Municipality of San Pedro Puxtla	Cantón Guachipilín	1	3
			Cantón Texispulco	1	
			El Durazno	1	
Total participants activities June 2016					**84**

Besides, on August 23, the activity of San Pedro Puxtla was complemented by a PQD workshop (see Table 6.2-2).

Table 6.2-2 Workshop on Participatory Quick Diagnosis San Pedro Puxtla, August 2016

Workshop Date	*Municipality*	*Participating Institution / Origin*	*Total*
Tuesday, August 22, 2016	San Pedro Puxtla	Catholic Church	2
		Nueva Esperanza	2
		ADESCO	3
		National Police	1
		Mayoralty	1
		House of Culture	1
		Total	**10**

Taking into account that the workshops were conducted during daytime and weekday, the high degree of attendance and participation of the population in the activity is valued positively. The workshops had an active participation, with opinions and questions mainly about the potential benefits of the Project as well as questions related to the potential impacts that could cause (see Figure 6.2-1).

Participants in the Participatory Rural Diagnostic Workshops, June 2006



Workshop of Acajutla



Workshop of Santo Domingo de Guzmán and Sonsonate



Workshop of Apaneca

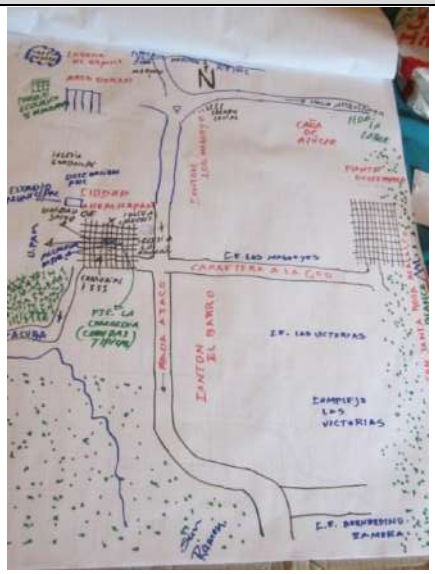
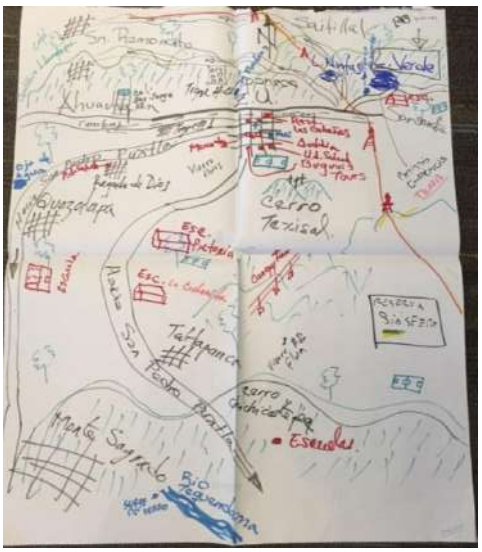
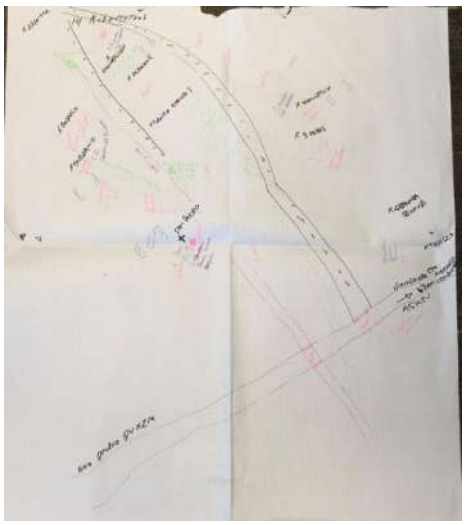
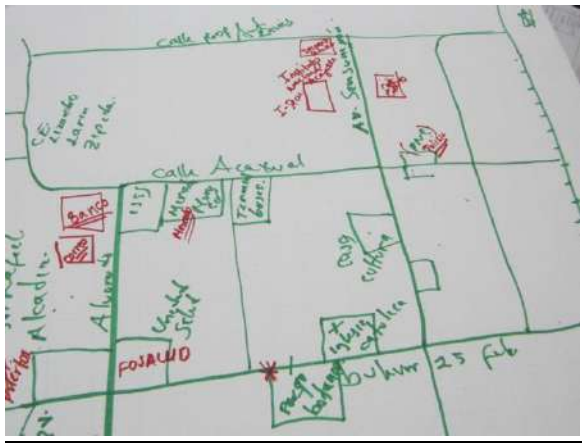
Figure 6.2-1 Participatory Rural Diagnostic Workshops

The PRD results are summarized below:

On the Knowledge and Perception that the Population of the Communities has of the Project

It was found that beyond the environmental authorities or landowners, the knowledge of the rest of the population about the Project was limited. In a way, the most relevant stakeholders of the project were aware of the project, while other relevant people in the community had a vague idea of the project. Therefore, this workshop served for an official presentation of the Project of the transmission line, as well as of the process that is being carried out to guarantee the participation of all those people involved in some way by the Project.

One of the first activities was the realization of ethnographic maps, to understand how the participants are located in the territory, their visions of the built and natural environment, and the location of the Project in the social imaginary. Figure 6.2-2 presents examples of maps made by workshop participants.

Maps Conducted by Participants in PRD Workshops, June 2016	
	
Ahuachapán	*Apaneca*
	
San Pedro Puxtla	*Acajutla*

Source: ERM, 2016

Figure 6.2-2 Ethnographic Maps

On the economic side, the expectations of both men and women of benefiting through the creation of sources of employment were verified. The hope that the Project will help the development of the area (for example, interceding with local authorities to improve their living conditions or carrying out small social investment projects in the communities) is also something that the workshop participants manifested homogeneously.

About Natural Resources

The general view is that natural resources are in degradation processes. The following are the results of the communities' perceptions of the most relevant natural resources. For more detail see Appendix L with workshop notes.

Water Resource

The participants expressed that the quality of the water varies and that the quantity is smaller than what they had in the past. The rivers bring less water, and it is believed that in the most populated areas along their courses there is pollution derived from industrial activities, the use of pesticides in agriculture and landfills. In rural areas the participants expressed that the water is of good quality and that it is derived from the care that the communities give to the eyes of water. They also mentioned the role of water boards and their coordination with the Community Social Development Association (ADESCOS) and the National Aqueduct and Sewerage Administration (ANDA). The water is treated and those areas where it is not drinkable for human consumption have identified, such as Laguna Del Espino in Ahuachapán.

Forest Resource

Illegal logging, burning and overexploitation have eliminated most of the forest. Reforestation, although numerous, is still insufficient. It is mentioned, for example, that more than 10,000 trees were donated for planting in June in Ahuachapán.

In some areas, as in Apaneca, participants mentioned that there are still much wooded areas in the mountain range but that shade trees such as coffee are still few.

On the Use of Environmental Goods and Services

Hunting, thermal tourism, mud or coconut handicrafts and the production of honey are some of the ways in which the participants identified to take advantage of the natural services of their environment. Ruta de Las Flores,

hot springs and beaches in Acajutla are the biggest attractions in the area and those that receive more tourism.

Trend Lines

During the workshop, trend lines were also constructed that indicate changes in different aspects. Below is a summary of the most relevant topics.

Population

The migration from cities to the countryside, motivated in many cases by security and crime, has affected the increase of inhabitants in rural areas.

Health

Respiratory and diarrheal diseases were mentioned as prevalent in communities. Early pregnancy was identified as a serious health and social problem by all participants in the workshops. In the same way, there was consensus that the approach is preventive and that the figure of the health promoter has helped a lot in identifying and treating early symptoms of diseases.

Education

School dropout and lack of access to higher education motivated by the economic situation of the families were identified by the participants as critical issues in the educational field. The bureaucracy of the educational system, the neglect of teachers, lack of resources and government policies were mentioned as issues that directly affect the quality of education.

Agricultural and Livestock Production

Livestock farming has been declining over the years. Generally, it is for self consumption and double purpose, although if there is surplus it is commercialized locally. Crops for family supply are common and the largest scale production is the coffee growing area. It is mentioned that the cultivation of coffee has decreased in function of how the values of coffee in the international market are quoted.

Land Availability

The land tenure is particular although the figure of the settlers still exists, people who inhabit it with the consent of the owner. Illegal settlements were also mentioned, especially on the river banks.

Identifying Its Major Community Problems and Solution Alternatives

The main problems identified by the participants focus on economic, environmental and social aspects.

- Economic problems: unemployment and the situation of vulnerability and economic helplessness that generated was the main problem identified by all communities. Security and the proliferation of crime, especially among unemployed young people, were the other aspects mentioned above.
- Environmental problems: illegal logging, water pollution and air pollution were the problems identified by participants.
- Social problems: unemployment and its ramifications at the family and communal level, unwanted pregnancy, quality of education, child prostitution and dependence on remittances were highlighted by the participants.

Appendix O presents the following evidences: copy of invitations to the workshops, methodological approach, attendance lists, presentations, photographic memory and ethnographic maps.

6.3 *SOCIALIZATION OF THE ENVIRONMENTAL AND SOCIAL IMPACT STUDY*

After completing the studies that made up the EIS, EDP socialized with the communities the results of the same, as well as the methodology used to carry out the impact analysis. This activity was carried out in the communities of Sonsonate and Apaneca on September 7 and 8, 2016 with the participation of members of the following communities: Ahuachapán, Apaneca, Acajutla, Santo Domingo de Guzmán, San Pedro Puxtla, Sonsonate and Las Tablas.

The objectives of the activity were firstly to socialize the description of the Project; inform on the results of the studies carried out during the EIS process and the impacts identified during the construction, operation and closure phases; socialize the plans of environmental and social management and provide clarifications on doubts or concerns that the population has.

6.3.1 *Methodology*

In the process of planning this activity, the project's technical team agreed and developed a methodology called Socialization Workshops for Environmental Impact Assessment, which included the participation of EDP's technical and social team.

The methodology was developed with emphasis on a participatory approach where people had the opportunity and the space to raise questions and express their opinions and suggestions on the topics discussed.

With regard to the participants to the workshops, the participation of the following key people was prioritized: people with recognized leadership who live in communities close to the access works, transmission line and municipal authorities in charge of local development, environmental aspects or safety.

The participatory days were planned and executed considering the availability of time of the inhabitants of the different communities involved with the purpose of ensuring the greatest assistance to them. For this reason, it was determined to carry out the workshops in morning and afternoon sessions. Likewise, the methodological instrument established the participation of the specialists who form the technical team, who are responsible for the execution of the workshops (Table 6.3-1).

Table 6.3-1 Technical Team Participating in the Socialization of the Environmental Impact Study

Company	*Name*	*Position*
EDP	Ing. César Galdámez	Project Manager
	Brenda Lobato	Community Relations Officer
ERM/ Natural Capital	Isolina Sanchez	Social Specialist
	Odessa Bowen	Environmental Specialist
	Ing. Roberto Escalante	Environmental Specialist

6.3.2 *Results*

The participation of the participants in the development of the workshop was important as they had the opportunity to listen to the information that was provided and to comment on the points discussed. Table 6.3-2 shows workshop attendance for each community, by sex. The attendance lists and presentation are presented in Appendix N.

Table 6.3-2 Participant Assistance, by Community and According to Sex

Workshop Date	*Hour*	*Community where it was performed*	*Participating Communities*	*Total Participants / Community*	*Total Men*	*Total Women*
September 7, 2016	9:00 am	Sonsonate	Santo Domingo de Guzmán	7	3	4
			Las Tablas	9	5	4
			Sonsonate	6	5	1
			San Pedro Puxtla	5	2	3
	2:30 pm	Sonsonate	Acajutla	18	12	6
September 8, 2016	9:00 am	Apaneca	Apaneca	6	3	3
			Ahuachapán	4	4	-
Total				**55**	**34**	**21**

Concerning the environmental issue, the greatest number of questions on the part of the participants corresponded to the possible impacts on water resources (availability and quality of these), air pollution as a result of dust, long-term impacts to the flora and fauna in the area and the monitoring that will be given to the mitigation measures once the construction of the Project is completed. In the social issue, most of the questions were about the generation of employment of part of the Project, vehicular traffic, access roads and road safety.

Table 6.3-3 presents a summary table of the questions posed by the participants and the responses of the technical team.

Table 6.3-3 Workshop Assistant Questions and Answers

Participating Communities	*Questions*	*Answers*
Santo Domingo de Guzmán; Las Tablas; Sonsonate; San Pedro Puxtla	When you talk about that they are going to "divert water to avoid damaging the construction" how do you guarantee that water will get to the other farmers who sow nearby?	Additional gaps would be opened to ensure that water reaches these farmers. However, in this case the impact is "potential" and requires a conversation between the landowner and the builder to determine the specific situation.
	The development of all mitigation measures is based on	Isa Ramírez explained the process of acquisition of rights of way: "we are in the process of

Participating Communities	*Questions*	*Answers*
	the construction phase. I have not yet seen an assessment of a potential long-term impact. I do not know if they have taken into account the value of the properties and the cuts that these are going to take in the long run. What are the property restrictions due to the Project and how will they be remedied?	negotiating compensation for the transmission line. It has done a market study, with market values of all these properties and, an agreement has been reached with the owners. The characteristics of each land and property (eg type of land, type of properties) are being considered and the activities within the properties have been avoided. There has been a lot of collaboration with the property owners and there is direct communication with each one of them. The owners have knowledge [of the Project] and are collaborating in a harmonious way. [The Company] has permission to go with the line. If you want more information, we have social management offices and right of way procurement management. [This office] is 300 meters from where we are now and 100 meters from Hotel Las Palmeras."
	Are they going to open offices for comments and complaints from people living in the area?	Yes, the Project has developed a Social Management Plan that includes a mechanism of complaints and suggestions for communities. This mechanism will be managed from the social office that the Project will install and includes a specific process of how to receive and answer questions.
	Are the management plans for the construction or for the life of the Project? In another transmission line there are no schemes for proper pruning, they do not handle maintenance.	No, the plans are for the entire life of the Project. The management plan requires follow-up, [including] periodic monitoring reports and compliance with the actions detailed in the plans.
	What are the chances that the people living where the Project passes will be hired?	It will require 200 people for the Project. Qualified staff will be from everywhere. [For unskilled jobs] preference will be given to local labor. During the operation phase the labor force will be [mostly] qualified, but there will still be local staff hired for certain works such as pruning and maintenance, etc.
	I saw an announcement from the company that called the owners to a meeting and I realized that it was for this Project.	Right. Representatives of the owners - intermediaries - have led this management instead of the owners. Companies should make every effort to communicate directly with the owners to avoid encroachment and to ensure the full participation of property owners. In addition, companies must do everything possible to find landowners, records of mayors, etc. [The] right of way width has to do with safety, not with the current width of the transmission line.

Participating Communities	*Questions*	*Answers*
		[This is a] Project of public interest that although it is private management, will be administered by the government. Cultivation land will continue to be used for its original uses.
	How long is the assessment of right of way? 20 years?	The assessment of right of way is granted indefinitely.
	We are part of the community, but some are not owners; how have you ensured that all owners have been informed?	Review of [the] contracts by personal attorneys (owner) to eliminate uncertainties, complaints or [owners] feel defrauded. [It is recommended] that older owners be advised by children or trusted persons to explain the contracts. Work placements in offices where resumes are received to identify the sector in which the person lives before the start of construction work.
	What is the distance between towers?	Distances vary; in plane the distances can be greater and in mountains the distances can be smaller. We have places with 600 meters [between one tower and the other] and other places with 150m [between the towers] as a result of the topography of the Project. The biggest distance we have is 645 meters and the minimum distance is 150 meters.
	The Project is already adjudged, the plant and the construction line. What possibilities are there for me as representative of the area to take [the] resumes? Do they have to go individually?	Once the plant is built, there will be 30 permanent jobs. During the construction of the plant and the transmission line will require about 1000 people. In general people are hired locally. You can take resumes or go with people, all forms are welcome. The resumes have to carry all the necessary information to be able to contact the interested parties (telephone number, etc.). The construction phase is scheduled for next year.

Participating Communities	*Questions*	*Answers*
	Businesses have opportunities. It seems to me that when we are here, one or another company takes the opportunities and has to guarantee that people will benefit from the Project, either permanently or temporarily, but these people deserve it.	The project has the opportunity to give work to many people. When we award the builder we include a clause that ensures employment for the people of the area. That is our idea.
	Why is the assessment indefinite if the Project lasts for 20 years?	The bidding terms demanded 20 years, but in general the Project will last longer, it will not "die". Once the 20 years are over, [the assessment] will expand and you will have to ensure that this type of work can be maintained. In contracts and all approaches the process has been explained in a transparent way so as not to create inconvenience to any owner.
Acajutla	Where are the resumes given?	The resumes are delivered in the office of Acajutla or in the office of Sonsonate.
	Vibration on the ground: There was a vibration problem in the plant. We want to know if there is going to be a problem accumulated by the vibrations of the line.	[The Project] will maintain the maximum levels of Salvadoran legislation. [It will] use methods of hearing protection especially in those places where the noise will be greater than 85Db. [It will also] train workers on the use of auditory methods.
	What are mitigation measures to avoid dust?	Especially during the dry season there would be a wetting of access roads through an irrigation truck to minimize dust. Maximum speed limits of 25 km will be established and emission limits will be established along with air monitoring. The waste areas will have a tight canvas to prevent the wind from raising dust from debris.
	Development has to exist at the expense of whatever. Acajutla have [a problem] of air pollution. Where the plant is constructed there are other plants and there is a cumulative effect of contamination. [Besides,] we have an industrial safety problem and a lot of heat.	The environmental impact study is only of the transmission line and the LNG plant has not been taken into account. We agree that cumulative impact analysis is important. (Note: Having explained this aspect, attendees better understand the explanation of the impacts to air quality).
	Will the towers have restricted access or not?	During the construction phase the entrance to the work will be restricted to the public (people who are not Project workers or contractors). In some towers it may be necessary to establish some type of perimeter protection.

Participating Communities	*Questions*	*Answers*
	Do you already have the line defined and you already know where the transmission line will pass?	Yes, it has already been defined and all the owners of the lands through which the line passes have already been contacted.
	In the mitigation part, there is a section of "unforeseen events". For example, contingency in the event of the fall of a tower. What kind of preventive action would be taken? What are you going to do with company, in matters of prevention? There are always going to be accidents; What's the plan?	All risk prevention plans were explained to them. All [plans] must be endorsed by the national civil prevention commission. The prevention plan also needs to be reviewed at the local level.
	A few years ago a high voltage cable broke and fell on the street. It was a "mess" [problem] and thank God [nothing or nobody] was burned. What is the prevention regarding that? How is [such an incident] prevented? They are rare things but they could happen.	The design [of the Project] contemplates the installation of a special device [by means of which, in the event of a rupture], the system will shut down [automatically] and cut all the circuits in a matter of seconds. For transmission we are obliged to have this type of devices; by means of which the current through the cables is stopped. The cable is 13 meters [from the street] and if that cable falls, when it reaches down it will be off.
	Where do you go out in Acajutla?	By the railway, on the obelisk. We cross there and do not touch any house as we go the other way.
	What is going to happen under the lines with flora and fauna, in the short and long term? These projects always have benefits but there are also certain abnormalities, which often affect the population. For example, fish die, water becomes contaminated, etc.	The attendants are explained to the restrictions on the use of the land in the right of way, where it is mentioned that the major disturbances will be during the construction phase and not during the operation. It is also spoken of what are the studies of magnetism.
	The 38 meters of right of way is for the entire line, including urban areas?	Right of way is for the entire line, including non-urban areas.
	Are they going to give benefits just like they give us in Acajutla with the LNG plant?	The benefits you receive now are for the construction of the plant. For the transmission line, the environmental impact study will detail the compensations that are necessary.
	[The] power companies leave these areas very "wilted"; warning for children and adults.	[Areas] will not be affected by sludge. If necessary, protective measures will be implemented.

Participating Communities	*Questions*	*Answers*
Apaneca and Ahuachapán	I imagine the Project is sustainable; that the life of the Project is great; and that there will be exclusive teams, groups or areas to continue the mitigation measures. If there is going to be someone, or a team, after [the construction of the Project] that does the maintenance?	Yes, management plans identify: mitigation measures; the people responsible for implementing [the measures]; the reports that have to be generated along with their respective times; the [monitoring] indicators and the cost of the measures. When [a company] cuts a tree, a commitment is made that the tree will be planted and maintained and developed for a certain number of years. This is determined by law.
	How are they going to coordinate this monitoring of mitigation measures? Are they going to hire someone?	Yes, the Project will have an environmental and social management team. There will be activities that they implement directly and other activities that will be subcontracted to third parties.
	When you raise the impact that [the Project] will generate in the space you are going to use, do you determine whether "it could be done" or "should not be done"? I believe that many "assumptions of impacts" have been made and that, with the dioxide what is going to happen, it will burn fuel [in the same way that Nejapa Power does] and that [it will require] a huge quantity of water. I would like [to know] if this Project is going to generate these impacts and what are the compensations contemplated.	The construction of the transmission line has by its nature impacts less than those of a coal plant. The purpose of the environmental impact study is to identify these impacts. Once the study is delivered to MARN there will be a public consultation process.
	The presentation spoke of "rainwater runoff". In the area of San Pedro Puxtla and Apaneca, the water sources that leave the coast are born from that water. There are a lot of underground sources and at that height (the Guachipilín, etc.) the water is not deeper. I imagine that the tower is going to need a fairly wide depth and I consider that to some extent, they will affect many [water sources] since it is a fairly abundant area in springs. What proposals would you make to minimize this impact?	Geotechnical studies have been carried out to avoid these impacts. If this is not possible, there will be other mitigation measures such as the use of good building practices for projects of this nature. In the 44 kilometers of the track we have drilled approximately 15 meters [to understand] the quality of the soil, the groundwater levels that will determine the type of foundation design and to analyze the hole size. We have searched for soils where we will not [affect] the groundwater levels. Our towers will go to a depth between 3 and 5 meters, with the idea of not affecting the groundwater levels.

Participating Communities	*Questions*	*Answers*
	A few moments ago you mentioned the cutting of trees; "Trees are planted according to the environment where the tower is" and if the tower does not affect the water source, the trees will provide a higher level of humidity. [In the event of] lightning / thunder, the tower or line will have lightning rods?	Yes, the guard wire works as "lightning arrestor" (lightning / thunder protection). In addition, the towers will be isolated on the ground to avoid such situations.
	Have you done chemical analysis of water quality?	Yes they have been made as part of the baseline. In addition, water monitoring is part of the management plans.
	When the GEO was built, a canal was built where the wastewater (dirty) passed through different municipalities until reaching the sea. Are you going to make a canal to bring the wastewater to the sea? I have doubts, because I do not know. Do the engines need fossil fuel or not?	No, in our case this does not apply. During construction, water will only be used for concrete. The process of the environmental impact study of a plant is one and that of the transmission line is another. The transmission line is what corresponds to us.
	Are there people from Acajutla here? What are you going to generate the energy with? What are you going to burn?	Remember that all emissions are controlled by an air purification system and [we will] be audited by the Ministry of Environment, the World Bank, and so on. But that's for the plant. For the transmission line we will not burn anything. One advantage of the plant [in El Salvador] is that according to the unit of transactions the order of dispatch of Projects is: first hydrological and geothermal, then biomass plants and finally thermals (which are the most polluting). Our fuel is cleaner and [therefore] we take market from other projects.
	I heard that you (Odessa Bowen) are a marine biologist. We have heard talk about the impact on marine life, but only in relation to what will affect other places. We have also heard about spill prevention at the plant, specifically on the seabed, bearing in mind that there is one of the most important reefs in the Pacific. I am glad that a company dares to consult us.	It was explained to the attendees that EDP has carried out two environmental impact studies (plant and transmission line) and that ERM / Natural Capital is not qualified to respond on [the related impacts] to the plant since they did not work in that environmental impact study. However, ERM / Natural Capital is able to respond to the environmental impact study of the transmission line. However, we will take note of the question and consult with the people who carried out the environmental impact study of the plant.
	Really for us the Project is a single one. As a suggestion, for the next workshops, people form	We will take note of the suggestion.

Participating Communities	*Questions*	*Answers*
	the line and the plant should be here. Sometimes we leave with the restlessness and we have no answer on the plant. We would like to know more about that.	
	We also worry about where the laying comes and where it goes. We are interested in [understanding this].	The results of the workshops were shared and a "public consultation" meeting in which the Ministry of Environment invited people. Calls were made to the workshops and published in the newspaper [for related meetings] to the plant. In Acajutla more than 100 people arrived at [the meeting] of the plant. Also in the transmission line is going to make a public consultation. We (EDP) have an information office in Acajutla. We have been for more than two years and we invite you to come and access [related information] to the progress of the Project. It is a very large project and we cover different areas. The engineering department has two departments: 1. the transmission line and 2. the plant. On the website you can consult the environmental impact study of the plant and the results of this. It is important, even though you are withdrawn from the plant, and [we] are interested in being well informed.
	I [believe] that this Project is developmental but just as [this] is carried out we have to be transparent and protect ourselves from having misunderstandings. Let's try to be a bit more complete when it comes to sharing information about the plant and [the transmission line].	Thank you [for your attendance] at the workshop and these comments are taken into account for future activities.
	What are the sources of noise?	Heavy machinery is the main source of noise. This source is temporary and the Project avoids urban areas.

Participating Communities	*Questions*	*Answers*
	You have already analyzed the situation, it is assumed that [the Project] will cause (or is going to cause) impacts on the fauna. Why move the habitat frogs, why move them to another site?	Yes, we are proposing night shifts to catch these frogs and relocate them to another place. To protect the frog is best to move it, we think that is more beneficial than moving the transmission line to another side and possibly cause a greater impact.
	I do not know where the line will stop. I would have really like to [attend the meeting] in Ahuachapán to know what the impacts are. If the tower is going to fall on a mountain or in different places, all that would serve us [to develop] a more accurate opinion. We do not really have [this information].	Yes, we will explain that to you when we get to the end of the presentation. They are also going to explain the process that was carried out for the acquisition of right of way.
	How owners got paid?	Explanation from ISA.
	In this area we have a bird, a huge hawk that passes here. How would the impact [to this] be minimized?	Flight dissuasions, in spiral type, that are going to go on the crosses and ravines. Also included is the monitoring and maintenance of these "flight deterrents" in the management plan.
	I imagine that in all the planning and the layout of the transmission line have been contemplated the protection of millenary trees that are habitat of many species.	A forest inventory has been made throughout the route (44 kilometers and 38 meters of the right of way).
	Have you considered having a contingency plan in [case of] any emergency? Have you seen the need to have a contingency plan?	Yes, it is part of the environmental impact study and is a requirement of the government of El Salvador.
	You already have all this in mind, according to the [hostess]. It would be worth remembering what kind of birds are gone and can come back.	Your opinion will be taken into account and we will consider how it can be incorporated into the environmental management plans.
	How has the right of way been managed?	Other study teams have identified the different properties and their respective owners. [The Project] has dealt with almost 300 owners for the right of way tranches and [all of these] have been given full knowledge of the payment of compensation for bonded labor, legal requirements, values established by market valuation studies, etc. [This information is part of] a dialogue table that was initiated with the owners to reach an agreement, including owners in areas of high tourist value. The two offices where the [community] and [grievance] inquiries are received have not, to date, reported any mishaps. All the owners,

Participating Communities	*Questions*	*Answers*
		along the route, have contact with EDP, including large coffee producers who required that the agreements be transparent and friendly to the environment.
	[Is there] the possibility of employing people in the area?	Resumes will be received for the hiring of local labor during the construction phase.
	[The] biggest problem in the municipality is unemployment. [The Project] should take advantage of the opportunity to give work, especially the youngest, to prepare them according to the needs of the company. For example, make a small job fair to introduce young people to employees and EDP.	The resumes will be received at the offices, where EDP staff can also be contacted. A "job fair" is a good idea which was also presented during the workshop in Acajutla.
	How to control the speed [of vehicles]?	The vehicles have internal speed control; if it exceeds speed limits, the Project will fire the driver.
	How will you control the traffic of people?	It is going to coordinate with the traffic authorities in what signaling corresponds. In addition, there will be an approach in the municipalities to give information [related to this] and avoid the displacement of heavy machinery during the peak hours.
	Have mitigation measures been considered for possible damage to the road network?	The machinery is not so heavy as to damage the road network. Trucks will be like freight trucks that go through the roads normally and mules will be used to move the material wherever possible.
	When [the transmission line] arrives in Ahuachapán will it be connected to the substation to send energy to the GEO?	It will not connect to the GEO. An additional bay is to be built within a given section.
	Is [the Project] going to cover the whole country?	Yes.
	[The Project] is going to lower the cost of energy?	The forecasts say yes.
	It is expected to be so. Energy has ultimately doubled costs.	N/A
	How does the cost compare between fossil-generating plants versus gas plants?	Personally (César) it is considered that the cost decreases according to the moment of the analysis.

Participating Communities	*Questions*	*Answers*
	Do you have social projection projects?	Yes. [Communities] located around the plant have to benefit. [Projects are determined through] requests for donations. There is flexibility in the requests
	Could they generate education, health centers, etc.?	Yes.
	[Are these benefits] only for the municipality where the plant is located or for the communities where the line passes?	[In the communities where the line passes] certain works will be done, but where it is forced to compensate for the impacts is in the municipalities.
	Will there be [Project] offices in Ahuachapán?	It has not been contemplated to open offices in any other municipality.
	Explain the consortium with ETASAL?	ETESAL is a GEO distributor. They are in charge of distributing the energy.
	Does [Project] need permits from municipalities?	Yes.
	Concern that there are no social works for the municipalities through which the transmission line passes; there is a lot of need for social investment	N/A
	Will they give a better quality of life to the settlers? Have they looked for opportunities to see how it could be done?	In Acajutla there is a commitment [to invest in the community] but this does not exclude other sectors in which it is also being supported in development with, for example, the generation of employment in the area. EDP will sit down and review where the line goes to determine how to benefit those sectors. EDP will do its best to support social projects according to the priorities identified by the municipalities.
	GEO has collaborated in Apaneca and Ahuachapán, with schools. Schools need cooperation and it could be that EDP helps in that way in the future.	EDP agrees with that idea.
	Is there a possibility of expanding production or will it be set?	The production will be 20 years (on paper) but can be extended. Broadening the generation has not been seen as such, but it has been contemplated to sell natural gas directly to the public.
	Would the infrastructure have a margin to support expansion (eg wiring)?	The transmission line is designed with three tenders and three cables even though the EDP design is two-wire (and one will be empty). The Salvadoran government wants to make a "peripheral ring" from north to south.

As part of the workshop agenda, emphasis was placed on the impact table, detailing whether these were significant or not significant, positive or negative.

Regarding the environmental theme, the most relevant impacts were ranked and participants were explained that each stage of the Project is more susceptible to certain impacts. Participants perceived the satisfaction of the elaboration and content of the management plans (environmental and social), on which they posed questions related to the prevention of risks and the response to emergencies, which were attended by the technical team, who explained that the Management Plan contains actions and specific measures to mitigate each of the identified impacts.

The results presented as a result of the diagnoses carried out by the Project as part of the EIS were known to the workshop attendees, as they were informed about the type and content of the work carried out, as well as the usefulness of the information embodied as baseline. The participants were informed of the procedure followed in each of the activities carried out to date within the framework of the Project, and that the process required obtaining the environmental license.

6.3.3 *Conclusions*

- The objective of informing the inhabitants of the area of influence of the Project was fulfilled: the process of results of the environmental and socio-economic diagnosis, as well as of identified Impacts and of the Environmental Management Program (EMP) proposed in EIS, progress and activities that will carry out the Project in the immediate future.
- An answer was given to the questions, doubts and concerns raised by the participants regarding the socialized information in the workshops, in a clear and detailed manner.

7.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PROGRAM OF THE PROJECT

7.1 *INTRODUCTION*

This chapter presents the Environmental Management Program (EMP), which presents guidelines for the management and protection of environmental, social and health and safety of workers throughout the life of the Project. The EMP covers the phases of construction and operation of the Project and was prepared considering the impacts identified during the environmental assessment, EDP's environmental policy guidelines and compliance with the current legal framework. EDP is responsible for the implementation of the EMP.

EMP establishes environmental and social protection measures and contains a set of plans, specifications and guidelines aimed at preventing and controlling the environmental effects, impacts and risks that will be generated during the implementation of the Project, both in its direct and indirect area of influence.

7.2 *FUNCTIONAL ORGANIZATION AND POLICIES*

The main parties and their main functions of those responsible for the implementation of this EMP are:

- EDP, as the project proponent, is responsible for overall project oversight, ensuring compliance with environmental and social policies and obligations in the EMP, and ensuring that their commitments are met.
- Subcontractor is responsible for complying with the EMP and with the requirements established by EDP.

The implementation of the EMP will be carried out with the support of EDP's senior management, through the following organizational scheme:

- Project Director
- Field Manager
- Community Relations
- Construction Contractor
- Environmental Inspectors

This organizational scheme will be implemented very early in the process, since the responsibilities of its members begin from the construction phase of the Project. In the case of EDP employees, the responsibilities of each

team member will be clearly defined. Also, in the case of external contractors, the description of their responsibilities will form part of the contractual agreement. The following is a brief description of each position within the organization:

Project Director: Is the highest-ranking position within the organization for the Project. It will be responsible for providing all necessary administrative and financial support to ensure the effective implementation of the EMP. He is ultimately responsible for the EMP.

Field Manager: Reports to the Project Director and will be responsible for coordinating day-to-day tasks during the implementation of the EMP. His responsibilities include coordinating monitoring tasks, reporting, and coordinating technical and managerial issues.

Community Relations Supervisor: reports directly to the Project Director or to the Project Manager. It is responsible for keeping the community informed and addressing their concerns in coordination with the Project Director.

Construction Contractor: Will be responsible for implementing all occupational safety and environmental protection measures described in this EMP during the construction phase. It will be responsible for identifying aspects of environmental interest that arise during construction and will direct them to the Project Manager for their relevant action.

Environmental Inspectors: Are reported to the Project Manager. They will be responsible for field monitoring and will report on EMP compliance status to the Project Manager.

7.2.1 *Environmental and Social Management System*

There is a strong need for companies to adopt environmental and social management systems for the implementation of their environmental management programs and other policies and procedures relevant to their projects. The environmental and social management system must be implemented and maintained as a process that achieves the objectives, institutional responsibilities and other policies, principles and associated commitments in relation to health, safety and compliance with established environmental regulations.

The process of implementing an environmental and social management system in line with industry best practices is to follow the general principles of the "Plan, Do, Verify and Review" cycle as described below and shown in the Figure 7.2-1.

7.2.1.1 Plan

- Define environmental and social performance policy and objectives.
- Identify the environmental and social impacts as well as the risks of operations.
- Develop mitigation measures and operational controls to address impacts and risks.
- Develop a management plan to achieve the above objectives.

7.2.1.2 Do

- Implement the management plan.
- Implement mitigation measures and operational controls.

7.2.1.3 Verify

- Monitor performance regarding to policies and objectives.
- Verify the effectiveness of mitigation measures and operational controls.

7.2.1.4 Review

- Make corrections to plans, mitigation measures and controls in response to performance monitoring and out-of-control events.

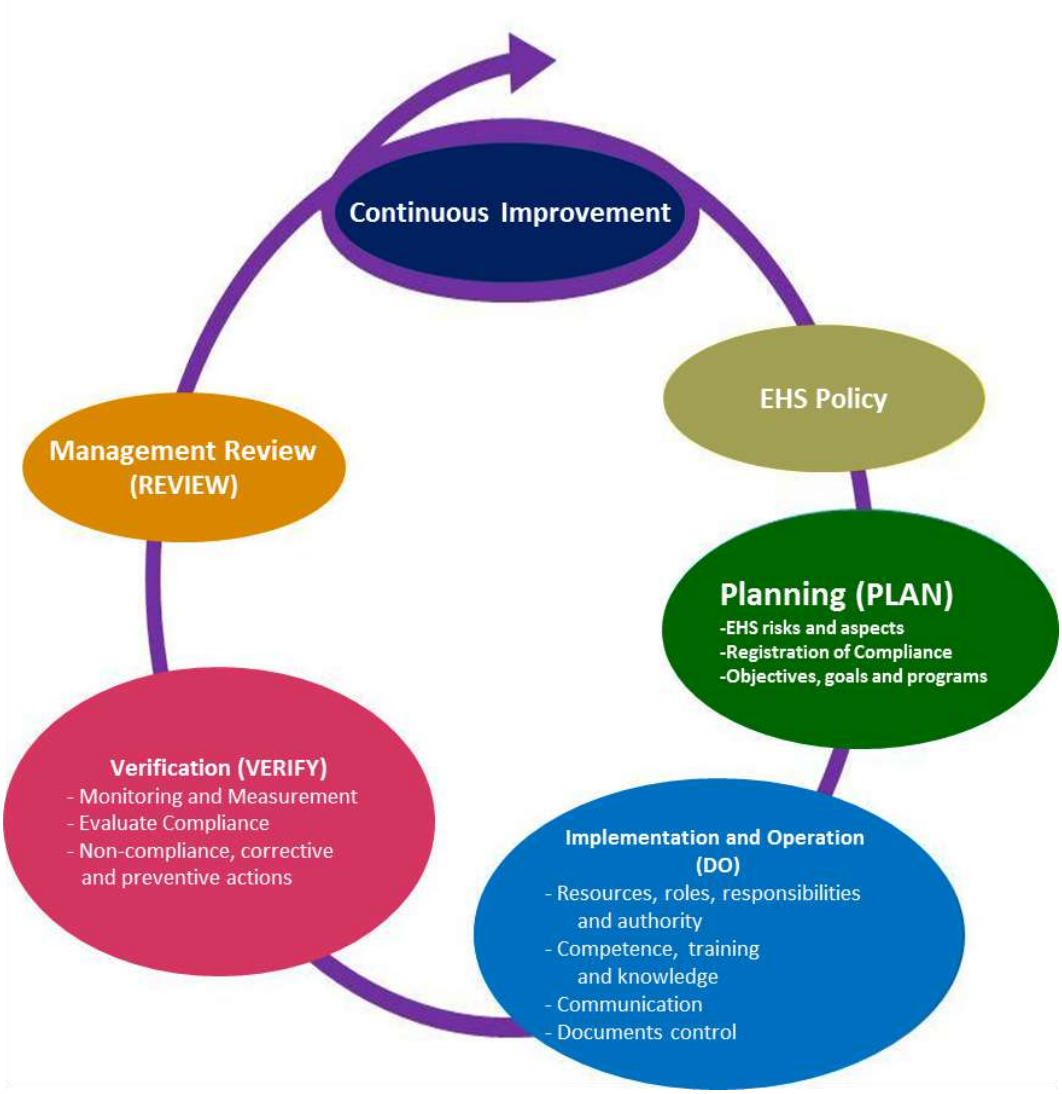


Figure 7.2-1 Plan, Do, Verify and Review

7.2.2 *Audit, Adjustment and Reporting Mechanisms*

Audit and adjustment procedures are an essential component of the successful implementation of EMP plans. Audit procedures include inspections, monitoring and audits to confirm the correct implementation of EMP plans, as well as the effectiveness of mitigation measures. Corrective actions include responses to out-of-control, non-compliance, and non-conformity situations. Actions also include those aimed at improving performance.

Environmental and social responsibility inspections will be carried out by representatives of the environment and social responsibility, as specified in the plans, to ensure that all staff (employees and subcontractors) meet

their obligations. The Field Manager will be informed weekly of the results of the inspections, or as specified by the plan.

Monitoring activities will be carried out to ensure compliance with the commitments set forth in the EIS, as well as to evaluate the effectiveness of operational controls and other measures aimed at mitigating potential impacts. Detailed information will be produced on the mitigation measures and the specific monitoring plans of the different aspects of the Project. The monitoring plans describe the effect to be measured and the frequency of its measurement, and are intended to confirm that the Project is meeting its obligations regarding environmental management and working practices. The monitoring will be carried out by EDP's environment and social responsibility staff; infrastructure personnel will also make contributions related to specific monitoring activities to ensure continued compliance with legal obligations and commitments.

7.3 *SUMMARY OF IDENTIFIED ENVIRONMENTAL, SOCIAL AND CULTURAL IMPACTS AND MEASURES OF MITIGATION*

The Project will have minor to moderate impacts. Most impacts to the physical environment will be adequately addressed through the implementation of typical construction measures and "best practices" typical of the industry. Most mitigation measures are already integrated into good construction practices (for example, erosion control) and others that are specific to the Project (for example, reforestation, frog piles, flight deterrents). Inevitable biological impacts, such as deforestation and damage to areas where black-eyed frogs reside, will be effectively offset by reforestation at a rate of 10 to 1 of trees and the construction of water piles that provide space for black-eyed frog breeding, resulting in a net positive effect. The project will have mostly positive social impacts, both direct (as local employment opportunities) and indirect (improving the availability of electricity), and negative impacts, such as the potential for traffic accidents or increased noise during construction, are moderate and will be effectively managed with the implementation of best practices. In its entirety, the Project is considered viable and positive for El Salvador.

While most management and mitigation measures include the implementation of good practices during construction, the EMP includes the following special measures to compensate for unavoidable impacts:

- Reforestation plan: following the requirements of El Salvador, the trees will be compensated in a proportion of 10 trees planted for each tree cut and one shrub planted for each shrub cut.

- Construction of water piles to provide areas for deposition of Black-eyed frog eggs.

- To mitigate potentially negative social impacts, the Project will implement a Complaint Management Plan, as well as a Community Participation Plan.

- To avoid or minimize potential impacts to archaeological resources, the EMP includes a Plan of Fortuitous Findings.

Table 7.3-1 summarizes the main potential impacts of the Project, the proposed mitigation measures and the significance of the impact after mitigation.

Table 7.3-1 Summary of Principal Project Potential Impacts and Proposed Mitigation Measures

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Physical Environment				
Construction	Increased erosion and sedimentation	• Terrain leveling; construction of towers, substations, access roads and facilities.	• Especially in areas with steep slopes, the possibility of constructing the bases of the towers on the existing relief will be evaluated or they will be installed on piles, without leveling the area. This minimizes the amount of soil to be affected. • Implement measures to control soil erosion, rainwater management and sedimentation. These measures include the use of sediment fences, the installation of permanent and temporary drainage systems to manage runoff from construction sites and the use of sediment capture trenches; as well as the use of regulation dams to control water runoff, etc. • Use appropriate management practices during deforestation activities. For example, as far as possible, schedule construction activities during the dry season, especially in areas with steep slopes; limit deforestation and alteration only to the approved work area; minimize the area of vegetated soil within the approved work area as much as possible; and gradually stabilize and reforest the altered areas. • Revegetate slopes in areas where required. • Place surplus material in properly approved areas or reuse it as filler. • Properly compact all material at the end of activities. • Once the construction phase is completed, those access routes and service routes that are not necessary for the project operation stage will be closed and restored to their original or better conditions; and	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			• Community requests to maintain an open service path or route will be evaluated jointly with the competent authorities.	
Construction / Operation	Pollution of soils	• The risk of pollution of soils by accidental spills of fuel and lubricants from equipment and machinery.	• The risk of pollution of soils by accidental spills of fuel and lubricants from equipment and machinery. • Maintenance of the equipment in good mechanical conditions, to avoid losses of fuel and lubricants that can contaminate the floors and be washed by rains; • Any major maintenance of the equipment should be carried out in specialized workshops and not at the project site; • Adequacy of a specific area, with waterproofing protection, to carry out minor maintenance activities; and • Implementation of the Contingency Plan in case of spills (see Section 7.0 - Environmental Management Program).	**Insignificant**
Construction / Operation	Natural Threats	• Volcanic eruptions, earthquakes, seisms and landslides	• Design and construction of all facilities associated with proposed TL considering high safety factors and under local and international seismic protection codes and standards. • EDP has located the path of the TL trace outside the trajectories of lava flows and lahars of the two volcanoes near the TL, • Revegetate slopes where excavation work has been done. If areas prone to landslides detected, which to date after several visual examinations have not been found, stabilizations would be made. • Implementation of a contingency plan (see Section 7.0 - Environmental Management Program).	**Minor**
Construction / Operation	Alteration of air quality	• Emissions of gases and particles from equipment, machinery and vehicles (mobile sources) using hydrocarbons as a fuel source.	• The dust generated by the construction and transit of material loading trucks will be mitigated by the irrigation of roads and access to the right of way and within the right of way. Such irrigation will be by means of water pipes. • The use of any machinery, equipment, or vehicles that have fuel leaks, ruptures in combustion and exhaust systems, or problems in catalyst systems shall not be permitted.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			• Concentrations of PM10, particulate matter less than 2.5 microns of aerodynamic diameter (PM2.5), volatile organic compounds, SO2, NO2 and CO will be monitored. • The box of vehicles transporting debris, dirt or construction material should be fitted with a tight canvas to prevent dust from escaping during its journey. Besides, the tires will be covered during loading and unloading of materials to prevent them from throwing material when spinning. • Any vehicle, whether for transportation, forklift or maneuvering equipment, shall be driven into previously opened roads, gaps and paths designated for that purpose. • Equipment that operates on diesel and gasoline, must have preventive maintenance to comply with applicable environmental regulations. • Gasoline equipment will have catalytic converters in good condition. Those that are maneuverable equipment (for example, forklifts and cranes) will adjust their operation to the guidelines of these measures. Catalytic converters or filters for diesel will be incorporated, as the case may be. • Establish speed limits for vehicles that circulate in populated areas as well as access to the project (maximum speed of 25 km/h). • Ensure that the vehicles and equipment to be used comply with the maintenance required by each equipment and will have: 1) specific maintenance requirements for each equipment, 2) inventory of equipment, spare parts and materials needed for maintenance; and 3) periodic lubrication. • Perform resistance testing of materials, galvanizing impregnation and other tests at the factory and not on site.	
Construction / Operation	Change in surface runoff	• Construction of towers, substations, access	• Proposed facilities should have roof drains that collect the runoff water and direct it to the ground where they can continue their normal course.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
		roads and facilities.	• Piping stormwater into roads through ditches, sewers, sediment barriers and settlers, among other devices to reduce the drag of solids to rivers and/or creeks. • • In the outdoor parking and storage areas of machinery/equipment, adequate control systems such as hay bales should be placed to avoid contamination of runoff water. • • If it is necessary to carry out ground leveling work for the foundation surface, these must be done in a way that does not alter the surface drainage conditions and do not leave areas that in future compromise the stability of the structure.	
Construction	Changes in the quantity and quality of wáter	• Construction of towers, substations, access roads and facilities; accidental spills of chemicals, lubricants and fuels. • Earth movement. • Crossing of ravines by vehicles and machinery can introduce contaminants. • Three of the nine storage facilities or temporary storage areas are located within 100 m of a body of water.	• The material generated from the excavation works will be removed from the excavation and deposited at a safe distance to avoid material falling into nearby rivers and/or ravines. The collection area of the material must be selected before starting the excavation work to prevent mounds of accumulated material from having any impacts on the nearby rivers and/or ravines. • Piping rainwater into roads through ditches and/or culverts, sediment barriers, and settlers, among other devices to reduce the flow of solids to rivers and/or ravines. • In outdoor parking and storage areas of machinery/equipment, suitable control systems such as hay bales should be placed to avoid contamination of runoff water. • Conduct domestic water management during the construction phase using portable sanitary modules, as described in Section 2.0 (Project Description). Use at least one portable toilet for every 15 people and give daily treatment with detergents and biodegradable additives to these sanitary modules. The solid waste from these toilets will be extracted by the company that rents these devices, as well as their disposal. • Comply with the manufacturer's guidelines for machinery and equipment used to prevent fuel spills.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			• Avoid vehicular traffic in riparian areas and avoid the use of machinery in the vicinity of watercourses. • Have a prevention, control and response plan to risks of spills including emergency response, cleaning and recovery of contaminated soils (see Section 7.0 - Environmental Management Program). • Use sealed barrels with device for the transfer of fuel for the power generators.	
Construction / Operation	Increased environmental noise and vibration levels	• Increased traffic of vehicles and machinery (heavy machinery and trucks) and use of equipment and machinery.	• Maintain maximum permitted noise levels within the values indicated by Salvadoran authorities or threshold levels of noise established by IFC. • Indicate all sites where they emit noises above 85 dBA, to avoid exposure of persons without properly certified hearing protection equipment. • Train all workers on techniques for the use and maintenance of hearing protection equipment (occupational safety) that should be required at all times during the exposure period. • Establish speed limits for vehicles traveling in populated areas (maximum speed of 25 km/h). • Maintain in good condition the damping systems of all vehicles, machinery and equipment used during the Project phases. • Design and implement a contingency plan and corrective measures to meet eventualities. • Study and use noise barriers or acoustic noise suppression devices when necessary.	**Insignificant to minor**
Biotic Environment				
Construction	Loss of plant cover	• Tree felling during construction and installation of towers and substations; construction of access roads and	• Optimize the design of the TL route and infrastructure to minimize impacts to natural forests. • Implement an environmental compensation program through reforestation of trees (10 trees x felled tree) and shrubs (1 shrub per shrub felled). • If you cut trees whose timber is of commercial or utility value, you will consult with landowners to inquire if they are	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
		storage areas - campuses (towers and lifting cables).	interested in retaining timber. The contractor will cut the logs to segments of appropriate size. • If the landowner is not interested in wood, the contractor may seek other ways to distribute the wood to entities that can be put to good use. • Other generated plant materials can be crushed on site and used to provide a layer of protection against erosion.	
Construction	Loss of individuals from threatened or endangered species	• Tree felling during construction and installation of towers and substations; construction of access roads and storage areas - campuses (towers and lifting cables).	• Optimize the design of the TL route and infrastructure to minimize impacts to natural forests. • Prior to construction, count individuals of threatened and endangered species to be logged. • Implement an environmental compensation program through reforestation of trees (10 trees x felled tree) and shrubs (1 shrub er shrub felled).	**Insignificant to Positive**
Construction	Pollution and degradation of aquatic hábitats	• Tree cutting during construction and installation of towers and substations; Construction of access roads and storage areas - campuses. • Earth movement. • Crossing of ravines by vehicles and machinery can introduce contaminants.	• The material generated from the excavation works will be removed from the excavation and deposited at a safe distance to avoid material falling into nearby rivers and / or ravines. The collection area of the material must be selected before starting the excavation work to prevent mounds of accumulated material from having any impacts on the nearby rivers and / or ravines. • Piping rainwater into roads through ditches, sewers, sediment barriers and settlers, among other devices to reduce the drag of solids to rivers and / or ravines. • In outdoor parking and storage areas of machinery/equipment, suitable control systems such as hay bales should be placed to avoid contamination of runoff water. • Comply with the manufacturer's guidelines for machinery and equipment used to prevent fuel spills.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
		• Three of the nine storage facilities or temporary storage areas are located within 100 m of a body of water.	• Avoid vehicular traffic in riparian areas and avoid the use of machinery in the vicinity of watercourses. • Have a prevention, control and response plan to risks of spills including emergency response, cleaning and recovery of contaminated soils (see Section 7.0 - Environmental Management Program). • Use hermetic barrels with device for transferring fuel for power generators.	
Construction	Loss of habitat and black-eyed frog individuals	• Loss of habitat and mortality of individuals during construction activities.	• Campaigns for the capture and relocation of frogs in habitats to be affected by the Project. • Avoid impacts to its existing breeding sites. • Construct two piles of water catchment in each area where the presence of the frog was documented to increase the availability of habitats for the reproduction of the species (Santa Rita and Tequendama farms). The "piles" are craft structures used by coffee producers in the region to store water. Frogs use these piles as shelters and breeding grounds. It should be installed four piles built according to local custom with the following dimensions and materials: approximate dimensions - 2.5 m long x 1.5 m wide x 1.6 m deep with, corrugated aluminum sheet roof with gutter and down tube; and materials - building bricks, cement, sand, corrugated aluminum sheets, nails and/or screws, with cement refining. • Reforestation of forest habitats in the Biosphere Reserve. • Educational conservation campaigns on the importance of the frog and the advantages of organic coffee cultivation without agrochemicals.	**Positive**
Operation	Collisions of birds with the transmission cables	• Collision with the TL cables, mainly in the cables of guard for being of smaller diameter and less visibility.	• Installation of bird flight deterrents throughout the section of the transmission line within the IBA "Los Cóbanos." • Installation of dissuasors in the main crossings of rivers and ravines.	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Construction / Operation	Construction of TL in Apaneca-Ilamatepec Biosphere Reserve - Buffer zone and Transition zone.	• Felling of 194 trees in the Buffer Zone and 248 trees in the Transition Zone. • Installation of TL, partially, within the limits of the Apaneca Biosphere Reserve - Ilamatepec.	• Installation of bird flight deterrents throughout the length of the transmission line within the IBA. • Minimize felling of trees and shrubs by positioning the towers outside areas of woody vegetation. • Minimization of the opening of new accesses and their rehabilitation and revegetation to finalize the construction of the Project. • Restoration of forests within the Reserve through the Environmental Compensation Program. • Training of workers on the importance of the Reserve and its conservation objectives. • Installation of information signals on public roads on the Reserve and its biodiversity values.	**Positive**
Construction / Operation	Construction of TL in an important bird area "Los Cóbanos".	• Tree felling in the bird conservation area. • Risk of collision of birds with transmission cables.	• Installation of bird flight deterrents throughout the length of the transmission line within the IBA. • Minimize felling of trees and shrubs by positioning the towers outside areas of woody vegetation. • Restoration of gallery forests within the IBA through the Environmental Compensation Program. • Training of workers on the importance of birds and their habitats. • Installation of informative signage about the IBA and its biodiversity values on Route 12.	**Positive**
Socioeconomic Environment				
Construction / Operation	Generation of temporary and permanent jobs.	• Construction, operation and maintenance of TL and infrastructure.	• Recruitment of the labor force constituted mainly of workers of the towns and municipalities in the area of influence of the Project and national specialized workers.	**Positive**
Construction / Operation	Regional economic stimulus	• Construction, operation and maintenance of TL and infrastructure.	• The growth of commercial, industrial and related services is expected.	**Positive**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
Operation	Increased power supply	• Operation of the TL and infrastructure.	• Increased power supply.	**Positive**
Construction	Risk of conflicts between the local population and the Project	• Construction of the TL and infrastructure.	• The Project has designed a citizen participation plan that establishes recurrent meetings to inform the progress of the Project. It has also established a complaint mechanism to have an open line of communication with the communities. For more details, refer to Section 7.0 Environmental and Social Management Program. • In addition, contractors will have to abide by the workers' code of conduct and all employees will be required to induce community relations.	**Insignificant**
Construction / Operation	Risk of traffic accidents on public roads	• Traffic of vehicles and equipment during TL construction and infrastructure.	• The works will be programmed so as to always maintain the main communication channels enabled. The necessary precautions will be taken to avoid accidents, maintaining at all times adequate signage, both day and night, according to the rules of the competent authority complying with current regulations. It will be driven at a maximum speed of 25 km / h. At the end of the works to improve the roads, the clearance and cleaning work will be carried out. • All personnel and Project contractors related to vehicle driving will undergo training for defensive driving (Smith System). It will ensure that the drivers have the Smith System certificate and if they do not have it, they will take a course. • All Project staff and Project vehicles will give the right of passage to all local people (for example, inhabitants of communities that are moving on foot). Project employees as well as subcontractors will be responsible for the traffic of their vehicles and will have to comply with the measures proposed in the Environmental Management Plan and the Social Management Plan (see Section 7).	**Moderate – Construction. Insignificant – Operation.**
Construction	Purchase of right of way	• Resettlement of a house in Acajutla.	• Anticipate and avoid or, where this is not possible, minimize the adverse social and economic impacts arising from the	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			acquisition or restrictions on land use: (i) compensating the loss of assets at replacement cost. • The Project will make every effort to improve the living conditions of physically displaced persons by providing them with adequate housing with security of tenure in resettlement sites. • Development of the document with the methodology for "Zoning of Land Uses, Determination of Securities Ranges for Land and Infrastructure Compensation, Definition of Valuation Parameters and Negotiation Criteria", which establishes the boundaries or limits of classification of land uses in the terrain, and value ranges for fair compensation for acquisitions or land use restriction arising from Project implementation. • Resettlement activities will be carried out with appropriate dissemination of information, consultation and informed participation of the affected persons. The Project Social Management team will ensure that these aspects are met. • It has an Office for Attention to Owners since September of 2015 that among its functions are: o Attention to owners / holders of real estate located under the trace or any other person interested in obtaining project information. o Receipt of personal identification and property ownership documents. o Receipt of complaints and claims, not only by owners / holders of properties, but also by any person living in the area of influence of the trace, and who are directly involved who consider that they have suffered damage on their property by the work teams that perform in the field. This establishes a complaint mechanism for appeals and for the resolution of disputes in an impartial manner.	
Construction / Operation	Alteration of visual quality and fragility	• Clearing and grubbing vegetation.	• The line layout and right of way corridor design have been optimized to minimize impact and preserve the visual quality of the natural environment. Elements of the natural	**Minor**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
		• Earth movement. • Rehabilitation and construction of access roads. • Rising the towers. • Laying of the conductors.	environment (for example, points of tourist interest or natural observation, churches or buildings with historical and heritage value, peaks and mountains, etc.) have been taken into account to avoid intersecting with them. • Design of TL route near the edge of agricultural or forest parcels of land in order to hide the lines in the dark background.	
Construction	Riesgo de accidentes laborales	• Construction of TL and infrastructure.	• EDP will ensure that the working conditions in the Project comply with the occupational health and labor standards of El Salvador. • The staff must be qualified to carry out the activities of the Project. • All employees will receive training in Occupational Health and Safety. • The contractor company will provide personal protection equipment and tools in good condition to all workers according to the activities they carry out. • Personnel shall wear appropriate personal protective equipment at all times and work at heights shall be carried out with appropriate safety measures (harness, gloves and insulation clothing), in accordance with the applicable legal requirements in this area. • The staff will have adequate and sufficient means to ensure adequate hydration and at least one hour of rest during the day. • If there are torrential rains during the removal work for the installation of the line, the work must be done with extreme caution or even suspended, while the rain lasts to avoid soil trapping and runoff. • All workers should be made aware of the importance of complying with all the above mentioned measures in order to ensure adequate waste management, personal protective equipment and work tools in good condition, and to safeguard	**Insignificant**

Phase	*Impact*	*Source of Impact*	*Proposed Mitigation Measures*	*Residual Significance of Impact After Mitigation*
			and preserve the biological and environmental aspects of the area. • All access points to the Project sites will be clearly marked and will have security personnel.	
Cultural, Archaeological, Ceremonial and Historical Resources (Cultural Heritage)				
Construction	Alteration of the context or state of resources of pre-hispanic cultural heritage	• Terrain leveling; excavation for bases and construction of the towers, access ways and facillities.	• The layout of the line and the design of the right of way corridor have been optimized to minimize the impact on the underground cultural heritage resources. The findings have been taken into account and a second phase of the survey will also be carried out with the participation of representatives of the Ministry of Culture. There will be monitoring for incidental findings and an awareness plan for workers during the construction process.	**Insignificant to moderate (depending of findings during phase II)**
Operation	Restriction of access to cultural heritage resources	• Access restricted to nearby of right of way.	• Communication channel will be established to ensure relevant research on the resources identified in the trace and restricted access will add an additional level of protection to documented resources.	**Positive**

7.4 *PROPOSED MANAGEMENT PLANS*

The PMP developed for the Project, which is presented in Appendix O, includes the environmental and social plans to be implemented by EDP and its contractors during the construction and operation stages of the Project to prevent, minimize, mitigate and/or compensate for negative environmental and social impacts resulting from the Project; and also to enhance the positive impacts that may result from Project activities. The individual management plans of the Project will:

- Potential impacts on environmental receptors and social values;
- Mitigation strategies;
- Performance monitoring;
- Indicators and performance criteria;
- Reporting requirements; and
- Appropriate corrective actions in the event of an undesirable impact or an unintended level of impact occur.

EDP is committed to providing the essential resources for the execution and control of the PMP.

The PMP includes actions that have been grouped by nature and objectives into specific plans, including the following:

- Air Quality Control Plan.
- Noise and Vibration Control Plan.
- Erosion and Sedimentation Control Plan.
- Contingency Program.
    - Seisms
    - Volcanic Threat
    - Leakage
- Terrestrial Flora and Fauna Protection Plan.

- Social Management Program.
    - Training Plan.
    - Community Involvement Plan.
    - Complaint Management Plan.
    - Community Health and Safety Plan.
    - Plan of Fortuitous Findings.

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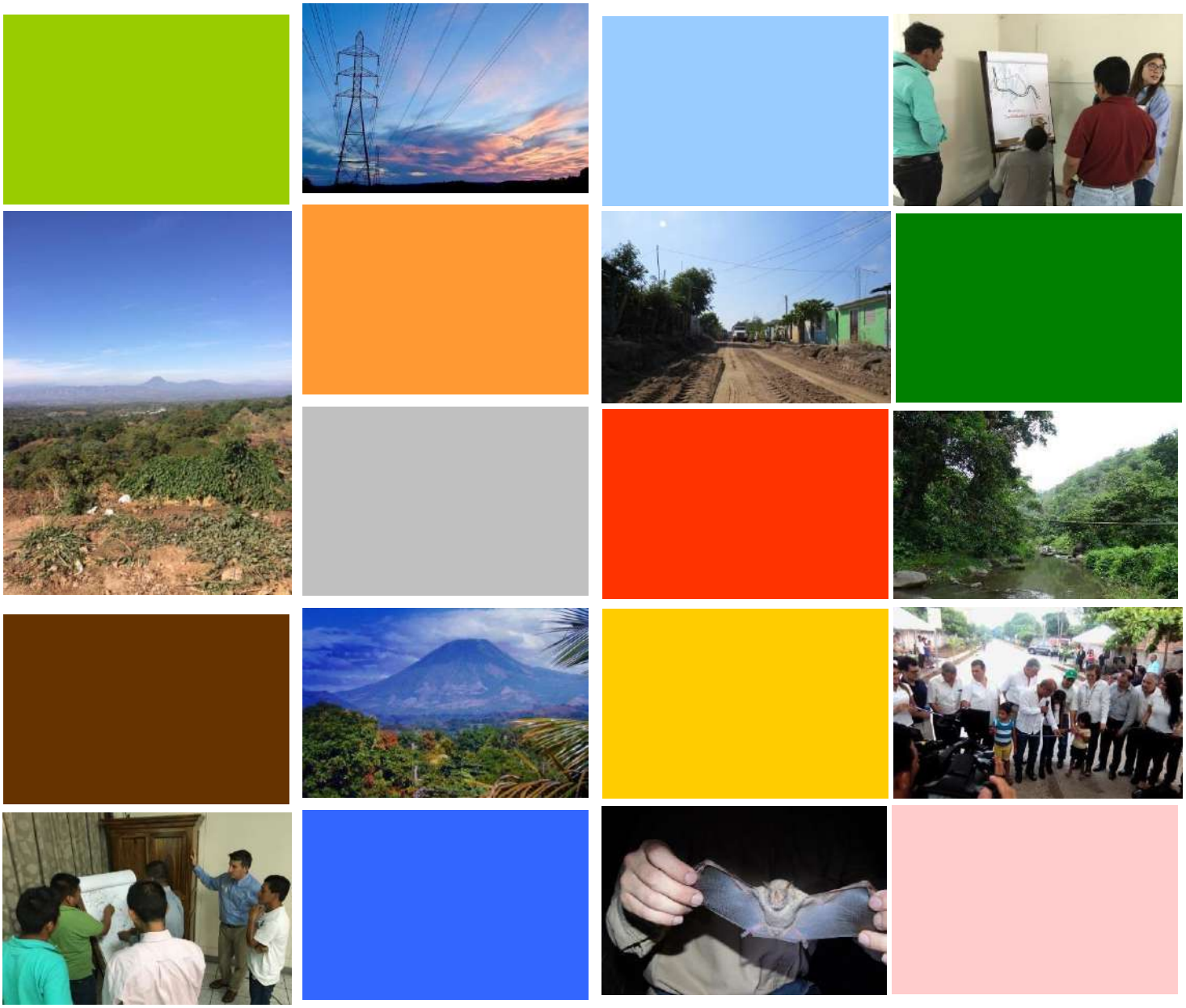

Energía del Pacífico

Environmental and Social Impact Study

Volume II - Appendices

Ahuachapán to Acajutla Transmission Line Project

January 2017

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APPENDIX A

TERRESTRIAL FLORA REPORT FOR THE PROJECT: "ENERGÍA DEL PACÍFICO ELECTRICAL TRANSMISSION LINE" 2016



Written by:

Vaquerano Huezo, William Orlando. Team Coordinator

Lopez Sorto, Ruben Ernesto. Land Flora, Aquatic Flora and Fauna

Vaquerano Gómez, Rene Arturo. Land and Aquatic Fauna

Quijano Vásquez, Kevyn Jeasson. Bats

July 2016.

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Biogeography

El Salvador lies in the neotropical region that comprises the American tropics, from the northern part of Mexico to the center of Argentina (Rapoport, 1968, Fittkau, 1969: Cabrera and Willink, 1973; Morrone, 1996b, 2001d.), and is one of the six main biogeographic regions and one of the most diverse, since one fourth of all plants and animal species are produced in South America and Central America, a Caribbean subregion which extends to the central and southern parts of Mexico, Mesoamerica, the Antilles, and the northwest of South America in Ecuador, Colombia, Venezuela, and Trinidad and Tobago (Morrone, 2001), Province of Chiapas which comprises the South of Mexico, Guatemala, Honduras, El Salvador, and Nicaragua; basically corresponds to the Sierra Madre of Chiapas, from 500 to 2,000 meters of altitude (Morrone, 2001). Conservation. The province of Chiapas is threatened by the conversion of its habitats for the production of sun coffee, firewood gathering, the conversion of natural habitats for agriculture, the clearing for the creation of pastures, overgrazing, man-made fires (Dinerstein et al., 1995, quoted by, Morrone, 2001), a situation very similar to that of El Salvador.

From the breakup of South America and Africa, basins (troughs) formed or high mountains rose. In one of these sinkings, a large trough accrued large amounts of sediment. Then it rose, deformed, and partially eroded, and the final rocks were to form the base of a new land: that of El Salvador, Honduras, and parts of Guatemala and Nicaragua.

In the beginning, the territory of El Salvador was nearly 1,500 kilometers north of its current location on the Pacific side across from the states of Guadalajara, Michoacán, and Guerrero, in Mexico, forming the south tip of a vast land strip that extended to Beringia (Alaska).

This had been its position since some 250 million years before, but gradually, the internal forces of the planet tore this land mass apart. First it got separated from the Mexican territory, then it was displaced towards the southeast, parallel to the coast. The southern sector of Nicaragua and Costa Rica had not been formed yet and South America was separated from North America by a vast sea.

During a long period of time, the land segment that would give birth to El Salvador moved across the Mexican territory, sliding south. However, once in front of Guatemala, its motion took a forward direction putting it on collision course. This movement took it some 20 million years to then slide back towards the southeast as it began to position itself where it now seats (Serrano, et al.1995.)

From about 20 million years to about 100,000 years ago, there was a transitional process between the volcanic events of the prior period and those of the present period. About 20 million years ago, violent eruptions took place that dispersed material north of the Lempa and Torola rivers. The volcanic activity later reached the central sector

and south of the country. Towards the south, its limit was and still is the great fractures that were created in the past and that in turn share their boundary with the basin (Serrano, et al. 1995).

Some 100 thousand years ago, in the area of Coatepeque, the first eruptions took place of the volcanoes we now see. Still, none of the topographic features such as the Coatepeque lake, Santa Ana volcano or Izalco volcano existed.

Volcanic activity was also starting in the proximities of Ahuachapán, between San Lorenzo, Tacuba and Las Chinamas. Later, a marine plate in the Pacific, collided with the continental area. The earth's crust rose with the exerted pressures.

In the national territory, such deformation acquired significant proportions in the past hundred thousand years and has been of particular interest in terms of the forming of major morphologic traits of our country.

As the territory rose, a longitudinal strip, that runs through the central part of El Salvador, formed. There, the geological activity was intense (and continues to be), and changed the surface features of the country.

Approximately 50,000 years ago, the central part of that strip started to deform (as it started sinking). The northern sector of this formation has its limit in Chalatenango, north of the Lempa river; the southern part in Santa Tecla, south of the city. With the deformation basins were created and, within them, great lakes. To the north lied the basin of Metapán; in Chalatenango, that of the Lempa, which was the biggest; to the east, that of the Titihuapa and the Sisimico;

In these lakes there was abundance of life including fishes, frogs and shells. The climate was warm, humid, and favorable for a diversity of lifeforms. The vegetation was dense and its remains became coal of lignitic type 35,000 years ago.

Some 20,000 years ago, there was a small lake in a time of abundant rainfall and warm climate. Life was rich in the lake. Some organisms adapted to an agitated environment, with many suspended particles, others to a more tranquil environment. The process of deformation continued and the rock gave way. The first effect of this displacement of the superficial forests became noticeable in the lakes. Confined to small basins, they drained thus forming the modern fluvial system. The most important of them is that of the Lempa river, as it is known today.

Likewise, the great land blocks had vertical movements (very pronounced in some cases), that formed the mountains in the north of the country and tipped other blocks to the south, such as the Sierras del Bálsamo, Jucuarán, and Apaneca.

Between the blocks of the south and the mountains of the north, was (and still is) the central strip, a depression that, as it sank, became filled with volcanic materials. It is in that strip that seismic and volcanic phenomena currently take place.

Other volcanic massifs appeared more recently, in Apaneca (part of the Project site) and Chalchuapa, as well as in Laguna Verde (Serrano, et al. 1995).

Within the area of the Project the volcanic complex of Santa Ana stands out, of which the Santa Ana Volcano or Ilamatepec is the nucleus. This volcano originated in the Pleistocene (between 2 and 1 million years ago), before the explosive events of the caldera of Coatepeque (its most recent eruption was in 2005). The neighboring volcanoes of Izalco, Cerro Verde, San Marcelino and others are "parasitic" to the mother volcano. Studies conducted on the structure of the Santa Ana volcano reveal that it suffered a series of debris flows towards the east and south; the biggest of them covered some 300 km_2 of the coastal plain down to the sea shore, forming the peninsula of Acajutla, where the maritime port of El Salvador now lies (UNESCO, 2007).

According to the classification of Ecoregions of Dinerstein and the terrestrial and aquatic ecosystems of the classification available for the Mesoamerican region defined by the Central American Commission for the Environment and Development, CACED, in the year 2000, it is observed that there are two ecoregions present in the Apaneca-Ilamatepec Biosphere Reserve, which is the most important and most representative area from the standpoint of biodiversity that the Project runs through: the Central American Montane Forest, which is in a vulnerable state, and the Central American Dry Forest and the Central American Pine-Oak Forest, both in critical/vulnerable state. The ecoregions are the following (UNESCO, 2007):

- **Central American Montane Forest**
- **Moist Forest of the Sierra Madre of Chiapas**
- **Central American dry forest**
- **Central American pine-oak forest**
- **Northern Dry Pacific Coast mangroves**

Ecosystems and Life Zones

In the ecosystems defined for Mesoamerica by the CACED, El Salvador has the following regional ecosystems (UNESCO, 2007):

- Areas with sparse vegetation (over lava rock)
- Bodies of water
- Broadleaf shrubs
- Evergreen broadleaf forests
- Evergreen coniferous forests

- Mixed evergreen forests
- Marshes and wetlands

In Latin America, the description of land ecologic formations has been based primarily on the Holdridge et al Life Zone Classification System (1971) and of Holdridge (1978).

This method assumes that the vegetation classes vary based on certain climate and altitude gradients. Therefore, it is worth noting that the Holdridge system is predictive, rather than descriptive.

Holdridge et al (1971) state that a global system of life zones can be established over the basis of precipitation and temperature. Said classification system utilizes de concept of "biotemperature", which takes into account the gamut of optimal temperatures for plants. A second factor of temperature that is taken into account is the decrease in temperature as elevation increases. A third factor is evapotranspiration, for which he developed his own formula. Holdridge then associated a typical vegetation type with the various life zones he had identified based on precipitation, biotemperature, altitude, and evapotranspiration (Figure 1).

The design of the transmission line runs through different Holdridge life zones in the municipalities of Acajutla, Santo Domingo de Guzmán, San Pedro Puxtla, Apaneca, and Ahuachapán, which are:

- Warm subtropical moist forest bh-S (c)
- Subtropical moist forest, transition to tropical bh- S
- Tropical moist forest bh – T
- Tropical moist forest, transition to subtropical bh – T
- Subtropical very moist forest, transition to humid bmh – S
- Subtropical low montane very moist forest bmh –MBS
- Subtropical very moist forest bmh – S

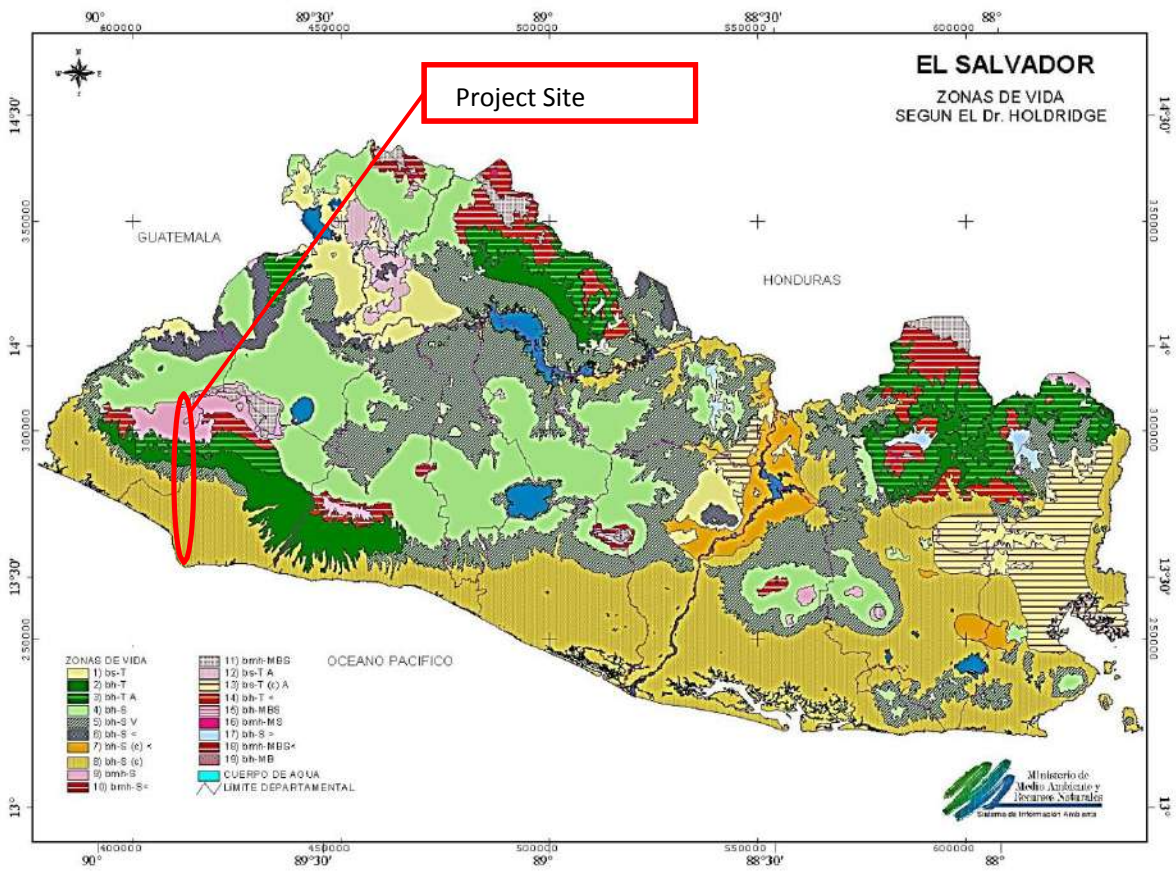

Figure 1. Life zones or vegetation formation according to Holdridge

Koeppen's Classification uses temperature and the yearly distribution of rainfall as criteria. In light of the relationship between temperature and altitude, the former can also be used as criterion for climate division.

Most of El Salvador is included in the warm tropical savanna climate type, with a dry season with average temperatures for the coldest month greater than 18°C and average temperatures for the warmest month above 22°C, which encompasses the coastal plains up to 200 meters and the interior valleys up to 800-900 meters.

In the mountains and valleys between 800 and 1,200 meters, the prevailing climate is that of warm tropical savannas, with average temperatures for the warmest month lower than 22°C, and above 1,200 meters the high tropical climate with average temperatures for the coldest month below 18°C. According to Sapper-Lauer, three levels can be identified, that is levels that show the same temperature conditions: warm land up to 900 meters, temperate land, and cold land above 1,800 meters.

Due to the special conditions caused by the presence of the ocean, with its buffer effect, the coastal zone up to 200 meters can be considered as a special climatic unit, which is differentiated by the attenuated temperature regime compared to the interior valleys.

Currently, the agricultural ecosystems or agroecosystems represent the main land use in El Salvador. Three quarters of the national territory are being used for agro-ecosystems (National Strategy of Biodiversity 2013).

Per the above, the design of the Project runs through the agroecosystems: Coffee, yearly crops tied to permanent cultivation, staple grains, cultivated pastures, sugar cane and scattered urban development (Figure 2).

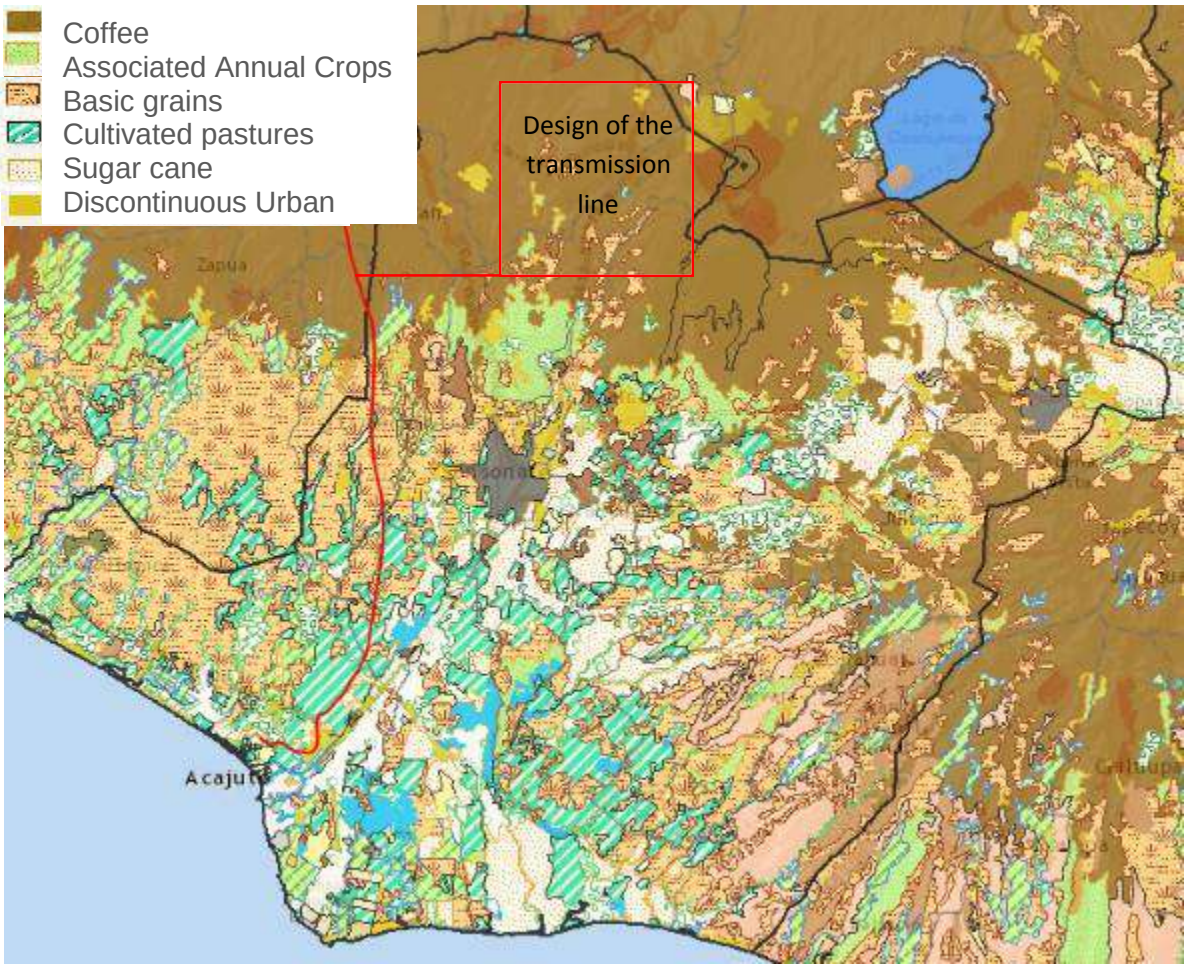

Figure 2. Land use in the zone of the transmission line. Source: Map made with base data of the Environmental Assessment Geographic Information Visualization program (VIGEA), MARN. JUNE/23/2016 .

The biosphere reserve shows four types of habitats:

Rockiness and lava, areas with sparse vegetation with a regional distribution.

Characteristic species:

This vegetation formation is the largest natural ecosystem in the Apaneca-Ilamatepec Biosphere Reserve and encompasses 5.54% of the total area (3,274 ha.). CACED (2000)

describes it as areas with sparse vegetation (UNESCO VI code), the biosphere reserve would conserve some 30% of this type of habitat in El Salvador and some 0.5% of the total of this type of ecosystem in Mesoamerica. It is characterized for showing different successional stages of shrubs and forests, from the presence of bare rock, covered by crustose or fruticose lichens, with hepatics and mosses; with lower vasculars such as Selaginellas spp, several fern species, bromeliaceae and orchids. There are also areas with good coverage of gramineae, compounds and herbaceous leguminosae and even areas covered with shrubs and low trees. Most species in the shrub and tree stratum do not exceed average heights of 5 m, although some trees can be found of up to 7 m tall. The most representative vegetal species of this formation are: *Cochlospermun vitifolium, Bursera simaruba, Pentas lanceolata, Cnidosculus urens, Threma micrantha, Epiphyllum spp., Bauhinia ungulata, Omphalea oleifera, Pseudobombax ellipticum, Bursera bipinnata, Bursera graveolens, Lysiloma divaricatum, Clusia guatemalensis, Lonchocarpus salvadorensis, Lonchocarpus minimiflorus* and *Piscidia grandifolia* (MARN 2000). The special microclimate situations with great variations in temperature, exposure to dew, and good ventilation foster an abundant flora of orchids (*Pleurothallis sp., Stelis sp., Bletiasp., Corymborkis sp., Cranichis sp., Goodyera sp., Malaxis sp., Govenia sp., Spiranthes colorata*) that grow next to a variety of epifits and litofits (Asociación Salvadoreña de Orquideología 2007).

Evergreen forests with a regional distribution.

Characteristic species:

It is the second largest natural ecosystem in biosphere reserve, it comprises 4.35% of its surface. CACED (2000) describes it as evergreen and semi-evergreen broadleaf forests (code UNESCO IA1/2(1)). The characteristic plant species in these places are: *Quercus spp*., *Pinus spp*., *Cupressus lusitanica* and *Lyquidambar styraciflua*; although *Saurauia kegeliana, Styrax argenteus, Hirtella racemosa, Sapranthus violaceus* and *Matayba glaberrima* are also frequently present. A marked epifitsm can be observed in a variety of orchids, Bromeliads, Piperaceae, Cactaceae and ferns (MARN 2000).

Evergreen forests with a regional distribution.

Characteristic species:

This ecosystem extends to 1.09% of the Apaneca-Ilamatepec Biosphere Reserve, is the third most important natural ecosystem for its size. Lötschert (1955) described these pine forests as ecosystems consisting primarily of *Pinus oocarpa*, which was replaced by *Cupressus benthamii* plantations and with an abundance of malestomataceae with grass in the herbaceous layer, which agrees with Flores (1978). It must be stated that, in El Salvador, 27 years ago, several species of pine trees were naturally present in the national territory: *Pinus pseudostrobus, P. oocarpa, P. Tenuifolia and P. ayacahuite*, but slowly, these species were replaced by

Pinus caribea from Honduras. According to MARN 2000, there are currently few areas with a pure formation of pine trees; rather, the forest of conifers is a mixed forest with species of *Pinus caribaea, Quercus spp., Ternstroemia tepezapote, Lyquidambar styraciflua* and *Cupressus lusitanica*. A good cover of gramineae can be frequently observed with an abundance of *Hypharrhenia rufa*. Orchids, bromeliaceae, ferns and lower vasculars can also be seen.

Shade coffee plantations with a local distribution.

This agro-ecosystem is of fundamental importance in the Apaneca-Ilamatepec Biosphere Reserve, since it is the dominant landscape and encompasses 67% of the area (39,472 ha.). There are three types of agro-ecosystems: traditional coffee plantations where the forest understorey is replaced with coffee plants, diverse polyculture coffee plantations with considerable diversity of shade trees, and simplified polyculture coffee plantations less diverse in terms of shade species (PROCAFE 1998). The London Natural History Museum together with the University of el Salvador, published, in 2002, three fundamental studies on the species of these agro-ecosystems: an identification guide to the 239 spcies of trees found in the coffee plantations of El Salvador, 232 of which are native species (Monro et. al, 2001); an identification guide to ferns in the coffee plantations of El Salvador that describes 38 species ((Monro et. al, 2002); and an identification guide to the Pimplinidae of the shade coffee plantations (Gauld et. al 2002) describing 68 species of hymenopterous pimplinidae of which four are new to science: *Scambus monroi sp. n*., *Calliephialtes cafetalia sp*. *n*., *Anastelgis imposiblita sp. n.* and *Zatypota lagiralda sp*. n.

Of the habitats of the Biosphere Reserve, the only one the Project runs through is that of shade coffee plantations.

Land Flora

The study was developed in the coffee forest, patches of forest, and cultivation areas in the influence area of the design of the Project and the main objective is to gather information on the floristic species present in the area in order to promote adequate environmental measures.

Methodology

Description of the Study Area

The study area encompasses part of the western section of the Apaneca Range in the southwestern of El Salvador, in the departments of Sonsonate and Ahuachapán. This zone contains some important patches of natural forest located within the coffee plantations (see Figure 3).

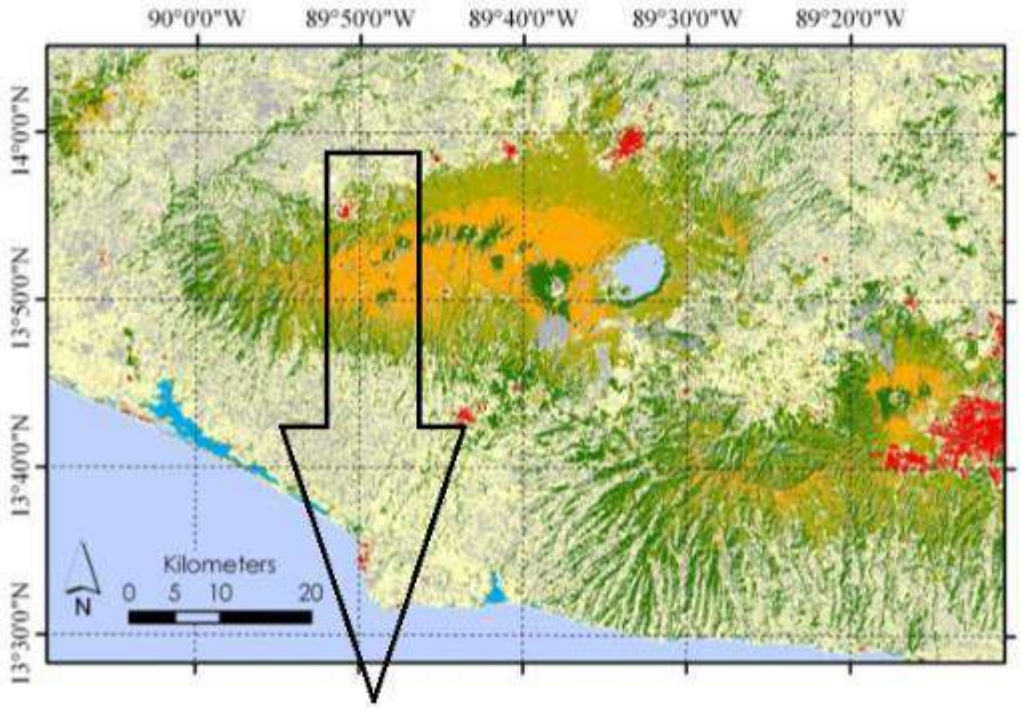



Figure 3. Classification of the Apaneca Range habitat (upper part of image) and of the study zone (lower part)

Color key:
Green=Forests
Yellow = Open canopy coffee plantations
Light green = Canopy coffee plantations
Gray = Lava flows or red bare soil
Red= urban areas
Blue = Bodies of water
Pale yellow = agricultural areas

The sampled sites, within the area of the study, belong to three different altitude zones: the low lands, up to 700 m above sea level, in Central America, are part of the Dry Forest Ecoregion; the medium elevations, up to approximately 1900 meters above sea level, are part of the Moist Forest Ecoregion; the highest peaks contain cloud forests and are part of the Montane Forest Ecoregion. Coffee is grown starting at 400 m and up to approximately 1700 m and over 90% of the surface within that altitude segment.

The area of the study is subject to a distinct dry season of 6 months, from December to May, in which the total amount of rainfall is lower than 100 mm. During the rest of the year, monsonic-type rains keep the soil moist. The yearly rainfall averages about 2000 mm, but in the wettest years they can reach 3000 mm in the highest elevations of the range.

Floristic composition

According to Harvey (2003), it is necessary to know the floristic wealth of the original vegetation through floristic inventory studies, since they are the basis to conduct more precise studies on ecology and biogeography and are indispensable in making policies for resource conservation and management.

Coffee Plantation Systems in the Study Area.

Mixed Farming.

This category is linked to vegetation structures of trees that are not so tall (8-10m), with a large number of young fruit, timber, and shade trees, which produces species-rich and diverse structures, that is, with a great variety of trees. However, they are not very complex in terms of their physiognomy and have many introduced species from out of the region (see Figure 4).

Simple Farming

In this type of coffee farm structure it is common to find planted trees of a same species to provide shade for the coffee plants. Most coffee farms use only one or two types of shade trees. These plantations show simpler structures with a density of 216 trees per hectare, with an average tree height of 4.8 meters and thin trunks of 17.7 centimeters in diameter as the average, no epifits and an average cover of 65% although the density of coffee plants per hectare is the greatest in farms it can reach (4,300) (see Figure 4).

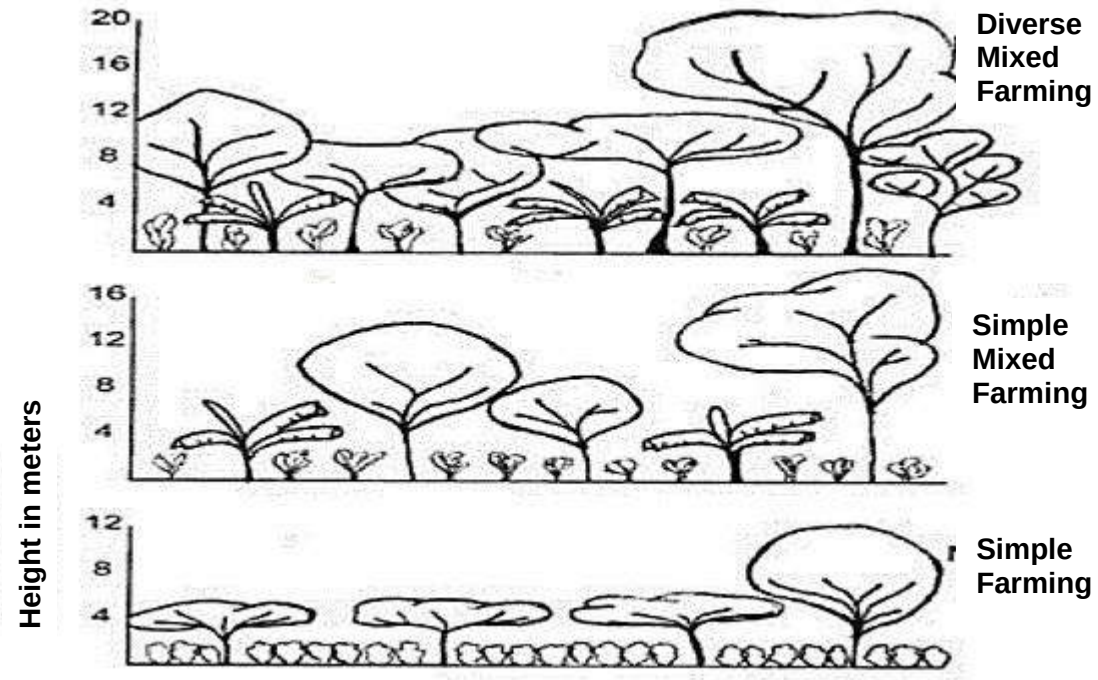

Figure 4. Coffee plantation structures in the influence area of the Project.

Structure and Diversity of the Grasslands

No representatives remain of the original forest. None of the original vegetation remains. These areas have been transformed into agro-ecosystems and currently are used as pastures and cultivation areas. The sites are dominated by herbaceous vegetation of the Poaceae, Euphorbiaceae and Asteraceae families and some tree species.

The sample herbaceous of the Poaceae, Euphorbiaceae and Asteraceae families include species that are ideal for warm climates. They do not tolerate the shade, grow very well under the sun and with the traditional cattle management after producing dry seeds. These are some of the first species to produce new shoots when the rains arrive.

The tree species found, for the most part, in living fences are well adapted to an ample range of soils in moist to submoist climates, including moderately acid and infertile sites. They have been favored by human disturbance and have colonized large areas following the destruction of native forests.

They are a main component of falow lands that follow the slash-and-burn agriculture probably because of their tolerance to fire (they break out again vigorously after a fire with the arrival of the rainy season).

Estimates of the vegetation population

Calculations

The abundance, the richness, and the diversity value index will be determined with the information recorded through the sampling. The data will be processed in Excel spreadsheets. For alpha diversity, the Shannon-Weiner indices are used. The absolute abundance **(n)** and relative abundance **(%)** of aquatic organisms recorded in the study will be determined.

Relative abundance.

$A_{r.} = \frac{A_i}{A_{total}} X\ 100$

Where:

A_r = relative abundance of the family or species

A_i = total number of individuals of the family or species

A_{total} = Total number of individuals of all registered families or species

Relative density:

$$D_r = \frac{D_x}{D_{total}} X\ 100$$

Where:

D_r = relative density

D_x = total number of individuals of the species x D

$_{total}$ = Total number of individuals of all species.

Relative basal area

$$AB_r = \frac{AB_x}{AB_{total}} X\ 100$$

Where:

AB_r = relative basal area

AB_x = absolute basal area of species x

AB_{total}= sum of the absolute basal areas of all species.

Relative frequency:

$$Fr = \frac{Fx}{\sum Fx\ total} x100$$

Where:

F_r = relative frequency

F_x = number of times that species x appears

$\sum F_{x\ total}$ = sum of the frequencies of all species

Importance value index:

$$IVI = Dr + ABr + Fr$$

Where:

IVI = importance value index

Dr = relative density, ABr = relative basal area and Fr = relative frequency

Additionally, in order to measure the diversity of species within a community (α diversity), the Shannon-Wiener index is utilized. This index is based on that all species have the same probability of occurrence in the sample. It shows values between 0 and 6 and is calculated according to the following formula:

Shannon Wiener Index.

$$H' = -\sum_{i-1}^{n} pi\ (lnpi))$$

Where:

H´ = Shannon-Wiener species diversity index

P_i = proportion of the species (n_i) in the total sample (N) ($p_i = n_i / N$).

Simpson Index

Known also as the index of diversity of the species or dominance index. This is one of the parameters that allowed to measure the wealth of organisms. In ecology, it is also used to quantify the biodiversity of a habitat. It takes a given number of species present in the habitat and their relative abundance. The Simpson index represents the probability of two randomly selected individuals, within a habitat, belonging to the same species.

Simpson dominance index

$$D = \frac{\sum_{i=1}^{S} n_i(n_i - 1)}{N(N-1)}$$

Where:

S =is the number of species

N = is the total of organisms present (or square units)

n =is the number of specimens per species

Simpson diversity index

$$D = 1 - \sum_{i=1}^{S} Pi$$

Where:

D = Simpson diversity index

Pi = Proportion of individuals of the species in the community

Geographic Description of the Study Area

For the flora study, all crop areas, coffee plantations, and forest patches within the range of influence of the Project were sampled. These sites are shown in Figure 5. In all, 30 sampling sites were established, 10 for each experimental treatment. The experimental treatments are: Forest fragments, coffee plantations and extension zones, that are used for pasture or for the production of staple grains.

Site Selection

In all, 30 sampling sites were established, 10 for each experimental treatment. The experimental treatments are: Forest fragments (Figure 6), located and divided for this investigation into north (Figure 7a) and south of the range (Figure 7b); coffee plantations (Figure 8); and extension zones that are used for pasture or for the production of staple grains (Figure 9). Each treatment with 10 repetitions.

The vegetation data were obtained from a total of 30 parcels of 0.1 hectares (10 m x 100 m) placed randomly. One parcel was established for each site of the study.

Vegetation Population Estimates

During the research, the efforts were focused on extensive sampling in the area of influence of the Project design and writing down all tree species with a chest-height circumference greater or equal to 16 cm, the scientific name was recorded for each species and, whenever possible, the common name. Whenever it was impossible to identify the name of the plant, pictures were taken and some of the main traits of the plant written down for immediate identification through keys and specialized literature.

In order to calculate the structure and floristic composition of the patches of forest, coffee plantations and cultivation areas, data was gathered from 10 parcels per type of habitat; these parcels measured 100 x 10 m similar to an area of 1000 m_2 per parcel, Yielding a total of 10,000 m_2 = one hectare per habitat.In all, from all habitats, 30 sites totalling 30,000 m_2 were processed, which is equivalent to 3 hectares of the area of influence of the Project. For each tree, the chest-high circunference was measured greater or equal to 16 cm. The Importance Value Index (IVI) was calculated, based on this information, for the main woody plant species. The sampling was also carried out for the coffee bushes in the 10 parcels corresponding to the habitat of the coffee plantations (10,000 m_2 = one hectare) in order to obtain densities per hectare, basal area per hectare and number of bushes.

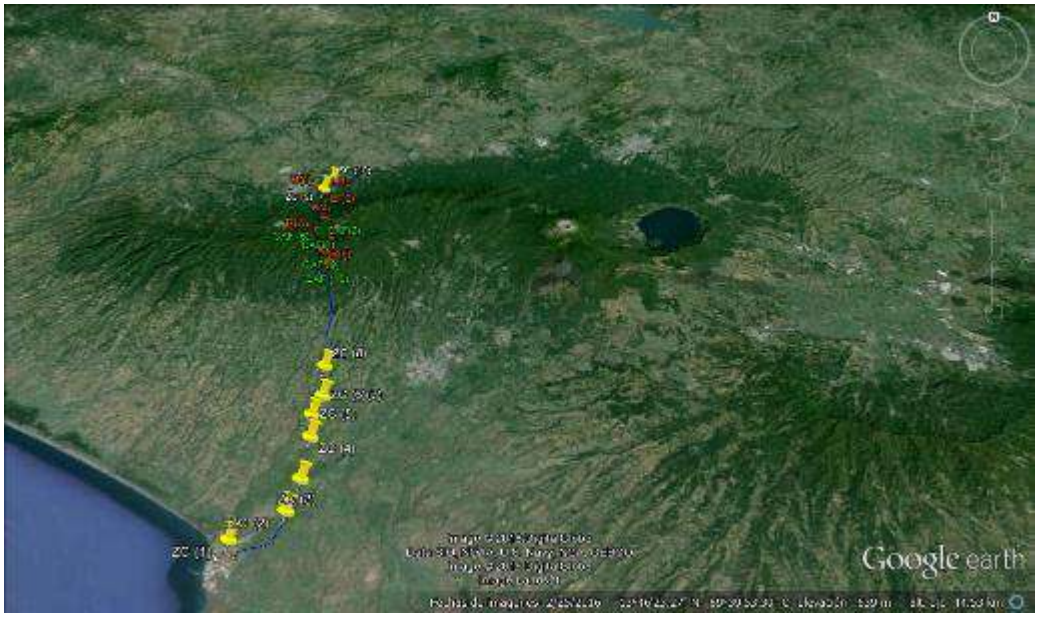

Figure 5. Image showing the 30 sampling sites for the assessment of the flora found in the coffee plantations within the influence area of the designs of the Project.

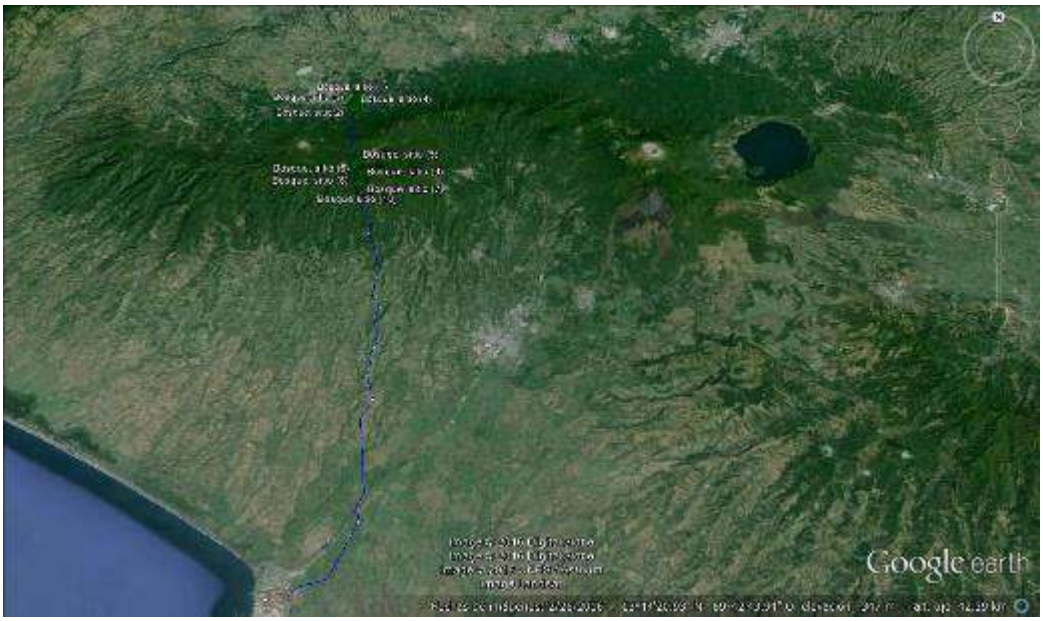

Figure 6. Image showing the 10 sampling sites for the assessment of the flora found in the patches of forest within the area of design of the Project.



Figure 7. 7a: Segments of forest located north of the range and 7b segments of forest located south of the range.

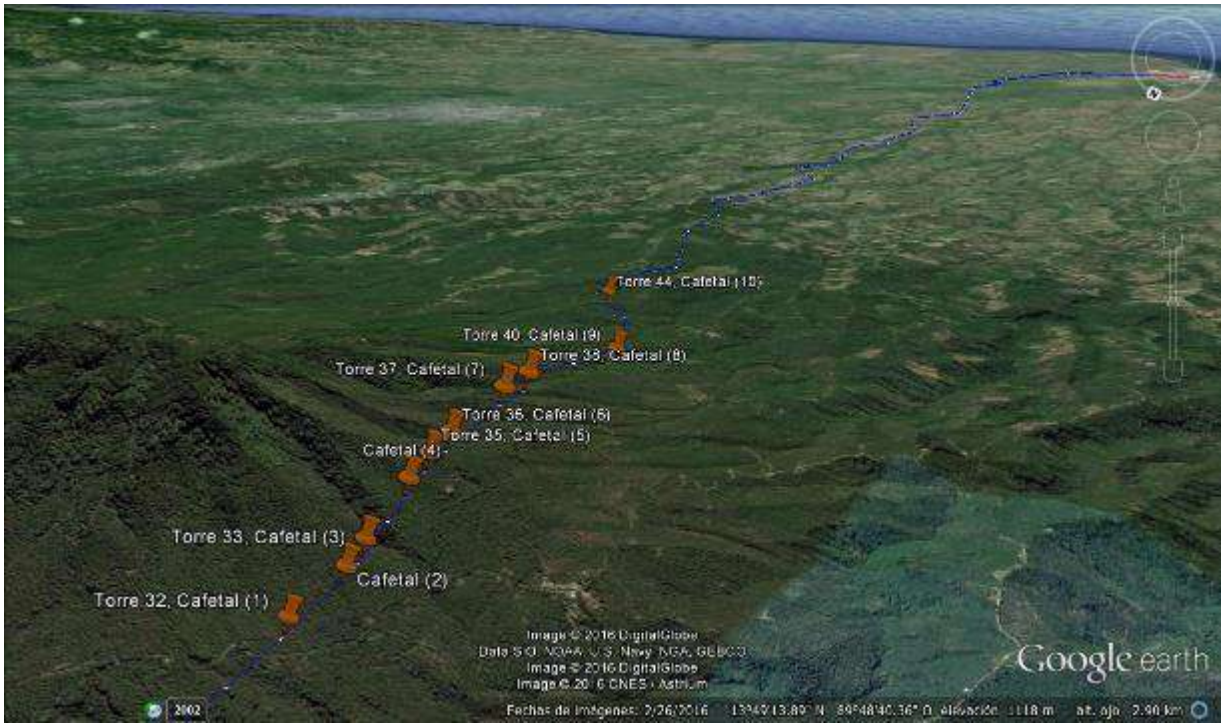

Figure 8. Image showing the 10 sampling sites for the assessment of the flora found in the coffee plantations within the area of design of the Project.



Figure 9. Image showing the 10 sampling sites for the assessment of the flora found in the extension zones utilized for the production of staple grains found in the area of the Project.

Calculations and Results

In progress

This study records a total of 123 families, 384 genders, 536 species (including subspecies, varieties and forms) of vascular plants, that is, those that posses conducting vessel systems, including ferns (and like plants, as well as plants that produce seeds. Of the 536 species, 411 are native and 125 are exotic.

Of the total number of species, 156 are trees (118 native and 38 exotic), 65 are bushes (34 native and 31 exotic), 75 are vines (67 native and 8 exotic), 29 are ferns (28 native and 1 exotic), 209 herbs (164 native and 45 exotic).

There is a striking diversity of tree species owed, to a large extent, to various intermittent gullies in the area sufficiently large to allow the survival of trees native to the type of forest that must have existed several years ago in the area.

Many of the trees are relatively large and appear to be very old, which makes it likely that they were there since the time the area was a forest. These trees produce recalcitrant seeds that do not germinate in dry, open or sunny places and they also seem to be in the upper boundary of their altitude distribution growing in places away from the gullies, which makes it difficult to assume they may have been carried there by the water path.

Some species like the wattle (*Acacia polyphylla*) and the laurel (*Cordia alliodora*) are typical or regenerations. The Quickstick (*Gliricidia sepium*), pepeto and paterna (*Inga spp*.), are native to the country, but grown in the area for their properties in enhancing the soils through the fixation of nitrogen and because of their edible fruits. Some trees such as the amate (*Ficus spp*.), although dispersed by birds and with relatively fleshy infructescence, are also native to the first stages of regeneration of a forest.

Many of the trees detected in the inventory were found only in the gullies. Trees such as *Annona muricata*, *chaperno* (*Lonchocarpus rugosus*), Bastard Hogberry (*Margaritaria nobilis*), Wild Sugar-apple (*Rollinia mucosa*), *palanco* (*Sapranthus palanga*) were only found growing in the path of gullies or close to them. Others, such as *Crudia acuminata*, although they grow in other places, are more common in gullies; also, vines such as *Aristolochia grandiflora* were seen only in those places. This highlights the importance of gullies as microhabitats of great importance for conservation and restoration of the forests.

Exotic and invasive species

In all, 123 species of exotic plants were identified (Table 1). Some of these species propagate vegetatively through

cuttings and rhizomes, since, here, they do not have adequate pollinizers. Some that propagate vegetatively are Angel's Trumpets (*Brugmansia candida* and *B.suaveolens*), *izote* (*Yucca guatemalensis*) and bougainvillea (*Bougainvil aea* spp.), which although can persist a long time in forests and neglected horchards, do not propagate in any other form than vegetatively, therefore, they do not pose a danger to the native biodiversity. Nonetheless, a total of 39 species were identified and recorded as dangerous invasive according to the list of invasive plants of the UICN; available at http://www.issg.org/database/welcome/ and detailed in Table 1.

Table 1. List of all native or exotic species with potential to become invasive

Species	Family	Habit	Origin	State of Conservation
Acalypha wilkesiana fo. *circinata* Müll. Arg.	Euphorbiaceae	Ab	E	
Acalypha wilkesiana Tahiti	Euphorbiaceae	Ab	E	
Aechmea gamosepala Wittm.	Bromeliaceae	Hi	E	
Agave angustifolia var. *marginata* hort. ex Gentry	Agavaceae	Ro	E	
Ageratum conyzoides L.	Asteraceae	Hi	N	UICN, Invasive
Allamanda cathartica L.	Apocynaceae	Ab	E	
Allamanda Compacta Hendersonii	Apocynaceae	Ab	E	
Alocasia cucullata (Lour.) G. Don	Araceae	Hi	E	
Aloe vera (L.) Burm. f.	Aloaceae	Ro	E	
Alpinia speciosa (Blume) D. Dietr.	Zingiberaceae	Hi	E	
Anacardium occidentale L.	Anacardiaceae	A	E	
Aptenia cordifolia (L. f.) Schwantes	Basellaceae	B	E	UICN invasive, such as Anredera cordifolia (vine, climber).
Arachis pintoi Krapov. & W.C. Greg.	Leguminosae-Papilionoideae	Hi	E	
Asparagus plumosus Baker	Asparagaceae	B	E	
Asystasia gangetica (L.) T. Anderson	Acanthaceae	Ab	E	UICN, Invasive
Bambusa vulgaris Schrad. ex J.C. Wendl.	Poaceae	Ab	E	UICN, invasive, already out of houses, invasive aggressive
Barleria cristata L.	Acanthaceae	Hi	E	Already out of houses
Bauhinia monandra Kurz	Leguminosae-Caesalpinoideae	A	E	
Bougainvillea × *buttiana* Holttum & Standl.	Nyctaginaceae	B	E	
Bougainvillea glabra Choisy	Nyctaginaceae	B	E	
Brasiliopuntia brasiliensis (Willd.) A. Berger	Cactaceae	A	E	
Brugmansia × *candida* Pers.	Solanaceae	A	E	Already out of houses
Brugmansia suaveolens (Humb. & Bonpl. ex Willd.) Bercht. & C. Presl	Solanaceae	A	E	Already out of houses, but does not reproduce through seeds.
Brunfelsia latifolia Benth.	Solanaceae	Ab	E	
Callisia fragrans (Lindl.) Woodson	Commelinaceae	Hi	E	Aggressive invasive
Callitropsis lusitanica (Mill.) D.P. Little	Cupressaceae	A	E	
Canna indica L.	Cannaceae	Hi	E	UICN, Invasive
Castilla elastica Sessé ex Cerv.	Moraceae	A	N	UICN, Invasive
Casuarina equisetifolia L.	Casuarinaceae	A	E	UICN, invasive, already out of houses
Catharanthus roseus (L.) G. Don	Apocynaceae	Hi	E	
Cedrela odorata L.	Meliaceae	A	N	UICN, Invasive

Species	Family	Habit	Origin	State of Conservation
Cestrum nocturnum L.	Solanaceae	A	N	UICN, Invasive
Chlorophytum comosum (Thunb.) Jacques	Anthericaceae	Hi	E	
Chrysothemis pulchella (Donn) Decne.	Gesneriaceae	Hi	E	
Citrus × *aurantiifolia* (Christm.) Swingle	Rutaceae	A	E	Already out of houses
Citrus × *sinensis* (L.) Osbeck	Rutaceae	A	E	
Citrus aurantium L.	Rutaceae	A	E	
Citrus nobilis var. *deliciosa* (Ten.) Swingle	Rutaceae	A	E	
Cleome rutidosperma DC.	Capparaceae	Hi	E	Already out of houses
Codiaeum variegatum (L.) Rumph. ex A. Juss.	Euphorbiaceae	A	E	
Coffea arabica L.	Rubiaceae	Ab	E	
Coleus Beckswith's Gem	Lamiaceae	Hi	E	Already out of houses
Coleus Grape Expectations	Lamiaceae	Hi	E	
Cordyline fruticosa (L.) A. Chev.	Agavaceae	Ab	E	
Crinum jagus (Thompson) Dandy	Amaryllidaceae	Hi	E	
Crossandra infundibuliformis (L.) Nees	Acanthaceae	Hi	E	
Croton reflexifolius Kunth	Euphorbiaceae	A	E	
Cynodon dactylon (L.) Pers.	Poaceae	Hi	E	UICN, Invasive
Cyperus rotundus L.	Cyperaceae	Hi	N	UICN, Invasive
Dahlia hybrida	Asteraceae	Ab	E	
Dieffenbachia seguine (Jacq.) Schott	Araceae	Hi	E	
Dombeya wallichii (Lindl.) Benth & Hook. ex B.D. Jackson	Sterculiaceae	A	E	
Dracaena fragrans var. *massangeana* (Rodigas) E. Morren	Dracaenaceae	A	E	
Dypsis lutescens (H. Wendl.) Beentje & J. Dransf.	Arecaceae	A	E	
Eleusine indica (L.) Gaertn.	Poaceae	Hi	E	Already out of houses, invasive aggressive
Emilia fosbergii Nicolson	Asteraceae	Hi	E	Already out of houses, invasive aggressive
Epiphyllum pumilum Britton & Rose	Cactaceae	Hi	E	
Eriobotrya japonica (Thunb.) Lindl.	Rosaceae	A	E	UICN, Invasive
Erythrina poeppigiana (Walp.) O.F. Cook	Leguminosae-Papilionoideae	A	E	Already out of houses, invasive aggressive
Eucalyptus camaldulensis Dehnh.	Myrtaceae	A	E	Already out of houses
Eucalyptus deglupta Blume	Myrtaceae	A	E	Already out of houses
Ficus microcarpa L. f.	Moraceae	A	E	UICN, Invasive
Gardenia jasminoides J. Ellis	Rubiaceae	Ab	E	
Grevillea robusta A. Cunn. ex R. Br.	Proteaceae	A	E	UICN, invasive, already out of houses
Heliconia rostrata Ruiz & Pav.	Heliconiaceae	Hi	E	
Hibiscus rosa-sinensis L.	Malvaceae	Ab	E	
Hippobroma longiflora (L.) G. Don	Campanulaceae	Hi	E	
Hydrangea macrophylla (Thunb.) Ser.	Hydrangeaceae	Ab	E	
Impatiens balsamina L.	Balsaminaceae	Hi	E	
Impatiens walleriana Hook. f.	Balsaminaceae	Hi	E	UICN, invasive, already out of houses, invasive aggressive
Ixora coccinea L.	Rubiaceae	Ab	E	
Jacaranda mimosifolia D. Don	Bignoniaceae	A	E	

Species	Family	Habit	Origin	State of Conservation
Justicia aurea Schltdl.	Acanthaceae	Ab	E	
Justicia betonica L.	Acanthaceae	Ab	E	
Kaempferia rotunda L.	Zingiberaceae	Hi	E	
Kalanchoe blossfeldiana Poelln.	Crassulaceae	Hi	E	
Kalanchoe pinnata (Lam.) Pers.	Crassulaceae	Hi	E	UICN, Invasive
Lantana camara L.	Verbenaceae	Ab	N	UICN, Invasive
Lepidium virginicum L.	Brassicaceae	Hi	N	UICN, Invasive
Lycianthes rantonnei (Carrière) Bitter	Solanaceae	Ab	E	
Lycopersicon esculentum Mill.	Solanaceae	Hi	E	
Macfadyena unguis-cati (L.) A.H. Gentry	Bignoniaceae	B	N	UICN, Invasive
Mangifera indica L.	Anacadiaceae	A	E	Already out of houses
Manihot esculenta Crantz	Euphorbiaceae	Ab	E	
Megaskepasma erythrochlamys Lindau	Acanthaceae	A	E	
Melicoccus bijugatus Jacq.	Sapindaceae	A	E	
Mikania micrantha Kunth	Asteraceae	B	N	UICN, Invasive, aggressive
Mimosa pigra L.	Leguminosae-Mimosoideae	Ab	N	UICN, Invasive
Mimosa pudica L.	Leguminosae-Mimosoideae	Hi	N	UICN, Invasive
Morinda citrifolia L.	Rubiaceae	A	E	
Mussaenda erythrophylla Schumach. & Thonn.	Rubiaceae	Ab	E	
Nerium oleander L.	Apocynaceae	Ab	E	
Odontonema callistachyum (Schltdl. & Cham.) Kuntze	Acanthaceae	Ab	E	
Oeceoclades maculata (Lindl.) Lindl.	Orchidaceae	Hi	E	UICN, invasive, already out of houses, invasive aggressive
Oxalis latifolia Kunth	Oxalidaceae	Hi	N	UICN, Invasive
Pachystachys lutea Nees	Acanthaceae	Hi	E	
Panicum maximum Jacq.	Poaceae	Hi	E	Already out of houses
Pentas lanceolata (Forssk.) Deflers	Rubiaceae	Ab	E	
Phyllanthus disticha fo. *nivosa* Croizat	Euphorbiaceae	Ab	E	
Pinus caribaea var. *hondurensis* (Sénécl.) W.H.G. Barrett & Golfari	Pinaceae	A	E	Already out of houses
Piper aduncum L.	Piperaceae	A	N	UICN, Invasive
Plantago major L.	Plantaginaceae	Hi	E	UICN, Invasive
Platycerium bifurcatum (Cav.) C. Chr.	Polypodiaceae	Hh	E	
Plectranthus amboinicus (Lour.) Spreng.	Lamiaceae	Hi	E	
Pluchea carolinensis (Jacq.) G. Don	Asteraceae	A	N	UICN, Invasive
Plumbago capensis Thunb.	Plumbaginaceae	Ab	E	
Polyscias balfouriana Bailey	Araliaceae	Ab	E	
Polyscias guilfoylei var. *victoriae* Bailey	Araliaceae	Ab	E	
Portulaca grandiflora Hook.	Portulacaceae	Hi	E	
Psidium guajava L.	Myrtaceae	A	N	UICN, Invasive
Punica granatum L.	Punicaceae	A	E	
Pyrostegia venusta (Ker Gawl.) Miers	Bignoniaceae	B	E	
Rhynchelytrum repens (Willd.) C.E. Hubb.	Poaceae	Hi	E	Already out of houses, invasive aggressive
Ricinus communis L.	Euphorbiaceae	A	E	UICN, Invasive

Species	Family	Habit	Origin	State of Conservation
Rubus niveus Thunb.	Rosaceae	Ab	E	UICN, invasive, already out of houses
Salvia vista red	Lamiaceae	Hi	E	
Samanea saman (Jacq.) Merr.	Leguminosae-Mimosoideae	A	N	UICN, Invasive
Sansevieria trifasciata Prain var. *trisfasciata*	Dracaenaceae	Hi	E	Already out of houses, invasive aggressive
Sechium edule (Jacq.) Sw.	Cucurbitaceae	B	N	UICN, Invasive
Solanum pseudocapsicum L.	Solanaceae	B	E	
Solanum torvum Sw.	Solanaceae	Hi	N	UICN, Invasive
Solanum wendlandii Hook. f.	Solanaceae	Hi	E	
Spathiphyllum wallisii Regel	Araceae	Hi	E	
Spathodea campanulata P. Beauv.	Bignoniaceae	A	E	UICN, Invasive
Sphagneticola trilobata (L.) Pruski	Asteraceae	Hi	E	UICN, invasive, already out of houses, invasive aggressive
Synadenium grantii Hook. F.	Euphorbiaceae	A	E	
Syzygium cumini (L.) Skeels	Myrtaceae	A	E	UICN, invasive, already out of houses
Syzygium jambos (L.) Alston	Myrtaceae	A	E	UICN, invasive, already out of houses, invasive aggressive
Syzygium malaccense (L.) Merr. & L.M. Perry	Myrtaceae	A	E	
Tecoma stans L.	Bignoniaceae	A	N	UICN, Invasive
Tectona grandis L. f.	Lamiaceae	A	E	
Terminalia catappa L.	Combretaceae	A	E	UICN, Invasive
Thunbergia alata Bojer ex Sims	Acanthaceae	B	E	Already out of houses
Thunbergia fragrans Roxb.	Acanthaceae	B	E	Already out of houses
Thunbergia grandiflora Roxb.	Acanthaceae	B	E	UICN, Invasive
Urochloa decumbens (Stapf) R.D. Webster	Poaceae	Hi	E	
Veitchia merrillii (Becc.) H.E. Moore	Arecaceae	Ab	E	
Xanthosoma violaceum Schott	Araceae	Hi	E	
Yucca guatemalensis Baker	Agavaceae	A	E	
Zea mays L.	Poaceae	Hi	E	
Zingiber officinale Roscoe	Zingiberaceae	Hi	E	

Habit: A = Tree, Ab = Shrub, B = Vine, Hh = Fern, Hi = Herb Origin: E = Exotic, N = Native

MAIN INVASIVE SPECIES

The total of all exotic and invasive species is summarized in Table 2.

Most of the tree species or exotic origin grown in the area do not become an ecologic problem in commercially exploited coffee plantations, since they are subject to periodic trimming or eradication of unneeded trees or their offshoot are eliminated during routine weeding.

Table 2. List of exotic and invasive species.

Species	Family	Habit	Origin	State of Conservation
Ficus microcarpa L. f.	Moraceae	A	E	Is not in UICN. Invasive aggressive
Eriobotrya japonica (Thunb.) Lindl.	Rosaceae	A	E	UICN
Ricinus communis L.	Euphorbiaceae	A	E	UICN
Spathodea campanulata P. Beauv.	Bignoniaceae	A	E	UICN
Terminalia catappa L.	Combretaceae	A	E	UICN
Castilla elastica Sessé ex Cerv.	Moraceae	A	N	UICN
Cedrela odorata L.	Meliaceae	A	N	UICN
Cestrum nocturnum L.	Solanaceae	A	N	UICN
Piper aduncum L.	Piperaceae	A	N	UICN
Pluchea carolinensis (Jacq.) G. Don	Asteraceae	A	N	UICN
Psidium guajava L.	Myrtaceae	A	N	UICN
Samanea saman (Jacq.) Merr.	Leguminosae-Mimosoideae	A	N	UICN
Tecoma stans L.	Bignoniaceae	A	N	UICN
Casuarina equisetifolia L.	Casuarinaceae	A	E	UICN, already out of houses
Grevillea robusta A. Cunn. ex R. Br.	Proteaceae	A	E	UICN, already out of houses
Syzygium cumini (L.) Skeels	Myrtaceae	A	E	UICN, already out of houses
Syzygium jambos (L.) Alston	Myrtaceae	A	E	UICN, already out of houses, invasive aggressive
Brugmansia × *candida* Pers.	Solanaceae	A	E	Is not in UICN. Already out of houses
Citrus × *aurantiifolia* (Christm.) Swingle	Rutaceae	A	E	Is not in UICN. Already out of houses
Eucalyptus camaldulensis Dehnh.	Myrtaceae	A	E	Is not in UICN. Already out of houses
Eucalyptus deglupta Blume	Myrtaceae	A	E	Is not in UICN. Already out of houses
Mangifera indica L.	Anacadiaceae	A	E	Is not in UICN. Already out of houses
Pinus caribaea var. *hondurensis* (Sénécl.) W.H.G. Barrett & Golfari	Pinaceae	A	E	Is not in UICN. Already out of houses
Erythrina poeppigiana (Walp.) O.F. Cook	Leguminosae-Papilionoideae	A	E	Is not in UICN. Already out of houses. Invasive aggressive
Brugmansia suaveolens (Humb. & Bonpl. ex Willd.) Bercht. & C. Presl	Solanaceae	A	E	Is not in UICN. Already out of houses, but does not reproduce through seeds.
Asystasia gangetica (L.) T. Anderson	Acanthaceae	Ab	E	UICN
Lantana camara L.	Verbenaceae	Ab	N	UICN
Mimosa pigra L.	Leguminosae-Mimosoideae	Ab	N	UICN
Rubus niveus Thunb.	Rosaceae	Ab	E	UICN, already out of houses
Bambusa vulgaris Schrad. ex J.C. Wendl.	Poaceae	Ab	E	UICN, already out of houses, invasive aggressive
Aptenia cordifolia (L. f.) Schwantes	Basellaceae	B	E	UICN [like Anredera cordifolia]

Species	Family	Habit	Origin	State of Conservation
Thunbergia grandiflora Roxb.	Acanthaceae	B	E	UICN
Macfadyena unguis-cati (L.) A.H. Gentry	Bignoniaceae	B	N	UICN
Sechium edule (Jacq.) Sw.	Cucurbitaceae	B	N	UICN
Mikania micrantha Kunth	Asteraceae	B	N	UICN, aggressive invasive
Thunbergia alata Bojer ex Sims	Acanthaceae	B	E	Is not in UICN. Already out of houses
Thunbergia fragrans Roxb.	Acanthaceae	B	E	Is not in UICN. Already out of houses
Callisia fragrans (Lindl.) Woodson	Commelinaceae	Hi	E	Is not in UICN. Invasive aggressive
Canna indica L.	Cannaceae	Hi	E	UICN
Cynodon dactylon (L.) Pers.	Poaceae	Hi	E	UICN
Kalanchoe pinnata (Lam.) Pers.	Crassulaceae	Hi	E	UICN
Plantago major L.	Plantaginaceae	Hi	E	UICN
Ageratum conyzoides L.	Asteraceae	Hi	N	UICN
Cyperus rotundus L.	Cyperaceae	Hi	N	UICN
Lepidium virginicum L.	Brassicaceae	Hi	N	UICN
Mimosa pudica L.	Leguminosae-Mimosoideae	Hi	N	UICN
Oxalis latifolia Kunth	Oxalidaceae	Hi	N	UICN
Solanum torvum Sw.	Solanaceae	Hi	N	UICN
Impatiens walleriana Hook. f.	Balsaminaceae	Hi	E	UICN, already out of houses, invasive aggressive
Oeceoclades maculata (Lindl.) Lindl.	Orchidaceae	Hi	E	UICN, already out of houses, invasive aggressive
Sphagneticola trilobata (L.) Pruski	Asteraceae	Hi	E	UICN, already out of houses, invasive aggressive
Barleria cristata L.	Acanthaceae	Hi	E	Is not in UICN. Already out of houses
Cleome rutidosperma DC.	Capparaceae	Hi	E	Is not in UICN. Already out of houses
Coleus Beckswith's Gem	Lamiaceae	Hi	E	Is not in UICN. Already out of houses
Panicum maximum Jacq.	Poaceae	Hi	E	Is not in UICN. Already out of houses
Eleusine indica (L.) Gaertn.	Poaceae	Hi	E	Is not in UICN. Already out of houses. Invasive aggressive
Emilia fosbergii Nicolson	Asteraceae	Hi	E	Is not in UICN. Already out of houses. Invasive aggressive
Rhynchelytrum repens (Willd.) C.E. Hubb.	Poaceae	Hi	E	Is not in UICN. Already out of houses. Invasive aggressive
Sansevieria trifasciata Prain var. *trisfasciata*	Dracaenaceae	Hi	E	Is not in UICN. Already out of houses. Invasive aggressive

Habit: A = Tree, Ab = Shrub, B = Vine, Hh = Fern, Hi = Herb Origin: E = Exotic, N = Native

The following is a brief description of the main invasive plants. The list shows plants listed as invasive in the UICN list:

Ageratum conyzoides L.

Ageratum conyzoides is a weed distributed in many tropical and subtropical countries and is often difficult to control. It is an established weed in the Himalayas where several invasion research studies have been conducted in the Shiwalik Ranges. It has been found that Ageratum significantly reduces total biomass and species number, that is, biodiversity. It also changes vegetation community structure and modifies the soil regime. El Salvador is within its range of natural distribution and the aforementioned effect has not been observed.

Aptenia cordifolia (L. f.) Schwantes

Cited as *Anredera cordifolia*, in the UICN listing, commonly known as Madeira vine is a succulent climbing vine. The combination of fleshy leaves and thick aerial tubers makes this a very heavy vine. It smothers trees and other vegetation on wich it grows and can easily can break branches and bring down entire trees on its own. A. cordifolia is notoriously difficult to control.

Asystasia gangetica (L.) T. Anderson

Asystasia gangetica is an ornamental herb native to India, Malaysia and Africa. With its ability to reproduce by vegetative propagation and form dense vegetation mats, this species can be highly invasive. It can smother any vegetation with its herbaceous layer. Its introduction to the Pacific Islands has caused major disruptions in native ecosystems.

Bambusa vulgaris Schrad. ex J.C. Wendl.

Bambusa vulgaris is the most widespread member of its genus, and has long been cultivated across the tropics and subtropics. It prefers lowland humid habitats, but tolerates a wide range of climatic conditions and soil types. It commonly naturalises, forming monospecific stands along river banks, roadsides and open ground.

Canna indica L.

Is a native of tropical America and is a very popular ornamental plant throughout the tropical world. This plant has become invasive in the Pitcairn Islands and New Zealand, where it grows in thickets, crowding out other plants. It is spread by rhizomes making it difficult to remove.

Castilla elastica Sessé ex Cerv.

Castilla elastica is a native Central American tree which may reach 5 to 10m high. Rubber can be extracted from the tree. It is invasive in several islands, notably in the Pacific (French Polynesia and Samoa).

Casuarina equisetifolia L.

Casuarina equisetifolia is an evergreen conifer-like angiosperm. It has been introduced to new locations for coastal landscaping and erosion control. It has become invasive in Florida (USA) and other parts. It interferes with prime reptile (turtle) nesting sites in USA and forms monocultures that degrade the native habitats in the Cayman Islands, where it is also usurping protected areas.

Cedrela odorata L.

Cedrela odorata is native to the West Indies, Central America and South America, including the atlantic forests and rainforests of Brazil. It has been introduced to many Pacific Islands and South Africa. This fast growing timber tree has become invasive in some areas, especially those disturbed by cutting.

Cestrum nocturnum L.

Cestrum nocturnum is a perennial woody shrub that can reach up to 4 m. Native to the American tropics, it was introduced as ornamental in many tropical and subtropical regions of the world. It has become widely naturalized and is at times invasive in places where it forms dense, impenetrable thickets that limit the regeneration of native species. All parts of this plant are poisonous.

Cynodon dactylon (L.) Pers.

This plant is a pasture or grass adapted to survive both extended dry periods and flooding conditions. It is a potential agricultural weed and a commonly used as a lawn grass.

Cyperus rotundus L.

Cyperus rotundus (purple nutsedge) is a weed in over 90 countries and the world's worst invasive weed based on its distribution and effect on crops. Its complex underground network of tubers, basal bulbs, roots and rhizomes ensure its ability to survive and reproduce during adverse conditions. Further biological features, such as its adaptation to high temperatures, solar radiation and humidity, have turned this weed into a serious problem in subtropical and even arid regions.

Eleusine indica (L.) Gaertn.

Is native to Asia, but has dispersed all over the world. Commonly known as crowfootgrass is a very invasive species. It is of yearly growth, but due to its high production of seeds and the fact that birds eat them and disperse them, it can become a problem especially in open areas such as roads and edges of forests. It is a common weed in many places of the country.

Emilia fosbergii Nicolson

The common name in the U.S. is Florida Tasselflower. It is a relatively striking flower and very abundant in sunny places such as edges of plantations, pastures, roads, and disturbed sites in general. It is native to Asia, from where it was introduced to the tropics and subtropics of the world. In the influence area of the Project it has been seen only by the side of roads. As all species of the Asteraceae family, it produces large quantities of seeds that are dispersed by the wind.

Eriobotrya japonica (Thunb.) Lindl.

Has been introduced to warm regions as a fruit or ornamental tree. In various Pacific islands and La Réunion, it can be very invasive in natural environments.

Erythrina poeppigiana (Walp.) O.F. Cook

Erythrina poeppigiana is a native tree of Venezuela and Bolivia. Because of its intense flowering and capacity to enhance the soils through the fixation of nitrogen, it has been very popular as a shade tree in coffee plantations and others. Nevertheless, in the case of the Project area it has been seen growing unchecked, especially in open areas filled with rocks or construction material debris. In coffee plantations it is present in open areas.

Ficus microcarpa L. f.

Ficus microcarpa is a woody plant species that occasionally becomes a tree. It is native to the Asia-Pacific region. Commonly known as Chinese banyan and the curtain fig, it is a popular ornamental tree that grows in tropical and temperate regions of the world. *F. microcarpa* has small, tiny seeds that are easily spread by birds, bats and rodents, and which are capable of germinating almost anywhere they land - even in cracks in concrete. *F. microcarpa* is considered to be a major invasive species in Hawaii, the Bonin (Ogasawara) Islands, Florida, Bermuda and Central down to South America.

Grevillea robusta A. Cunn. ex R. Br.

Grevillea robusta is a tree that can reach 12 metres in height. It adapts to different ecological conditions and is found between 500 and 2000m altitude where annual rainfall ranges from 800 to 1500mm. Widely planted in warm temperate, subtropical or tropical regions for shade or agroforestry, Grevillea robusta has naturalised and become invasive in several countries (Hawaii, Australia, Mauritius, the Caribbean, Brazil and French Polynesia). Its leaves produce an allelopathic substance which inhibits the establishment and development of other species.

Impatiens walleriana Hook. f.

Impatiens walleriana is a herb from Africa. It has been introduced to many countries as an ornamental but has escaped from gardens and naturalised. *Impatiens walleriana*

can be very invasive where it is dominant or co-dominant in natural or semi-natural environments.

Kalanchoe pinnata (Lam.) Pers.

Is a succulent plant which has been introduced to many temperate and tropical regions of the world as ornamental. In several of these regions, the species is widely naturalised and regarded as invasive. It forms dense stands in dry and disturbed areas. In French Polynesia, *Kalanchoe pinnata* has been declared a threat to biodiversity.

Lantana camara L.

Lantana camara is a significant weed of which there are some 650 varieties in over 60 countries. It is established and expanding in many regions of the world, often as a result of clearing of forest for timber or agriculture. It impacts severely on agriculture as well as on natural ecosystems. The plants can grow individually in clumps or as dense thickets, crowding out more desirable species. In disturbed native forests it can become the dominant understorey species, disrupting succession and decreasing biodiversity. At some sites, infestations have been so persistent that they have completely stalled the regeneration of rainforest for three decades. Its allelopathic qualities can reduce vigour of nearby plant species and reduce productivity in orchards. *Lantana camara* has been the focus of biological control attempts for a century, yet still poses major problems in many regions.

Lepidium virginicum L.

Lepidium virginicum is a weed of agronomic, vegetable, orchard, and nursery crops. It is reported to have naturalised on disturbed sites in Hawaii and the western United States, and spreading rapidly on Grand Cayman.

Macfadyena unguis-cati (L.) A.H. Gentry

Macfadyena unguis-cati is a perennial, climbing liana found primarily in tropical forests. It is native to Central America and the West Indies, but is now present on all continents except Antarctica. It is an invasive species in much of its range and is said to be “one of the most destructive exotic vines”. *Macfadyena unguis-cati* affects all layers of infected forest ecosystems by rapidly spreading both vertically and horizontally across everything with which it makes contact, overwhelming both the understorey plants and the canopy trees. *Macfadyena unguis-cati* species becomes established quickly and is difficult to eliminate due to its rapid growth, extensive root system, and prolific seed production.

Mikania micrantha Kunth

Mikania micrantha is a perennial creeping climber known for its vigorous and rampant growth. It grows best where fertility, organic matter, soil moisture and humidity are all high. It damages or kills other plants by cutting out the light and smothering them. A native of Central and South America, *Mikania micrantha* was introduced to India after the Second World War to camouflage airfields and is now a major weed. It is also one of the most widespread and problematic weeds in the Pacific region. Its seeds are dispersed by wind and also on clothing or hair.

Mimosa pigra L.

Mimosa pigra is invasive, especially in parts of South East Asia and Australia. It reproduces via buoyant seed pods that can be spread long distances in flood waters. *Mimosa pigra* has the potential to spread through natural grassland floodplain ecosystems and pastures, converting them into unproductive scrubland which are only able to sustain lower levels of biodiversity. In Thailand *Mimosa pigra* blocks irrigation systems that supply rice fields, reducing crop yield and harming farming livelihoods. In Vietnam it has invaded unique ecosystems in protected areas, threatening the biodiversity of seasonally inundated grasslands.

Mimosa pudica L.

Mimosa pudica is native to South America, but has become a pan-tropical weed. It was introduced to many countries as an ornamental plant and is still widely available for sale. *Mimosa pudica* has become a pest in forest plantations, cropland, orchards and pasture. *Mimosa pudica* is used as a medicinal plant in many regions.

Oeceoclades maculata (Lindl.) Lindl.

Oeceoclades maculata is a terrestrial orchid which probably originated in Africa. Of recent introduction to the French Antilles and Florida, it is a species with invasive behaviour. *Oeceoclades maculata* self-fertilising mode of reproduction is a factor that assists its spread.

Oxalis latifolia Kunth

Oxalis latifolia is a perennial herb native to North, Central and South America. It mainly reproduces vegetatively, via bulbils and bulbs, and commonly grows in gardens, cultivated areas, orchards, crop fields and nurseries. *Oxalis latifolia* is now found worldwide and is known to be invasive in the following areas: Australia, Galapagos Islands, Indonesia, Kermadec Islands, Mauritius, New Caledonia, New Zealand and Papua New Guinea. Despite its native status, it is also considered to be a weed in Guadeloupe, Mexico, Puerto Rico and the United States.

Piper aduncum L.

Piper aduncum is a shrub or small tree that is a native of the West Indies and mainland tropical America from Mexico to northern Argentina. It is an invader of disturbed areas, where it is able to form thickets and spreads by sprouts and suckers. *Piper aduncum* is a problem in some Pacific Islands, where it can interfere with the harvesting of the related kava plant (*Piper methysticum* G. Forst.). *Piper aduncum* has a number of uses, including traditional medicines and agroforestry.

Pluchea carolinensis (Jacq.) G. Don

Pluchea carolinensis is a shrub or small tree. It usually occurs in open and disturbed areas, such as roadsides and pastures. This fast-growing shrub can form dense stands in dry habitats. It can compete with fodder plants in pasture and with native plants in natural areas. It can be very invasive in coastal areas on limestone substrates as is the case in French Polynesia. This shrub is now widespread in many Pacific islands where it is regarded as an aggressive weed.

Psidium guajava L.

Psidium guajava is a tropical tree or shrub. It is native to Central America from Mexico to northern South America. It has been introduced to most tropical and sub-tropical locations around the world for its edible fruit. In some countries the harvesting, processing and export of the fruit forms the basis of a sizeable industry. Due in part to its ability to grow on a variety of soils and across a range of climates, *P. guajava* has become invasive . Pastures and fields are overrun and native plants are outcompeted by this species, which has the ability to form dense thickets. This has led to its designation in many areas as a noxious weed to be controlled or eradicated. It is ranked by some authorities amongst the highest invasive categories.

Rhynchelytrum repens (Willd.) C.E. Hubb.

Rhynchelytrum repens is a pasture native of South Africa, but widely distributed in the tropical and subtropical regions. It was initially imported as fodder, but it lacks the nutritional qualities of other forms of pasture, and it soon became an aggressive weed in many places. It thrives in dry conditions and is abundant in unused land or neglected pastures and, in some places, it can displace the native vegetation and prevent its regeneration.

Ricinus communis L.

Ricinus communis is a perennial shrub that can assume tree-like status if it establishes in a suitable climate. It is frequently found invading riparian areas where it displaces native vegetation. The seed of this species is toxic to variety of species including humans. Consuming only a few seeds can be fatal. In January of 2003, people tied to Al Qaeda were arrested in London accused of

making ricin (ricinus compound) and in February of 2008, a man was poisoned in Las Vegas. Given the growing threat of mass destruction weapons in the United States, doctos have been familiarizing themselves with the treatment of poisoning with substances such as ricin.

Rubus niveus Thunb.

Rubus niveus is a shrub native to Asia that may form dense, impenetrable, thorny thickets that can displace native species. It produces sweet, palatable fruit enjoyed by birds, rodents, reptiles and humans and has been cultivated in many regions throughout the world for this reason. It is also used as a living fence. Mechanical management of the species is difficult due to its growth form and persistent seedbank, but chemical methods have been developed and biological means of management are being explored.

Samanea saman (Jacq.) Merr.

Samanea saman is a leguminous tree which can easily reach a height of 25 metres. It has been distributed around the world, mostly in tropical climates and has become naturalised in many countries. *Samanea saman* is valued for its many uses, the primary ones being shade, timber and animal fodder. *Samanea saman* has become invasive in Fiji, where it can dominate areas of vegetation and is able to invade native forest ecosystems, as found in Hawaii.

Sansevieria trifasciata Prain var. *trifasciata*

It is native to Africa, where it was introduced to control erosion, as a live fence in coffee plantations. It is also used as an ornamental indoor plant and hedging.

Sechium edule (Jacq.) Sw.

Sechium edule is a perennial from the Cucurbitaceae family. It is cultivated in the tropics for its fruit which are edible when ripe. The plant has climbing stems several metres in length. It can escape from gardens and become naturalized. It is considered invasive in New Caledonia.

Solanum torvum Sw. Solanaceae

Solanum torvum is considered a weed in the tropics. Often found in disturbed areas, it can form dense impenetrable stands. *Solanum torvum* is considered to be a serious threat to the productivity and sustainability of pasture. Besides its economic impacts, it competes with native species.

Spathodea campanulata P. Beauv.

The African tulip tree (*Spathodea campanulata*) is an evergreen tree native to West Africa. It has been introduced throughout the tropics and has naturalized in many parts of the Pacific. It favors moist habitats and will grow best in sheltered tropical areas. It is invasive in Hawaii, Fiji, Guam, Vanuatu, the Cook Islands and Samoa, and is a potential invader in several other tropical locations. The author has already seen it propagating in forests in the western part of the country and it as been noticed that it aggressively grows in the park.

Sphagneticola trilobata (L.) Pruski

This species is widely known as Wedelia trilobata, its former name and now botanical synonym. In fact, in some places its common name is Wedelia. In some places it is cultivated as coverage since it forms very dense ground cover. Its leaves are dark-green and contrast with the yellow of the inflorescences. It readily escapes from gardens and because of its dense growth, it can impede the growth of many species.

Syzygium cumini (L.) Skeels

Syzygium cumini has been introduced in many different places to populate plazas, parks, gardens, and avenues. It is important as an ornamental plant and it can be used as timber. Some people eat its fruits as well, but some are very astringent. Nonetheless, it can form very dense stands that prevent the development of other species. Because of this, it has been reported as invasive in Hawaii, where it is said that it has prevented the natural repopulation or regeneration of the forests (UICN 2010).

Syzygium jambos (L.) Alston

Is indigenous to the Malay Archipelago and has been introduced in the tropics of the entire world. Given its ample presence since a long time ago, it is difficult to convince people in the area about the origin of this plant. It is likely that its growth will hinder the development of the native flora.

Tecoma stans L.

Tecoma stans is a South American tree which has been introduced to other tropical and subtropical regions (Indian Ocean, Pacific, Australia) as an ornamental. Tecoma stans prefers dry and disturbed areas such as roadsides but it can also be found in relatively undisturbed forests. It can develop dense, almost monospecific thickets and restrict the regeneration of native species.

Terminalia catappa L.

Terminalia catappa is a native plant of Asia that has escaped from cultivation. Due to its ability to cope with sandy, well draining soil, and salt spray it is often found on coastal regions. It is considered invasive in Florida, United States, and several Caribbean Islands,

including Montserrat, Puerto Rico and the Cayman Islands. Its seeds are highly bouyant which allows it disperse vast distances however they are highly edible so are eaten by bats, crabs and humans. However despite its potential as being an invasive species it is being considered for multiple applications. Due to its extensive and deep-rooting structure it is considered a possible species to use as a dune retention species against proposed climate change and sea-level rise, and in Brazil it is also being considered a potential cultivar to use in bio-fuel creation.

Thunbergia grandiflora Roxb.

Thunbergia grandiflora is a climbing vine native to Asia which is able to smother native vegetation. Introduced and cultivated in many regions as an ornamental, it has become a widespread invasive plant. It invades pastures and roadsides forming impenetrable stands and is a major threat to remnants of tropical forests fragmented by agriculture and urbanisation. It is one of the most problematic invasive plants in Australia. It can cover 100% of the ground over several hectares, excluding all native plants.

Threatened species

Although the access right of way strip is used up almost entirely by a coffee plantation in which most usual practices are no longer being applied, it still conserves some significant biodiversity, most notably, a considerable number of tree and shrub species. The total number of tree species reaches 151, of which 113 are native and 38 exotic. Of this total, at least four species (Table 3) are classified as globally threatened, according to UICN (2016).

Table 3. Species of importance for conservation found in the design path of the Project.

Species	Category	Family	Habit
Eugenia salamensis var. *rensoniana* (Standl.) McVaugh	EN	Myrtaceae	Tree
Juglans olanchana Standl. & L.O. Williams	EN	Juglandaceae	Tree
Quercus skinneri Benth.	VU	Fagaceae	Tree
Cedrela odorata L.	VU	Meliaceae	Tree

The abbreviation for each category corresponds to the Enlish nomenclature. **EN**: (endangered); **VU:** (vulnerable), According to: **(UICN)**

Floristic-structural analysis Methods of

Analysis

After the field work, with the circumference measurements, the structural analysis was conducted to obtain the Importance Value Indices (IVI's) for all of the

Species of the four transects. The following values were calculated for the IVI's: Dominance, abundance, and frequency.

Importance value index (IVI)

It is a parameter that estimates the ecological contribution or significance of each species in the community. The maximum value is 300%. The closest a species gets to this value, the greater its ecological importance and floristic dominance will be over the other species present and it is equal to the sum of dominance, abundance, and frequency.

The IVI data for all species found in the parcels are summarized in Table 4.

Table 4. Importance Value Indices of the most representative tree species (according to IVI results) present in the structural flosristic analysis parcels.

Species	Family	Circumference (cm)	Total basal area	Relative basal area	Abundance	Relative abundance	Frequency	Relative frequency	IVI
Inga vera	Leguminosae-Mimosoideae	63	27057.30	30.73	33.00	27.73	0.75	18.99	77.45
Inga punctata	Leguminosae-Mimosoideae	107	14659.64	16.65	20.00	16.81	0.50	12.66	46.12
Inga oerstediana	Leguminosae-Mimosoideae	91	9506.90	10.80	11.00	9.24	0.35	8.86	28.90
Persea americana	Lauraceae	159	6615.35	7.51	3.00	2.52	0.15	3.80	13.83
Trophis racemosa	Moraceae	44	1754.07	1.99	7.00	5.88	0.20	5.06	12.94
Dendropanax arboreus	Araliaceae	245	5713.44	6.49	2.00	1.68	0.10	2.53	10.70
Crudia acuminata Benth.	Leguminosae-Caesalpinoideae	182	5045.21	5.73	2.00	1.68	0.10	2.53	9.94
Syzygium jambos	Myrtaceae	32	2348.21	2.67	4.00	3.36	0.15	3.80	9.83
Gliricidia sepium	Leguminosae-Papilionoideae	115	3675.70	4.17	3.00	2.52	0.10	2.53	9.23
Trichilia havanensis	Meliaceae	40	648.40	0.74	4.00	3.36	0.15	3.80	7.90
Zanthoxylum kellermanii	Rutaceae	161	2866.48	3.26	2.00	1.68	0.10	2.53	7.47
Nectandra martinicensis	Lauraceae	95	945.08	1.07	3.00	2.52	0.15	3.80	7.39
Psidium guajava	Myrtaceae	54	698.37	0.79	3.00	2.52	0.15	3.80	7.11
Mangifera indica	Anacardiaceae	61	668.87	0.76	3.00	2.52	0.15	3.80	7.08

Species	Family	Circumference (cm)	Total basal area	Basa l area	Abundance	Relative abundanc	Frequency	Relative frequenc	IVI
Tabebuia rosea	Bignoniaceae	32	530.34	0.60	3.00	2.52	0.10	2.53	5.66
Eremosis triflosculosa subsp. Triflosculosa	Asteraceae	32	387.38	0.44	2.00	1.68	0.10	2.53	4.65
Sideroxylon capiri subsp. tempisque	Sapotaceae	141	1582.08	1.80	1.00	0.84	0.05	1.27	3.90
Spondias purpurea	Anacardiaceae	36	181.77	0.21	2.00	1.68	0.05	1.27	3.15
Cecropia obtusifolia.	Cecropiaceae	101	811.77	0.92	1.00	0.84	0.05	1.27	3.03
Licania platypus	Chrysobalanaceae	100	795.77	0.90	1.00	0.84	0.05	1.27	3.01
Vernonia patens	Asteraceae	69	378.87	0.43	1.00	0.84	0.05	1.27	2.54
Sapindus saponaria	Sapindaceae	65	336.21	0.38	1.00	0.84	0.05	1.27	2.49
Calophyllum brasiliense var. rekoi	Clusiaceae	51	206.98	0.24	1.00	0.84	0.05	1.27	2.34
Quercus skinneri	Fagaceae	45	157.58	0.18	1.00	0.84	0.05	1.27	2.29
Cedrela odorata	Meliaceae	38	111.91	0.13	1.00	0.84	0.05	1.27	2.23
Castilla elastica	Moraceae	37	108.94	0.12	1.00	0.84	0.05	1.27	2.23
Cordia alliodora	Boraginaceae	33	86.66	0.10	1.00	0.84	0.05	1.27	2.20
Croton reflexifolius	Euphorbiaceae	33	84.05	0.10	1.00	0.84	0.05	1.27	2.20
Lycianthes heteroclita	Solanaceae	32	81.49	0.09	1.00	0.84	0.05	1.27	2.20
			88044.85	100.00	119.00	100.00	3.95	100.00	300.00

As can be observed in the above table, over half of the IVI, that is the ecologic weight of the species, is represented only by three species: *pepeto* (*Inga vera*), *cuje* or *Guamito* (*Inga punctata*), and *cujinicuil* (*Inga oerstediana*). Although all three are native to the country, they are grown in the area with the purpose of providing shade for the coffee plants and to contribute to the improvement of the soil through the fixation of nitrogen.

Table 5. Estimated number of trees to be felled, by species.

Specie	Family	IUCN status *	El Salvador status**	Number of trees
Inga vera	Leguminosae-Mimosoideae			998
Inga punctata	Leguminosae-Mimosoideae			604
Inga oerstediana	Leguminosae-Mimosoideae			333
Trophis racemosa	Moraceae			212
Trichilia havanensis	Meliaceae			123
Syzygium jambos	Myrtaceae			119
Mangifera indica	Anacardiaceae			94
Tabebuia rosea	Bignoniaceae			94
Persea americana	Lauraceae			91
Nectandra martinicensis	Lauraceae			90
Gliricidia sepium	Leguminosae-Papilionoideae			88
Psidium guajava	Myrtaceae			87
Spondias purpurea	Anacardiaceae			67
Dendropanax arboreus	Araliaceae			64
Eremosis triflosculosa	Asteraceae			61
Crudia acuminata Benth.	Leguminosae-Caesalpinoideae			58
Zanthoxylum kellermanii	Rutaceae			53
Sideroxylon capiri	Sapotaceae			41
Sapindus saponaria	Sapindaceae			40
Vernonia patens	Asteraceae			38
Cordia alliodora	Boraginaceae			36
Cecropia obtusifolia.	Cecropiaceae			33
Licania platypus	Chrysobalanaceae			31
Calophyllum brasiliense	Clusiaceae			30
Croton reflexifolius	Euphorbiaceae			28
Castilla elastica	Moraceae			25
Lycianthes heteroclita	Solanaceae			20
Cedrela odorata	Meliaceae	VU	A	16
Quercus skinneri	Fagaceae	VU	A	15
Juglans olanchana	Juglandaceae	EN	EP	5
Eugenia salamensis	Myrtaceae	EN		5
			Total:	**3599**

** VU: vulnerable; EP: in danger*

*** A: Threatened; EP: In danger (according to the list of Agreement No. 74 of March 23, 2015)*

Table 5, after an overestimation of the area of logging affected by each of the towers, details the breakdown of trees to be cut by species. This is based on the counting and inventory of trees made by the surveying team. The table also details protected species based on IUCN Status and El Salvador Status.

Condition of the Coffee Plantation

As a result of the floristic analysis it was found that in 10 parcels that added up to 10,000 m^2 each (a total area of 1,000 m^2) the following parameters were found:

Number of coffee bushes per 1,000 m^2: 298
Number of coffee bushes per ha: 2979
Average diameter of the bushes (in cm): 7.96
Basal area in 1,000 m^2 (in m^2): 1.72189
Basal area in 1 ha (in m^2): 17.2189

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Appendix B

Land Fauna Report, Transmission Line Energía del Pacifico S.A. de C.V.



Presented by:
Rene Arturo Vaquerano Gómez

MAY, 2016

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SUMMARY

An inventory of the terrestrial fauna (amphibians, reptiles, mammals and birds) was carried out in the Area of influence of the project of Line of Transmission of Energia del Pacifico S.A. de C.V., located in the western zone of the country, in the departments of Ahuachapán and Sonsonate that comprised the months of May and June of 2016, corresponding to the rainy season. Samplings were carried out in the three habitats identified in the area of influence: agricultural areas in the lower zone, natural forest patches and the main shade coffee plantation. We worked on sampling transects in which an intensive search of amphibians and reptiles was carried out, these were used for the registration of mammalian species and for the case of birds were mounted observation points. A total of 15 species of herpetofauna, 14 species of mammals and 39 species of birds were registered. During the study, no new species were recorded for the departments of Ahuachapán and Sonsonate. It is estimated the occurrence of between 15 and 18 of additional species to those found, which have been recorded in similar habitats outside the study area or are widely distributed in the country. The fauna inventory in the Area is considered 60% to be completed. Of the species registered in the Area, six are of particular interest for conservation: the Black-Eyed Tree Frog *Agalychnis moreletii*, critically Endangered species worldwide; Gavilan zancudo *Geranospiza caerulescens,* Endangered species at national level; Parakeet chocoyo *Eupsittula canicularis;* Parakeet catalnica *Brotogeris jugularis*; Toledo *chiroxiphia linearis* and the Tucaneta green *Aulacorhynchus prasinus*. The last four species in threatened status at the national level.

INTRODUCTION

The study focused on evaluating the species of fauna occurring along the trace of the Energia del Pacífico transmission line. Therefore, the areas of major importance for biodiversity were identified and the impact will be greater.

So, our effort was focused on the mountain range of Apaneca because it is a coffee area presents good conditions to accommodate a large diversity of species important for conservation.

The area is mostly occupied by coffee plantations, and there are several publications documenting the importance of these agroforestry systems in Latin America. Although the group most studied has been that of birds, studies have also been carried out of other taxonomic groups in coffee plantations in the western zone of the country.

Due to the aforementioned, this study is of vital importance to know the current state of the faunal species present in the area of influence of the project since the information collected will support the development of priority activities for the conservation, protection, monitoring and maintenance of the Area, and thus minimize the impact.

OBJECTIVES

General objective

To determine the species of terrestrial fauna (amphibians, reptiles, mammals and birds) occurring in the area of influence of the *Transmission Line Project of Energía del Pacífico S.A. de C.V.*

Specific objectives

- Identify and quantify terrestrial fauna species in the different habitats in the area of influence of the *Transmission Line Project of Energía del Pacífico S.A. de C.V.*

- To analyze the diversity and richness of the different groups of terrestrial fauna evaluated in the present study.

- Detail the threatened and endangered species at national and international level.

- Define sites of importance for the conservation of threatened and endangered species.

MATERIALS AND METHODS

DESCRIPTION OF THE STUDY AREA

The study area comprises part of the western section of the Sierra de Apaneca in southwest of El Salvador, within the departments of Sonsonate, Ahuachapán. This area houses the largest coffee growing landscape in El Salvador, and contains some important patches of natural forest located between coffee plantations. See (Figure 1).



Figure 1. Gap of the area of influence of the Transmission Line Project of Energia del Pacifico. May-June 2016,

METHODOLOGY

For the accomplishment of the investigation standardized samplings were realized in the different identified habitats. In the case of faunal species, samples were taken in the following habitats.

- Patches of Natural Forests.
- Forest of coffee plantation.
- Open areas with crops.

Depending on each taxon, the types of sample units were designed in the same way, the samplings of each group were made according to their schedule of activity. In order to achieve an inventory of as many species as possible.

Materials and equipment.

- **Amphibian and reptile field guides**
- **Mammals Field Guide**
- **Field Guides for Birds**
- **Binoculars**
- **Camera traps**
- **Sherman Traps**
- **Serpentine hook**
- **Field notebook**
- **Photographic camera**
- **Taxonomic keys**

Sampling design.

Herpetofauna

Members of these groups are sensitive to environmental conditions and are closely tied to a particular habitat, making them more vulnerable than other vertebrate groups to changes in habitat, pollution, and human pressure.

We performed intensive searches on transects, one hour of, without repeating transects. The field work was carried out during 5 days between May and June 2016, covering the rainy season, with sampling times from 8:00 a.m. to 1:00 p.m. in the morning and 8:00 p.m. At 10:00 pm at night. Sampling sites were selected depending on the conditions for a greater probability of finding amphibians and reptiles. In the case of reptiles, sunny sites were selected, with trunks and shrubs usually used as hiding places; In the case of amphibians, places with sufficient humidity, as well as small pools present in ravines and in the main roads of the area.



Figure 2. Transects Established for the Sampling of Herpetofauna in the Sector of Apaneca to San Pedro Puxtla for the Transmission Line Project of Energía del Pacifico. May-June 2016.

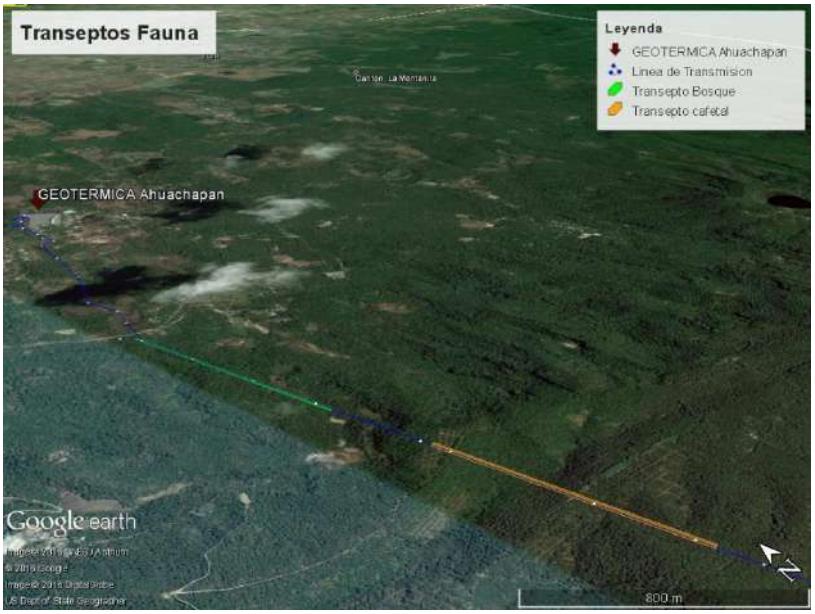

Figure 3. Transects Established for Herpetofauna Sampling in the Ahuachapán Sector for the Transmission Line Project of Energía del Pacifico. May-June 2016.

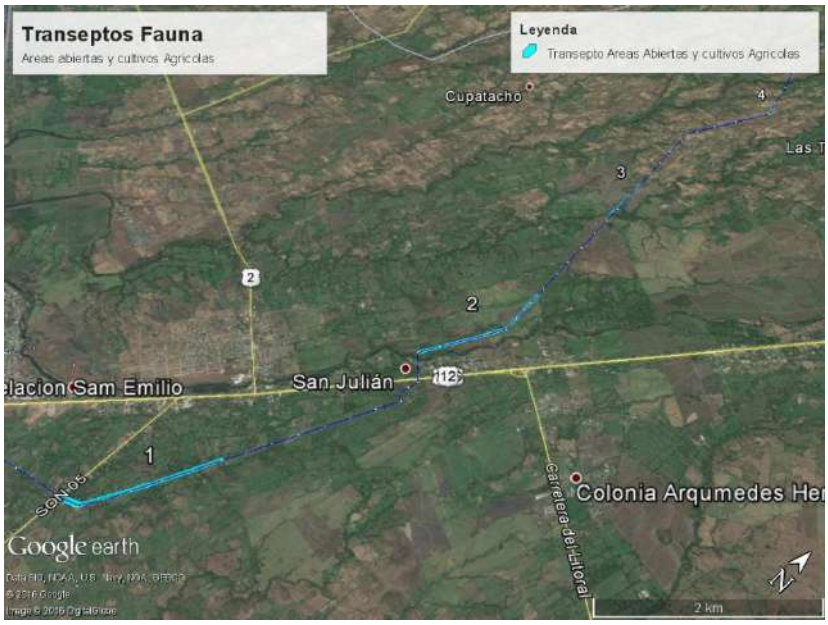

Figure 4. Transects Established for Herpetofauna Sampling in the Acajutla Sector towards Santo Domingo de Guzmán for the Transmission Line Project of Energía del Pacífico. May-June 2016.

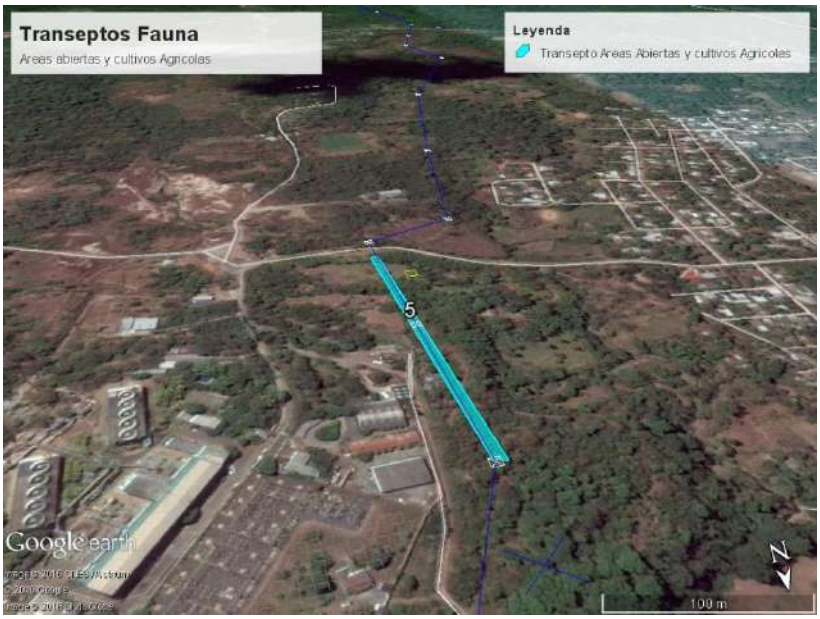

Figure 5. Transects Established for Herpetofauna Sampling in the Ahuachapán Sector for the Transmission Line Project of Energía del Pacífico. May-june 2016.

Mastofauna

Linear transepts were established for the census of these species. In which the species of mammals present were recorded by sightings and indirectly from traces, excreta or other traces indicating the occurrence of these species,

The same transects destined for herpetofauna were used. (See figures 2,3 and 4). However, camera traps were also used that were placed at strategic sites such as animal tracks or evidence of animal passage, in order to increase the probability of species registration.

Sampling schedules for the mastofauna were performed during the day from 8:00 a.m. to 12:00 p.m. and 2:00 p.m. to 4:00 p.m., mostly looking for traces and night sampling from 10:00 p.m. to 2:00 a.m. to try to make sightings of species with nocturnal habits.



Figure 6. Trap camera that was used for the registration of mammal species in the Transmission Line Project of Energía del Pacífico. May-june 2016.

Birds

In the case of the group of birds will be established observation points in which stops were made of 15 minutes per point and the identified species will be recorded either by their morphological characteristics or by their song. The points have been mounted on the transects previously established for the other groups since at these points a high incidence of birds has been determined. (See figures 7, 8, 9 and 10).

The tours were made during the hours when the weather conditions were favorable, performing a sampling at dawn from 5:00 am to 8:00 am and in the afternoon from 4:00 pm to 6:00 pm.

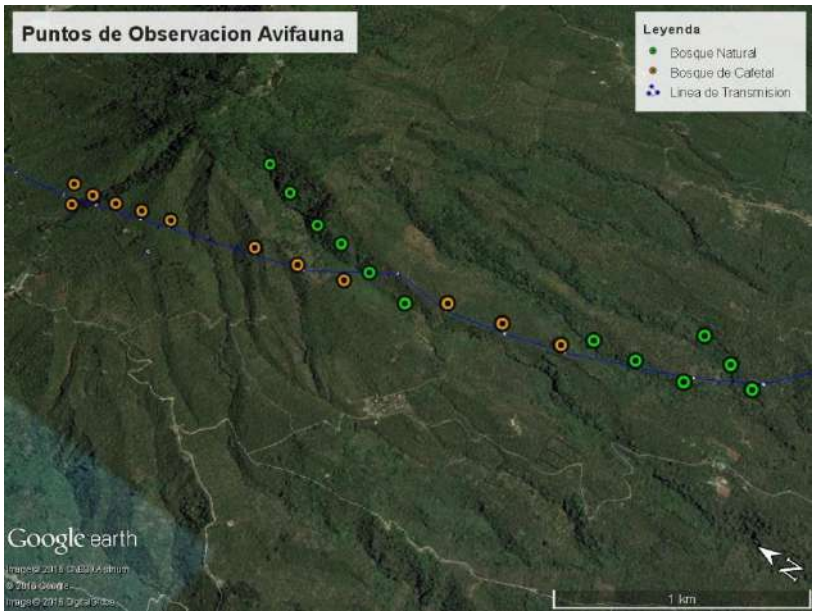

Figura 7. Observation Points Established for Avifauna Sampling in the Sector of Apaneca to San Pedro Puxtla for the Transmission Line Project of Energía del Pacífico. May-june 2016.

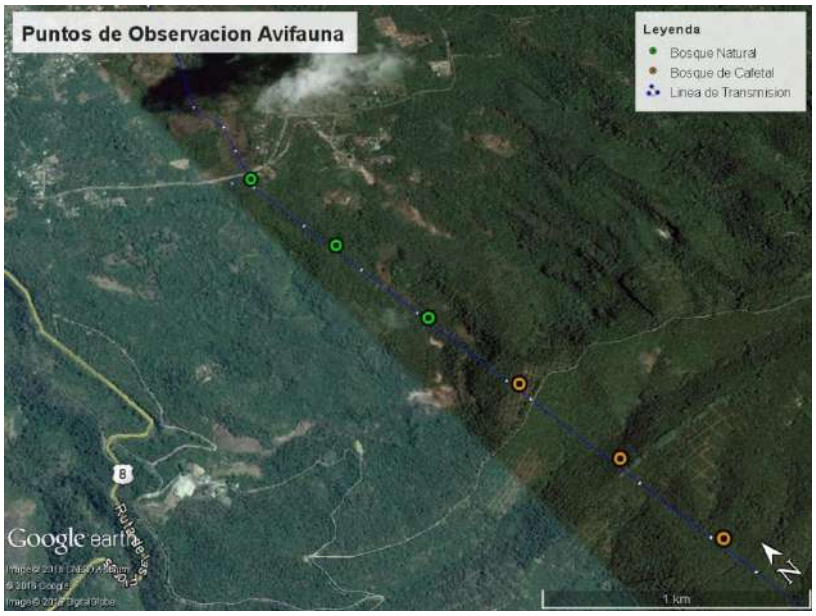

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Figure 9. Observation Points Established for Avifauna Sampling in the Ahuachapán Sector for the Transmission Line Project of Energía del Pacífico. May-june 2016.

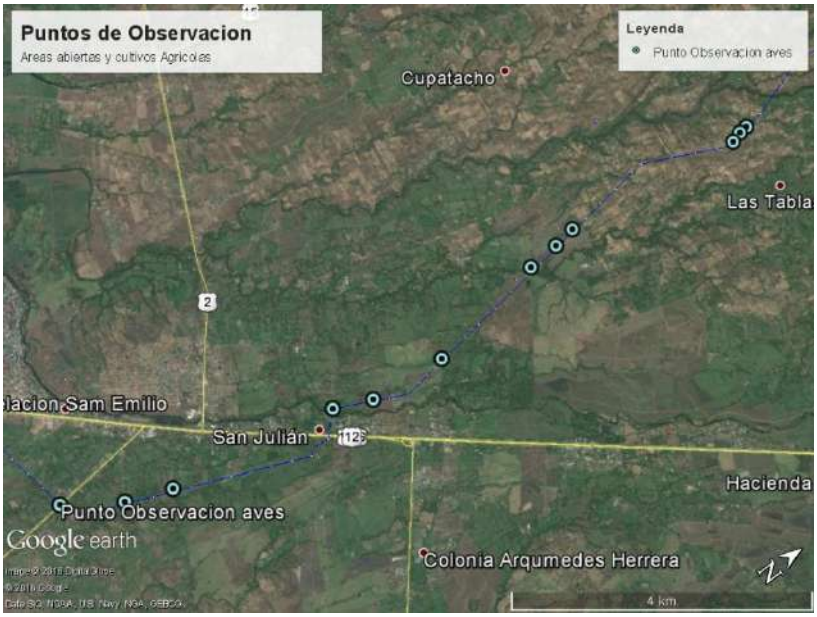

Figura 10. Observation Points Established for Avifauna Sampling in the Acajutla Sector to Santo Domingo de Guzmán for the Transmission Line Project of Energía del Pacífico. May-june 2016.

Calculations

The information recorded in the samples will determine the abundance, wealth and diversity value index, these will be processed in Excel spreadsheets; For alpha diversity the Shannon-Wiener indexes will be used. The absolute **(n)** and relative **(%)** abundance of aquatic organisms recorded in the study.

Relative Abundance.

$$A_r = \frac{A_i}{A_{total}} X\ 100$$

Where:

A_r = Relative abundance of family or species

A_i = Total number of individuals in the family or species

A_{total} = Total number of individuals of all families or species registered

In addition to measuring the diversity of species within a community (diversity α), the Shannon-Wiener index is used. This is based on the fact that all species have the same probability of occurrence in the sample. It has values between 0 and 6 and is calculated according to the following formula:

Shannon Wiener Index.

$$H' = -\sum_{i-1}^{n} pi(lnpi)$$

Where:

H´ = species diversity index Shannon-Wiener

P_i = proportion of species (n_i) in the total sample (N) ($p_i = n_i / N$).

Simpson Index

Also known as the index of species diversity or dominance index. It is one of the parameters that allowed to measure the wealth of organisms. In ecology, it is also used to quantify the biodiversity of a habitat. It takes a certain number of species present in the habitat and their relative abundance. The Simpson index represents the probability that two randomly selected individuals within a given habitat belong to the same species.

Simpson Dominance Index

$$D = \frac{\sum_{i=1}^{S} n_i(n_i - 1)}{N(N-1)}$$

Where:

S = is the number of species

N = is the total of organisms present (or square units)

n = is the number of specimens per species

Simpson Diversity Index

$$D = 1 - \sum_{i=1}^{S} Pi$$

Where:

D = Simpson Diversity Index

Pi = Proportion of individuals of species i in the community

Accumulation curve and indexes of wealth.

To determine the degree of completion of the inventory the species accumulation curve was used as well as the wealth indexes of ACE (Abundance-based Coverage Estimator), ICE (Incidence-based Coverage Estimator), Chao 1, Chao 2, Jack-Knife 1 and Jack-Knife 2, calculated with the program EstimateS version 7.51 (Colwell 2006).

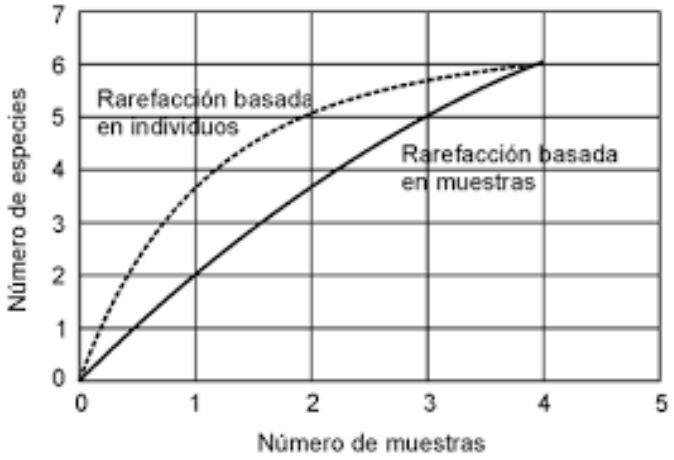

Figure 11. Example species accumulation curves for the Transmission Line Project of Energía del Pacífico. May-june 2016.

RESULTS

For the study area, the presence of 68 species belonging to the amphibian, reptile, mammal and bird groups has been evidenced in ten species of amphibians, five reptiles, 14 species of mammals and 39 species of birds.

The abundances are detailed below the results and analyzes obtained for each group evaluated.

Herpetofauna

A total of 15 species of amphibians and reptiles were recorded in 8 families and 14 genders. Most of the species recorded are common, with wide distribution at national level and high adaptability to areas disturbed by anthropogenic activity. However, the second most abundant species was the black-eyed tree frog (*Agalychnis moreletii*). A nationally threatened species that is on the IUCN's red list as a critically endangered species. See table 1.

Table 1. Herpetofauna Species Registered During the Study Completed for the Transmission Line Project of Energía del Pacífico. May 2016. E.N: National conservation status; IUCN: Conservation status according to IUCN; C: Coffee plantation; P.B: Patch of natural forest; A.A: Agricultural Areas.

Family	Specie	Common Name	E.N	IUCN	C	P.B	A.A	Total
Bufonidae	*Incilius coccifer*	Toad Enano	NA	MP	0	2	0	2
	Rhinella marina	Toad Sabanero	NA	MP	4	0	24	28
Craugastoridae	*Craugastor loki*	Little Frog of forest	NA	MP	45	85	0	130
Hylidae	*Agalychnis moreletii*	Black-Eyed Tree Frog	A	CR	25	40	0	65
	Scinax staufferi	Swamp Frog	NA	MP	0	0	14	14
	Smilisca baudinii	Frog	NA	MP	0	0	32	32
Leptodactylidae	*Leptodactylus melanonotus*	Frog de Charca	NA	MP	0	0	32	32
Leiuperidae	*Engystomops pustulosus*	Little Toad Túngara	NA	MP	0	7	30	37
Ranidae	*Lithobates maculatus*	Frog	NA	MP	4	0	0	4
	Lithobates forreri	Frog Leopard	NA	MP	0	0	12	12
Iguanidae	*Ctenosaura similis*	Garrobo	NA	MP	0	0	6	6
	Basiliscus vittatus	Tenguereche	NA	MP	1	0	22	23
	Anolis sericeus	Bebeleche	NA	MP	0	2	1	3
	Sceloporus malachiticus	Talconete	NA	MP	2	0	0	2
Teidae	*Ameiva undulata*	Corredor Pintado	NA	MP	0	0	6	6
				TOTAL OF INDIVIDUALS	81	136	179	396
				SP	6	6	10	15

Herpetofauna populations in different sampled habitats.

For this study, three different habitats were classified: *coffee forest, natural forest and agricultural areas*. The highest number of species and individuals was recorded in the areas of agricultural crops with a high degree of anthropic activity and contaminants. (See Figure 12). However, the most important species as environmental indicators occur both in patches of natural forest and in coffee plantations.

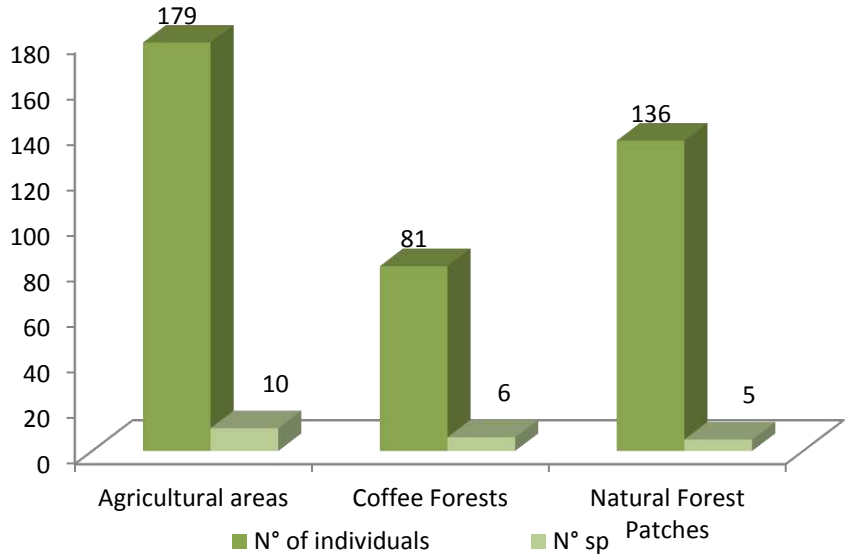

Figure 12. Numbers of Individuals and Herpetofauna Species Registered in the Various Sampling Habitats During the study conducted for the Transmission Line Project of Energía del Pacífico, May-june 2016.

Coffee plantation

For this habitat were reported a total of six species of which four belong to the amphibian case and the other two are two species of lacertilios of common and widely distributed. (See figure 13).

The most abundant amphibian species were Craugastor *loki and Agalychnis moreletii,* respectively but only the latter is in nationally threatened status and in critical danger according to IUCN.

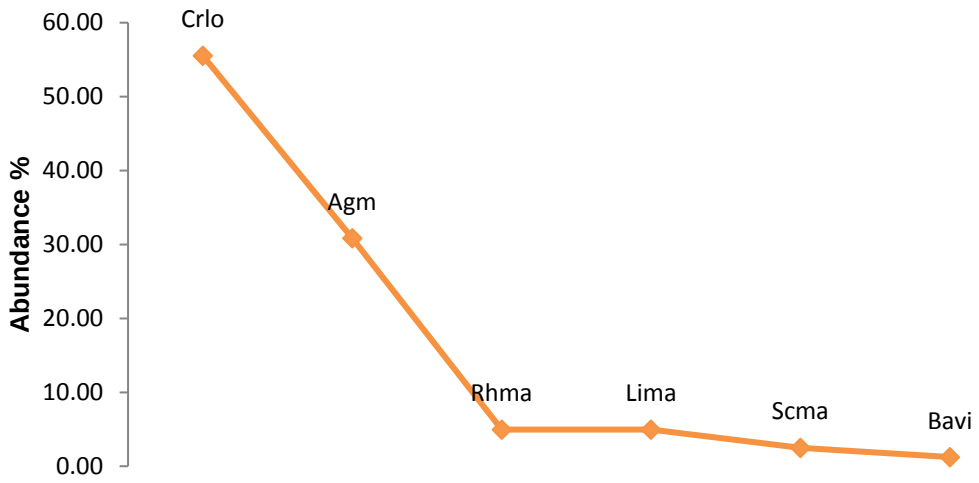

Figure 13. Range-abundance plot of the herpetofauna species in coffee forest in the location areas of towers of Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). Rhma; Rhinella marina; Crlo; Craugastor loki; Agmo; Agalychnis moreletiis; Lima; Lithobates maculatus; Bavi; Basiliscus vittatus; Scma; Sceloporus malachiticus.

Natural Forest Patches

Only five species were recorded for this habitat, and just as in the forest of coffee the predominant species and of greater ecological importance were the frogs *Craugastor loki and Agalychnis moreletii,* (See figure 14).

The frog *Agalychnis moreletii* was mostly recorded by auditory means and was located in the forest canopy and also direct observations were made in pools of rainwater and leaves of shrubs.

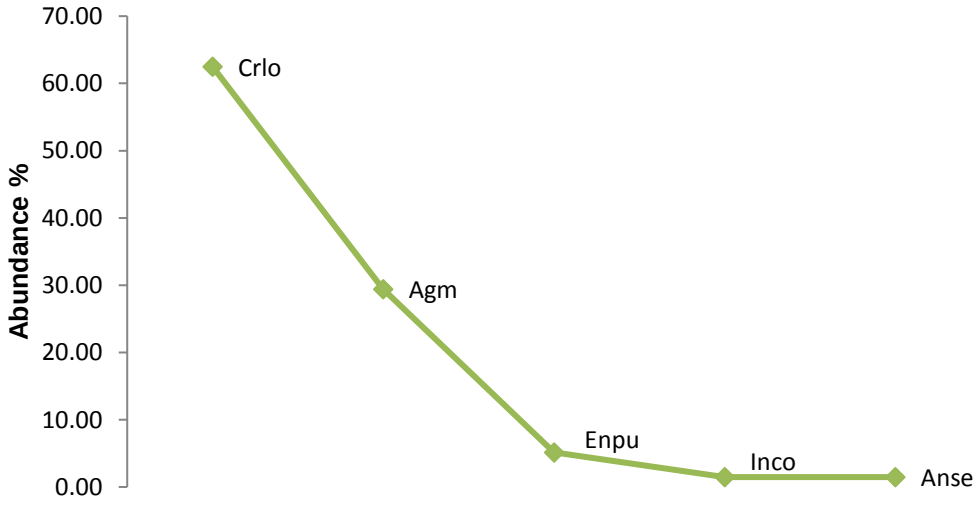

Figure 14. Range-abundance plot of the species of herpetofauna in the zones of location of towers of the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). Inco:Incilius coccifer; Crlo; Craugastor loki; Agmo; Agalychnis moreletii; Enpu; Engystomops pustulosus; Anse; Anolis sericeus.

Agricultural Areas.

These areas had a high degree of disturbance, however, most species were recorded for the study. The most abundant species were *Smilisca baudinii*, *Leptodactylus melanonotus* and *Engystomops pustulosus*. All species registered for this area are not in any conservation status either nationally or internationally. (See Figure 15).

Most amphibian species were found in pools of water with a high degree of contamination.

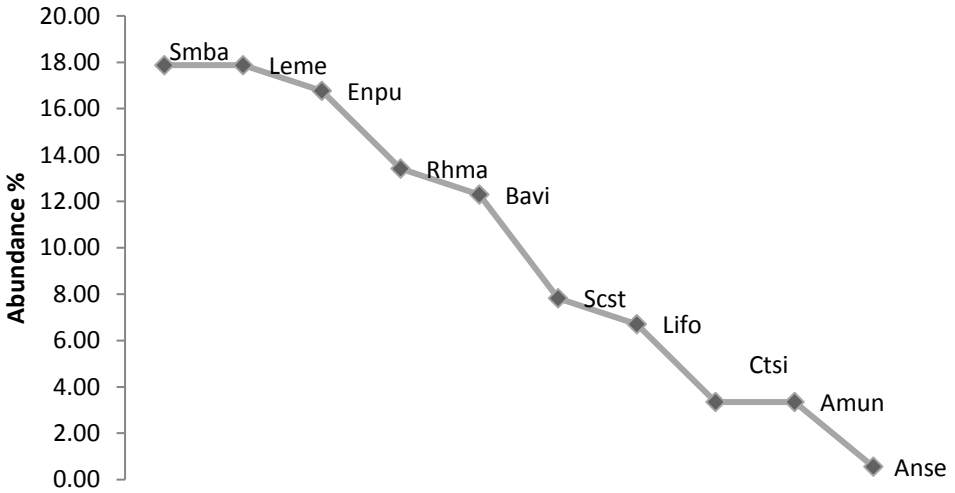

Figure 15. Range-abundance plot of the species of herpetofauna in the zones of location of towers of the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). ***Rhma; Rhinella marina; Scst; Scinax staufferi; Smba; Smilisca baudinii; Leme; Leptodactylus melanonotus; Enpu; Engystomops pustulosus; Lifo; Lithobates forreri; Bavi; Basiliscus vittatus; Anse; Anolis sericeus; Amun; Ameiva undulata.***

Abundance of species of herpetofauna in area of influence of the project

As shown below, the species *Craugastor loki* and *Agalychnis moreletii*. They are the most abundant during the evaluation carried out in the strip of forest, coffee and agricultural areas where the Transmission Line Project of Energía del Pacífico S.A de C.V.

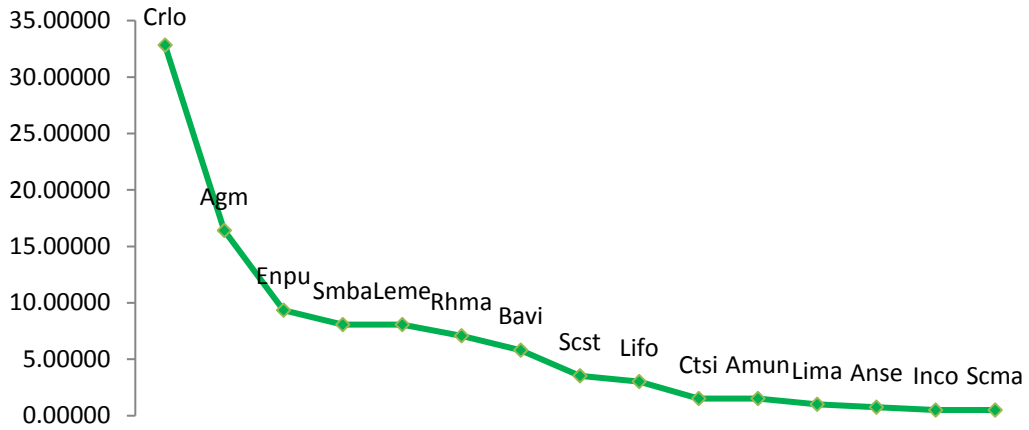

Figure 16. Range-abundance plot of the species of herpetofauna in the zones of location of towers of the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may-june 2016). ***Inco: Incilius coccifer; Rhma; Rhinella marina; Crlo; Craugastor loki; Agmo; Agalychnis moreletii; Scst; Scinax staufferi; Smba; Smilisca baudinii; Leme; Leptodactylus melanonotus; Enpu; Engystomops pustulosus; Lima; Lithobates maculatus; Lifo; Lithobates forreri; Bavi; Basiliscus vittatus; Anse; Anolis sericeus; Scma; Sceloporus malachiticus; Amun; Ameiva undulata.***



Figura 17. Individual of *Agalychnis moreletii* Captured in the coffee plantation during the study carried out for the project of the Transmission Line of Energía del Pacífico, May-June 2016.



Figura 18. Individual of *Craugastor loki* in litter of coffee during the study carried out for the project of the Transmission Line of Energía del Pacífico, May 2016.

Curve of accumulation of herpetofauna species

The review of the species accumulation curve recorded during the study indicates that more field effort is required to complete the inventory (Figure 19), Since not all of the expected species were recorded. Through the study were recorded 15 species in total and several species that were expected to occur in the area could not be census.

The following figure shows a comparison between the species recorded during the present study versus the species that throw the wealth estimators for the group of amphibians and reptiles.

In the table 2 also reflects the number of species that can occur in the area according to wealth estimators.

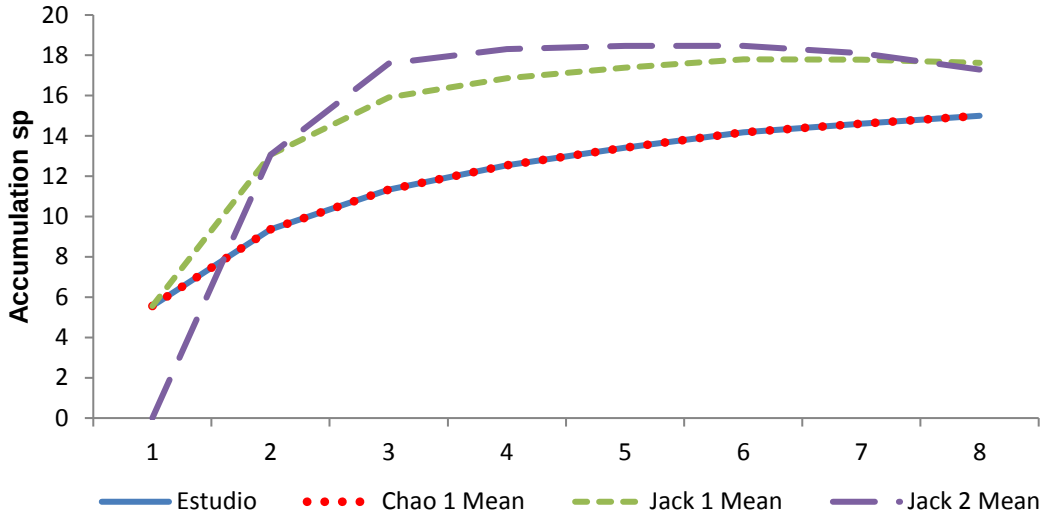

Figure 19. Accumulation curve of herpetofauna species recorded during the study and estimates of wealth realized for theTransmission Line Project of Energía del Pacífico May and June 2016.

Table 2. Estimators of species richness of herpetofauna for the Transmission Line Project of Energía del Pacífico, May and June 2016.

Estimator	Species richness
Estudio	15
ACE	15
ICE	16,44
Chao 1	15
Chao 2	15,53
Jack-Knife	17,63
Jack-Knife 2	17,3

Amphibian and reptile species accumulation curves

The accumulation curves of species for amphibians and reptiles indicate that in this group their curve shows a tendency to stabilize (Figure 20).

As for the indicators of wealth for the amphibian group, these indicate that the estimated amphibian wealth for the area is 10 to 12 species, (see table 3) So the inventory for this group would be almost complete and likewise in the case of reptiles the inventory is almost complete, which can be observed through the curve and with the indicators of wealth. These last ones indicate that in the zone could inhabit between 5 and 7 species reason why greater effort of sampling could lead in the registry of new species. (Table 3)

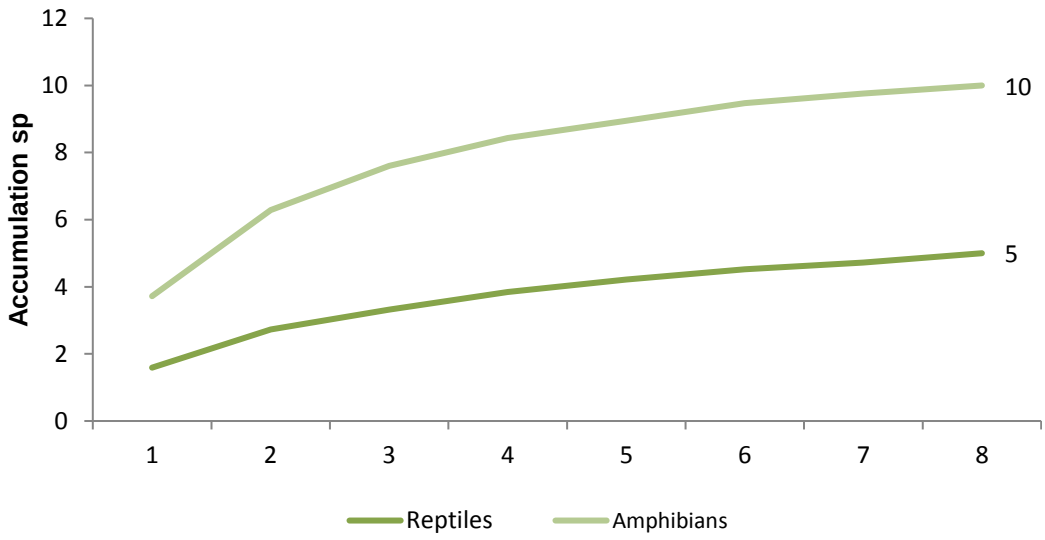

Figure 20. Comparative species accumulation curve of both groups recorded during the study conducted for the Transmission Line Project of Energía del Pacífico, May and June 2016

Table 3. Wealth estimators of both groups for the Transmission Line Project of Energía del Pacífico, May and June 2016.

Estimator	Reptiles	Amphibians
Estudio	5	10
ACE	5	10
ICE	7.06	10.91
Chao 1	5	10
Chao 2	5.44	10.29
Jack-knife 1	6.75	11.75
Jack-knife 2	7..61	11.6

Diversity of amphibians and reptiles

The diversity of species was analyzed through two indexes (Shannon and Simpson). According to the Shannon index, the diversity value is 2.13 (from a scale of 1 to 6), which is interpreted as a range of low-value herpetofauna diversity in the Area; With this data, should not be interpreted that the site is not important. It must be taken into account that the area currently for the most part is a coffee plantation, which could explain the low diversity of species. It is significant that the area presents species of importance for conservation. The Simpson index gave a result of 0.83, which indicates that there is a high probability that the first two species chosen at random are the same. This is due to the dominance of some species found in this site. In reviewing figure 21 of general abundances for the site it can be corroborated that there are two species of amphibians that are the most abundant and dominant for the area.

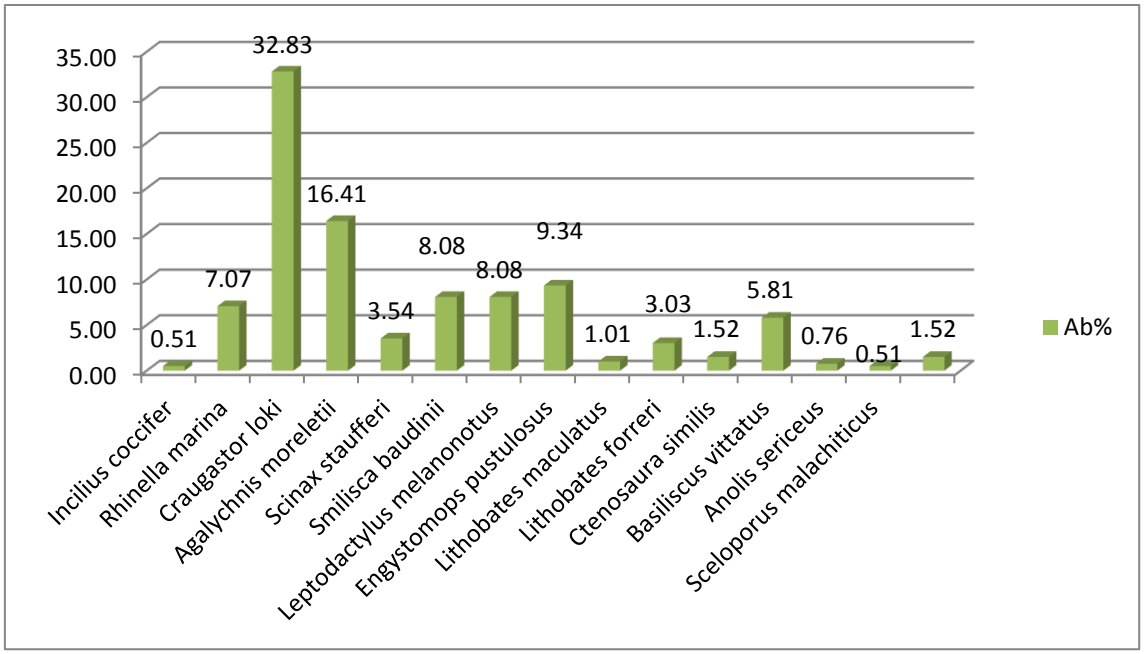

Figure 21. General abundances in% of herpetofauna species at the project site. May –june 2016.

Diversity indexes by habitat

Table 4. Diversity indexes of the herpetofauna species recorded in the different habitats for the Transmission Line Project of Energía del Pacífico, May and June 2016

Indexes	Coffee plantation	Natural Forest	Agricultural Areas
Shannon	1.13	0.93	2.07
Simpson	0.59	0.51	0.86

In the previous table, it is observed that all the sampled habitats present similar values of both species diversity and dominance.

The diversities in the three habitats are considered low, however, the level of completion of the inventory that does not finish stabilizing according to the curve of accumulation of species and wealth estimators must be taken into account. The agricultural areas are those that present a greater diversity and dominance.

Species of amphibians and reptiles of importance in the area.

Species of importance for conservation

The majority of species that were recorded during the present study are not in the official listings of endangered species, except for the Black-Eyed Tree Frog (*Agalychnnis moreletii*), which presents Critically Endangered species status at a global level (IUCN 2011) and Threatened at national level (MARN 2015). The remaining species are widely distributed or habitat generalists, and are not listed in species threatened with extinction.

Agalychnis moreletii (Black-Eyed Tree Frog). Critically Endangered Species worldwide due to Quitridiomycosis (Santos–Barrera et al. 2004), disease that has caused the extinction of several species of amphibians worldwide. It was recorded at two sites where the transmission line passes on the Santa Rita and Tequendama farms where both sites were found in reservoir tanks with several adult individuals as well as tadpoles and several oviposts on the leaves of the trees surrounding that pool. Photos by: Rene Arturo Vaquerano Gómez.



Figura 22. Adult frog *Agalychnis moreletii* recorded during the study for the Transmission Line Project of Energía del Pacífico, May and June 2016



Figura 23. Ovipostura *Agalychnis moreletii* found in reservoir tank during the study for the Transmission Line Project of Energía del Pacífico, May and June 2016

Species of importance for ecotourism

Groups of amphibians and reptiles are generally not attractive to the general public, however, the Black-Eyed Tree Frog (*Agalychnis moreletii*), with its striking green color and reddish legs, could be of interest to ecotourers who are fond of the amphibians, as it is easily observed during the nights, in the breeding ponds.

Indicating Species

Amphibians are good environmental indicators of ecosystem health, as their permeable skin makes them sensitive to pollution or the presence of diseases. In this way, a site with high levels of contamination will present diminished populations of these species. Reptiles are among the species most misunderstood by humanity, mainly snakes, which by their appearance or by the belief that they are all poisonous are killed by the villagers, so that the human presence within ecosystems greatly harms this group. The species that can be used as indicators are the following: ***Agalychnis moreletii* (Black-Eyed Tree Frog):** This species is Critically Endangered worldwide due to the disease Quitridiomycosis. Within the Area, only two Artificial Piles were found in the coffee

plantations that met the conditions for the normal development of the tadpoles of the species. Therefore, it is very important to monitor this population and its behavior over the years. The species is sensitive to contamination in the water so it is necessary to implement measures to prevent the washing of agricultural implements in these structures.

Craugastor loki **(Little Frog of forest):** This little frog has a very peculiar call, which resembles the song of a small chicken. Many people confuse this song with the call of a coral, which is false, because snakes do not make sounds like that. This frog has the characteristic of not depending much of the water, since it does not realize the phase of aquatic larva (tadpole), developing inside the egg. This species places the eggs in moist soil, making it a species that may be sensitive to soil contamination.

Sites of importance for the conservation of amphibians and reptiles within the area of influence of the project.

The stacks located on the Santa Rita and Tequendama farms are the only spaces where a reproduction site of the Black-Eyed Tree Frog (*Agalychnis moreletii*) in the area. Many zones of the Area are refuge for these groups as they have abundant litter and decomposing logs, so to determine other specific sites of importance becomes difficult since the whole Area is a shelter for the amphibians and reptiles.



Figure 24. Frog adulta de *Agalychnis moreletii* extracted from reservoir pile in Finca Santa Rita during the study for the Transmission Line Project of Energía del Pacífico, May and June 2016.

Mastofauna.

For the mammal group, a total of 14 species belonging to ten families were recorded, none of which are either threatened or threatened with extinction. See table 5.

Table 5. Species of registered mammals during the study for the Transmission Line Project of Energía del Pacífico, May 2016

Family	Specie	Comun name	E.N	IUCN	C	P.B	A.A	Total
Canidae	***Urocyon cinereoargenteus***	Zorrita / Cervantes cat	NA	MP	0	0	5	5
Dasypodidae	***Dasypus novemcinctus***	Cusuco	NA	MP	7	9	6	22
Dasyproctidae	***Dasyprocta punctata***	Cotuza	NA	MP	0	4	0	4
Didelphidae	***Didelphis marsupialis***	Black Tacuacín	NA	MP	3	1	8	12
	Philander opossum	Four eyes	NA	MP	0	0	5	5
Felidae	***Puma yagouaroundi***	Zonte cat	NA	MP	0	1	0	1
Geomidae	***orthogeomys sp***	Taltuza	NA	MP	6	4	0	10
Leporidae	***Sylvilagus floridanus***	Mount Rabbit	NA	MP	3	1	5	9
Mephitidae	***Spilogale putorius***	Common Skunk	NA	MP	0	2	1	3
Mephitidae	***Mephitis macroura***	Striped skunk	NA	MP	0	0	1	1
Procionidae	***Procyon lotor***	Raccoon	NA	MP	0	0	11	11
Procyonidae	***Nasua narica***	Pezote	NA	MP	0	6	0	6
Procyonidae	***Potus flavus***	Micoleón	NA	MP	0	1	0	1
Sciuridae	***Sciurus variegatoides***	Gray squirrel	NA	MP	1	1	1	3
		TOTALS			20	30	43	93
		sp			5	10	9	14

E.N: National conservation status; IUCN: IUCN conservation status; C: Coffee plantation; P.B: Patch of natural forest; A.A: Agricultural Areas.

Populations of mammals in the different habitats sampled.

For the three different habitats, the largest number of species was located in the areas of natural forest, but a greater number of individuals were obtained in the sampled agricultural areas. (See Figure 25). These areas in general registered a high number of individuals due to being adjacent to small rivers and broken where the species of this group find good conditions for their subsistence.

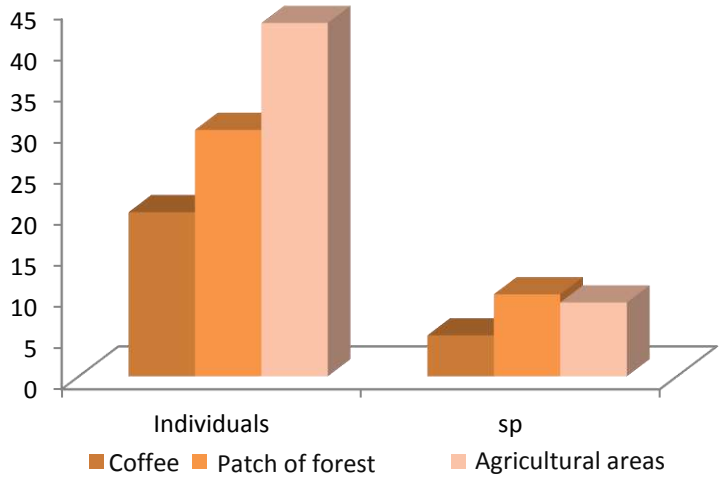

Figure 25. Numbers of individuals and species of mammals recorded in the different sampled habitats during the study for the Transmission Line Project of Energía del Pacífico, May-June 2016.

Coffee plantation.

Coffee plantations are often ideal sites for the occurrence of various species of mammals. For the present study were recorded in total five species of which the most abundant for the site were *Dasypus novemcinctus* and *Orthogeomys sp*. most of these individuals were reported from traces.

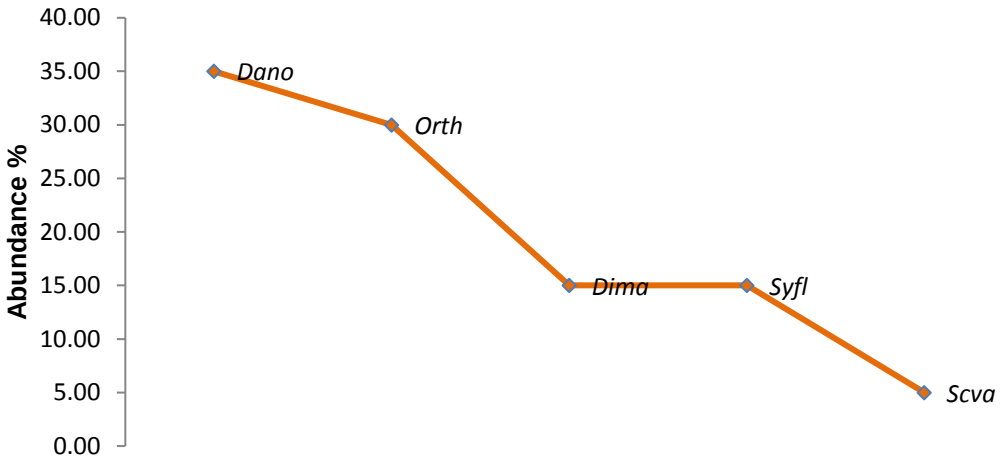

Figure 26. Range-abundance plot of mammal species in coffee forest of Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). ***Dano: Dasypus novemcinctus*;*Dima: Didelphis marsupialis; Orth: Orthogeomys sp; Syfl: Sylvilagus floridanus; Scva: Sciurus variegatoides.***

Natural Forest.

This was the habitat that registered the majority of species ten in total and as in the areas of coffee the most abundant species was the *Dasypus novemcinctus* species quite common in the area.

Another fairly abundant species was *nasua narica* (pezote) this species was recorded in the patch of forest located in the farm El Naranjo. In this same area was found one more species of the same family (Procyonidae), *potus flavus* known as micoleón. (See figure 27).

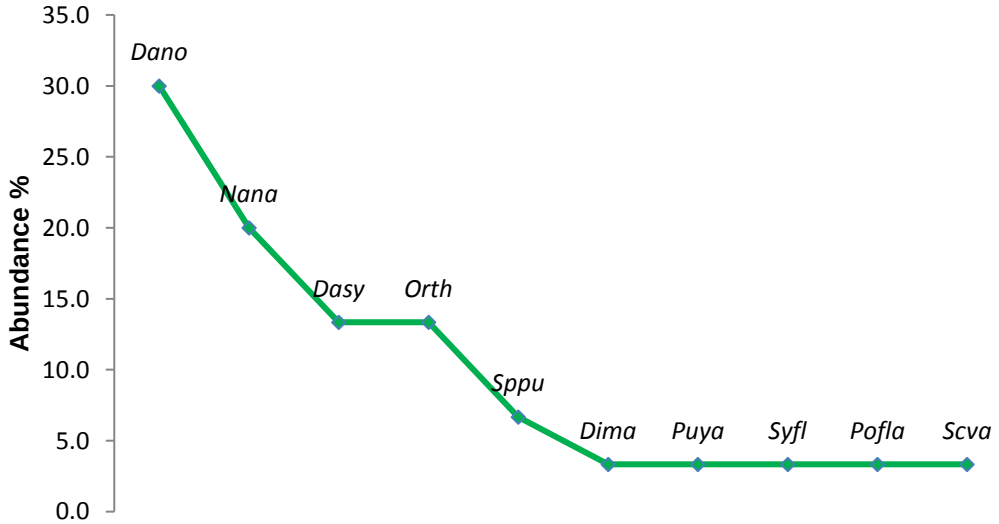

Figure 27. Range-abundance plot of mammal species in natural forest patches of the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). ***Dano: Dasypus novemcinctus; Dasy: Dasyprocta punctata; Dima: Didelphis marsupialis; Puya: Puma yagouaroundi; Orth: Orthogeomys sp; Syfl: Sylvilagus floridanus; Sppu: Spilogale putorius; Nana: Nasua narica; Pofla: Potus flavus; Scva: Sciurus variegatoides***

Agricultural Areas.

Agricultural areas are usually areas that due to the food layout generates the conditions of occurrence of many species of mammals however. These can become a problem because of the damage they cause to crops.

For the area, the species with the greatest abundance is *Procyon lotor* which is a species normally associated with habitats with high water availability. In the following figure, it is observed that the species with lower abundance are *Mephitis macroura* and *Spilogales putorius*, both species of skunks common in these types of habitats.

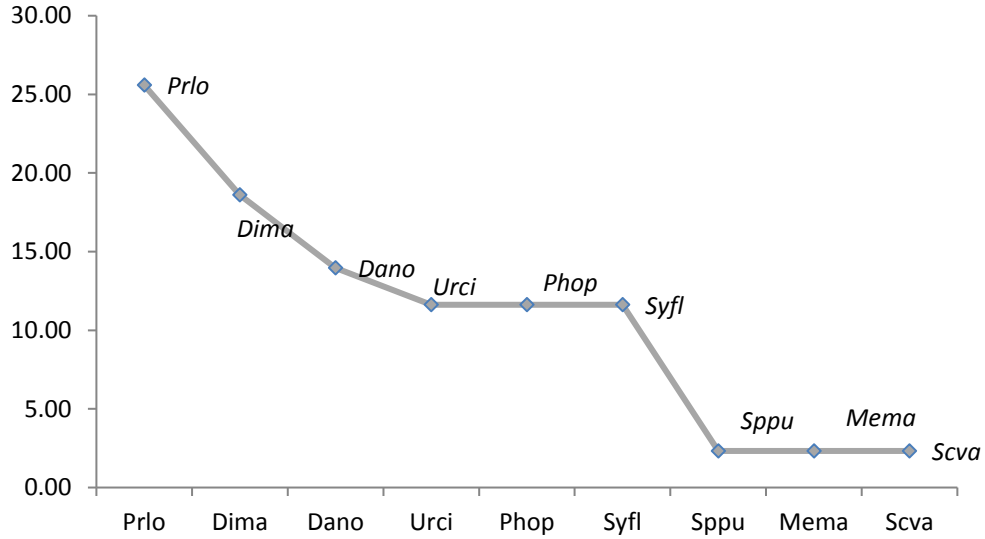

Figure 28. Rank-abundance chart of mammal species in agricultural areas of the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). ***Urci: Urocyon cinereoargenteus; Dano: Dasypus novemcinctus; Dasy: Dasyprocta punctata; Dima: Didelphis marsupialis; Phop: Philander opossum; Puya: Puma yagouaroundi; Orth: Orthogeomys sp; Syfl: Sylvilagus floridanus; Sppu: Spilogale putorius; Mema: Mephitis macroura; Prlo: Procyon lotor; Nana: Nasua narica; Pofla: Potus flavus; Scva: Sciurus variegatoides***

Abundance of species of Mastofauna in area of influence of the project.

In total, 14 species of mammals were registered for the area of influence of the project, being the most abundant the *Dasypus novemcinctus* (Cuzuco), *Didelphis marsupialis* (tacuazin) and *Procyon lotor* (raccoon). On the other hand the three species less abundant during this investigation were *Puma yagouroundi,* (zonto cat), *Mephitis macroura* (Skunk) and *Potus flavus (*micoleón). The following figure details the abundance of all mammalian species recorded during the present study.

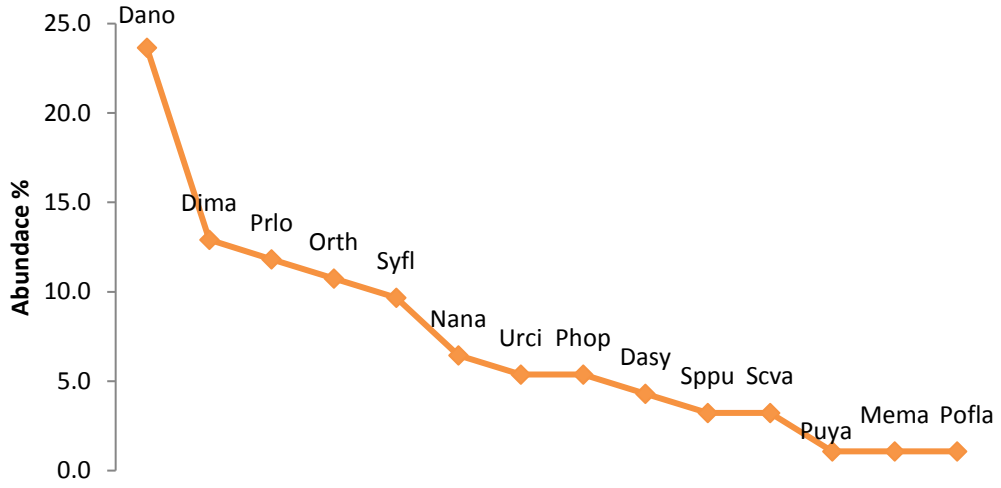

Figure 29. Rank-abundance chart of mammal species in the project's areas of influence for el Transmission Line Project of Energía del Pacífico S.A. de C.V. (may-june 2016). Urci: Urocyon cinereoargenteus; Dano: Dasypus novemcinctus; Dasy: Dasyprocta punctata; Dima: Didelphis marsupialis; Phop: Philander opossum; Puya: Puma yagouaroundi; Orth: Orthogeomys sp; Syfl: Sylvilagus floridanus; Sppu: Spilogale putorius; Mema: Mephitis macroura; Prlo: Procyon lotor; Nana: Nasua narica; Pofla: Potus flavus; Scva: Sciurus variegatoides

Species accumulation curve

The accumulation curve of species recorded during the study indicates that (Figure 30) not all predicted species were recorded. Through the study were recorded 14 species in total and several species that were expected to occur in the area could not be census

The following figure shows a comparison between the species recorded during the present study versus the species that the wealth estimators show. As can be observed, the indexes show a richness between 17 and 18.57, so that for the site one could expect the occurrence of three to five more species.

Table 6 also reflects the number of species that can occur in the area according to the wealth estimators.

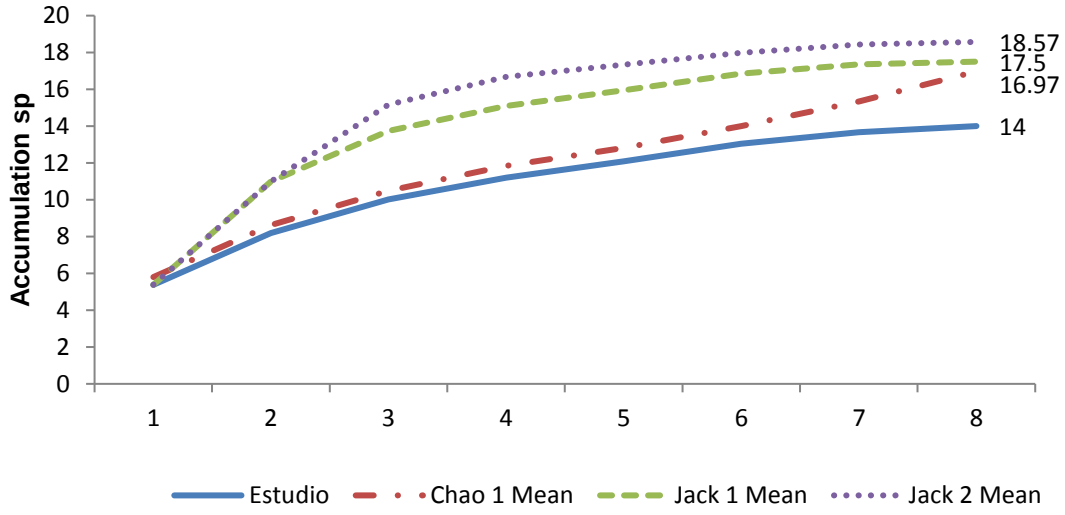

Figure 30. Curve of accumulation of mammal species for the Transmission Line Project of Energía del Pacífico, May and June 2016.

Table 6. Wealth estimators of mammal species for the Transmission Line Project of Energía del Pacífico, May and June 2016.

Estimator	Species richness
Estudio	14
ACE	15,79
ICE	17,35
Chao 1	16,97
Chao 2	15,31
Jack-Knife 1	15,5
Jack- Knife 2	18,57

Diversity of mammals

The diversity of species was analyzed through two indexes (Shannon and Simpson). According to the Shannon index, the diversity value is 2.31 (from a

scale of 1 to 6), which is interpreted as a range of mammal diversity with low value.

The Simpson index resulted in a value of 0.87 which indicates that for the area in general there is a high dominance of some species over the general population.

Diversity indexes by habitat.

Table 7. Indexes of diversity of mammal species recorded in the Transmission Line Project of Energía del Pacífico, May and June 2016

Indexes	Coffee plantation	Natural Forest	Agricultural Areas
Shannon	1.44	1.96	1.69
Simpson	0.74	0.82	0.83

In the previous table, it is observed that all the sampled habitats present similar values of both species diversity and dominance.

Diversities in all three habitats are considered low, however, we must take into account the level of finalization of the inventory that does not finish stabilizing according to the curve of accumulation of species and wealth estimators. Therefore, by carrying out more sampling effort, we could increase the number of occurring species.

Avifauna

A total of 39 bird species were recorded during 26 families. Only four species with nationally threatened status are recorded according to MARN. See table 8.

Table 8. Species of birds recorded during the study conducted for the Transmission Line Project of Energía del Pacífico, May and June 2016

Family	Specie	Common name	E.N	IUCN	C	P.B	A.A	Total
Ardeidae	***Bubulcus ibis***	Heron livestock (Garrapatera)	NA	MP	0	0	6	**6**
Cathartidae	***Cathartes aura***	Aura Cabecirroja	NA	MP	0	0	55	**55**
Accipitridae	***Buteo magnirostris***	Pollero sparrowhawk	NA	MP	0	1	9	**10**
	Geranospiza caerulescens	Mosquito sparrowhawk	NA	MP	0	0	**1**	**1**
Falconidae	***Herpetotheres cachinnans***	Guaco Hawk (Guas)	NA	MP	3	0	0	**3**
Jacanidae	***Jacana spinosa***	Jacana Mesoamerican	NA	MP	0	0	8	**8**
Columbidae	***Zenaida asiatica***	White-winged dove	NA	MP	9	17	94	**120**
	Patagioenas flavirostris	Purple dove	NA	MP	6	5	1	**12**
	Columbina inca	Turtledove Colilarga	NA	MP	0	0	12	**12**
	Columbina talpacoti	Turtledove Reddish	NA	MP	0	0	23	**23**
Psittacidae	***Brotogeris jugularis***	catalnica	A	MP	**30**	0	0	**30**
	Eupsittula canicularis	Chocoyo	A	MP	0	0	**7**	**7**
Cuculidae	***Piaya cayana***	Chocolatero, Piscoy	NA	MP	2	1	0	**3**
	Crotophaga sulcirostris	Pijuyo	NA	MP	0	0	16	**16**
Tytonidae	***Tyto alba***	Barn Owl from Campanario	NA	MP	0	0	1	**1**
Caprimulgidae	***Nyctidromus albicollis***	Tapacaminos Pucuyo (Caballero)	NA	MP	0	0	2	**2**
Trochilidae	***Amazilia rutila***	Cinnamon Hummingbird	NA	MP	0	3	0	**3**
Trogonidae	***Trogon elegans***	Trogón Elegant (Coa Pechirroja)	NA	MP	6	3	0	**9**
Momotidae	***Eumomota superciliosa***	Momoto Cejiturqueza (Torogoz)	NA	MP	5	2	7	**14**
Alcedinidae	***Chloroceryle americana***	Martin-fisherman Green	NA	MP	0	0	3	**3**
Ramphastidae	***Aulacorhynchus prasinus***	Green Tucaneta (Green Toucan)	A	MP	0	**3**	0	**3**
	Pteroglossus torquatus	Tucancillo Collarejo (Razor Peak)	NA	MP	0	5	0	**5**
Picidae	***Melanerpes aurifrons***	cheje	NA	MP	3	2	7	**12**
Pipridae	***Chiroxiphia linearis***	Saltarín Colilargo (Toledo)	A	MP	0	**20**	0	**20**
Tyrannidae	***Pitangus sulphuratus***	Luis Grande (Cristo Fue)	NA	MP	3	4	12	**19**
Corvidae	***Calocitta formosa***	Urraca-hermosa Cariblanca (Urraca)	NA	MP	15	3	6	**24**
Hirundinidae	***Riparia riparia***	Riverena Swallow	NA	MP	0	0	7	**7**
Troglodytidae	***Campylorhynchus rufinucha***	guacalchia	NA	MP	5	0	12	**17**
Turdidae	***Turdus grayi***	Zorzal pardo	NA	MP	5	3	20	**28**
Parulidae	***Setophaga petechia xantholora***	Chipe de Manglar	NA	MP	8	2	4	**14**
	Setophaga magnolia	Chipe de Magnolia	NA	MP	0	10	0	**10**
	Cyanerpes cyaneus	Mielero Patirrojo	NA	MP	4	0	0	**4**

Family	Specie	Common name	E.N	IUCN	C	P.B	A.A	Total
	Thraupis abbas	Tángara Aliamarilla	NA	MP	2	0	0	**2**
Emberizidae	**Volatinia jacarina**	Semillero Brincador	NA	MP	0	0	11	**11**
	Sporophila torqueola	Semillero Collarejo	NA	MP	0	0	4	**4**
Icteridae	***Dives dives***	Tordo cantor	NA	MP	2	3	4	**9**
	Quiscalus mexicanus	clarinero	NA	MP	7	3	25	**35**
	Icterus gularis	Bolsero de Altamira	NA	MP	5	4	14	**23**
Fringillidae	***Euphonia hirundinacea***	Eufonia Gorjiamarillo	NA	MP	8	17	0	**25**
		Total Individuos			**128**	**111**	**371**	
		sp			*20*	*21*	*28*	

E.N: National status, NA not threatened, A: threatened, EP in danger; IUCN: International Union for the Conservation of Nature, MP less concern; C coffee plantation; P.B forest patch; A.A Agricultural Areas.

Populations of avifauna in the different habitats sampled.

Three different habitats were sampled. The highest number of species and individuals was recorded in areas of agricultural crops with a high degree of anthropic activity. (See Figure 31). The number of individuals quite high because it is these areas were located large populations of Columbidos.

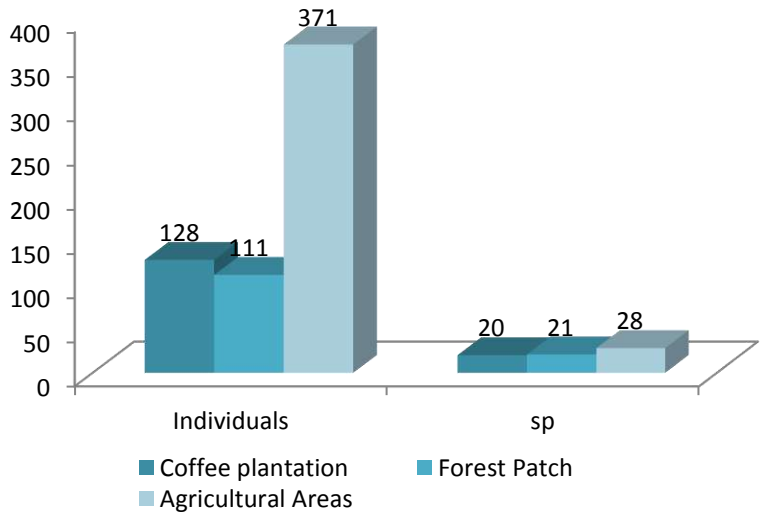

Figure 31. Numbers of individuals and species of birds recorded in different habitats during the study conducted for the Transmission Line Project of Energía del Pacífico, May and June 2016

Coffee plantation

After the evaluation of this habitat it is observed that the species *Brotogeris jugularis* is the predominant species followed by *Calocitta Formosa.* (See figure 32). The first is the only species that was registered in coffee plantation with threatened status at the national level. However since for the coffee crop it is necessary to have tree species, to provide the necessary shade for a good development of the crop. In turn these trees provide shelter, food and nesting areas and resting for both resident and migratory species.

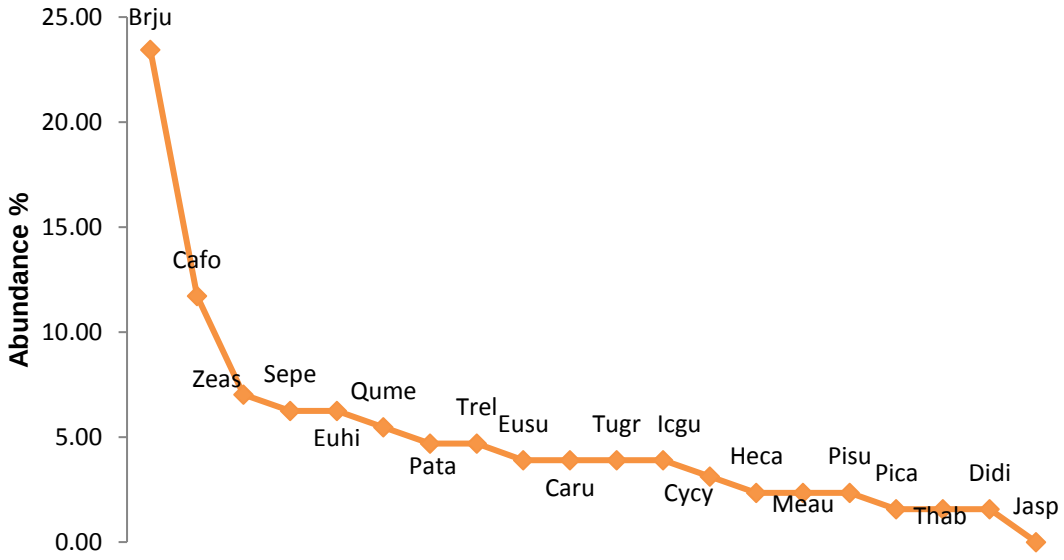

Figure 32. Range-abundance plot of bird species in coffee forests for the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). ***Heca: Herpetotheres cachinnans; Zeas: Zenaida asiática; Pata: Patagioenas flavirostris; Brju: Brotogeris jugularis; Pica: Piaya cayana; Trel: Trogon elegans; Eusu: Eumomota superciliosa; Meau: Melanerpes aurifrons; Pisu: Pitangus sulphuratus; Cafo: Calocitta Formosa; Caru: Campylorhynchus rufinucha; Tugr: Turdus grayi; Sepe: Setophaga petechia xantholora; Cycy: Cyanerpes cyaneus; Thab: Thraupis Abbas; Didi: Dives dives; Qume: Quiscalus mexicanus; Icgu: Icterus gularis; Euhi:Euphonia hirundinacea.***

Natural Forest

For the patches of natural forest sampled, a total of 21 species of birds were obtained within these two that are in state of threatened at the national level are: *Aulacorhynchus prasinus* (Green Tucaneta) and
Chiroxiphia linearis (Saltarin collajero or Toledo).

The most abundant species were *Chiroxiphia lineari, Zenaida asiática* and *Euphonia hirundinacea* respectively. (See figure 33).

These relics of forests known as machorras in the coffee plantations, are very scarce since for being a purely coffee area the greater extension is cultivated. However, these spaces that do not meet the requirements for planting the crop. They are of vital importance for specialist species of forest since there is a greater floristic diversity providing the conditions to a great number of species important for the conservation.

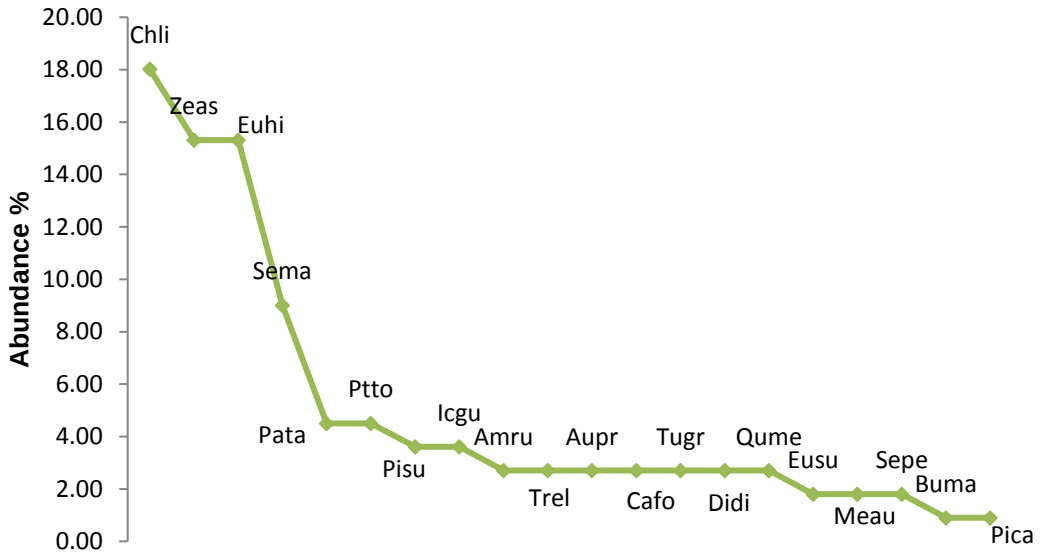

Figure 33. Range-abundance plot of bird species in natural forests for the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). ***Buma: Buteo magnirostris ; Zeas: Zenaida asiática; Pata: Patagioenas flavirostris; Pica: Piaya cayana; Amru: Amazilia rutila; Trel: Trogon elegans; Eusu: Eumomota superciliosa; Aupr: Aulacorhynchus prasinus; Ptto: Pteroglossus torquatus; Meau: Melanerpes aurifrons; Chli: Melanerpes aurifrons; Pisu: Pitangus sulphuratus; Cafo: Calocitta Formosa; Tugr: Turdus grayi; Sepe: Setophaga petechia xantholora; Sema: Setophaga magnolia; Didi: Dives dives; Qume: Quiscalus mexicanus; Icgu: Icterus gularis; Euhi:Euphonia hirundinacea.***

Agricultural Areas

This habitat recorded the largest number of species a total of 28 of which could be verified the presence of a species in danger at the national level (*Geranospiza caerulescens*). It is a predatory species known as: hawk-mosquito and also recorded a threatened species the species of parakeet *Eupsittula canicularis.*

The most abundant species for this habitat were *Zenaida asiática* (White-winged dove) and *Catharte aura* (aura cabeciroja or zunche). See Figure 34.

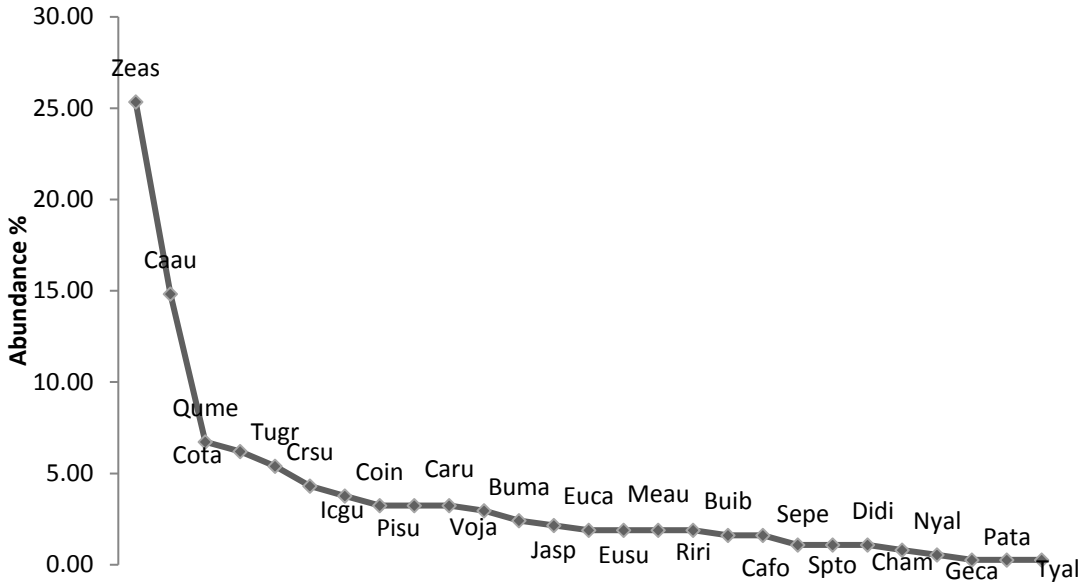

Figure 34. Rank Chart-abundance of bird species Agricultural Areas for the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016). ***Buib: Bubulcus ibis; Caau: Cathartes aura; Buma: Buteo magnirostris; Geca: Geranospiza caerulescens; Jasp: Jacana spinosa; Zeas: Zenaida asiática; Pata: Patagioenas flavirostris; Coin: Columbina inca; Cota: Columbina talpacoti; Euca: Eupsittula canicularis; Crsu: Crotophaga sulcirostris; Tyal: Tyto alba; Nyal: Nyctidromus albicollis; Eusu: Eumomota superciliosa; Cham: Chloroceryle americana; Meau: Melanerpes aurifrons; Pisu: Pitangus sulphuratus; Cafo: Calocitta Formosa; Tugr: Turdus grayi; Sepe: Setophaga petechia xantholora; Didi: Dives dives; Qume: Quiscalus mexicanus; Icgu: Icterus gularis***

Abundance of bird species in project area of influence.

The most abundant species during this study were *Zenaida asiática, Catarthes aura, Quiscalus mexicanus* and *Brotogeris jugularis.* The majority of species had an intermediate abundance and some that were of a single observation.

The other endangered species at the national level had a significant abundance. (See figure 35).

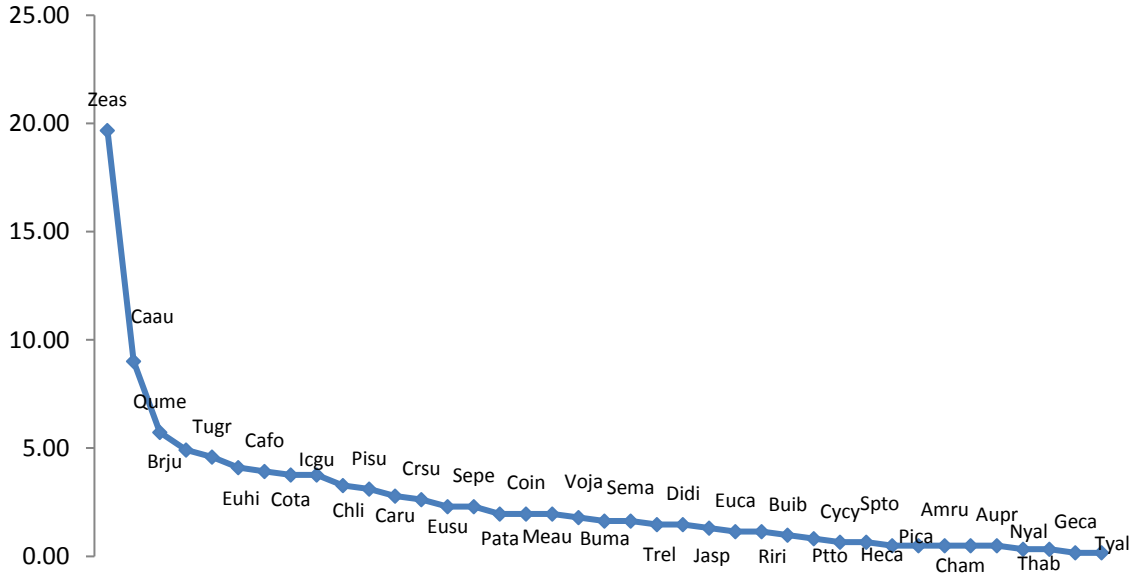

Figure 35. Range-abundance plot of bird species in the areas of influence of the Transmission Line Project of Energía del Pacífico S.A. de C.V. (may 2016).*Buib: Bubulcus ibis; Caau: Cathartes aura; Buma: Buteo magnirostris; Geca: Geranospiza caerulescens; Heca: Herpetotheres cachinnans; Jasp: Jacana spinosa; Zeas: Zenaida asiática; Pata: Patagioenas flavirostris; Coin: Columbina inca; Cota: Columbina talpacoti; Brju: Brotogeris jugularis; Euca: Eupsittula canicularis; Pica: Piaya cayana; Crsu: Crotophaga sulcirostris; Tyal: Tyto alba; Nyal: Nyctidromus albicollis; Amru: Amazilia rutila; Trel: Trogon elegans; Eusu: Eumomota superciliosa; Cham: Chloroceryle americana; Aupr: Aulacorhynchus prasinus; Ptto: Pteroglossus torquatus; Meau: Melanerpes aurifrons; Chli: Melanerpes aurifrons; Pisu: Pitangus sulphuratus; Cafo: Calocitta Formosa; Riri: Riparia riparia; Caru: Campylorhynchus rufinucha; Tugr: Turdus grayi; Sepe: Setophaga petechia xantholora; Sema: Setophaga magnolia; Cycy: Cyanerpes cyaneus; Thab: Thraupis Abbas; Voja: Volatinia jacarina; Spto: Sporophila torqueola; Didi: Dives dives; Qume: Quiscalus mexicanus; Icgu: Icterus gularis; Euhi:Euphonia hirundinacea.*

Species accumulation curve

The review of the accumulation curve of species recorded during the study indicates (Figure 36) that not all predicted species were recorded. Through the study were 39 species in total and several species that were expected to occur in the area could not be census.

The following figure shows a comparison between the species recorded during the present study versus the species that show the wealth estimators.

Table 9 also shows the number of species that can occur in the area according to the wealth estimators.

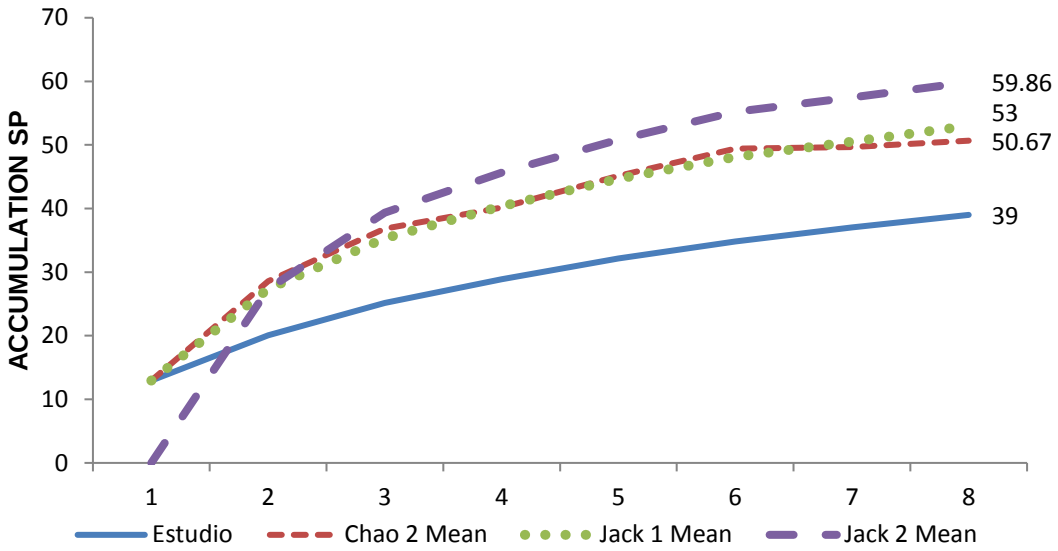

Figure 36. Curve of accumulation of bird species for the Transmission Line Project of Energía del Pacífico, May and June 2016.

Table 9 Wealth estimators of bird species for the Transmission Line Project of Energía del Pacífico, May and June 2016.

Estimator	Species richness
Estudio	39
ACE	39,77
ICE	56,81
Chao 1	39,33
Chao 2	50,67
Jack-Knife 1	53
Jack- Knife 2	59,86

Diversity of birds

The species diversity was analyzed through two indexes (Shannon and Simpson). According to the Shannon index, the diversity value is 3.14 (from a scale of 1 to 6), which is interpreted as a range of diversity of birds with mean value in the Area. However, it must be taken into account that according to the Wealth estimators inventory is not complete and it is necessary to increase sampling effort to record and monitor bird populations. It must be taken into account that the area has species of importance for conservation.

The Simpson index yielded a value of 0.83, indicating that there is a high probability that the first two randomly selected species will be the same. This is due to the dominance of some species found in this site. When reviewing the figure x of general abundances for the site it is possible to corroborate that there are two species of birds with greater presence in the area reason why one has this value of Simpson.

Diversity indexes by habitat.

Table 10. Index of diversity of bird species recorded in different habitats for the Transmission Line Project of Energía del Pacífico, May and June 2016

Indexes	Coffee plantation	Natural Forest	Agricultural Areas
Shannon	2,64417421	2,60426691	2,706411046
Simpson	0,9017334	0,89960231	0,891769168

In the previous table, it is observed that all the sampled habitats present similar values of both species diversity and dominance.

Diversities in the three habitats are considered low by half, however, we must take into account the level of completion of the inventory that does not finish stabilizing according to the curve of accumulation of species and wealth estimators.

SPECIES OF BIRDS OF IMPORTANCE IN THE AREA

Species of importance for conservation

The majority of species that were recorded during the present study are not in the official lists of species with conservation status, with the exception of four species that are reported with status of threatened at national level.

The remaining species are widely distributed or habitat generalists, and are not listed in species threatened with extinction.

***Brotogeris jugularis*:**

Specie of perico known as "catalnica" (figure 37) that register a good population in the area. It is a threatened species at the national level. Its main risks for its conservation are the destruction of habitat and human predation since this species is usually captured at an early age in their nests (talchinol), and then marketed in order to be restricted to captivity.



Figure 37. Brotogeris jugularis; Species evaluated with minor LC concern by IUCN but found in CITES Appendix II and Threatened by MARN 2015 photographed in the area of Transmission Line Project of Energía del Pacífico S.A. de C.V. (may-june 2016).

Eupsittula canicularis

Another species of parakeet popularly known as chocoyo, like the previous species, its main risks are the predation for illegal commercialization and the loss of habitat. (Specie threatened MARN).



Figura 38. Eupsittula canicularis; Species evaluated with minor LC concern by IUCN but found in CITES Appendix II and Threatened by MARN 2015 photographed in the area of *Transmission Line Project of Energía del Pacífico S.A. de C.V. (may-june 2016).*

Geranospiza caerulescens.

It is a bird of prey of approximately 46 cm of length, confident, that jumps between the branches of the trees. Make short flights. It has a light gray coloration. Long and narrow tails, black barrel of cinnamon and white. Known as hawk mosquito is a species with endangered status at the national level until 2009 however in the recent listing with the input of several observers and specialist has been removed from the list of threatened or endangered species of El Salvador (figure 39).



Figura 39. *Geranospiza caerulescens* Species evaluated with minor LC concern by IUCN but found in CITES Appendix II and Threatened by MARN 2015 photographed in the area of *Transmission Line Project of Energía del Pacífico S.A. de C.V. (may-june 2016).*

CONCLUSIONS AND RECOMMENDATIONS

Herpetofauna.

The diversity of amphibians and reptiles in the Area is considered low (according to Shannon), with a dominance of one or two species in the area (Simpson). A total of 15 species were recorded during 6 days of research, representing 11% of the total amphibians and reptiles registered in the country (133). All species recorded in the area can be found in similar habitats in the country (coffee plantation under shade), ranging in height from 800 to 1.300 meters above sea level.
The inventory of amphibians and reptiles 40% since there are still several species that have been reported in other studies in similar habitat type.

Two significant populations of the Black-Eyed Tree Frog were recorded (*Agalychnis moreletii*) In the fincas santa Rita and Tequendama. Which are in the lists of species threatened of extinction at world and national level.

It is recommended:

- That future inventory efforts are made especially with the reptile group, since a greater effort of sampling could lead to the registration of a greater number of species and the obtaining of more data that allow a better analysis of the real wealth of this group in the area.

- Create monitoring protocols for threatened species at the global and national levels that have been registered in the area to determine the behavior of the species over the years.

- To establish measures of protection in the surroundings of the reservoir piles of the farms was found population of the Black-Eyed Tree Frog (*Agalychnis moreletii*).

- The construction of exclusive water collection cells for the reproduction of such an important species.

- And, in turn, promote conservation educational campaigns to owners and inhabitants of the area as well as encourage owners to move to an organic coffee crop without agrochemicals in the area of influence of the project where they found the largest populations of this amphibian.

- Hire a specialized institution or technicians who present and execute a Capture and Release Plan for specimens of the different species of reptiles and amphibians, prior to the opening of access roads and construction works in the maneuvering areas and places where the towers will be built in agreement with the authorities of the Ministry of Environment and Natural Resources MARN.

Mastofauna.

The diversity of mammals is considered low (according to Shannon), with a dominance of one to three species in the area (Simpson). A total of 14 species were recorded during 6 days of research. All species registered in the Area can be found in similar habitats in the country (coffee plantation under shade), in a height range of 800 to 1,300 meters above sea level.

However, it is necessary to emphasize that to have a more accurate inventory of this group it is necessary to have a greater effort of sampling since the methods like photographic traps, traditional traps or trail tracks are methods that obtain good results must be exercised for periods of weeks or months in the field. Since these species are very sensitive to odors or human intrusion.

It is recommended:

- For the development of this project, the capture and mobilization of mammal species should be considered in another safe area and away from the development of the project.

Avifauna.

For the present study, we recorded a total of 39 species of birds, the diversity indexes yielded an average value and a high dominance since the indexes were 3.14 for Shannon (range from 1 to 6) and 0.84 for Simpson. To emphasize that according to the curve of accumulation and the indexes of wealth would lack the registration of more species to complete the inventory.

On the other hand, the climatic conditions during the realization of the present study were not the ideal ones to census the majority of occurring species.

It is recommended:

- The birds found in the region are transient, temporary or permanent in the area where the construction works of the transmission line were carried out; For which the personnel of the work must refrain from disturbing, buying and / or hunting, any type of wild bird that is located in the work areas.

- For the verification of nests is convenient the use of binoculars, since they would facilitate the location of these, prior to the activities of opening of access roads, depopulation of the area of the tower and one of the most important that is the opening of the gap Forest, where the demolition of a large number of trees of good size is carried out, which can sometimes present clutches or nests of different species.

- When nests located in very high trees are located, every effort will be made to lower the nests to avoid damage to the birds that are there, as long as the nests are occupied.

- If it is possible to detect the presence of chicks, pups or eggs in nests found it is recommended not to touch or manipulate these with bare hands, because by having direct contact with them we can damage them. In this case it is necessary to relocate the nests in areas near the place where they were found, in order to facilitate the localization by the parents of the offspring or eggs so that they can continue to be fed or where appropriate incubated by the birds. If a wild bird is to be completely relocated and is injured and unable to fly, the security personnel and environment of the

project should be advised to perform the rescue. Likewise, the corresponding authorities (MARN) will be notified so that they designate the place or zone where they will be taken to provide them with the necessary attention.

- All previous recommendations must be made by specialized institution or technicians contracted within a species capture and release plan.

- Once the towers have been constructed, bird-saving devices should be placed (Figure 40) every 10 or 15 meters on the guard wire between spans that attract the Apaneca mountain range and those near the coast where pelicans and other birds occur.

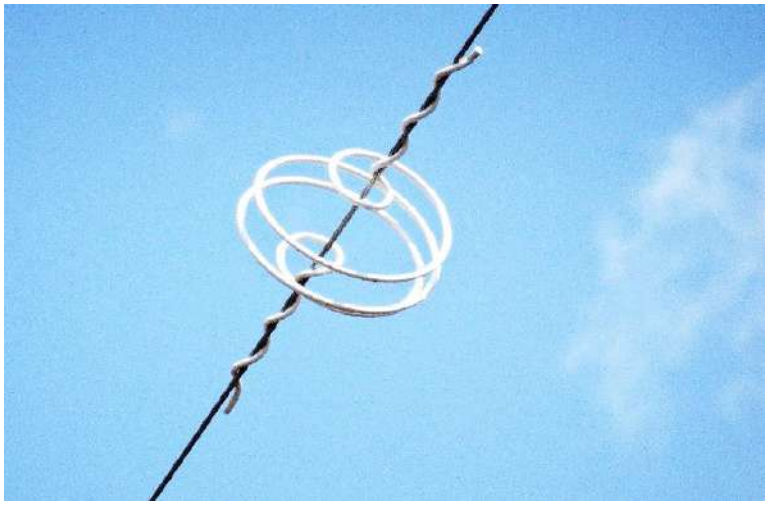

Figura 40. Bird-saving devices Spiral type used to prevent birds from colliding with high voltage cables.

- El Salvador is a territory of passage of migrations of birds, there are two periods in the year in which migrations from north to south and vice versa, during the months of October to November and April to May, so it is recommended to carry out Monitoring of the effectiveness of the bird-saving devices at least once a year preferably in the month of October.

ANNEXES

Annex 2: Coordinates established for the study of Transmission Line Project of Energía del Pacífico S.A. de C.V. May 2016.

GEOGRAPHICAL COORDINATES OF THE SAMPLING UNITS DEFINED FOR THE STUDY OF FAUNA																			
				Transect			Habitat			P.observation		LATITUDE			LENGTH					
Nª	Canton	Municipality	TP or span	Start	End	Nª	A	b	c		Nª	0	mm '	ss"	0	mm '	ss"	Lambert E	Lambert N	Observations
1	San Julian	Acajutla	TP 145	X		1	X			X	1	13	35	23,13	89	48	18,1	412878,987	274540,45	Presa El Venado
2	San Julian	Acajutla	TP141			1	X			X	2	13	35	47,05	89	48	1,41	413383,157	275273,821	RIO EL VENADO
3	San Julian	Acajutla	TP 139		X	1	X			X	3	13	36	7,10	89	47	53,2	413631,998	275889,124	RIO EL VENADO
4	San Julian	Acajutla	TP 126	X		2	X			X	4	13	37	23,54	89	47	38,98	414067,205	278236,66	Río Sensunapán
5	San Julian	Acajutla	TP 124			2	X			X	5	13	37	40,32	89	47	31,3	414299,741	278751,538	Río Sensunapán
6	San Julian	Acajutla	TP119-TP118		X	2	X			X	6	13	38	15,52	89	47	27,42	414419,918	279832,828	Río Sensunapán
7	Santa Emilia	Sonsonate	TP112-TP113	X		3	X			X	7	13	39	12,80	89	47	36,5	414152,824	281593,906	Río La Arrocera, El Coyol
8	Santa Emilia	Sonsonate	TP111-TP112			3	X			X	8	13	39	28,07	89	47	37,4	414127,325	282063,233	Río La Arrocera, El Coyol
9	Santa Emilia	Sonsonate	TP110-TP111		X	3	X			X	9	13	39	38,81	89	47	39,17	414075,222	282393,442	Río La Arrocera, El Coyol
10	Las Tablas	Sonsonate	TP 100	X		4	X			X	10	13	41	2,68	89	47	26,32	414469,867	284969,447	Crossing line over street
11	Las Tablas	Sonsonate	TP99			4	X			X	11	13	41	7,61	89	47	27,44	414436,71	285121,053	Crossing line over street
12	Las Tablas	Sonsonate	TP98		X	4	X			x	12	13	41	13,28	89	47	28,71	414399,121	285295,415	Crossing line over street
13	Talp	Apaneca	TP 44-TP44a	X		5		X		X	13	13	48	38,48	89	48	26,07	412721,44	298981,944	forest patch
14	Tapaneca	Apaneca	TP 44-TP44a			5		X		X	14	13	48	42,90	89	48	23,8	412790,07	299117,541	forest patch
15	Tapaneca	Apaneca	TP 44-TP44a		X	5		X		X	15	13	48	48,05	89	48	21,43	412861,779	299275,56	forest patch

GEOGRAPHICAL COORDINATES OF THE SAMPLING UNITS DEFINED FOR THE STUDY OF FAUNA																				
				Transect			Habitat			P.observation		LATITUDE			LENGTH					
Nª	Canton	Municipality	TP or span	Start	End	Nª	A	b	c		Nª	0	mm '	ss"	0	mm '	ss"	Lambert E	Lambert N	Observations
16	Tapaneca	Apaneca	TP44	X		6		X		X	16	13	48	47,28	89	48	30,35	412593,807	299252,798	forest patch
17	Tapaneca	Apaneca	TP42-TP44			6		X		X	17	13	48	54,54	89	48	31,16	412570,231	299475,977	forest patch
18	Quezalapa	Apaneca	TP42-TP45		X	6		X		X	18	13	49	1,12	89	48	31,62	412557,096	299678,225	forest patch
19	Quezalapa	Apaneca	TP42	X		7			X	X	19	13	49	4,72	89	48	35,09	412453,256	299789,203	private farm
20	Quezalapa	Apaneca	TP 41			7			X	X	20	13	49	13,69	89	48	36,82	412402,229	300065,024	private farm
21	Quezalapa	Apaneca	TP 40		X	7			X	X	21	13	49	22,30	89	48	38,5	412352,668	300329,777	private farm
22	Quezalapa	Apaneca	TP 39	X		8		X		X	22	13	49	27,59	89	48	42,21	412241,800	300492,713	forest patch
23	Quezalapa	Apaneca	TP 39-TP38			8		X		X	23	13	49	35,25	89	48	40,64	412289,743	300727,944	forest patch
24	Quezalapa	Apaneca	TP 38		X	8		X		X	24	13	49	42,02	89	48	38,67	412349,606	300935,785	forest patch
25	Quezalapa	Apaneca	TP 38	X		9		X		X	25	13	49	47,28	89	48	37,88	412373,875	301097,343	forest patch
26	Quezalapa	Apaneca	TP 38			9		X		X	26	13	49	54,87	89	48	35,07	412459,046	301330,298	forest patch
27	Quezalapa	Apaneca	TP 38		X	9		X		X	27	13	50	1,33	89	48	32,13	412548,003	301528,515	forest patch
28	Quezalapa	Apaneca	TP39-TP38	X		10			X	X	28	13	49	37,60	89	48	44,08	412186,68	300800,507	private farm
29	Quezalapa	Apaneca	TP 38			10			X	X	29	13	49	45,22	89	48	45,86	412134,016	301034,849	private farm
30	Quezalapa	Apaneca	TP37		X	10			X	X	30	13	49	52,70	89	48	47,1	412097,555	301264,833	private farm
31	Quezalapa	Apaneca	TP 36	X		11			X	X	31	13	50	7,10	89	48	50,6	411993,947	301707,697	private farm
32	Quezalapa	Apaneca	TP 35			11			X	X	32	13	50	12,19	89	48	51,83	411957,54	301864,237	private farm

GEOGRAPHICAL COORDINATES OF THE SAMPLING UNITS DEFINED FOR THE STUDY OF FAUNA																				
				Transect			Habitat			P.observation		LATITUDE			LENGTH					
Nª	Canton	Municipality	TP or span	Start	End	Nª	A	b	c		Nª	0	mm '	ss"	0	mm '	ss"	Lambert E	Lambert N	Observations
33	Quezalapa	Apaneca	TP35-TP34		X	11			X	X	33	13	50	16,70	89	48	53,1	411919,871	302002,958	private farm
34	Quezalapa	Apaneca	TP 34	X		12			X	X	34	13	50	20,90	89	48	54	411893,282	302132,114	private farm
35	Quezalapa	Apaneca	TP34-TP33			12			X	X	35	13	50	22,37	89	48	57,35	411792,837	302177,628	private farm
36	Quezalapa	Apaneca	TP33		X	12			X	X	36	13	50	25,10	89	48	54	411893,72	302261,179	private farm
37	El Saltillal	Ahuachapán	TP 18	X		13			X	X	37	13	52	53,20	89	49	13,45	411325,176	306814,257	private farm
38	El Saltillal	Ahuachapán	TP 17			13			X	X	38	13	53	8,68	89	49	15,21	411273,957	307290,137	private farm
39	El Saltillal	Ahuachapán	TP 15- TP 16		X	13			X	X	39	13	53	24,63	89	49	17,42	411209,28	307780,506	private farm
40	El Saltillal	Ahuachapán	TP 14	X		14		X		X	40	13	53	39,90	89	49	19,71	411142,131	308249,987	forest patch
41	El Saltillal	Ahuachapán	TP 13- TP 12			14		X		X	41	13	53	57,24	89	49	21,58	411087,812	308783,037	forest patch
42	El Barro	Ahuachapán	TP 11		X	14		X		X	42	13	54	14,36	89	49	23,54	411030,771	309309,336	forest patch
43	Los Magueyes	Ahuachapán	TP 4	X		15	X			X	43	13	55	3,63	89	49	9,2	411466,432	310821,935	GEO
44	Los Magueyes	Ahuachapán	TP 3			15	X			X	44	13	55	7,57	89	49	9,37	411461,741	310943,028	GEO
45	Los Magueyes	Ahuachapán	TP 3- TP 2		X	15	X			X	45	13	55	13,30	89	49	9,73	411451,534	311119,148	GEO

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APPENDIX C

REPORT OF BATS IN PROJECT TRANSMISSION LINE OF ENERGÍA DEL PACIFICO, S.A. DE C.V.



Technical Manager:

Kevyn Jeasson Junior Quijano Vásquez

May 2016

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1. Introduction

El Salvador is one of the Latin American countries with the lowest forest cover; Which in relation to its total area of its territory mean 362,700 ha; Only 17.5%; Of this area 3.7% is coniferous forest, 3.7% broadleaf forest, 2.0% mangrove forest; 0.3% forest plantations and the coffee forest 7.8%, equivalent to almost 50% of the country's forest cover (PROCAFE, 2009).

Shade coffee plantations are considered as agro ecosystems of great importance for the conservation of biodiversity, which is mainly associated with the existence of an arboreal stratum that conserves many of the functions and resources of forests transformed into coffee plantations, such as retention Humidity, shade, availability of nesting sites, shelter, fruit food, flowers and insects, etc. (Aguilar-Ortiz, 1982, Gallina *et al.*, 1996, Greenberg *et al.*, 1997, Calvo and Blake, 1998; Moguel and Toledo, 1999; Perfecto *et al.*, 2003).

Among the animals that use shade-grown coffee areas as habitat are bats that are considered as one of the most diverse and species richest groups in neotropical ecosystems, accounting for approximately 20% of the world's mammal species (Estrada-Villegas *et al*., 2010). In addition, they have a large number of ecosystem services to the environment such as: seed dispersal, insect pest control and pollination. In El Salvador, seven families have been registered, with 37 genera and 65 species (Owen *et al.*, 1991; Miller and Miller, 2001; Girón, 2005; Girón, 2011), so the conservation of areas that can provide shelter and food for this group of mammals is crucial for their protection.

2. Methodology

2.1 Capturing bats

In the places around the points of the towers TP2-3, TP33-34, TP36 and TP44-44a two mist nets were installed (one of 9m x 2.6m and one of 12m x 2.6m) which were located at ground level. The distance between each net was at least 150 m and were located in places with a reasonable amount of vegetation and / or on roads that could possibly serve as passage tunnels for bats. Sampling was carried out from 6:30 p.m. to 11:00 p.m., checking each net at 30 minute intervals, removing them from sites at the end of catches.

From each captured bat, measurements of forearm, weight, sex and reproductive condition were recorded using standard methodologies (Annex 1, b, c, d, e) (Kunz, 1988; Jones *et al.*, 1996), Photographs of their characteristic features were taken and were identified using the field guide of Medellín, Arita and Sánchez (2007), Later they were released in the vicinity of where they were captured. In addition, at each sampling site the geographic references of each point were taken with a GPS Garmin e Trex 20 Worlwide Handheld Navigator.



Figure 1. Laying of mist nets at sampling points near TP2-3.

2.2 Acoustic record of bats

In the vicinity of TP 139 tower in the Acajutla area an ultrasound recorder for monitoring of Song Meter SM3 bats was used (figure 2). The active ultrasound recorder (Echo Meter EM3+), Was not placed, because it presented configuration flaws.

The equipment was located in an open area and was programmed using monitoring methodologies (Víquez and Arias, 2015) (Figure 3), The recordings were made from 6:00 pm to 5:00 am, removing the equipment from the place the next day and georeferenced the sampling point with a GPS Garmin e Trex 20 Worlwide Handheld Navigator.

The acoustic recordings were analyzed by the program Analook (figure 2), to obtain sonograms that were used for the identification of species of insectivorous bats by the document Miller (2003).



Figure 2. Installation of Acoustic Equipment SME3 and Analysis of Sonograms.

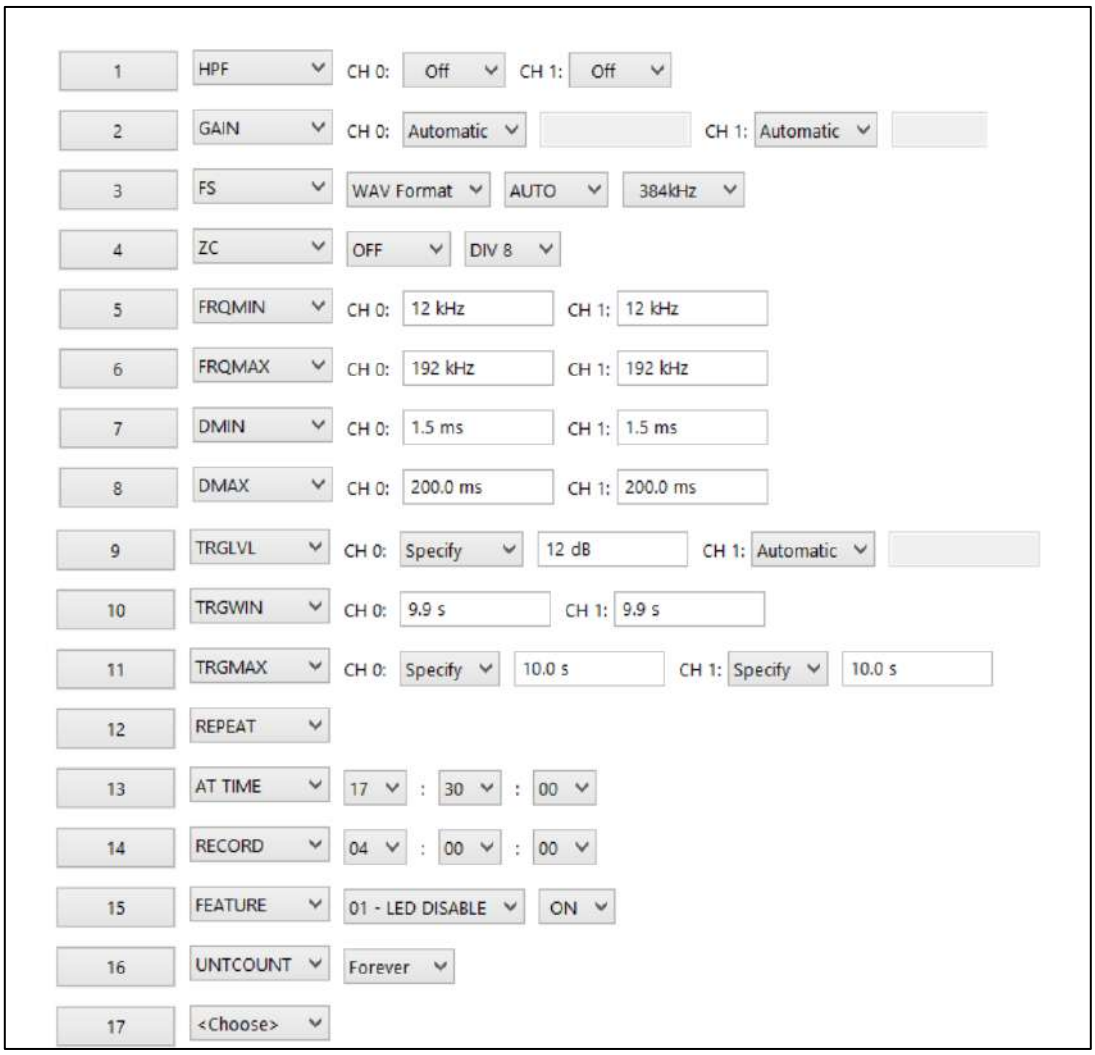

Figure 3. Programming the Song Meter SM3 Recording Equipment

2.3 Analysis of data

For the community analysis of bats we used the range-abundance curves (Feinsinger, 2003), species accumulation curves to compare the species acquired with respect to non-parametric wealth estimators Jacknife 1, Jacknife 2 and Chao 2 (González–Oreja *et al.*, 2010), Simpson's dominance index and Shannon-Weiner equitability.

Range-abundance curves are an important tool to visualize aspects of the assemblage as species richness, similarity, number of rare species and relative abundance of each species,

curves have been suggested as an alternative way to compare the communities in different habitats (Feinsinger 2003).

A species accumulation curve is the graph of the number of species observed as a function of some measure of the sampling effort required to observe them (Colwell, Mao & Chang, 2004). These curves show the number of species accumulated as the harvesting effort increases in a site, so that the richness will increase until a time in which, although collected, the number of species will reach a maximum and will stabilize in one asymptote (Escalante, 2003).

Non-parametric wealth estimators, statistically speaking, do not assume the type of distribution of the data set and do not fit them into a given model, so only presence-absence data are required; based on the data, estimators can generate a range of possible species or rare species that need to be found in an inventory (Colwell, Mao & Chang, 2004).

3. Results

3.1 Sampling points

A total of 8 sampling points were obtained during the development of the field phase, the first sampling points were located around the span of towers 2-3 at an approximate height of 780 masl, the second sampling was performed in the span between tower 33-34 at an approximate height of 1440 masl, the third sampling in the vicinity of tower 36 at an approximate height of 1179 masl, the fourth tower sampling 44 (figure 4).

The remaining points proposed in the work plan for the capture of bats, TP 34, TP 40 and acoustic monitoring TP 35 TP 32 and TP 40; Were not taken into account due to security measures, since working at night and leaving equipment for so long, there is a high risk of theft in those areas.

Table 1. Geographical location of the sampling points of the Project Transmission Line of Energía del Pacifico, S.A. de C.V. (May 2016).

Date	Sampling Point	Sampling Point	Coordinate N	Coordinate W	Height (m)
28/05/2016	Span Tower 2-3	PLT 1	13°55'06.4"	89°49'09.9"	771
28/05/2016	Span Tower 2-4	PLT 2	13°55'07.6"	89°49'10.1"	767
28/05/2016	Span Tower 2-3	PLT 3	13°55'04.8"	89°49'08.9'	777
29/05/2016	Span Tower 33-34	PLT 4	13°50'21.0"	89°48'53.7"	1436
29/05/2016	Span Tower 33-34	PLT 5	13°50'20.0"	89°48'54.8"	1435
30/05/2016	Tower 36	PLT 6	13°49'26.8"	89°48'42.0"	1179
31/05/2016	Span Tower 44-44[a]	PLT 7	13°48'32.4"	89°48'15.6"	966
01/06/2016	Tower 139	PLT 8	13°36'04.6"	89°47'49.6"	58

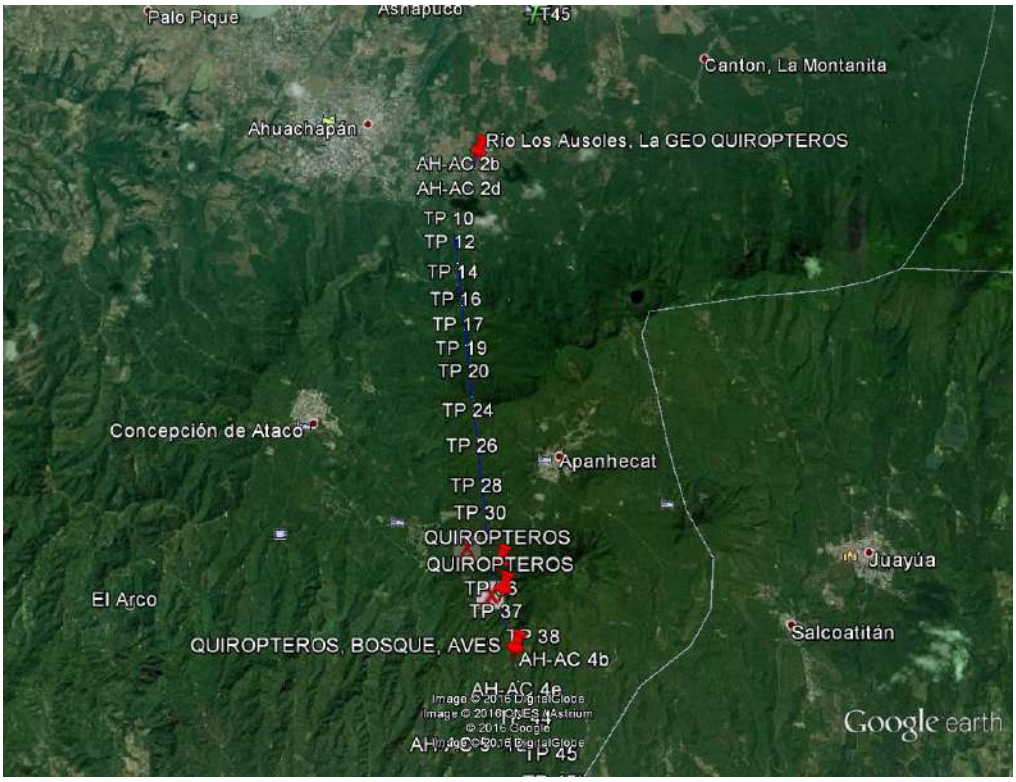

Figure 4. Georeferenced map of the points sampled (in red, points of bats).

3.2 Registered species

A total of 63 individuals belonging to 12 species of bats, eight genera and two families were captured by the mist net method. Using the acoustic monitoring method, 636 recordings were obtained from 9 species of insectivorous bats, 6 genera and 4 families.

Nine species were recorded for points VT2-3, VT33-34 and T139, being the most diverse among those sampled during the development of the work, however, it should be considered that for points T36 (N: 2) and T44- 44a (N: 5), was macerated with weather conditions so that sampling had to be completed ahead of time for the safety of both the team and the bats.

A large number of species of insectivorous (N: 10) and frugivorous (N: 9) habitats were obtained, so the environments around the sampling points should be considered healthy and could harbor tree species that may be Used by all species, as well as, fruit trees from which the fruiting species are being fed.

Although it was only possible to capture *P. discolor* In the vicinity of VT44-44a the points between them do not have so much difference in their altitudes and less still in their

proximity; So that its distribution in the surroundings could also be considered of the other zones sampled.



Figure 5. *Glossophaga commissarisi*



Figure 6. *Artibeus inopinatus*

Table 2. List of species of bats by points of placement of towers in the Project Transmission Line of Energía del Pacifico, S.A. de C.V. (May 2016). MRN: Method of mist nets; MA: Acoustic monitoring; OM: Omnivore; NE: Nectariferous; FR: Frugivore; IN: Insectivorous; VT2-3: Tower span 2-3; VT33-34: Tower Span 33-34; T36: Tower 36.

Family	Specie	Common name	Habitat	MRN				MA
				VT3-2	VT33-34	T36	VT44-44a	T139
Phyllostomidae	*Phyllostomus discolor*	Pale spear-nosed bat	OM				X	
	Glossophaga commissarisi	Commissaris's long-tongued bat	NE	X	X			
	Glossophaga soricina	Pallas's long-tongued bat	NE	X				
	Artibeus inopinatus	Honduran fruit-eating bat	FR	X				
	Artibeus jamaicensis	Jamaican fruit bat	FR	X	X	X	X	
	Artibeus lituratus	Great fruit-eating bat	FR	X	X		X	
	Chiroderma salvini	Salvin's big-eyed bat	FR	X	X			
	Dermanura aztecus	Aztec fruit-eating bat	FR				X	
	Dermanura toltecus	Toltec fruit-eating bat	FR		X			
	Platyrrhinus helleri	Heller's broad-nosed bat	FR	X	X			
	Sturnira hondurensis	Honduras yellow-shouldered bat	FR		X	X		
	Sturnira parvidens	Northern yellow-shouldered bat	FR	X	X		X	
Mormoopidae	*Pteronotus davyi*	Davy's naked-backed bat	IN					X
	Pteronotus gymnonotus	Big naked-backed bat	IN					X
	Pteronotus personatus	Wagner's mustached bat	IN					X
Emballonuridae	*Saccopteryx bilineata*	Greater sac-winged bat	IN					X
Molossidae	*Molossus molossus*	Velvety free-tailed bat	IN					X
	Molossus sinaloe	Sinaloan mastiff bat	IN					X
Vespertilionidae	*Myotis nigricans*	Black myotis	IN					X
	Myotis keaysi	Hairy-legged myotis	IN	X				
	Lasiurus intermedius	Northern yellow bat	IN					X
	Rhoggessa bickhami	Beckhams Little Yellow Bat	IN		X			X
Total				9	9	2	5	9

3.3 Species per tower point

For VT3-4 a greater abundance was found in the specie *G. commissarisi* (N:19) which has nectariferous habits mainly, followed by *A. jamaicensis* (N: 6), *A. lituratus* (N:4), *C. salvini* (N:4), *G. soricina* (N:4), and in lower abundance *M. keaysi, P. helleri, S. hondurensis* and *A. inopinatus*; although the area is located in a river that in its borders owns vegetation constituted mainly by bamboo, the zone is used by several species of bats possibly as zone of transit between areas.

For VT 33-34, a higher abundance was reported in the species *G. commissarisi* (N:6), s followed by *A. lituratus* (N:5), *A. jamaicensis* (N:4), and in lower abundance *C. salvini, D. toltecus, P. helleri, R. tumida, S. hondurensis* and *S. parvidens*. For being a forested area considered as coffee plantation under shade, has a large number of fruit trees in its surroundings, which could explain the diversity of species with frugivorous habits, so it is possibly a feeding zone for these species, and the presence of other species in the area is not ruled out.

For the point T36 only two species of bats were reported, however, the climatic conditions made it difficult to catch them, but due to the similarity of the area with the point VT 33-34, the same species can be considered for this zone. Of even greater importance since it has a forest area greater than that of VT 33-34.

In the point VT44-44ª Species of frugivorous and some omnivorous habits were reported (*P. discolo*r), which can be fed with insects, fruits, pollen, nectar, even frogs, being a species with a great variety of eating habits.

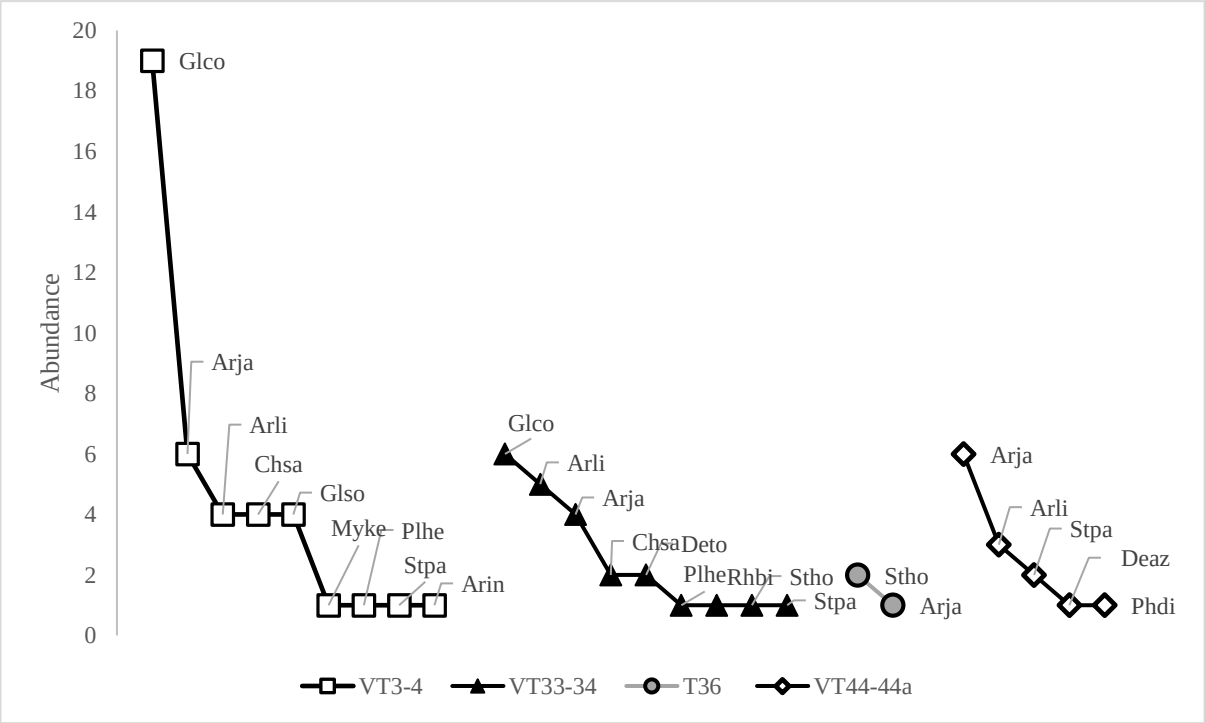

Figure 7. Range-abundance plot of bat species captured by tower point zone of Project Transmission Line of Energía del Pacifico, S.A. de C.V. (may 2016). Glco: *Glossophaga commissarisi;* Arja: *Artibeus jamaicensis*; Arli: *Artibeus lituratus*; Chsa: *Chiroderma salvini*; Glso: *Glossophaga soricina*; Myke: *Myotis keaysi*; Plhe: *Platyrrhinus helleri*; Stpa: *Sturnira parvidens*; Arin: *Artibeus inopinatus*; Deto: *Dermanura toltecus*; Deaz: *Dermanura aztecus*; Rhbi: *Rhoggessa bickhami*; Stho: *Sturnira hondurensis*; Phdi: *Phyllostomus discolor*.

3.4 Total species

During the course of the work, 14 species of bats were recorded (figure 8), from which a greater total abundance of *G. commissarisi* (N: 25) species of nectariferous habits, so it is considered that there is an abundance of trees that can be pollinated by it, can also indicate a flowering of most plants in the area.

A total of 9 species of frugivorous habits were obtained, among them (*Artibeus, Dermanura and Sturnira*) species considered tolerant or adaptable to disturbed environments (Fleming, 1986; Galindo-González, 2004; Sosa et al., 2008), So it is considered that the areas could house shrubs (genders *Solanum, Piper, Cestrum*) or trees (genders *Ficus, Inga, Cecropia, Psidium, Spondias, Persea* among others) Which can provide food to frugivorous species (Sosa et al., 2008).

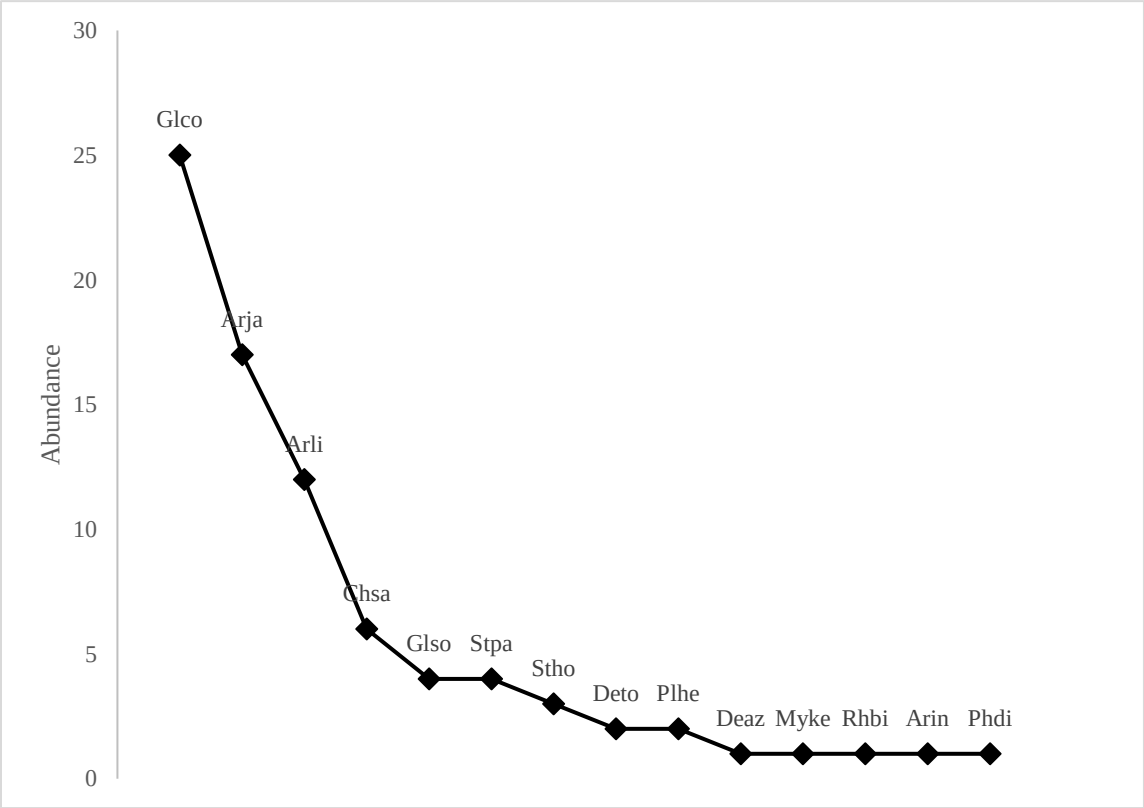

Figure 8. Range-abundance plot of species of bats captured in the towers location areas of the Project Transmission Line of Energía del Pacifico, S.A. de C.V. (may 2016). Glco: *Glossophaga commissarisi;* Arja: *Artibeus jamaicensis*; Arli: *Artibeus lituratus*; Chsa: *Chiroderma salvini*; Glso: *Glossophaga soricina*; Myke: *Myotis keaysi*; Plhe: *Platyrrhinus helleri*; Stpa: *Sturnira parvidens*; Arin: *Artibeus inopinatus*; Deto: *Dermanura toltecus*; Rhbi: *Rhoggessa bickhami*; Stho: *Sturnira hondurensis*.

3.5 Sampling Effort

Wealth estimators suggest a presence of 17 to 21 species of bats in the area, compared to this study of which only 12 have been recorded (Table 3 and figure 9).

Table 3. Expected bat wealth estimators.

Indexes	Value
Jack 1 Mean	17
Jack 2 Mean	19
Chao 2 Mean	21

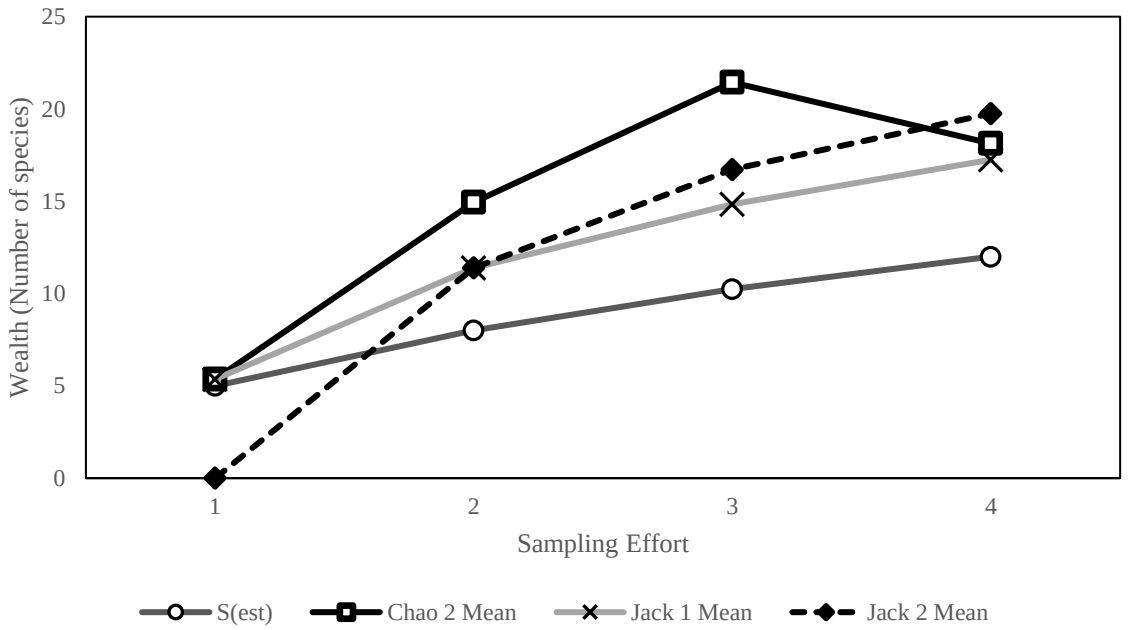

Figure 9. Curve of species accumulation for the Project Transmission Line of Energía del Pacifico, S.A. de C.V. (May 2016).

4. Conclusions

Throughout the different sampling points, a great variety of species of bats of frugivorous habit could be observed so that all the points can be considered areas of feeding and shelter. This can be attributed to the fact that the entire Apaneca-Ilamatepec mountain range consists mainly of shade-grown coffee areas, with remnants of forest in certain areas, and with the presence of fruit trees, this set of factors could be influencing the species to feed in the vicinity of coffee plantations and to use trees in areas that have not been so disturbed.

For the area of Acajutla, only one point of acoustic monitoring was realized, located in a cattle zone, with little vegetation and bordering to a river; Where records of 9 species of insectivorous bats, and although the area has a great alteration by the use of soil for livestock pastures, the site is possibly used by bats as a way of passage between their refuges and their feeding areas.

The line of tower placement that crosses the Apaneca-Ilamatepec mountain range towards the Acajutla zone has a high diversity of bats, so it should be considered as a complete trail of the species, since certain frugivorous species can fly distances of 3-5 km from their shelter sites (Galindo, 1998) so that the mountain range could be used as a refuge and feeding zone.

5. Proposed intervention

Among the measures that must be taken to mitigate damages to the bat community are:

- Planting trees gender *Cecropia* (Guarumo), *Ficus* (Rubber stick), *Inga* (paterna, pepeto), *Persea* (Avocado) *Spondia* (Jocote) Or gender shrubs *Piper* (Piper), *Solanum* (Wild tomatoes), these are plants from which fruit bats feed on disturbed or secondary forests (Lobova *et al.*, 2009; Sosa *et al.*, 2008).

- Reduce the area of placing of towers of the stipulated of 20m to each side to 10m, this with the objective of avoiding the unnecessary clearing of trees that can be being used by the bats and other species of mammals, like refuge and food.

No action is recommended on the effects of magnetic fields, collisions or electrocutions that the towers may cause to bats, since there are no records to date of such an effect (Riviera *et al.*, 2014).

Other documents have recorded as the only interaction between the chiroptera and the electronic lines the location of structures (towers) that physically obstruct and / or destroy places of refuge, sleeping or feeding. However, this is not exclusive of electrical structures but common to any structure of anthropic origin (Buildings, antennas, etc..) (Cris Hein, com. pers. Taller de expertos. Santiago, Julio 2014; Riviera *et al.*, 2014).

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7. Annexes

Annex 1. Capture and take of biometric data of bats; (A) capture of bats; (B) Weight; (C) Forearm measurement; (D) Species identification; (E and f) Reproductive status.



Annex 1 b. List of species of bats with their biometric data of VT3-4; Correlate, Date, Family, Species, Weight, Forearm, Sex and Reproductive Stage (Scrounged; Lactating; Pregnant; N= normal).

Correlative	Date	Family	Specie	Weight each bat (gr)	Weight Bag (gr)	Total weight (gr)	Forearm (mm)	Sex	Reproductive stage
1	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	40	5	35	male	Scrounged
2	28/5/2016	Vespertilionidae	*Myotis keaysi*	46	40	6	33	male	N
3	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	50	43	7	35	male	Scrounged
4	28/5/2016	Stenodermatinae	Artibeus jamaicensis	80	40	40	59	female	Lactating
5	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	48	40	8	33	male	N
6	28/5/2016	Glossophaginae	*Glossophaga soricina*	49	41	8	32	female	N
7	28/5/2016	Stenodermatinae	*Artibeus lituratus*	89	41	48	69	female	N
8	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	49	43	6	36	female	Pregnant
9	28/5/2016	Stenodermatinae	*Artibeus jamaicensis*	90	41	49	62	male	N
10	28/5/2016	Glossophaginae	*Glossophaga soricina*	50	41	9	35	male	Scrounged
11	28/5/2016	Stenodermatinae	*Sturnira parvidens*	53	40	13	40	female	N
12	28/5/2016	Stenodermatinae	*Artibeus jamaicensis*	100	41	59	57	female	Pregnant
13	28/5/2016	Stenodermatinae	*Artibeus jamaicensis*	88	40	48	56	male	Scrounged
14	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	40	5	38	male	N
15	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	48	40	8	35	male	Scrounged
16	28/5/2016	Stenodermatinae	*Artibeus lituratus*	98	40	58	70	female	N
17	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	41	4	35	male	Scrounged
18	28/5/2016	Glossophaginae	*Glossophaga soricina*	48	40	8	34	male	N
19	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	43	40	3	36	female	Lactating
20	28/5/2016	Stenodermatinae	*Platyrhinus helleri*	60	43	17	46	male	N
21	28/5/2016	Glossophaginae	*Glossophaga soricina*	49	40	9	35	male	Scrounged
22	28/5/2016	Stenodermatinae	*Artibeus lituratus*	100	40	60	73	female	N
23	28/5/2016	Stenodermatinae	*Chiroderma salvinii*	54	40	14	45	male	Scrounged
24	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	44	40	4	34	female	N

25	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	46	40	6	36	female	N
26	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	49	41	8	36	female	N
27	28/5/2016	Stenodermatinae	*Artibeus jamaicensis*	98	43	55	62	female	N
28	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	40	5	35	female	N
29	28/5/2016	Phillostominae	*Artibeus inopinatus*	100	40	60	76	male	N
30	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	48	40	8	33	male	N
31	28/5/2016	Stenodermatinae	*Artibeus lituratus*	85	43	42	70	male	N
32	28/5/2016	Stenodermatinae	*Chiroderma salvinii*	55	40	15	48	female	N
33	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	49	40	9	35	male	Scrounged
34	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	47	40	7	32	male	Scrounged
35	28/5/2016	Stenodermatinae	*Artibeus jamaicensis*	89	41	48	58	male	Scrounged
36	28/5/2016	Stenodermatinae	*Chiroderma salvinii*	55	43	12	50	male	N
37	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	52	43	9	34	male	N
38	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	41	4	36	male	N
39	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	40	5	35	male	Scrounged
40	28/5/2016	Stenodermatinae	*Chiroderma salvinii*	59	40	19	50	female	N
41	28/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	40	5	35	female	Pregnant

Annex 1 c. List of species of bats with their biometric data of VT33-34; Correlate, Date, Family, Species, Weight, Forearm, Sex and Reproductive Stage (Scrounged; Lactating; Pregnant; N= normal).

Correlative	Date	Family	Specie	Weight each bat (gr)	Weight Bag (gr)	Total weight (gr)	Forearm (mm)	Sex	Reproductive stage
1	29/5/2016	Stenodermatinae	*Artibeus jamaicensis*	98	43	55	62	female	N
2	29/5/2016	Glossophaginae	*Glossophaga comissarisi*	49	40	9	35	male	Scrounged
3	29/5/2016	Stenodermatinae	*Sturnira hondurensis*	54	40	14	39	male	N
4	29/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	41	4	35	male	Scrounged
5	29/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	40	5	36	female	N
6	29/5/2016	Stenodermatinae	*Platyrhinus helleri*	60	43	17	46	male	N
7	29/5/2016	Stenodermatinae	*Chiroderma salvinii*	54	40	14	45	male	N
8	29/5/2016	Glossophaginae	*Glossophaga comissarisi*	44	40	4	34	female	N
9	29/5/2016	Stenodermatinae	*Artibeus lituratus*	89	41	48	68	female	Pregnant
10	29/5/2016	Stenodermatinae	*Artibeus lituratus*	98	40	58	71	male	N
11	29/5/2016	Stenodermatinae	*Chiroderma salvinii*	55	40	15	48	male	N
12	29/5/2016	Stenodermatinae	*Sturnira parvidens*	54	40	14	39	male	N
13	29/5/2016	Glossophaginae	*Glossophaga comissarisi*	46	40	6	36	female	Pregnant
14	29/5/2016	Glossophaginae	*Glossophaga comissarisi*	48	41	7	36	male	N
15	29/5/2016	Glossophaginae	*Glossophaga comissarisi*	45	40	5	35	male	Scrounged
16	29/5/2016	Stenodermatinae	*Artibeus lituratus*	100	40	60	73	male	N
17	29/5/2016	Stenodermatinae	*Artibeus jamaicensis*	88	40	48	56	male	Scrounged
18	29/5/2016	Stenodermatinae	*Artibeus lituratus*	100	40	60	73	female	N
19	29/5/2016	Stenodermatinae	*Artibeus lituratus*	85	43	42	70	male	N
20	29/5/2016	Stenodermatinae	*Dermanura toltecus*	55	40	15	37	male	N
21	29/5/2016	Stenodermatinae	*Artibeus jamaicensis*	90	41	49	62	male	N
22	29/5/2016	Stenodermatinae	*Artibeus jamaicensis*	100	41	59	57	male	N
23	29/5/2016	Stenodermatinae	*Dermanura toltecus*	58	40	18	38	male	N
24	29/5/2016	Vespertilionidae	*Rhogeessa tumida*	54	40	14	26	male	N

Annex 1 d. List of species of bats with their biometric data of T36; Correlate, Date, Family, Species, Weight, Forearm, Sex and Reproductive Stage (Scrounged; Lactating; Pregnant; N= normal).

Correlative	Date	Family	Specie	Weight each bat (gr)	Weight Bag (gr)	Total weight (gr)	Forearm (mm)	Sex	Reproductive stage
1	30/5/2016	Stenodermatinae	*Sturnira hondurensis*	53	41	12	39	male	N
2	30/5/2016	Stenodermatinae	*Artibeus jamaicensis*	88	43	45	57	female	N

Annex 1 e. List of species of bats with their biometric data of VT44-44a; Correlate, Date, Family, Species, Weight, Forearm, Sex and Reproductive Stage (Scrounged; Lactating; Pregnant; N= normal).

Correlative	Date	Family	Specie	Weight each bat (gr)	Weight Bag (gr)	Total weight (gr)	Forearm (mm)	Sex	Reproductive stage
1	31/5/2015	Stenodermatinae	Artibeus jamaicensis	90	40	50	59	male	N
2	31/5/2015	Stenodermatinae	*Dermanura aztecus*	57	43	14	48	female	N
3	31/5/2015	Stenodermatinae	*Artibeus jamaicensis*	90	41	49	62	male	Scrounged
4	31/5/2015	Stenodermatinae	*Artibeus liturarus*	100	41	59	74	male	N
5	31/5/2015	Stenodermatinae	*Artibeus jamaicensis*	100	41	59	57	female	N
6	31/5/2015	Stenodermatinae	*Artibeus jamaicensis*	99	40	59	56	female	Lactating
7	31/5/2015	Stenodermatinae	*Artibeus liturarus*	88	41	47	70	female	N
8	31/5/2015	Stenodermatinae	*Artibeus liturarus*	94	41	53	70	female	N
9	31/5/2015	Stenodermatinae	*Artibeus jamaicensis*	98	43	55	62	male	N
10	31/5/2015	Stenodermatinae	*Artibeus jamaicensis*	100	41	59	58	male	Scrounged
11	31/5/2015	Stenodermatinae	*Sturnira parvidens*	56	40	16	39	female	Lactating
12	31/5/2015	Stenodermatinae	*Sturnira parvidens*	57	45	12	41	male	N
13	31/5/2015	Phillostominae	*Phillostomus discolor*	100	40	60	67	male	N

Annex 2. Species of captured bats.



Artibeo jamaiquino (Artibeus jamaicensis)



Artibeo correcto (*Artibeus lituratus*)



Quiroderma de salvini(*Chiroderma salvinii*)



Artibeo tolteca (*Dermanura toltecus)*



Bat of helleri (*Platyrhinus helleri*)



Mioto de keaysi (*Myotis keaysi*)



Esturnira ludovisio (*Sturnira parvidens*)



White Esturnira(*Sturnira hondurensis*)

APPENDIX D

BIOTA AQUATIC REPORT – EVALUATION OF AQUATIC VEGETATION, FISH AND AQUATIC MACRO-INVERTEBRATES OF THE RIVERS IN THE AREA OF INFLUENCE OF THE TRANSMISSION LINE PROJECT OF ENERGIA DEL PACIFICO, SONSONATE, AHUACHAPAN, EL SALVADOR.



Report prepared by:

Ruben Ernesto López Sorto
René Arturo Vaquerano Gomez

INTRODUCTION

Nature provides human resources, which must be exploited in a sustainable manner with clarity to keep and preserve them for future generations. Conserving the goods and services provided by nature for human populations is basically maintained by ecological processes. The alteration of these processes can lead to the degradation of the ecosystems and the corresponding reduction of the quality of life, with high economic and social costs (Turner, 2000; Levy *et al*. 2006, cited by Muniz *et al*. s.f.). Characterization, impact assessment and environmental monitoring programs also contribute to reverse this type of degradation and ensure that human health and the integrity of ecosystems and their resources are not irreversibly affected. This is achieved by providing decision-makers with adequate management tools, effective and supported by the best existing scientific knowledge. In this sense, impact assessments and monitoring programs should be seen as the basic tools for determining the nature, magnitude, spatial extent and temporal distribution of environmental impacts derived from human activities (Muniz s.f.). In order to know the state of health and provide the necessary information to the decision makers, the present study is being carried out in the rivers of the area of influence of the Transmission Line Project of Energia del Pacifico, which is located in the departments of Sonsonate and Ahuachapán and has a length of approximately 40 kilometers. The objective of this work is to estimate the populations of aquatic plants, fish and aquatic invertebrates in the different rivers of the area of influence of the project. The study was carried out during the months of May and June of 2016, this is the final report of this investigation.

THEORETICAL FRAMEWORK

Aquatic plants

The use of aquatic plants for the study of the state of aquatic systems has become more and more important.

Aquatic plants basically have the same nutritional requirements as terrestrial plants. They can be classified into floating, submerged and emergent, facilitate the integration of landscape systems and recreate complex ecosystems involving other organisms such as aquatic insects, amphibians and waterfowl, regulating the system. In addition, they offer the possibility of obtaining recoverable products for various purposes. Among the possible uses are ornamental uses, bed for livestock, production of compost, forage production, obtaining fibers for crafts, etc. (García-Trujillo 2012).

Macrophytes comprise all multicellular aquatic plants, including mosses, hepatics and phanerogams, are natural components of most aquatic ecosystems. Qualitative sampling of these organisms includes a visual observation and collection of the most representative types of the study area. The community of macrophytes are influenced by climate, geology and substrate type (Arce *et al*. 2006).

Fishes

This group is the only one that is easily monitored by the public or interested groups such as fishermen. Being the apex of the food chain, the fish reflect the effects of direct and indirect contamination, the latter by the food of other contaminated fish. However, fish have great mobility within the aquatic environment and can escape pollution and return when conditions have improved. Fish have been widely used to assess biotic integrity in streams and rivers (Arce *et al*. 2006).

In general, fish are considered good indicators of the quality of the environment, so a great diversity and abundance of fish in rivers, lakes and lagoons indicate that it is a healthy environment for all other forms of life. On the contrary, a high mortality or a high percentage of diseased fish could be caused directly or indirectly by considerable levels of pollutants (Huidobro 2000, in Vásquez *et al*. cited by Arce *et al*. 2006).

Aquatic macroinvertebrates

Macroinvertebrates are generally abundant, relatively easy to collect and of sufficient size to be observed with the naked eye, are universal, sedentary, extremely sensitive to disturbances, have relatively long life cycles, show an immediate response to an impact, their taxonomic identification is well known and does not require specialized personnel for sampling (Toro *et al*. 2003, cited by Vásquez-Silva *et al*. 2006).

Macroinvertebrates are found in almost all habitats, so they are affected in different strata of the system, have a wide range of response to pollution, their sedentary habits and their relatively long life cycles allow to establish considerations of the state of health in an aquatic system (Sandoval and Molina 2000, cited by Vásquez-Silva *et al*. 2006).

MATERIALS AND METHODS

Description of the study area

The study area is located the Departments of Sonsonate and Ahuachapán (Figure 1) that crosses vertically the western part of the Apaneca-Ilamatepeque mountain range and its length is approximately 40 km with an average width of 20 m.



Figure 1. Location of the study area for the evaluation of the diversity of aquatic plants, fish and macroinvertebrates

Methodology used to conduct the study

First, we proceeded to carry out a tour of the sites where this proposal establishes the electric transmission line in order to identify possible areas of influence. Finally it was considered to sample five rivers, (Figure 2).

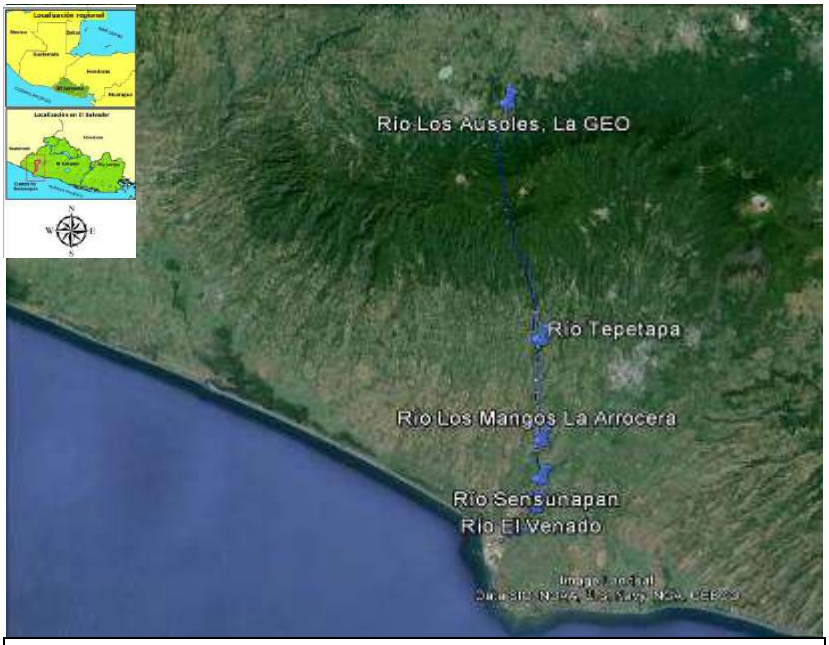


Figure 2. Sites selected for the evaluation of the diversity of aquatic plants, fish and macroinvertebrates, within the area of influence of the project

Geographical description of the study area

For the study of aquatic plants, fish and aquatic macroinvertebrates. Five rivers were considered for sampling (Figure 2), according to the following detail:

Site 1: Los Ausoles River: 753 meters above sea level (masl) ,13^ 43'0.7"; 89^49'10.2"
Site 2: Tepetapa River: 233 meters above sea level (masl) ,13^ 44'01.2"; 89^47'40.4"
Site 3: El Mango River – La Arrocera: 77 meters above sea level (masl) ,13^ 39'12.8"; 89^47'36.2"
Site 4: Sensunapan River: 73 meters above sea level (masl) ,13^ 37'23.2"; 89^47'37.6"
Site 5: El Venado River: 58 meters above sea level (masl) ,13^ 36'04.2"; 89^47'51.2"

Description of each of the sampled sites

Site 1: Los Ausoles River

The sampled site is located in the department of Ahuachapán, bordering the geothermal station (Figure 3).

The elevation is of 753 masl and the section of the sampled river measures a maximum of 7 meters of width and a depth that can reach approximately of 1 meter in rainy season and 15 cm in dry season, the speed of the water is moderate, The substrate of the river is made up of stones of different size and coarse sand, the riverbed and the surrounding river is populated by rocks of different sizes from small to medium, some of which are covered with growth of Periphyton (algae) and moss, Although rocks with a clean surface also exist (Figure 3). In the first sampling, the riverbed presented leaf litter and the color of the water was clear. The riparian vegetation forms a gallery more conformed by bamboo, ingas, guarumo, Mango, acacias and other variety of species, which generated a shady environment. The site is apparently used mostly for tourism, fishing and irrigation crops.



Figure 3. Site Overview 1, Los Ausoles River

Site 2. Tepetapa River

The sampled site is located in the department of Ahuachapán, municipality of Santo Domingo de Guzmán. The elevation is 233 masl and the section of the sampled river measures a maximum of 12.0 meters wide and an approximate depth of 25 to 160 cm, the speed of the water is moderate, the substrate of the river is conformed by stones of different size and sand gross, The riverbed and surrounding area of the river is populated by rocks of different sizes from small to very large, some of which are covered with growth of Periphyton (algae) and moss, although there are also rocks with a clean surface (figure 4). The riverbed presents litter and some parts of the margin of the river was observed the presence of grassy vegetation and the color of the water was clear. In general, the presence of organic wastes derived from the decomposition of litter was observed.



Figure 4. Site Overview 2, Tepetapa River

Site 3. El Mango River – La Arrocera

The sampled site is located in the Cantón Santa Emilia, Department of Sonsonate. The elevation is 77 masl and the section of the sampled river measures a maximum of 7 meters wide and an approximate depth of 50 to 130 cm, the speed of the water is slow, the substrate of the river is made up of coarse sand. The riverbed has abundant litter, logs and submerged branches, the color of the water was turbid. In general, the presence of organic wastes was observed. The most predominant gallery vegetation is made up of ingas, guarumo, Mango, jiote, flying, chilamate, guiscoyol and other species, which provides a shady environment with windows, typical of a gallery forest (figure 5).



Figure 5. Site Overview 3, El Mango River – La Arrocera

Site 4. Sensunapan River

Located in the canton San Julián, municipality and department of Sonsonate, at an elevation of 73m.s.n.m., south of the city of Sonsonate. The area is completely sub urban, almost inaccessible to be found in a canyon with walls of approximately 10 meters of height, the area surrounding the river is surrounded by canals, pastures and dispersed fruit trees. The river has a remarkable load of municipal wastes mainly of the Municipality of Sonsonate; The water is used for irrigation of canals. The bed of the river is a substrate of coarse sand the velocity of the water is moderate to strong and the channel measures 12.5m wide. See figure 6.



Figure 6. Site Overview 4, Sensunapan River

Site 5. El Venado River

Located in the cantón San Julián, Municipality of Acajutla, department of Sonsonate; Site known as El Venado. The elevation is 58 m.s.n.m. The topography at this point lacks marked slopes. Its bed is covered with stones of different size, with growth; border the site of paddocks for the foraging and breeding of cattle. Water velocity is moderate to strong. The width is 600 centimeters with a minimum depth of 20 and maximum of 150 centimeters. This river is populated in its borders by abundant riparia and emergent aquatic vegetation. See figure 7



Figure 7. Site Overview 5, El Venado River.

General aspects of the different sites sampled
Sampling methodologies used
Sampling of aquatic plants

The procedure for the sampling of aquatic plants began with the selection of five sampling sites along the area of influence of the project, identifying for each sampling site a representative location of the conditions of the section of the river to be sampled. This section had a length of 50 meters that adequately reflected the floristic composition and abundance of species characteristic of the aquatic environment in waters of moderate rapids, backwaters, pools and riverside conditions that generate areas, both shade and light (Herrera 2013).

For this purpose, non-destructive quantitative sampling was performed with the aid of a PVC tube quadrant of 50 centimeters per side with twelve replicates (Lot & Chiang 1986); Placing the quadrant on the aquatic vegetation at each sampling site (Figure 8). The aquatic plants contained in each quadrant were reviewed and they were taken to a procedure of identification of species for later statistical analysis and in this way to be able to estimate the populations through their frequency and percentage of abundance. Identification of the material was performed through the use of identification guides (Figure 9).



Figure 8. Quadrant used to measure the coverage of aquatic vegetation at each sampling site.

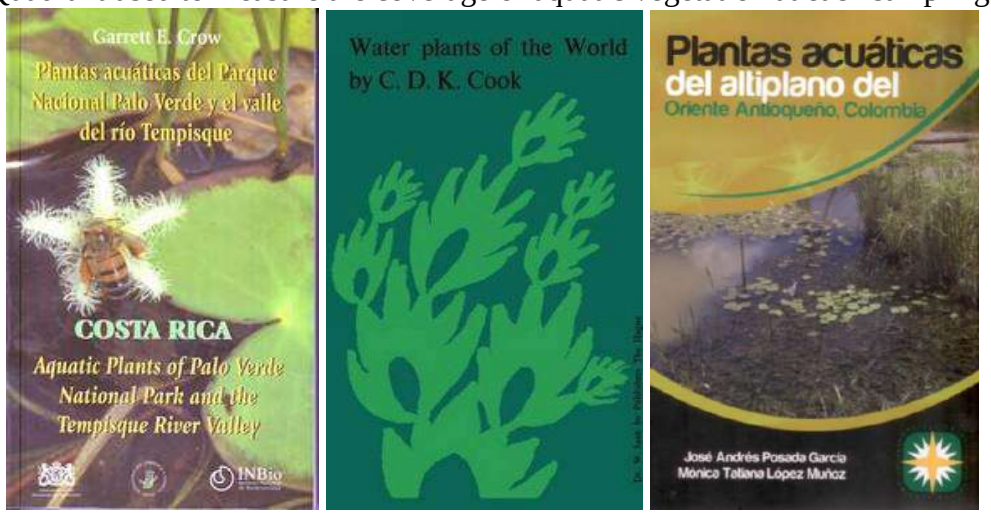


Figure 9. Use of aquatic plant identification guides.

Fish Sampling

For the fish sampling, a medium proportion pellet was used. The sampling of fish was developed in a non-destructive way or that the majority of fish after being identified were returned to the river; Fish caught in the "D" network used for the sampling of aquatic macroinvertebrates. Firstly, we identified sections of the river representative of approximately 50 linear meters with the typical features, considering waters of rapid, moderate displacement, remansos and puddles, in the same way we considered both shady and luminous environments (Herrera, 2013). For the sampling of the different species of fish, two sampling techniques were combined: 1) a total of 12 effective sets were carried out in each section with a 2.6 x 4.5 meter spanning net with a monofilament wire gauge of 0.3 mm, and 1/4 "mesh light (Figure 10). The captured fish were deposited in buckets with water for identification; 2) the other sampling methodology was carried out with the use of the "D" network, sampling for five minutes with three replications to cover all the micro habitats of the river section. The identifications of the fish species were made with the help of specialized literature. After the fish were identified and photographed, they were returned to the aquatic ecosystem.



Figure 10. Atarraya hauls for sampling fish

Sampling of macro-aquatic invertebrates

We proceeded to select a section of river not exceeding 50 m in length, then recorded the necessary information of the place in a previously structured form. The following information was taken: depths and maximum width of the river in the sampled section (Annex 1) and depth of the river, as well as aspects related to the arboreal vegetation in the vicinity of the river section, uses of the riverbed, and any other Information that was deemed relevant, including relevant photographs.

The selected section was aimed at presenting the greatest diversity of habitats possible, such as: areas with soft current, strong current, hard substrate, soft substrate, emerged aquatic vegetation, both within the river and on its banks, presence of decaying organic matter (Litter, wood, etc.), Content of mud and / or sand, evidence of algae (periphyton) or other conditions that tend to favor the biodiversity of organisms present in the selected section. We tried to take into account the greatest number of habitats, considering that the depths sampled oscillated between 20 and 50 cm. First, we proceeded to identify and observe the different habitats present in the selected stretch of river. During the sampling the route was made taking into account the different identified habitats, trying to collect the greatest possible biodiversity.

The river section of the selected site was divided into three parts as closely as possible and each of these parts was intensively sampled for a period of five minutes per sub-sample, for a total of 15 minutes for the three subsamples. After entering the river with the "D" net in hand and start the sampling process by timing the five-minute countdown, placing the "D" net in an upright position by taking it through the top of the handle and placing it Countercurrent in contact with the bottom of the river surface to be sampled (Figure 11). For the micro-habitat of strong current or slow and hard or soft substrate, it was cleaned by hand or rubbed with the feet the substrate, ensuring that the residue removed would be trapped inside the net "D". The network was constantly relocated, placing it in such a way that the material removed was trapped in it. For the microhabitat corresponding to emerged aquatic vegetation or terrestrial vegetation in contact with the water of

the river banks, and that of macrophytes, the net was passed through the vegetation and the submerged roots.



Figure 11. Multihabitat sampling of aquatic macroinvertebrates through the use of net "D"

For the micro-habitat of sand, gravel or mud, the bottom was removed with the feet and the floating material was tried to be dragged by the stream to be trapped in the "D" net. In microhabitats with leaf litter the net was introduced with the leaf litter in the water and the material was carefully washed trying to keep the insects inside and in this way the most of material was removed with the hand, without losing the living organisms accumulated in it. Once the five minutes had been completed in each of the groups of microhabitats identified, the material adhered to the walls of the "D" net was moved towards the bottom of the "D" netting with some force of water, so that The organisms adhered to the walls were deposited in the bottom of the same. Then the material contained in the net was deposited in a plastic tray for inspection and the network "D" was carefully inspected to catch the insects or arthropods attached to the net and to be able to consider them in the count.
After placing the sample in the tray and rinsing the net "D", proceeded to continue with the taking of the second and third sub-sample and the rest of collaborators to separate the macroinvertebrates contained in the tray, through an exhaustive observation of the biological material. At the end of the three sub-samples, we proceeded to wash the net with enough clean water and check it well to avoid overlapping organisms from a sampling Site with another Site.

The macronivertebrates found were identified at the field level however for the taxonomic identification of some aquatic organisms it was necessary to use microscope stereoscope, for which, it was supported by illustrated guides for the ecological and taxonomic study of the immature aquatic insects of El Salvador (Sermeño Chicas, J.M., Pérez D. & P.E. Gutiérrez Fonseca. 2010; Gutiérrez Fonseca, P.E., Sermeño Chicas, J.M. & J.M. Chávez Sifontes. 2010; López Sorto, R.E., Sermeño Chicas, J.M. & D. Pérez. 2010; Hernandez Martínez, M.A., Pérez, D., Serrano Cervantes, L., Sermeño Chicas, J.M., Paniagua Cienfuegos, M.R., Springer, M. & A..J. Monterrosa Urias. 2010; Pérez, D., Serrano Servantes, L., Sermeño Chicas, J.M., Monika Springer, *et. al.* 2010; Gutiérrez Fonseca, P. E. 2010; Pacheco-Chaves, B. 2010; Serrano Cervantes, L. & A.

Zepeda Aguilar. 2010; Menjìvar Rosa, R.A. 2010; Serrano Cervantes, L. & A. Zepada Aguilar. 2010; Springer, M. Serrano Cervantes, L. & A. Zepeda Aguilar. 2010). See figure 12



Figure 12. Identification guides for aquatic macroinvertebrates from El Salvador.

Sorting and processing of data obtained in field

All information obtained at the field level was duly ordered in Excel databases for analysis and interpretation. With the information recorded in the samplings, it was possible to determine the abundance, wealth and diversity value index, which were processed in Excel spreadsheets. For alpha diversity, the Shannon-Wiener and Simpson indices were used, depending on the data obtained. Absolute (n) and relative (%) abundance of aquatic organisms recorded in the study.

Relative abundance of aquatic organisms

$$A_r = \frac{A_i}{A_{total}} X\ 100$$

Where:

Ar = Relative abundance of family or species

Ai = Total number of individuals in the family or species

Atotal = Total number of individuals of all families or species registered

In addition to measuring the diversity of species within a community (diversity α), the Shannon-Wiener index is used. This is based on the fact that all species have the same probability of occurrence in the sample. It has values between 0 and 6 and is calculated according to the following formula:

Shannon-Wiener Biodiversity Index.

$$H' = -\sum_{i-1}^{n} pi(lnpi)$$

Where:
H´ = biodiversity species diversity index Shannon-Wiener
Pi = proportion of species (ni) in the total sample (N) (pi = ni/ N).

Simpson Index

Also known as the index of species diversity or dominance index. It is one of the parameters that allowed to measure the wealth of organisms. In ecology, it is also used to quantify the biodiversity of a habitat. It takes a certain number of species present in the habitat and their relative abundance. The Simpson index represents the probability that two randomly selected individuals within a given habitat belong to the same species.

Simpson Dominance Index

$$D = \frac{\sum_{i=1}^{S} n_i(n_i - 1)}{N(N-1)}$$

Where:
S = is the number of species
N = is the total of organisms present (or square units)
n = is the number of specimens per species

Simpson Diversity Index

$$D = 1 - \sum_{i=1}^{S} Pi$$

Where:
D = Simpson Diversity Index
Pi = Proportion of individuals of species i in the community

RESULTS AND DISCUSSION

ESTIMATED OF AQUATIC VEGETATION POPULATIONS

After sampling the aquatic plants of the different rivers, the information reflects that there is little variability between each of them, either in the number of species or the number of plants found. However, at the site corresponding to the Quebrada El Venado (Site 5), the largest number of species with more plants (Table 1) was found, this is possibly due to abundant sunlight and vegetation exists in the sampling site near the river (Figure 7), Which causes a very different environment to the other sampled sites, which are generally totally shaded, this shade is usually limiting for the growth of some aquatic plants.

Site 5, (Quebrada El Venado), showed the highest diversity of genders of plants and aquatic algae with a total of 12, and in second place is located Site 2, (Tepetapa River), with a total of ten species Sites 1 and 3, (Los Ausoles River and El Mango River – La Arrocera), presented 7 species each. Site 4, (Sensunapan River) recorded only 4 species. (Table 1).

Table 1. Quantity and percentage of dominance of aquatic plants found in each of the sample sites of the project area of influence

Specie	**Quantity and percentage of plant dominance by species**									
	S1		**S2**		**S3**		**S4**		**S5**	
	#	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
Aeschynomene sensitiva (dormilona)	0	0	0	0	5	18	0	0	7	14
*Cupea carthage**n**ensis*	0	0	4	8	0	0	2	17	0	0
Fontinalis bogotensis	0	0	1	2	9	32	3	25	2	4
Heteranthera reniformis	0	0	0	0	0	0	0	0	3	6
Lemna aequinoctialis	0	0	1	2	2	7	5	42	2	4
Eclipta prostrata	2	6	4	8	0	0	0	0	3	6
Ludwigia erecta	2	6	5	10	0	0	0	0	2	4
Cyperus alternifolius	3	9	4	8	1	4	0	0	2	4
Paspalum repens	4	12	4	8	3	11	2	17	8	16
Spirogyra sp and *Cladophora* sp (lama)	6	18	8	17	1	4	0	0	5	10
Spirogyra sp (Alga)	7	21	9	19	0	0	0	0	6	12
Cladophora sp (Alga)	10	29	8	17	7	25	0	0	10	20
Number of species per site	**7**		**10**		**7**		**4**		**12**	
Total plants per site	**34**		**48**		**28**		**12**		**50**	

S= Sampling site.

The plants and / or algae most abundant in each of the sites sampled with their respective percentage of predominance among plant organisms found (Figura13), were: in the Site 1: *Cladophora* sp. (29%) and *Spirogyra* sp. (21%); Site 2: *Spirogyra* sp. (19%) and *Cladophora* sp. (17%); Site 3: *Cladophora* sp (25%); and *Aeschynomene sensitiva* (18%); Site 4: *Lemna aequinoctialis* (42%) *Fontinalis bogotensis* (25%), *Paspalum repens* (17%) and the site 5: *Cladophora* sp. (20%) and *Paspalum repens* (16%); As can be seen, there is a great deal of variability between each of the sites sampled as to the dominance of the plants found at each sampling site. Table 2 details the species with their respective families.



Figure 13. Different genera of plants and aquatic algae found in the samples of the 5 rivers within the area of influence of the project: a) *Spirogyra* sp and *Cladophora* sp (lama), b) *Paspalum repens,* c) *Ludwigia erecta,* d) *Lemna aequinoctialis,* e) *Heteranthera reniformis,* f) *Fontinalis bogotensis,* g) *Eclipta prostrata,* h) *Cyperus alternifolius,* i) *Cupea carthagenensis,* j) *Spirogira* sp (alga), k) *Cladophora* sp (alga), l) *Aeschynomene sensitiva.*

Table 2. Species and families of aquatic flora of the rivers sampled in the areas of influence of the project

Species	Families
Aeschynomene sensitiva (dormilona)	Fabaceae
Cladophora sp. (Algas)	Cladophoraceae
Spirogyra sp. (Algas)	Zygnemataceae
Cupea carthagenensis	Lythraceae
Cyperus alternifolius	Cyperaceae
Eclipta prostrata	Asteraceae
Fontinalis bogotensis	Fontinalaceae
Heteranthera reniformis	Pontederiaceae
Lemna aequinoctialis	Lemnaceae
Ludwigia erecta	Onagraceae
Paspalum repens	Poaceae
Spirogyra sp and Cladophora sp (lama)	Cladophoraceae and Zygnemataceae

In Table 3, we detail the dominance data in terms of percentage for each of the species reported for Site 1, the most representative being algae *Cladophora sp*. and *Spirogyra sp*.

Table 3. Dominance in percentage for the aquatic flora of the Site 1: Los Ausoles River

	Species	n	%
Site 1	*Aeschynomene sensitiva* (dormilona)	0	0
	Cupea carthagenensis	0	0
	Fontinalis bogotensis	0	0
	Heteranthera reniformis	0	0
	Lemna aequinoctialis	0	0
	Eclipta prostrata	2	6
	Ludwigia erecta	2	6
	Cyperus alternifolius	3	9
	Paspalum repens	4	12
	Spirogyra sp and Cladophora sp (lama)	6	18
	Algas Spirogyra	7	21
	Algas Cladophora sp	10	29
		34	**100**

The algae *Spirogyra sp. and Cladophora sp.* they reached the highest percentage of coverage with 68% over the rest of the species. Of the superior vascular plants were the pastures *Paspalum repens*, the ones that obtained the greatest registry of coverage on the other species with 12% (Figure 14).



Figure 14. Algae A)*Spirogyra sp*. *and* B) *Cladophora sp*.; Pastures C) *Paspalum repens*.

Ecology of predominant species based on Garrett 2002 and Posada García & López Muñoz 2011.

Spirogyra sp: It lives in fresh water, like rivers and streams. Also in stagnant waters, such as puddles and lagoons.
Cladophora sp: They live in both inland and estuarine waters, are observed in ponds, lagoons, backwaters and water courses with pH values above 7.
Paspalum repens: It inhabits marshes, marshes and stagnant waters.

In Table 4, we detail the dominance data in terms of percentage for each of the species reported for Site 2: Tepetapa River, being the most representative algae *Spirogyra sp and Cladophora sp*, as well as *Cupea carthagenensis, Cyperus alternifolius, Eclipta prostrata, Paspalum repens, Ludwigia erecta*

Table 4. Dominance as a percentage for the aquatic flora of site 2: Tepetapa River

	Specie	Total	%
Site 2	*Aeschynomene sensitiva (dormilona)*	0	0
	Heteranthera reniformis	0	0
	Fontinalis bogotensis	1	2
	Lemna aequinoctialis	1	2
	Cupea carthagenensis	4	8
	Cyperus alternifolius	4	8
	Eclipta prostrata	4	8
	Paspalum repens	4	8
	Ludwigia erecta	5	10
	Algas Cladophora sp	8	17
	Spirogyra sp and Cladophora sp (lama)	8	17
	Algas Spirogyra	9	19
		48	**100**

These algae *Spirogyra sp and Cladophora sp* Which also form what is known as Lama, reached the highest percentage with a 52% coverage over the rest of the species, *Cupea carthagenensis, Cyperus alternifolius, Eclipta prostrata, Paspalum repens, Ludwigia erecta* together account for 44% coverage (Figure 15).

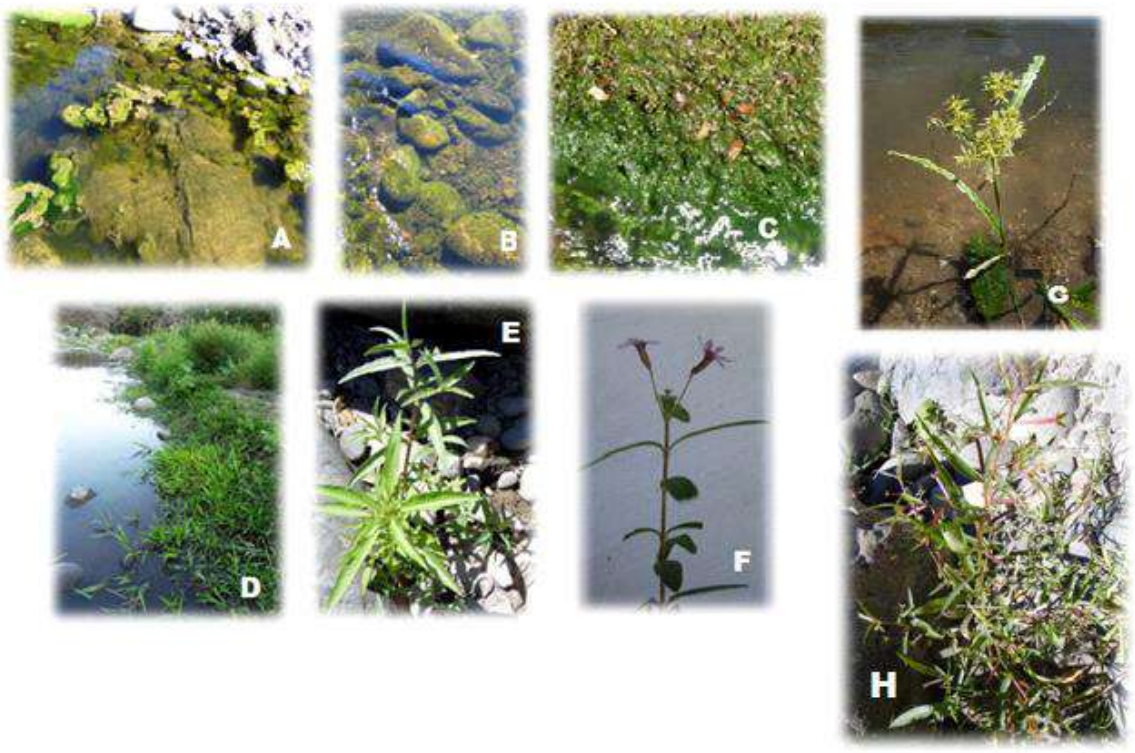


Figure 15. A) *Spirogyra sp* **B)***Cladophora sp* **C)** Lama (*Spirogyra sp* and *Cladophora sp)* **D)** *Paspalum repens* **E)** *Eclipta prostrata* **F)** *Cupea carthagenensis* **G)** *Cyperus alternifolius* **H)** *Ludwigia erecta.*

Ecology of predominant species based on Garrett 2002 and Posada García & López Muñoz 2011.

Spirogyra sp: It lives in fresh water, like rivers and streams. Also in stagnant waters, such as puddles and lagoons.
Cladophora sp: They live in both inland and estuarine waters, are observed in ponds, lagoons, backwaters and water courses with pH values above 7.
Lama (*Spirogyra sp* and *Cladophora sp*): Indicator of excess ammonia and eutrophication
Paspalum repens: It inhabits marshes, marshes and stagnant waters.
Eclipta prostrata: Inhabits disturbed and moist open areas
Cupea carthagenensis: It is frequently found on edges of streams and broken streams of disturbed areas
Cyperus alternifolius: Most of them are wet and swampy environments, preferably in fresh waters (ponds, torrents, ponds, ditches, etc.)
Ludwigia erecta: It inhabits disturbed and humid open areas, flooded savannahs and ditches.

In Table 5, we detail the dominance data in terms of percentage for each of the species reported for Site 3, being the most representative *Fontinalis bogotensis*, the algae *Cladophora sp* and *Aeschynomene sensitiva*.

Table 5. Dominance as a percentage for the aquatic flora of site 3: El Mango River – La Arrocera

	Specie	**n**	**%**
Site 3	*Algas Spirogyra*	0	0
	Cupea carthagenensis	0	0
	Eclipta prostrata	0	0
	Heteranthera reniformis	0	0
	Ludwigia erecta	0	0
	Cyperus alternifolius	1	4
	Spirogyra sp and Cladophora sp (lama)	1	4
	Lemna aequinoctialis	2	7
	Paspalum repens	3	11
	Aeschynomene sensitiva (dormilona)	5	18
	Algas Cladophora sp	7	25
	Fontinalis bogotensis	9	32
		28	**100**

The specie *Fontinalis bogotensis* reached the highest percentage with a 32% coverage over the rest of the species, followed by Algae *Cladophora sp* with 25% and later *Aeschynomene sensitiva* (dormilona) with 18% of the total coverage over other species (Figure 16).

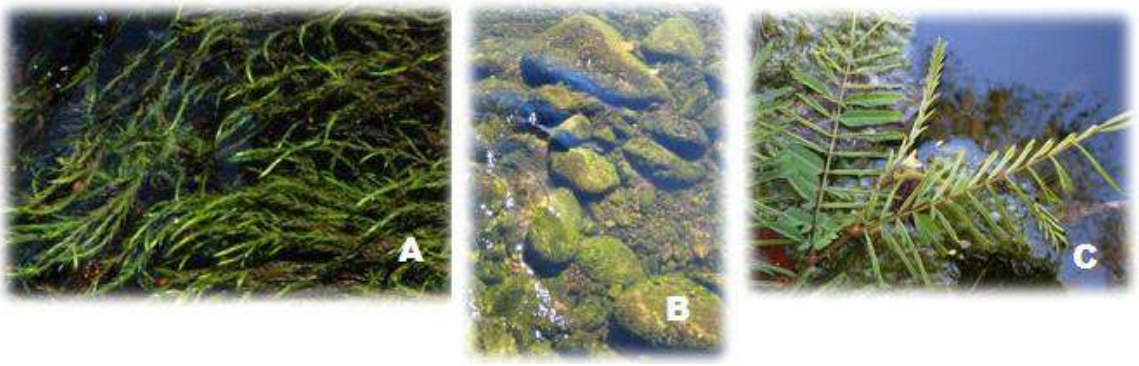


Figure 16. A) *Fontinalis bogotensis* B) *Cladophora sp.* C) *Aeschynomene sensitiva*.

In Table 6, include detailed dominance in percentage terms for each of the species reported for Site 4: Sensunapan River, being the most representative *Lemna aequinoctialis, Fontinalis bogotensis, Paspalum repens* and *Cupea carthagenensis*.

Table 6. Dominance as a percentage for the aquatic flora of the site 4: Sensunapan River

	Specie	**n**	**%**
Site 4	*Aeschynomene sensitiva* (dormilona)	0	0
	Algas Cladophora sp	0	0
	Algas Spirogyra	0	0
	Cyperus alternifolius	0	0
	Eclipta prostrata	0	0
	Heteranthera reniformis	0	0
	Ludwigia erecta	0	0
	Spirogyra sp and Cladophora sp (lama)	0	0
	Cupea carthagenensis	2	17
	Paspalum repens	2	17
	Fontinalis bogotensis	3	25
	Lemna aequinoctialis	5	42
		12	**100**

The specie *Lemna aequinoctialis*, reached the highest percentage of coverage with 42% over the rest of the species, followed by *Fontinalis bogotensis* with 25% and later *Cupea carthagenensis and Paspalum repens* with 17% each. Of the total coverage over the other species, they are shown in Figure 17.



Figure 17. A) *Lemna aequinoctialis* B) *Fontinalis bogotensis* C) *Paspalum repens* D) *Cupea carthagenensis*.

Ecology of predominant species based on Garrett 2002 and Posada García & López Muñoz 2011.
Lemna aequinoctialis: Plants that float freely through canals, ravines, lagoons and ditches.
Fontinalis bogotensis: It grows on rock, either totally submerged or at the interface air water, in oxygenated waters to medium contaminated.
Paspalum repens: It inhabits marshes and standing waters.
Cupea carthagenensis: It is frequently found on edges of streams and broken streams of disturbed areas.

In Table 7, we detail the dominance data in terms of percentage for each of the species reported for Site 5: El Venado River, being the most representative algae *Spirogyra sp and Cladophora sp*, as well as *Aeschynomene sensitiva (dormilona)* and *Paspalum repens*

Table 7. Dominance as a percentage for the aquatic flora of the site 5: El Venado River

	Specie	**Total**	**%**
Site 5	*Cupea carthagenensis*	0	0
	Cyperus alternifolius	2	4
	Fontinalis bogotensis	2	4
	Lemna aequinoctialis	2	4
	Ludwigia erecta	2	4
	Eclipta prostrata	3	6
	Heteranthera reniformis	3	6
	Spirogyra sp and Cladophora sp (lama)	5	10
	Algas Spirogyra	6	12
	Aeschynomene sensitiva (dormilona)	7	14
	Paspalum repens	8	16
	Algas Cladophora sp	10	20
		50	**100**

These algae *Spirogyra sp and Cladophora sp* which also form what is known as lama reached the highest percentage of coverage with a 42% coverage over the rest of the species, followed by Pastures *Paspalum repens* those who obtained the registration of 16% and Aeschynomene sensitive with 12% coverage over the others (Figure 18).

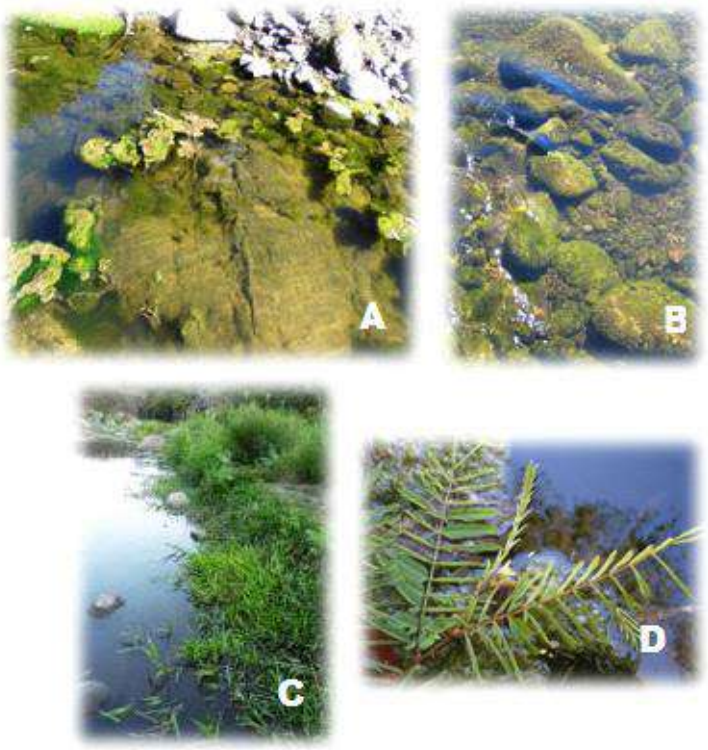


Figure 18. A) *Spirogyra sp* **B)** *Cladophora sp* **C)** *Paspalum repens* **D)** *Aeschynomene sensitiva*.

Ecology of predominant species based on Garrett 2002 and Posada García & López Muñoz 2011.

Spirogyra sp: It lives in fresh water, like rivers and streams. Also in stagnant waters, such as puddles and lagoons.

Cladophora sp: They live in both inland and estuarine waters, are observed in ponds, lagoons, backwaters and water courses with pH values above 7.

Paspalum repens: It inhabits marshes and standing waters.

Aeschynomene sensitiva: Lives on the banks of swampy places.

ESTIMATES OF FISH POPULATIONS

In the different sites sampled from the five rivers of the project's area of influence, there was no greater variability in the number of fish species found, being 32, 20, 69, 3, and 52 respectively, from Site 1 to Site 5. Site 3 presented the largest number of species (6), followed by Site 3 with six species (Table 8).

Table 8. Quantity and percentage value of fish species found at each sampling site in the project's area of influence

Specie	Quantity and percentage value of fish species									
	Site 1		Site 2		Site 3		Site 4		Site 5	
	No	%	No	%	No	%	No	%	No	%
Amphilophus macracanthus (Black Mojarra)	0	0	0	0	1	1	0	0	0	0
Ariopsis guatemalensis (Juilin)	0	0	0	0	0	0	0	0	0	0
Cryptoheros cutteri (Conguito)	0	0	0	0	0	0	0	0	9	17
Poecilia gillii (Olomina)	0	0	1	5	0	0	0	0	2	4
Poeciliopsis pleurospilus (Guatopote)	0	0	10	50	11	16	0	0	16	31
Amatitlania nigrofacsiata (Burrita)	6	19	1	5	22	32	0	0	20	38
Heterandria anzuetoi (Chimbolo)	10	31	8	40	33	48	2	67	3	6
Astyanax aeneus (Silvery)	16	50	0	0	2	3	1	33	2	4
Number of species per site	**3**		**4**		**5**		**2**		**6**	
Total fish sampled per site	**32**		**20**		**69**		**3**		**52**	

Likewise, the total number of fish caught during the sampling was 32, 20, 69, 3 and 52. Corresponding to the sites sampled. At the site 4 Sensunapan River, we found the lowest fish numbers, corresponding to 3 individuals, unlike Sites 3 and 5 corresponding to El Mango River – La Arrocera and the El Venado River presented 69 and 52 fish caught, where the species *Poeciliopsis pleurospilus* (Guatopote) (Figure 19). *Amatitlania nigrofacsiata (Burrita)* (Figure 20). *Heterandria anzuetoi (Chimbolo)* (Figure 21) *and Astyanax aeneus* (Silverly) (Figure 22).



Figure 19. *Poeciliopsis pleurospilus*



Figure 20. *Amatitlania nigrofacsiata*

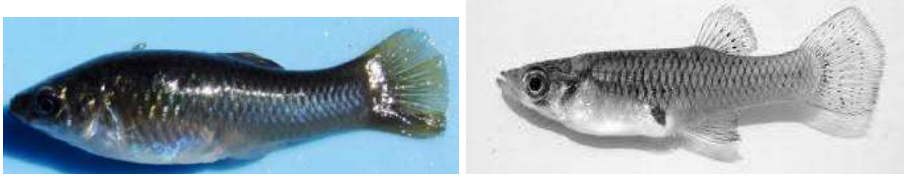


Figure 21. *Heterandria anzuetoi*

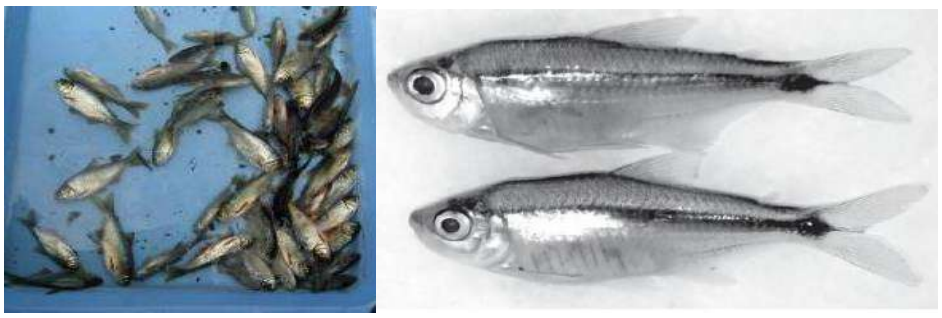


Figure 22. *Astyanax aeneus*

Table 9. Species and families of fish caught from rivers sampled in the sections of influence.

Specie	Family
Ariopsis guatemalensis (juilin)	Ariidae
Astyanax aeneus (silverly)	Characidae
Amatitlania nigrofasciata (burrita)	Cichlidae
Amphilophus macracanthus (black mojarra)	Cichlidae
Cryptoheros cutteri (conguito)	Cichlidae
Heterandria anzuetoi (chimbolo)	Poeciliidae
Poecilia gillii (olomina)	Poeciliidae
Poeciliopsis pleurospilus (Guatopote)	Poeciliidae

These results are reflected in the analysis of the diversity-dominance index of Simpson reflects Site 5 with a greater diversity (0.73) and of course a lower dominance (0.27) (Table 14), en segundo lugar the Site 3 with a fairly large diversity of 0.64 and a dominance of 0.36 (Table 12). Third is site 1 with a diversity of 0.62 and a dominance of 0.38 (Table 10). Fourth, site 2 with a diversity of 0.59 and a dominance of 0.41 (Table 11) and finally in scale of diversity the site 4 with a calculation of diversity of 0.44 and a dominance of 0.56 (Table 13).

Table 10. Simpson DIVERSITY-DOMINANCE Index Calculation for Site 1: Los Ausoles River: Third highest calculation of diversity

Index Calculation Simpson DIVERSITY-DOMINANCE:				
Specie	Total	AB Relative	Simpson	
Amphilophus macracanthus (black mojarra)	0	0	0	
Ariopsis guatemalensis (juilin)	0	0	0	
Cryptoheros cutteri (conguito)	0	0	0	
Poecilia gillii (olomina)	0	0	0	
Poeciliopsis pleurospilus (Guatopote)	0	0	0	
Amatitlania nigrofasciata (burrita)	6	0.1875	0.0351	
Heterandria anzuetoi (chimbolo)	10	0.3125	0.0976	
Astyanax aeneus (silverly)	16	0.5	0.25	
	32	D	**0.38**	**Dominance**
		1-D	**0.62**	**Diversity**

Table 11. Simpson DIVERSITY-DOMINANCE Index Calculation for Site 2: Tepetapa River: Fourth highest calculation of diversity

Index Calculation Simpson DIVERSITY-DOMINANCE				
Specie	Total	AB Relative	Simpson	
Amphilophus macracanthus (black mojarra)	0	0	0	
Ariopsis guatemalensis (juilin)	0	0	0	
Astyanax aeneus (silverly)	0	0	0	
Cryptoheros cutteri (conguito)	0	0	0	
Amatitlania nigrofasciata (burrita)	1	0.05	0.0025	
Poecilia gillii (olomina)	1	0.05	0.0025	
Heterandria anzuetoi (chimbolo)	8	0.4	0.16	
Poeciliopsis pleurospilus (Guatopote)	10	0.5	0.25	
	20	D	**0.41**	**Dominance**
		1-D	**0.59**	**Diversity**

Table 12. Simpson DIVERSITY-DOMINANCE Index Calculation for Site 3: El Mango River – La Arrocera: Second highest calculation of diversity

Index Calculation Simpson DIVERSITY-DOMINANCE				
Specie	Total	AB Relative	Simpson	
Ariopsis guatemalensis (juilin)		0	0	
Poecilia gillii (olomina)		0	0	
Cryptoheros cutteri (conguito)	0	0	0	
Amatitlania nigrofasciata (burrita)	1	0.01449275	0.0002	
Amphilophus macracanthus (black mojarra)	2	0.02898551	0.0008	
Astyanax aeneus (silverly)	11	0.15942029	0.0254	
Poeciliopsis pleurospilus (Guatopote)	22	0.31884058	0.1017	
Heterandria anzuetoi (chimbolo)	33	0.47826087	0.2287	
Total	69	D	**0.36**	**Dominance**
		1-D	**0.64**	**Diversity**

Table 13. Simpson DIVERSITY-DOMINANCE Index Calculation for Site 4: Sensunapan River: The worst record in calculation diversity

Index Calculation Simpson DIVERSITY-DOMINANCE				
Specie	Total	AB Relative	Simpson	
Amatitlania nigrofasciata (burrita)		0	0	
Amphilophus macracanthus (black mojarra)		0	0	
Ariopsis guatemalensis (juilin)		0	0	
Cryptoheros cutteri (conguito)		0	0	
Poecilia gillii (olomina)		0	0	
Poeciliopsis pleurospilus (Guatopote)		0	0	
Astyanax aeneus (silverly)	1	0.3333	0.1111	
Heterandria anzuetoi (chimbolo)	2	0.6667	0.4444	
Total	3	D	**0.56**	**Dominance**
		1-D	**0.44**	**Diversity**

Table 14. Simpson DIVERSITY-DOMINANCE Index Calculation for Site 5: El Venado River: Highest calculation of diversity

Index Calculation Simpson DIVERSITY-DOMINANCE				
Specie	Total	AB Relative	Simpson	
Amphilophus macracanthus (black mojarra)		0.00	0.0000	
Ariopsis guatemalensis (juilin)		0.00	0.0000	
Astyanax aeneus (silverly)	2	0.04	0.0015	
Cryptoheros cutteri (conguito)	2	0.04	0.0015	
Amatitlania nigrofasciata (burrita)	3	0.06	0.0033	
Poecilia gillii (olomina)	9	0.17	0.0300	
Heterandria anzuetoi (chimbolo)	16	0.31	0.0947	
Poeciliopsis pleurospilus (Guatopote)	20	0.38	0.1479	
	52	D	**0.27**	**Dominance**
		1-D	**0.73**	**Diversity**

The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.

The abundance and diversity calculations can be compared in the SHANOON indexes and the SIMPSON DIVERSITY-DOMINANCE Index in Table 15.

Table 15. Comparison between the 5 sampling sites and their abundance values, as well as the calculations for the different indices of diversity and Dominance

Site	1	2	3	4	6
# of individuals	32	20	69	3	52
Simsonp Dominance	0.38	0.41	0.36	0.56	0.27
Simsonp Diversity	0.62	0.59	0.64	0.44	0.73
Shanoon Diversity	1.02	1.01	1.17	0.64	1.20

Bioindicators

The dominant species were used as indicators of the water quality of the rivers sampled, using the work of Guadalupe de la Lanza Espino, Salvador Hernández Pulido and José Luis Carbajal Pérez: Indicators of water quality and pollution (bioindicators).

Poeciliopsis pleurospilus (Guatopote) (figure 19),
Family Poecilidae
It presents the following information:

Characteristics: Fish of tall body and short size. The origin of the dorsal fin is located behind the anal fin. They present sexual dimorphism, in the male the anal fin is transformed into an intromiting organ in the form of a stick or oar; The pectoral and pelvic fins are smaller in females (figure 19).
Coloration: The body is golden yellow in the part of the abdomen, less in a quarter of the caudal peduncle and the ventral part of the head is metallic blue, in the sides they have 6 to 16 spots.
Size: They are small fish that do not exceed 4 cm in total length.
Habitat: These fish are abundant in small streams, clear waters, with little current and depth of 0.5 to one meter, live near the submerged vegetation.
Food Type: Insectivorous

Bioindicator: **Tolerant to high turbidity caused by erosion and to agricultural fertilizers.**

Amatitlania nigrofacsiata (Burrita) (figure 20):
Family:Cichlidae
It presents the following information:

Characteristics: High body small and terminal mouth. Pelvic fins, dorsal and anal pointed at the posterior end, the latter two extend beyond the end of the caudal fin. Short caudal peduncle. Round caudal fin. With 18 to 19 spines and seven to nine spokes in the dorsal fin. The anal fin has nine to 11 spines and six to eight bone spokes (figure 20).
Coloration: Usually six to seven dark vertical bars on the sides; The first bar of the body on the nape, Y-shaped, and the last bar at the base of the caudal fin, the color is lost at the tips of the fins, bright yellow belly with tiny brown spots
Size: The average size reached by these fish is 8 to 9 cm, being the maximum 12 cm.
Habitat: Shallow areas of rivers and their tributaries, in rocky areas with submerged vegetation.
Food Type: Omnivorous

Bioindicator: **Tolerant to contaminants of urban and industrial origin.**

Heterandria anzuetoi (Chimbolo) (figure 21):
Family: Poecilidae
It presents the following information:

Characteristics: Body elongated, somewhat robust, not very compressed, flattened head on back, gonopodium and base of dorsal fin very long, short and broad pectorals, caudal fin, round caudal, high caudal peduncle (figure 21).

Coloration: The body with golden tones, mauve-blue, with spots on the operculum and caudal peduncle; The edges of the scales on the sides, sometimes obscured by metallic tones on the sides of the body.

Size: They are small fish that do not exceed 9 cm in total length.

Habitat: It is a kind of warm fresh water, it lives in lentic and lotic environments, with abundant vegetation submerged to the borders.

Food Type: Insectivorous mainly, but in your diet, may include plants and benthic crustaceans.

Bioindicator: **Tolerant to contaminants of urban and industrial origin.**

Astyanax aeneus (Silverly) (figure 21):
Family: Characidae
It presents the following information:

Characteristics: Fusiform and compressed body, sturdy head, small oblique and non-protráctil mouth, with small teeth, dorsal fin with nine to twelve spokes followed by a fatty adipose. The anal fin with 18 to 23 spokes is longer than the dorsal, the dorsal is bilobed, the pecs are short and are inserted in the lower part of the sides. Body covered by small scales.

Coloration: Body of silver color, in the sides with a dark band that goes from the operculum to the caudal base, dark spot in the caudal base and another in the anterior part of the body (figure 22).

Size: Varies between 6 and 15 cm total length.

Habitat: Freshwater It lives near the surface of the water column of rivers, streams, ponds and ponds, with slow current, rocky and sandy bottom, on banks of vegetation.

Food Type: Omnivorous, while young people prefer plankton, adults are mostly carnivorous.

Bioindicator: **Tolerant. Supports water with high concentrations of heavy metals, urban, agricultural and industrial waste.**

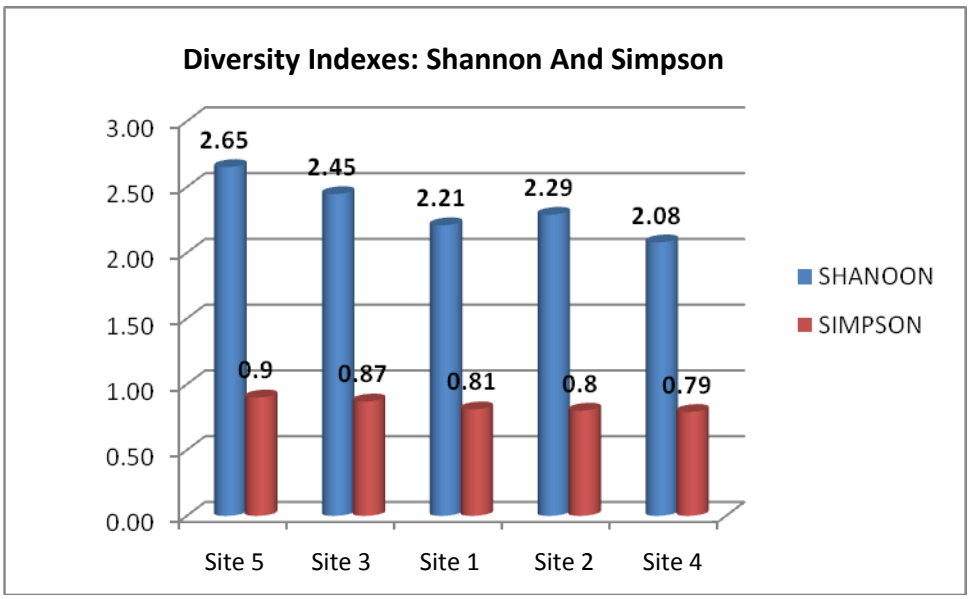
Estimates of aquatic macroinvertebrate populations

To better understand the relationship between diversity at sampling sites Table 16 shows comparisons of results across diversity indexes. As we can see in figure 23, the sites where the greatest diversity calculations were obtained are (Site 5 and 3) (El Venado River and El Mango River – La Arrocera) Also in Figure 23 it is shown that site 4 obtains the poorest values in terms of the diversity of aquatic macroinvertebrates.

Table 16. Determination of Biodiversity Indexes at Sampling Sites

DIVERSITY INDEXES: SHANNON AND SIMPSON						
Indexes	**Site 1**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**Promedio**
SHANOON	2.21	2.29	2.45	2.08	2.65	**2.4**
SIMPSON	0.81	0.8	0.87	0.79	0.9	**0.825**

Shannon H 'Index: The value of the index is normally represented as H "and in natural ecosystems varies between 0 and 6.
The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.



Shannon H 'Index: The value of the index is normally represented as H "and in natural ecosystems varies between 0 and 6.
The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.

Figure 23. Behavior of biodiversity index results for the five sampling sites.

The Site 1 of sampling (Los Ausoles River), Presented a total of 22 families of aquatic macroinvertebrates with a total abundance of 234 individuals dominated by families: Staphylinidae (37.18%), Leptohyphidae (17.52%), Hydropsychidae (11.54%) (Table 19 and 20). Coleoptera of the Staphylinidae family that represent the largest number of individuals (37.18% of the total population) are characterized by three larval stages; Both larvae and adults are mainly insect larvae predators of the Order Diptera and other invertebrates, also reported eating habits including mycophagia, saprophagia and phytophagy (Archangelsky *et al*. 2009). The Staphylinidae family, their sensitivity to water pollution is six (6) on a scale of zero to ten (0-10), therefore they are insects with average tolerance to water contaminated by domestic use, waste Industrial and farming.

Of the total aquatic invertebrates found in the five sampling sites (see Annex 2) and (Table 19), the highest abundance was reported in the **Site 3** (El Mango River – La Arrocera) With 672 individuals (Table 19 and 22), compared to the **Site 2** (Tepetapa River) which recorded the lowest number of individuals reported for the five sampling sites (Table 19 and 21). In the sampling performed in the **Site 3**, the following macroinvertebrate families predominate: Hydropsychidae (27.98%), Gerridae (12.05%), Philopotamidae (10.12%), Leptohyphidae (9.97%), Dryopidae

(8.78%), Baetidae (5.65%), Elmidae (5.51%) Of a total of 24 families of aquatic invertebrates found, compared to (Site 2) Tepetapa River in which aquatic macroinvertebrate families predominate: Dryopidae (40.52%), Coenagrinidae (8.62%), Leptophlebiidae (7.76%), Hebridae (6.90%) Of a total of 23 families with a total abundance of 122 aquatic invertebrate families (Table 19 and 22). The Coleoptera of the Dryopida family (measured 2-5 millimeters long) and had the highest predominance of individuals (40.52% of the total macroinvertebrate population) of the Tepetapa River, which are characterized by organisms that have life cycles ranging from a few months to a couple of years, depending on the species of insect and the temperature of the site where they live.

Drypidae, like the Elmidae, have plastron respiration and feed mainly on algae (Archangelsky *et al*. 2009). Insects of the Dryopidae family have a degree of sensitivity to water contamination of four (4) on a scale of zero to ten (0-10), therefore they are insects that do not tolerate water heavily contaminated by industrial wastes and Farming. In the Tepetapa River the organic contamination is quite substantial, probably because the Site of sampling contained a lot of litter in decomposition coming from the trees that form the gallery forest that surrounds it.

In the **Site 4** of sampling (Sensunapan River), 24 families of aquatic macroinvertebrates were recorded with an abundance of 195 individuals, of which dominate families: Veliidae (36.92%), Caenidae (22.05%), Leptohyphidae (10.77%), Baetidae (7.69%), Coenagrionidae (3.08%) (Table 19 and 23). The most abundant group represented by aquatic bugs in the Veliidae family is characterized by living on the surface of water, floating aquatic plants and algae or on trunks, roots and plants of the banks that hang and penetrate the water. These bedbugs are predators and scavengers that feed on dead or dying insects that get trapped in the surface film of water; In addition, can feed on aquatic insects and microcrustaceans, such as cladocerans, eggs and larvae of mosquitoes, collémbolas, among others (Pacheco Chaves, 2010). The family Veliidae, their sensitivity to water pollution is five (5) on a scale of zero to ten (0-10); therefore, they are insects with average tolerance to water contaminated by domestic use, industrial and agricultural wastes (Sermeño Chicas, *et al*. 2010). In this **Site 4** of sampling, the second group of aquatic macroinvertebrates more abundant, is represented by Ephemeroptera of the Caenidae family that prefer muddy areas and vegetation with little or no water flow. The gender *Caenis* Can withstand a wide range of environmental conditions and live in polluted and eutrophic waters (Flowers, 2010). Insects of the Caenidae family found in the **Site 4** of sampling (Sensunapan River), show sensitivity to water contamination of seven (7) on a scale of zero to ten (0-10), therefore, they are insects that tolerate contaminated water from domestic use, industrial and agricultural wastes (Sermeño Chicas, *et al*. 2010).

The Site 5 of sampling (El Venado River), presented a total of 24 families of aquatic macroinvertebrates with a total abundance of 290 individuals of whom the families dominate: Veliidae (20.00%), Hydropsychidae (15.17%), Calopterygidae (10.69%), Gomphidae (6.55%), Leptophlebiidae (6.55%) (Table 17 and 22).

Table 17. Aquatic macroinvertebrates of the rivers of the area of influence of the project.

Ratings		Places of sampling				
		Site 1	**Site 2**	**Site 3**	**Site 4**	**Site 5**
		Los Ausoles River	Tepetapa River	El Mango River – La Arrocera	Sensunapan River	El Venado River
Total families of aquatic macroinvertebrates		22	23	24	24	24
Total abundance of aquatic macroinvertebrate individuals		234	122	672	195	290
Relative abundance of aquatic macroinvertebrate individuals		0.88	1.05	1	0.95	1
Families of dominant aquatic macroinvertebrates		Staphylinidae (37.18%), Leptohyphidae (17.52%), Hydropsychidae (11.54%)	Dryopidae (40.52%), Coenagrinidae (8.62%), Leptophlebiidae (7.76%), Hebridae (6.90%)	Hydropsychidae (27.98%), Gerridae (12.05%), Philopotamidae (10.12%), Leptohyphidae (9.97%), Dryopidae (8.78%), Baetidae (5.65%), Elmidae (5.51%)	Veliidae (36.92%), Caenidae (22.05%), Leptohyphidae (10.77%), Baetidae (7.69%), Coenagrionidae (3.08%)	Veliidae (20.00%), Hydropsychidae (15.17%), Calopterygidae (10.69%), Gomphidae (6.55%), Leptophlebiidae (6.55%)
Shannon index H '		2.21	2.29	2.45	2.08	2.65
Simpson Index	Dominance	0.19	0.2	0.13	0.21	0.1
	Diversity	0.81	0.8	0.87	0.79	0.9

Shannon H 'Index: The value of the index is normally represented as H "and in natural ecosystems varies between 0 and 6.
The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.

Table 18. Aquatic macroinvertebrates found in the Site 1 Los Ausoles River					
Taxonomic group					
Order	Family	Abundance	AB Relative	Shannon index H ‘	Simpson
Coleoptera	Dryopidae	6	0.0256	0.0939	0.0007
Coleoptera	Elmidae	8	0.0342	0.1154	0.0012
Coleoptera	Staphylinidae	87	0.3718	0.3679	0.1382
Diptera	Chironomidae	6	0.0256	0.0939	0.0007
Ephemeroptera	Leptophlebiidae	8	0.0342	0.1154	0.0012
Ephemeroptera	Leptohyphidae	41	0.1752	0.3052	0.0307
Ephemeroptera	Caenidae	3	0.0128	0.0559	0.0002
Gastropoda	Physidae	1	0.0043	0.0233	0.0000
Hemiptera	Mesoveliidae	3	0.0128	0.0559	0.0002
Hemiptera	Gerridae	1	0.0043	0.0233	0.0000
Hemiptera	Hebridae	6	0.0256	0.0939	0.0007
Hemiptera	Belostomatidae	2	0.0085	0.0407	0.0001
Lepidoptera	Crambidae (Pyralidae)	8	0.0342	0.1154	0.0012
Megaloptera	Corydalidae	9	0.0385	0.1253	0.0015
Odonata	Calopterygidae	2	0.0085	0.0407	0.0001
Odonata	Gomphidae	1	0.0043	0.0233	0.0000
Odonata	Libellulidae	2	0.0085	0.0407	0.0001
Odonata	Coenagrionidae	4	0.0171	0.0696	0.0003
Plecoptera	Perlidae	6	0.0256	0.0939	0.0007
Trichoptera	Calamoceratidae	1	0.0043	0.0233	0.0000
Trichoptera	Hydropsychidae	27	0.1154	0.2492	0.0133
Trichoptera	Philopotamidae	2	0.0085	0.0407	0.0001
	Totals	**234**	**0.88**	**2.21**	**0.19 (Dominance)**
					0.81 (Diversity)

Shannon H ‘Index: The value of the index is normally represented as H “and in natural ecosystems varies between 0 and 6.
The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.

Table 19. Aquatic macroinvertebrates found in the Site 2 Tepetapa River					
Taxonomic group					
Order	Family	Abundance	AB Relative	Shannon index H ‘	Simpson
Blattodea		1	0.0086	0.0410	0.0001
Coleoptera	Dryopidae	47	0.4052	0.3661	0.1642
Coleoptera	Hydroscaphidae	1	0.0086	0.0410	0.0001
Coleoptera	Limnichidae	1	0.0086	0.0410	0.0001
Coleoptera	Scirtidae	1	0.0086	0.0410	0.0001
Coleoptera	Staphylinidae	1	0.0086	0.0410	0.0001
Coleoptera	Dytiscidae	1	0.0086	0.0410	0.0001
Diptera	Tipulidae	3	0.0259	0.0945	0.0007
Diptera	Tabanidae	1	0.0086	0.0410	0.0001
Diptera	Psychodidae	1	0.0086	0.0410	0.0001
Diptera	Chironomidae	2	0.0172	0.0700	0.0003
Ephemeroptera	Leptophlebiidae	9	0.0776	0.1983	0.0060
Hemiptera	Gerridae	3	0.0259	0.0945	0.0007
Hemiptera	Hebridae	8	0.0690	0.1844	0.0048
Hemiptera	Belostomatidae	1	0.0086	0.0410	0.0001
Megaloptera	Corydalidae	2	0.0172	0.0700	0.0003
Odonata	Gomphidae	1	0.0086	0.0410	0.0001
Odonata	Libellulidae	7	0.0603	0.1694	0.0036
Odonata	Coenagrionidae	10	0.0862	0.2113	0.0074
Plecoptera	Perlidae	3	0.0259	0.0945	0.0007
Trichoptera	Calamoceratidae	3	0.0259	0.0945	0.0007
Trichoptera	Hydropsychidae	12	0.1034	0.2347	0.0107
Trichoptera	Philopotamidae	3	0.0259	0.0945	0.0007
	Totals	**122**	**1.05**	**2.39**	**0.20 (Dominance)**
					0.80 (Diversity)

Shannon H ‘Index: The value of the index is normally represented as H “and in natural ecosystems varies between 0 and 6.
The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.

Table 20. Aquatic macroinvertebrates found in the Site 3 El Mango River – La Arrocera					
Taxonomic group					
Order	Family	Abundance	AB Relative	Shannon index H ‘	Simpson
Plecoptera	Perlidae	9	0.0134	0.0578	0.0002
Coleoptera	Dryopidae	59	0.0878	0.2136	0.0077
Coleoptera	Elmidae	37	0.0551	0.1596	0.0030
Coleoptera	Psephenidae	4	0.0060	0.0305	0.0000
Coleoptera	Staphylinidae	2	0.0030	0.0173	0.0000
Diptera	Simuliidae	7	0.0104	0.0475	0.0001
Diptera	Tabanidae	4	0.0060	0.0305	0.0000
Diptera	Chironomidae	12	0.0179	0.0719	0.0003
Ephemeroptera	Leptophlebiidae	14	0.0208	0.0807	0.0004
Ephemeroptera	Baetidae	38	0.0565	0.1624	0.0032
Ephemeroptera	Leptohyphidae	67	0.0997	0.2299	0.0099
Hemiptera	Mesoveliidae	1	0.0015	0.0097	0.0000
Hemiptera	Veliidae	10	0.0149	0.0626	0.0002
Hemiptera	Gerridae	81	0.1205	0.2550	0.0145
Hemiptera	Hebridae	2	0.0030	0.0173	0.0000
Hemiptera	Naucoridae	5	0.0074	0.0365	0.0001
Hemiptera	Belostomatidae	9	0.0134	0.0578	0.0002
Lepidoptera	Crambidae (Pyralidae)	3	0.0045	0.0242	0.0000
Megaloptera	Corydalidae	3	0.0045	0.0242	0.0000
Odonata	Gomphidae	13	0.0193	0.0763	0.0004
Odonata	Libellulidae	16	0.0238	0.0890	0.0006
Odonata	Coenagrionidae	20	0.0298	0.1046	0.0009
Trichoptera	Hydropsychidae	188	0.2798	0.3564	0.0783
Trichoptera	Philopotamidae	68	0.1012	0.2318	0.0102
	Totals	**672**	**1.00**	**2.45**	**0.13 (Dominance)**
					0.87 (Diversity)

Shannon H ‘Index: The value of the index is normally represented as H “and in natural ecosystems varies between 0 and 6.
The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.

Table 21. Aquatic macroinvertebrates found in the Site 4 Sensunapan River					
Taxonomic group					
Order	Family	Abundance	AB Relative	Shannon index H ‘	Simpson
Coleoptera	Dryopidae	1	0.0051	0.0270	0.0000
Coleoptera	Elmidae	1	0.0051	0.0270	0.0000
Coleoptera	Psephenidae	1	0.0051	0.0270	0.0000
Coleoptera	Hydriphilidae	1	0.0051	0.0270	0.0000
Coleoptera	Staphylinidae	1	0.0051	0.0270	0.0000
Diptera	Tabanidae	1	0.0051	0.0270	0.0000
Diptera	Stratiomidae	1	0.0051	0.0270	0.0000
Diptera	Ceratopogonidae	2	0.0103	0.0470	0.0001
Ephemeroptera	Leptophlebiidae	8	0.0410	0.1310	0.0017
Ephemeroptera	Veliidae	72	0.3692	0.3679	0.1363
Ephemeroptera	Baetidae	15	0.0769	0.1973	0.0059
Ephemeroptera	Leptohyphidae	21	0.1077	0.2400	0.0116
Ephemeroptera	Caenidae	43	0.2205	0.3334	0.0486
Hemiptera	Gerridae	2	0.0103	0.0470	0.0001
Hemiptera	Hebridae	1	0.0051	0.0270	0.0000
Hemiptera	Naucoridae	1	0.0051	0.0270	0.0000
Hemiptera	Belostomatidae	1	0.0051	0.0270	0.0000
Odonata	Calopterygidae	2	0.0103	0.0470	0.0001
Odonata	Gomphidae	5	0.0256	0.0939	0.0007
Odonata	Libellulidae	5	0.0256	0.0939	0.0007
Odonata	Coenagrionidae	6	0.0308	0.1071	0.0009
Trichoptera	Calamoceratidae	1	0.0051	0.0270	0.0000
Trichoptera	Hydropsychidae	1	0.0051	0.0270	0.0000
Trichoptera	Philopotamidae	2	0.0103	0.0470	0.0001
	Totals	**195**	**0.95**	**2.08**	**0.21 (Dominance)**
					0.79 (Diversity)

Shannon H ‘Index: The value of the index is normally represented as H “and in natural ecosystems varies between 0 and 6.
The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1.

Table 22. Aquatic macroinvertebrates found in the Site 5 El Venado River					
Taxonomic group					
Order	Family	Abundance	AB Relative	Shannon index H ‘	Simpson
Plecoptera	Perlidae	16	0.0552	0.1599	0.0030
Coleoptera	Elmidae	11	0.0379	0.1241	0.0014
Coleoptera	Psephenidae	2	0.0069	0.0343	0.0000
Coleoptera	Staphylinidae	4	0.0138	0.0591	0.0002
Diptera	Tabanidae	3	0.0103	0.0473	0.0001
Diptera	Stratiomidae	1	0.0034	0.0196	0.0000
Diptera	Chironomidae	12	0.0414	0.1318	0.0017
Ephemeroptera	Leptophlebiidae	19	0.0655	0.1786	0.0043
Ephemeroptera	Baetidae	6	0.0207	0.0802	0.0004
Ephemeroptera	Leptohyphidae	9	0.0310	0.1078	0.0010
Ephemeroptera	Caenidae	8	0.0276	0.0990	0.0008
Gastropoda	Hydrobiidae	1	0.0034	0.0196	0.0000
Hemiptera	Veliidae	58	0.2000	0.3219	0.0400
Hemiptera	Gerridae	3	0.0103	0.0473	0.0001
Hemiptera	Naucoridae	1	0.0034	0.0196	0.0000
Lepidoptera	Crambidae (Pyralidae)	2	0.0069	0.0343	0.0000
Megaloptera	Corydalidae	16	0.0552	0.1599	0.0030
Odonata	Calopterygidae	31	0.1069	0.2390	0.0114
Odonata	Gomphidae	19	0.0655	0.1786	0.0043
Odonata	Libellulidae	5	0.0172	0.0700	0.0003
Odonata	Coenagrionidae	10	0.0345	0.1161	0.0012
Trichoptera	Hydropsychidae	44	0.1517	0.2861	0.0230
Trichoptera	Philopotamidae	8	0.0276	0.0990	0.0008
Trichoptera	Glossosomatidae	1	0.0034	0.0196	0.0000
	Totals	290	1.00	**2.65**	**0.10 (Dominance)**
					0.90 (Diversity)

Shannon H ‘Index: The value of the index is normally represented as H “and in natural ecosystems varies between 0 and 6.
The value of the Simpson index, dominance (D) and diversity (1-D) in natural ecosystems varies between 0 and 1

CONCLUSIONS

Aquatic Flora

Samplings conducted in May and June of 2016 in the rivers: Los Ausoles, Tepetapa, El Mango – La Arrocera, Sensunapan and El Venado. Reported, 11 species between algae and aquatic plants, distributed in 11 families.

In general, the species of plants and / or algae reported as most abundant in sampling conducted in May and June are algae *Spirogyra sp.* and *Cladophora sp.*, Which also form what is known as lama.

During sampling the Chlorophyta: *Spirogyra* and *Cladophora*, Were abundant in areas with high to moderate eutrophication, and can be used as indicators of high organic matter concentration. They were particularly abundant in the Site 1 (Los Ausoles River) with a sampling register of 68% of the total aquatic plants and in the Site 2 (Tepetapa river) with a sampling register of 52% of the total aquatic plants.

Fishes

The five sampling sites in the project area identified 680 individuals from 8 genera and 8 species corresponding to five fish families.

The most abundant fish species were *Poeciliopsis pleurospilus* (guatopote), *Amatitlania nigrofasciata* (burrita), *Heterandria anzuetoy* (chimbolo) and *Astyanax aeneus* (Silverly).

The families of Cichlidae and Poeciliidae fish are reported in the five sampling sites. Both species are tolerant to pollution of urban and industrial type, that is why they were found in greater abundance.

Simpson's Diversity and Dominance Index showed that sites five, three and one are the ones with the highest fish diversity with scores of 0.73, 0.64 and 0.62 respectively. The Simpson Index reflected that sites two and four are the ones with the lowest fish diversity with results of 0.59 and 0.44 respectively.

Macroinvertebrates

The largest number of individuals of the aquatic macroinvertebrates found in the study were the order Ephemeroptera (Baetidae, Leptohyphidae, Leptophlebiidae) Hemiptera (Veliidae, Hebridae,Guerridae) and Odonata (Coenagrionidae).

Regarding the diversity of aquatic macroinvertebrates found in the study. Observing the results of the **table 17**, Which will buy the results obtained among the five sites of sampling, it can be concluded that Site 5 (El Venado River) obtained the largest diversity calculation, in addition, that point 4 (Sensunapan River) obtained the lowest diversity values.

Considering the macro invertebrates as a bioindicator, it is necessary to emphasize the presence of Plecoptera: Perlidae in the Site 3 (El Mango River - La Arrocera) and in the Site 5 (El Venado River), since the members of this family of Aquatic insects are sensitive to changes produced by any effect or change in their habitat and are considered clean water indicators.

General Conclusion

The study is used to create an inventory of the diversity of macroinvertebrates in the lotic systems of the project area establishing an electric transmission line in the stretch comprising the municipalities of Acajutla, Santo Domingo de Guzmán, San Pedro Puxtla, Apaneca And Ahuachapán of the Department of Sonsonate and Ahuachapán, El Salvador. At the same time, it provides very important data on the communities of aquatic flora, macroinvertebrates and fish in these types of systems for a future monitoring of the diversity and quality of the water.

RECOMMENDATIONS

Promote research on the communities of macroinvertebrates and fish to learn more about their diversity, behavior, tolerance and sensitivity, according to levels of pollution and disturbance within the project area.

Carry out longer studies and with a greater effort of sampling to analyze macroinvertebrate and fish communities throughout the year to observe, identify or evaluate behavior and potential causes that could affect or benefit the development of these groups within the area of the project.

Carry out studies in other lentic systems near the project area to observe biodiversity and at the same time use the communities of macroinvertebrates as monitoring tools for environmental quality and benefit from this information to the inhabitants of the area.

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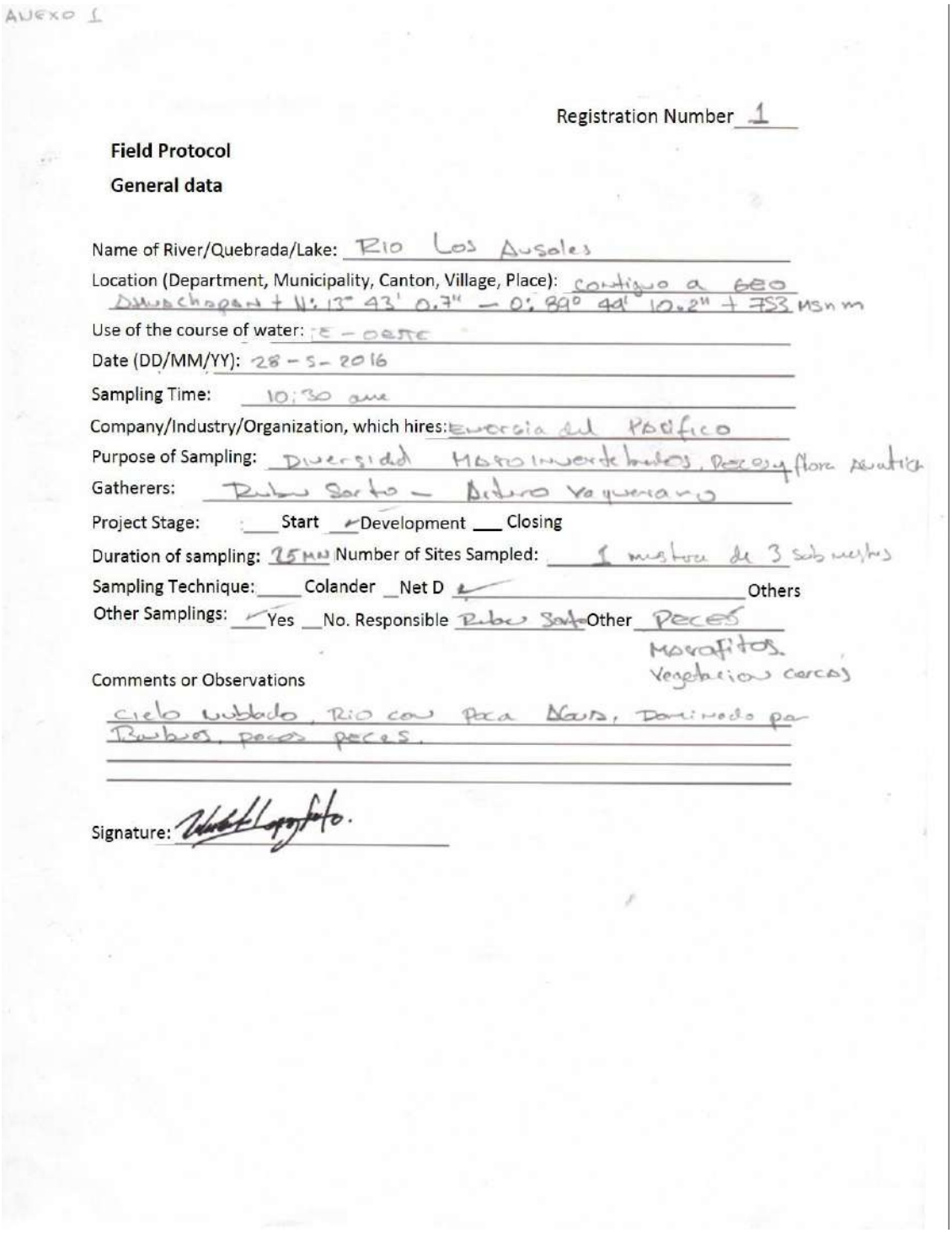
Annex 1. Field protocol for sampled sites.



ANEXO 1

Registration Number 1

Field Protocol

General data

Name of River/Quebrada/Lake: Rio Los Ausoles

Location (Department, Municipality, Canton, Village, Place): contiguo a GEO Ahuachapan + N: 13° 43' 0.7" – O: 89° 44' 10.2" + 753 msnm

Use of the course of water: E – OESTE

Date (DD/MM/YY): 28 – 5 – 2016

Sampling Time: 10:30 am

Company/Industry/Organization, which hires: Energia del Pacifico

Purpose of Sampling: Diversidad Macroinvertebrados, Peces y flora Acuatica

Gatherers: Ruben Sorto – Arturo Vaquerano

Project Stage: ___ Start ✓ Development ___ Closing

Duration of sampling: 25 MN Number of Sites Sampled: 1 mestura de 3 sub mestras

Sampling Technique: ___ Colander ___ Net D ✓ ___ Others

Other Samplings: ✓ Yes ___ No. Responsible Ruben Sorto Other Peces Macrofitos. Vegetacion cercas

Comments or Observations

cielo nublado, Rio con poca Agua, Dominado por Bambus, pocos peces.

Signature: [signature]

Registration Number 2

Field Protocol

General data

Name of River/Quebrada/Lake: Tepetapa

Location (Department, Municipality, Canton, Village, Place): Chinandega, Chinandega
233 MSNM N: 13° 44' 01.2" - O: 87° 47' 40.4

Use of the course of water: orte-este hacia el Sur

Date (DD/MM/YY): 3 - Jun - 2016

Sampling Time: 2:00 pm

Company/Industry/Organization, which hires: Energia del Pacifico

Purpose of Sampling: Diversidad de Peces, flora acuatica y Macroinvertebrados

Gatherers: Rubén Soto y Arturo Vaquerano

Project Stage: ___Start ✓Development ___ Closing

Duration of sampling: 40 Minutos Number of Sites Sampled: 1 muestra de 3 submuestras

Sampling Technique: ___Colander __Net D ✓ ___Others

Other Samplings: ___Yes ✓No. Responsible ___ Other ___

Comments or Observations

Se observan Arboles Altos y buena cobertura Vegetal en los alrededores

Signature: [signature]

Registration Number 3

Field Protocol

General data

Name of River/Quebrada/Lake: El Mango – La Minera

Location (Department, Municipality, Canton, Village, Place): Sonsonate

77 m s/n/m +N 13° 39' 12.8" ; O: 89° 47' 36.2"

Use of the course of water: Este – Sur oeste

Date (DD/MM/YY): 2 de Junio del 2016

Sampling Time: 10:00 am

Company/Industry/Organization, which hires: Energia del pacifico

Purpose of Sampling: Macroinvertebrados – peces y plantas acuaticas

Gatherers: Rubi Sorto y Fortuna Vasquez

Project Stage: ___Start ✓Development ___ Closing

Duration of sampling: 45 min Number of Sites Sampled: 1 muestra de 3 submuestras

Sampling Technique: ___Colander __Net D ✓ Others

Other Samplings: ___Yes ✓No. Responsible _____ Other _____

Comments or Observations

Rodeado por cañales y una porqueriza a los costados.

Signature: [signature]

Registration Number 4

Field Protocol

General data

Name of River/Quebrada/Lake: SENSUNAPAN

Location (Department, Municipality, Canton, Village, Place): Sonsonate

73 msnm

Use of the course of water: Norte – Sur

Date (DD/MM/YY): 2 de junio 2016

Sampling Time: 2:00 PM

Company/Industry/Organization, which hires: Energia del pacifico

Purpose of Sampling: Diversidad de flora – Macroinvertebrados peces

Gatherers: Rubén Soto y Arturo Valverde

Project Stage: ___ Start ___ Development ___ Closing

Duration of sampling: 1:00 Hours Number of Sites Sampled: 1 muestra de 3 submuestras

Sampling Technique: ___ Colander ___ Net D ___ Others

Other Samplings: ___ Yes ___ No. Responsible ___ Other ___

Comments or Observations

Ubicado en un cañon profundo y se observa mucha contaminacion de tipo Urbano y Mal olor. Rodeado de cañales y cultivos de Maiz.

Signature:

Registration Number 5

Field Protocol

General data

Name of River/Quebrada/Lake: El Venado

Location (Department, Municipality, Canton, Village, Place): Sonsonate
58 msnm N:13° 36' 04.2" ; O: 89° 47' 51.2"

Use of the course of water: orte - este - Sur

Date (DD/MM/YY): 3 de junio

Sampling Time: 10:30 am

Company/Industry/Organization, which hires: Energia del pacifico

Purpose of Sampling: Macroinvertebrados - peces y flora acuatica

Gatherers: Ruben Sarto y Arturo Vaquerano

Project Stage: ___ Start ✓ Development ___ Closing

Duration of sampling: 1:00 Hora Number of Sites Sampled: 1 muestra de 3 submuestras

Sampling Technique: ___ Colander ✓ Net D ___ Others

Other Samplings: ___ Yes ✓ No. Responsible ___ Other ___

Comments or Observations

Diversidad de flora acuatica y frutales.

Signature: [signature]

Annex 2. Stereoscopic photographs showing the diversity of macroinvertebrates in the project rivers

Trichoptera: Hydropsychidae



Plecoptera:Perlidae



Diptera: Chironomidae



Ephemeroptera: Leptophlebiidae



Odonata: Coenagrionidae



Hemiptera: Vellidae



Hemiptera: Belostomatidae



Hemiptera: Guerridae



Diptera: Psichodidae



Trichoptera: Hydropsychidae



Coleoptera: Dytiscidae

Appendix E - Minutes Focus Groups and Key Informant Interviews

EDP. BASIC LINE INTERVIEWS

Gerardo Rivas
CAPITAL NATURAL

KEY ACTOR SHEET IN THE AREA OF THE COMMUNITY CANTÓN LAS TABLAS, SONSONATE

N°	Name	Institution	Occupation	Position	Phone number	E-mail
1	Lic. Jaqueline E. Pastore	Sonsonate's Town Hall	Social worker.	Social Projection Chief. Community development.	24693146 78669552	jaquelinepastore@hotmail.com
2	Cristina García	Sonsonate's Town Hall	Councilor	Councilor	78630516	
3	Manuel de Jesús	El Cafetal School	Teacher	Principal	79678339	
4	Estela Maritza	Community leader (president)	Housewife	Head of Health Unit	71288137	
5	Noé Genovéz	Iglesia de Dios El Cafetal	Pastor	Pastor	72452649	gomez7@hotmail.com
6	Lic. José Roberto Jovel	Sonsonate's Town Hall	Administration	Administrative Manager	24693135	jrjovel@hotmail.com
7	Lic. Joaquín Cerna	Sonsonate's Town Hall	Administration	Auditor	24693135 74500373	juaquincerna@yahoo.com

1. Key informant guide for education in “Las Tablas” community	
Criteria	**Development / interview**
Amount of schools in the community and levels being attended.	There are 4 schools in “Las Tablas” community: Las Tablas, which attends kids between elementary and ninth grade; Agua Escondida, which attends up to sixth grade; Mote Rico and El Cafetal which attends kids up to sixth grade. In the case of El Cafetal and Las Tablas, the kids take about 45 minutes to get to school.
About the quality of education being proportioned in the community.	The quality of education given in this community is deficient, since the majority of the kids, in their family, choose to work in the field or migrate to other places in the country or abroad, causing dropout in schools. Another problem that schools face is that they have to attend two grades with one teacher at the same time. Only in Monte Rico there are separated classes. At the moment, no actions have been planned to solve this problem.
Levels of education en in the adult population of the community.	The levels of education that are observed in the adult population of the community oscillate between sixth and ninth grade; even when there are offered in the different schools of the community from first grade to high school.
School dropout index and changes in recent years.	The estimated dropout rate is 20% of the school population. The index in other years were higher, but today with the healthy school’s plan, where children are given refreshment and fortifying drinks, the rates of dropout have lowered a bit. The most common age of children at dropout is 12, when they are in the sixth grade. The most likely to leave school are those students who live farther away and who have to walk 45 minutes daily. There is also the pressure of work in the field and the crime that makes them recruiting targets to be part of gangs.
The qualified preparation of the members of	In the community, there is no qualified labor force or people prepared in any branch or

the community or the lack of these opportunities.	profession, what exists is a specific preparation in the job of the inhabitant of the community, that is, agricultural work and raising livestock. There are situations in the people of the community, such as the low level of education, which does not allow them access to decent jobs. It was expressed that: The areas that would have to be developed to improve the academic quality of the inhabitant of the community are those which are attached to the reality of the community like technification of agriculture and cattle raising. The teachers who attend the community in the different schools of this community think that more importance is given to the work of the field than to formal education.
The impact of the project on education and employment in the community.	It is believed that this type of projects could benefit the area, offering better jobs and opportunities, boosting the local economy.

RESULTS

2. Key informant guide for tourism in "Las Tablas" community	
Criteria	**Development / interview**
Type of tourism in the area	"Las Tablas" community hasn't developed the tourism industry.
The attractive destinations and main attractions in this community.	The only touristic attractions they can point out are visits to the rivers and the famous dam.
Times of greater activity for tourism.	None
Development or change in the sector in recent years.	None
Tourism development is a top priority for the community.	"Las Tablas" community hasn't considered this type of development, nor the municipality has considered this industry for the area.
Percentage of the community involved in tourism activities.	None
Other industries affected by tourism in the community	None
How much the project could affect tourism in this area.	None

3. Key informant guide in agriculture at “Las Tablas” community.	
Criteria	**Development / interview**
Type of agriculture practiced in the community	In “Las Tablas” community the most common type of agriculture developed for maize and bean sowing is rainfed. Of these two, maize is the most exploited agricultural product. Another is the planting of vegetables, which will depend on the rainy seasons in the area. On the other hand, the second activity is the raising of cattle.
Percentage of participation in this activity in the community.	The percentage of people involved in agricultural activities in the community is 70% for maize and bean sowing and 30% for livestock raising. Of the maize and bean sowing activity, 2% of the female population participates in it. On the other hand, there is an ALBA food processing factory that has been established recently in the area and has recruited part of the population. In the last three years, cattle ranching has decreased its activity due to the crime, extortions and thefts by criminal groups of the area, causing the owners of livestock to sell their cattle and lower their production. On the other hand, the planting of maize and beans remains unchanged.
Percentage of domestic consumption and how much for sale.	People who grow an acre or more, have their barns where they store the crop; And in a certain season of the year (as in May), they sell it in the Sonsonate market, recovering their investment and reinvesting it again in the same activity. The sale is almost every day but varies in the products being offered, which is determined by the season in which it is grown.
Primary water sources used in livestock.	The sources used by cattlemen to feed their cattle are droughts and river; A specific place that distributes this vital liquid is the so-called "La Presa" (the dam) that fills it all year, for this is the reason why there has never been water shortages in the area for this activity.
The problems facing the sector.	The problems they face in the livestock area are the common delinquency, the extortions and the robbery of cattle. In the area of planting are the droughts for those plots that are not close to the rivers, since many of the farmers do not have irrigation systems. Another problem is the acquisition of fertilizers.
Trade-level agriculture, its main crop and size of operation.	As of agriculture at the commercial level in the area we can mention the case of a food processing factory which belongs to the company ALBA, whose operations are large scale. In this factory, they process chicken and pork, where it is said that the pig is raised there and the chicken is brought from another place and processed in the factory. On the other hand, the products harvested by the farmers in “Las Tablas” are not equivalent to a large commercial operation, since they are quantities produced are sold in the central market of Sonsonate the same day they are brought and another percentage is consumed in the community.
Coffee growing. Crops of more importance, periods, harvest, labor, community	In the community "Las Tablas" coffee is not grown. The most important crops in the community are maize, maicillo, beans and some vegetables.

involvement, sector problems, etc.	Maize is the main crop. They sow in periods between October and November and the periods of rains of May. Beans are grown at the same time immediately after the maize harvest. The labor used in these crops is the same community because the plots are their own or their families.

4. Key informant guide in transportation at "Las Tablas" community.	
Criteria	**Development / interview**
Areas of travel or displacement between the inhabitants of the area and the reasons for such travel.	There is only one access to the community, they move daily and frequently to the deviation of Santa Emilia from where it can take the road way towards Sonsonate, towards Acajutla or other places like the border of the Hachadura. The main reasons why they do it is to do shopping in Sonsonate, family visits, commerce, rest or recreation.
Most common means of transportation	There is only one public transport (bus) that offers the services with specific schedules 6 am, 11 am and 4 pm. Other means used are: bicycle, car, truck and horse.
Times of the year where it is not possible to use some types of transport.	In winter times when the roads get muddy it is impossible to use the bicycle.
Access points: the most used and their quality	It has unpaved roads and trails. These access points are very used, the quality in some is good, but not in those in which the weedy or rough terrain makes impossible the fluid transport or a convenient way. In the rainy season, they are unusable because they get muddy or flooded by rain.
Principal causes of accidents	Accidents in these access points are very few or none, these can happen by tree falls, stagnation in mud, livestock breeding or other animals. There are no plans or programs to solve these problems as they are not common.
Industrial development in the area that affects transport / road conditions.	There is the food processing factory, but there's no perception that this affects the transport or road conditions. There are no industrial roads that particularly affect them. There is no industrial nor tourist vehicle traffic in the area.

5. Key informant guide for the police / security in “Las Tablas” community.	
Criteria	**Development / interview**
Security in the community	The Rural Police is responsible for maintaining security in the community. But they do not offer a continuous patrol, in fact, members of the community complain about it, because they are only seen from time to time in certain areas of the community. There is only one police post in the area which is near “Las Tablas” school.
The most relevant safety aspects in the community.	Trends in crime rates remain unchanged. The types of crimes that are manifested are: murders, common delinquency, theft of cattle and gang extorting. People are dissatisfied with the lack of daily surveillance.
Issues of greatest concern	Extortions are a common issue, as they occur more frequently, for example in livestock, the case of 2015 (previous comment) and a murder of a communal leader in the same period.
Traffic accidents	In “Las Tablas” community, traffic accidents are not common.
The influence of the project on security issues.	It is thought that the influence of the project in the security of the area would have no greater impact, but that one that has to do with the security of the electric line and the area where the towers are located. The security that the company must have with its personnel when working in these rural areas, since it is not excluded that they can be the object of threats or extortions by criminal groups such as the gangs.

6. Key informant guide for Religion / beliefs in “Las Tablas” community.	
Criteria	**Development / interview**
The mission of the organization, services provided by the organization and who they attend.	The mission of the religious organization "Church of God" in Las Tablas is to win people for Christ to become His disciples. The services they provide to the community are: spiritual care to the community and in the social area: Activities of visit to people house by house, where you can observe the need of the people when visiting them. If this person presents a need for different reasons, the help is provided as: roof, cleaning of the housing area, etc. When there are necessities of food, clothing, footwear or medicine, they provide by making community recollection in the church.
Main religious institutions in the area.	The area is attended by 70% by evangelical Pentecostal churches; Being the following churches with the remaining 30% among: Catholics, Jehovah's Witnesses and Mormons. They meet on Mondays in two zones: East (La Quebradona) and West in (El Cafetal). There are small cells for spiritual growth in each area.
Religious events in the community	Since the evangelical church is the most prevalent in the area, the activities they carry out are preaching campaigns. With respect to the small growth groups that are made; At the end of the process there are general activities with all the cells (small groups) of the east and west areas respectively.
Places of special importance to the community.	It is considered that for this type of church the whole area or community acquires importance and the challenge is to reach 100% of the community.
Relations between religious institutions or churches (tensions, disagreements between groups).	There is no tension or disagreements between groups or churches in the area, but they are kind to each other, having found the same purpose, which is the conquest of people for God. "Sometimes there are certain disagreements about doctrines, ways of living the word of God and some day-to-day daily practices, that is where the marginalization begins, even between churches of the same denomination, but that depends on the doctrinal formation of each one and education, in general there are no problems that do not pass from a common discussion".
Changes in the religious aspects of the community in recent years.	In this church, if there have been changes, it is the way to organize the formation of parishioners, for example: the strategy of cellular system, which consists of working in small groups compared to growing cells or on the other hand the white fields; Of the latter the difference is that they are large groups of 30 or 40 people, while small groups of 10 to 15 people (cells), to reach this number, begins to divide the group to multiply and propagate the word of God. These changes are noticeable now, since before they were only campaigns after campaigns (preaching events that last about a week, where preachers are invited) or united cults, that in the end wearing the people and can not measure the effectiveness of the conversion of the people, different thing is the cellular strategy where if There is greater control in this aspect before said. This type of work has generated a lot of leadership in the churches, which in turn act in their

	area or place of residence. It's aimed to the emerging generation as children and young people, which is where crime is attacking more and the vices are presented as an attraction for them. On the other hand, this way of working has also encouraged them to seek other means of propagating the word of God. They are already managing or approaching with an organization that has offered a community radio that would cover a radius of 3 km.
Unsatisfied religious and spiritual needs of the community.	There is always a need to be covered, for example: a health and entertainment campaign is scheduled this month (may 2016) in coordination with a foreign ministry that sought us out.

7. Key informant guide of Infrastructure and Public Services in “Las Tablas” community.	
Criteria	**Development / interview**
Public infrastructure and service of the NGO.	All infrastructure and public service is managed and provided to the community by the town hall of Sonsonate.
On the systems of potable water, sanitation, electricity.	“Las Tablas” community has a water system that sorts by means of “cantareras”, situated in specific areas.
The existing infrastructure in the community.	There are no paved roads except for two sections or sections that are next to the El Cafetal and Las Tablas schools. There are no paved drainage channels, nor sewerage. There is public lighting with power lines for the houses that the town hall subsidizes. There are no recreational areas such as parks or public spaces for this purpose. There is a public transport that provides service with very long schedules between the day and a cellular network system whose providers are: Claro, Movistar, Digicel and Tigo. The maintenance of these few services is in charge of the municipality of Sonsonate.
Areas that are not covered by water services.	There is no drinking water system in the community, the water supply for the whole community is made through the manual pumps called by them "cantareras" that are located in certain sectors of the community and made by an organization called Aguas Vivas. However, there are many families who have their own wells and this water is usually used to irrigate, wash, bathe, etc. And drinking water comes from these "cantareras" pumps because they are said to be less contaminated and less harmful to health. The municipality provides maintenance to the entire network of neighborhood roads and trails, subsidizes and maintains electric lighting.
Main water sources in the community.	The sources of water in this community are underground systems that supply water by means of these methods mentioned above.
Changes in access and public services in recent years.	With this water system, the health of the population has improved a little because it is said that the depth of where this water is taken is greater than their house wells. There has not been investing in public services in this community. Some challenges facing the community are: the coordination between local government and the community to manage new projects.
Priorities in the community on infrastructure development in the near future.	There are priorities such as the paving of streets, the drinking water system and the sewer system. But there are still no plans to address these needs because they are costly projects that involve efforts with donors who already have defined their areas to help.

Comentado [GR1]:



8. Key informant guide on genre issues in “Las Tablas” community.	
Criteria	**Development / interview**
The role of the organization	There is no non-governmental organization that deals with this issue in the area or community tables, rather it is the Town Hall of Sonsonate that takes these initiatives for women through the office of community development.
Challenges faced by women in this community.	The main challenges faced by women in this community are two: The first one is male chauvinism expressed in academic levels. The second challenge is the violence that comes from the widespread delinquency that is happening in the country. These phenomena are not alien to other communities. All this is recognized by the local government and approached by the community development office. It is believed that all this is the cause of bad education on these issues and the lack of awareness on the side of the community. The consequences of these problems is the discrimination of women in these fields; young women do not finish high school and have no aspirations for a higher academic study; many opt to work in the field or become housewives at an early age. Violence against women is seen at the intrafamily level and in the case of young women, the harassment by criminals such as gang members.
Existing programs to address these challenges for women.	he programs that are planned from the social projection office for this sector are mechanisms that were implemented to ensure the rights of women, this has changed the participation of women in the directions of Adesco (Association of Community Development: Organization in community directives with legal status), empowerment training where they have been shown "the option of learning to decide for herself and saying what they want" where it has integrated men in these trainings for them to realize the importance women’s participation and is organized so that she watches with him after his home and their children. Other programs that have been done are those that are aimed at acquiring a skill such as: bakery workshops, florist, making piñatas, etc. All this so that they learn to do their things and have their own income. One of these workshops is located in the Cafetal area, where women work collectively (some do it and others go out to sell).

Comentado [GR2]: Asociación de desarrollo comunal. Organización en directivas comunales o comunitarias con personaría jurídica

Perception of the situation of women in the community.	The community perceives this situation very well because it is a benefit that is impacting their community. In recent years, the negative perception of the participation of women in communal subjects has been lowered, it still remains a certain level of male chauvinism but it is being overcome little by little. With regard to equality between young people in any field, they consider that it is not the same and that efforts to overcome this issue are lacking. Example of this is: the problem that occurred with a young woman who was studying a baccalaureate in health in Sonsonate, became pregnant and the director of the school didn't want her to continue studying. She was accompanied in her rights process, she was not discriminated and continued with her studies.

9. Key informant guide for health in “Las Tablas” community.	
Criteria	**Development / interview**
Years in which medicine has been practiced in this community.	In “Las Tablas” community there is only one health clinic that is attended by a health promoter who comes every month, but to this date there have been almost 8 months without visit to the clinic. It is usually the neighbors of the clinic who are in charge of taking care of this health center. This place has more than 12 years of being in the community.
Communities that care, the distances that patients have to walk and communities from where patients come.	The clinic in its normal functions should attend approximately 100 people daily. Since the community is very large and from the furthest point, as the area of Monte Rico, to the clinic the walking time is 45 minutes, using the neighbor roads. The areas that this clinic serves to are: Las Tablas, Monte Rico, El Cafetal y Agua Escondida.
Most common health issues in the community	The most common health problems are: diarrheal diseases, stomach problems, respiratory diseases, malnutrition, malnutrition, complications of childbirth, skin infections, work-related injuries such as: injuries from agricultural labor instruments. In recent years, cases of viral diseases such as: chikungunya and zika have increased. The variations of the diseases depend on the seasons of the year, in summer it presents more the diseases of the skin and winter presents the stomach and respiratory problems.
Factors that influence or increase the risks of poor health in the community.	Among the factors that influence health risks are: water quality, poor dietary orientation, malnutrition, lack of access to health services, which in the opinion of the actors involved in the interview, a solution is urgent, as this limits the economy and stability of families and the community. Another risk factor is the violence, which has caused the migration of some people to safeguard their life deteriorating their mental health; lack of sanitation; the conditions of the roads and accesses that cause a lack a good service and in any some cases cause late arrival to the Health Unit of Sonsonate or other hospitals in the department’s capital; The environmental pollution referring to the less deep aquifers of which the population has access through the wells and the burning of cane that produces smoke that pollutes the air. All of these are determining factors that influence the health of the community. The most susceptible or vulnerable to health problems in the community are the children and the elderly because, due to the age and metabolism of their age, they can present delicate cases of previously mentioned diseases. The most common sources of nutrition in the inhabitants of the canton are those that can be taken from the harvest such as beans, tortilla, milk and coffee. The consumption of artificial products, such as coke, refreshment with dyes and chips is not ruled out. The health risk factors in the “Las Tablas” community have changed in the last 9 years, as new diseases and viruses that tolerate antibiotics are observed.

Natural disasters that have affected the community in recent years.	There have been only a few river floods, which represent only minor problems such as delays in work or school arrivals. But it is considered that in case of an earthquake, the community is not prepared because there are no plans to prevent these phenomena.
Primary access points to receive medical care in the community.	The primary point of attention is the clinic, but it has not been functioning for 8 months and the members of the community can only take care of the infrastructure, but it can not be used because it is in deplorable conditions and there is no medicine store. For this reason, the inhabitants have to pay a vehicle to take them to the department's capital to go to a hospital or health unit and opt for natural medicines or interventions with high risk of acquiring an infection.
Changes in the quality of life in the community in the last five years.	No change has been noticed, but it has been decreasing in the last year. It is expressed that the reactivation of the health clinic is urgently needed, that health days are needed, training of community promoters with community leaders, more clinics in the community because it is a very large area and continues to expand, visits of the health promoter at least twice a month.
Community concerns about potential health or safety impacts related to the canal project.	There are some questions about the type of laying that will be placed, the ways of maintenance and the security that will be put around these towers because they know that it is a transmission of thousands of volts and that could bring some problems if there's no security in those towers.
Use of traditional medicine in the community.	Because of the need to solve the problem of absence of promoters or health assistants; The population always appeals to traditional natural medicines as the use of plant such as: chichipinse, that serves for wounds and stomach problems; izote used for cough and pregnancy; Hulls of morro and flowers of chula for the throat; Lemon tea for birth pangs and others; Aloe for different occupations: wounds, hair and stomach; Leaves of narcissus flower as antimycotic for the feet.

Transmission Line Project

Energia del Pacifico

DRP

DATE	NAME	INSTITUTION	POSITION	TELEPHONES	E-MAIL	ADDRESS	SIGNATURE	SEAL
23/5/16	Angelica Lopez de Dimas	Alcaldia Mpal Acajutla UMM	colaboradora UMM.	2452-3541		CMP.		
23/5/16	Vilma Noemy Santos	alcaldia Mpal de acajutla	coordinadora UMM	77464776 78061025	noemyjo9@hotmail.com	CMPV B° las peñas		
25/5/16	Vilma Noemy Santos coordinadora	Silvia Martinez Psicologa	Psicologa UMM	24523541	silviarosales77@live.com	CMPV		
26/6/16	Maria Eugenia Araujo de Menjivar	Unidad Municipal de Turismo y Cultura	Gestor	76254334	eugeniaarujo@gmail.com	alcaldia	Margarita	
26/6/16	Yolanda del Carmen Carleto Madrid	Unidad Municipal de Turismo y Cultura	Gestor	7048-5377 2429-7324	uturismo.acajutla@gmail.com	Alcaldia		
26/6/16	Sandra Elizabeth Abarca Rivera	Unidad Municipal de Turismo y Cultura.	Gestor	76111241	riverasandra671@gmail.com.	Alcaldia		
26/6/16	Lic Carlos Antonio Toba	Jefe de unidad.	Jefe.	77446498	uturismo.acajutla@gmail.com	Llamada telefonica no se encontraba -	Llamada	

Transmission Line Project

Energia del Pacifico

DRP

DATE	NAME	INSTITUTION	POSITION	TELEPHONES	E-MAIL	ADDRESS	SIGNATURE	SEAL
26/6/2016	Sra. Amelia Cruz.	Alcaldia de Acajutla. Proyeccion Social.	Promotora zona 4	Oficina 2429-7312 cel. 7603-6162	ProyeccionSocial503@hotmail.es	Alcaldia Acajutla		
26/6/2016								

Key Informant Guide Tourism. - Lic. Jaqueline E. Pastore. Head of Social Projection and Community development, Town Hall of Sonsonate.

1. Please describe the type of tourists who come to this area.
Tourism has not developed in the area.
¿How many tourists visit each year? Has this number changed in recent years?
   - What is the percentage of foreigners in relation to domestic tourism?
   - Whence are foreign tourists? What are the countries of origin?
   - How long do they usually stay (estimates duration of visit)?
   - Has this profile changed in recent years?

2. What are the main destinations and attractions in this community for tourists?
The unique attractions they can distinguish are visits to the rivers and the famous dam.
   - Has it changed in recent years? In which way (s) and for which reasons
   - Are there enough services and hotels, in number and quality to meet the demand?

3. What are the high seasons for tourism? There is no tourist activity
   - What determines the periods of greater and lesser activity? (eg. cultural festivals, s natural phenomenon, holidays, and vacations etc.)

4. How has tourism developed or changed in the community in recent years? (i.e. has progressed, is the same, has deteriorated). Please elaborate.

5. Is the development of the tourism industry a top priority in the community?
The community of canton Las Tablas has not thought about this development nor the municipality has considered the industry for this area.
   - What is the vision for the next 5-10 years? (Please ask and development plans for the sector or other relevant documents) There are none
   - What are the biggest challenges and priorities s planning?
   - Are there current threats to the tourism sector in your community?
   - What are the resources, capabilities that you consider necessary to overcome these threats / follow priorities?

6. What percentage of the community is involved in tourism activities?
There is none
   - Are there demographic groups more involved in these activities?
   - To what extent and capabilities do women participate?
   - How has it changed in the past years?

7. How much of the other industries are dependent or affected by tourism in your community? (i.e., cattle, coffee, construction, vendors etc.)

There is no problem

8. How do you anticipate that the project could affect tourism in this area?

Would not affect



Key Informant Guide on Tourism -Lic. Carlos Antonio Tobar – Head of Tourism Unit – Acajutla's Town Hall

1. Please describe the type of tourists coming to this area.
   - How many tourists visit each year? Has this number changed in recent years? *Approximately 160,000 tourists visit the municipality in a year (comparative table annex, taking as a reference the Easter season. For the other 2 seasons: August Holidays – Christmas and New Year's Eve, are considered on average 30,000 tourists per season on average).*
   - What is the percentage of foreigners in relation to national tourism? *5% and they do tourism directly in hotels of the area (Decameron Hotel in Acajutla, Villa Esmeralda Hotel in Metalio and Hotel Villaje in Los Cobanos).*
   - Where are the foreigner from? Which is their country of origin? *United States and Central America.*
   - How much time do they stay (Estimate the duration of their visit)? *One week average, maximum a 15 day stay.*
   - Has this profile changed in recent years? *No, it remains the same.*

2. What are the main destinations and attractions in this community for tourists? *The main destinations are beaches, restaurants and hotels in the area.*
   - Has this changed in recent years? How and why? *It hasn't changed, the destinations remain the same because there are no new investments.*
   - Are there enough services and hotels, in number and quality, to satisfy the demand? *It's not enough, more investment is needed in the area to attract more tourists.*

3. What are the tourism high seasons?
   - What determines high and low seasons? *Easter, August holidays (Patron saint holidays in the capital), Christmas and New Year's Eve, and some local activities that generate tourism. (Family Festival, Pueblos Vivos Contest, Gina Festival y crab marathon, modern dance festivals and romantic night under the moon). Statistic data by season is annexed.*

4. How has the touristic sector in the community developed or changed n recent years? *The sector has progressed, with the organization of tourism committees, whose purpose is to promote it and to work together with restaurant owners, artisans, artists, institutions and members of the community to join in the effort.*

5. Is the development of the tourism industry considered a top priority in the community? *Yes, it's a priority, because it is considered a source of economic development for the sector that is located in the areas where tourism is done.*
   - What's the vision for the next 5-10 years?

In the Municipal Participative Strategic Plan, several activities are planned to be developed in the next few years, one of the main ones being the construction of a seawall in the area of Barrio La Playa.

- What are the biggest planning challenges and priorities? *Obtaining funds and people to cooperates and support these projections.*
- Are there any current threats to the tourism sector in your community? *No*
- What resources do you consider necessary to overcome these threats / follow the priorities?

6. What percentage of the community participates in tourism activities? *80% of the population participates.*
    - Are there demographic groups that are more involved in these activities? *No*
    - To what extent and capacity do women participate? *They participate actively, as providers of products or services, women are an important pillar for the development of these activities. In addition, women are leading the tourist organizations. (Codetour, Metatour, Ecotour)*
    - How has it changed in the last few years? *There is greater involvement of the female sector.*
7. How much of the other industries depend on or are affected by tourism in your community? *Only sellers are directly affected when there is no influx of tourists.*
8. How do you anticipate that the Project could affect tourism in this area? *At the moment, it is not considered an affectation, on the contrary, we hope that the company can support the activities that drive tourism in the municipality.*

Key Informant Guide on Transportation. - Lic. Jaqueline E. Pastore. Head of Social Projection. Communal Development.

1. What are the most common areas of travel or commuting among the inhabitants of this area? (Market, school, visit family, goods and services and / or rest, enjoy free time)
   There is only one access to the canton, they move daily and frequently to the deviation of Santa Emilia from where it can take way towards the head (Sonsonate) or towards Acajutla or other places like the border of La Hachadura.
   What is the frequency and the main reasons for the displacement?
   The main reasons why they do it are to make purchases in Sonsonate, family visits, commerce, rest or recreation.

2. What are the common methods of transportation?
   There is only one public transport (bus of line) that offers the services with specific schedules 6 am, 11 am and 4 pm.
   Other means used are: bicycle, car, truck and horse.

   Are there times of the year when it is not possible to use some types of transportation? Please specify: In winter times when the roads get muddy it is impossible to use the bicycle.

3. There are access points for:

   • Paved road
   • Unpaved road
   • Road / Path
   • River

   Are access points widely used? Yes

   What is the quality of access points? This access points are very used, where the quality in some is good

   Are they safe to travel? Yes, they are dangerous, why?

   Are there times of the year when they are unusable or unsafe? More in those where the weeds or rough terrain makes it impossible to transport fluid or the convenient way

   Are there roads, intersections, etc. in the area considered to be hazardous areas for traffic accidents? In the rainy season they are unusable because they get muddy or flooded by rain.

4. What are the main factors that cause accidents? *(Request information on accident data)* Some accidents that occur in these accesses are very few or none, if they can happen by tree falls, stagnation in mud, cattle development or other animals.

   Have these changed in recent years? No

   Are there plans at the institution / department level to address them? There are no plans or programs to solve these problems because they are not common.

   Are your organization's programs / activities related to accident prevention? No

5. Is there industrial development in the area that affects transport / road conditions? There is the plant that processes food, but you do not have a negative perception that has to affect the transport or road conditions.

   Is there passing of industrial trucks / agricultural material (cheeses, bananas) that particularly affect the road / road in this area? There are no industrial roads that particularly affect the same.

   Is there traffic of the industrial vehicle in the area? Of tourism? There is no industrial vehicle traffic in the area. Neither tourism



Key Informant Guide on Transportation - *Mrs. Amelia Cruz –Social Promoter, Town Hall of Acajutla*

1. What are the most common areas of travel or commuting among the inhabitants of this area? They move mainly from Acajutla or from the communities to Sonsonate. What is the frequency and the main reasons for the displacement?

- *Market and Super Market purchases.*
- *Schools and Colleges*
- *Goods and services*
- *Family Visits*
- *Enjoy the free time*

2. What are the common methods of transportation?

- *Public transportation (bus, minibus)*
- *Bicycle*
- *Motorcycle*
- *Car / truck*
- *Cab*
- *Aquatic transport*
- *Horse / Mule in rural communities*
- *Moto taxi*

   - Are there times of the year when it is not possible to use some types of transportation? Please specify*: In the winter it is difficult to use motorcycles, bicycles and some cars.*

3. There are access points for:

- *Paved road*
- *Unpaved road*
- *Road / Path*
- *River*

   - Are access points widely used?

Yes, they are used daily.

   - What is the quality of access points?

Access points have a 70% quality.

   - Are they safe to travel?

Depending on the hours in which it transits, as driving on some roads at dawn increases the risk of assaults, or accidents. .

Are there times of the year when they are unusable or unsafe? *During the winter there are roads that become impassable, for security measures.*

➢Are there roads, intersections, etc. in the area considered to be hazardous areas for traffic accidents? *Yes, mainly the return points and the closest to the dwellings*.

4. What are the main factors that cause accidents?

- *Excess Speed*
- *Disrespect to traffic signals*
- *The imprudence of pedestrians*
- *Lack of road education.*

  - Have these changed in recent years? *In recent years it has increased, for the reasons mentioned above.*
  - Are there plans at the institution / department level to address them? *Some communities that are closer to returns or roadside, have a training program, on road education.*
  - Are your organization's programs / activities related to accident prevention? *The Town Hall supports communities in their training.*

5. Is there industrial development in the area that affects transport / road conditions?
   - Is there passing of industrial trucks / agricultural material (cheeses, bananas) that particularly affect the road / road in this area?

Yes, there is passing of abundant heavy transport, (Food, sugar cane, fuels, solid waste etc.)

  - Is there traffic of the industrial vehicle in the area? Of cars? Of the 100% of the traffic, we could divide it:

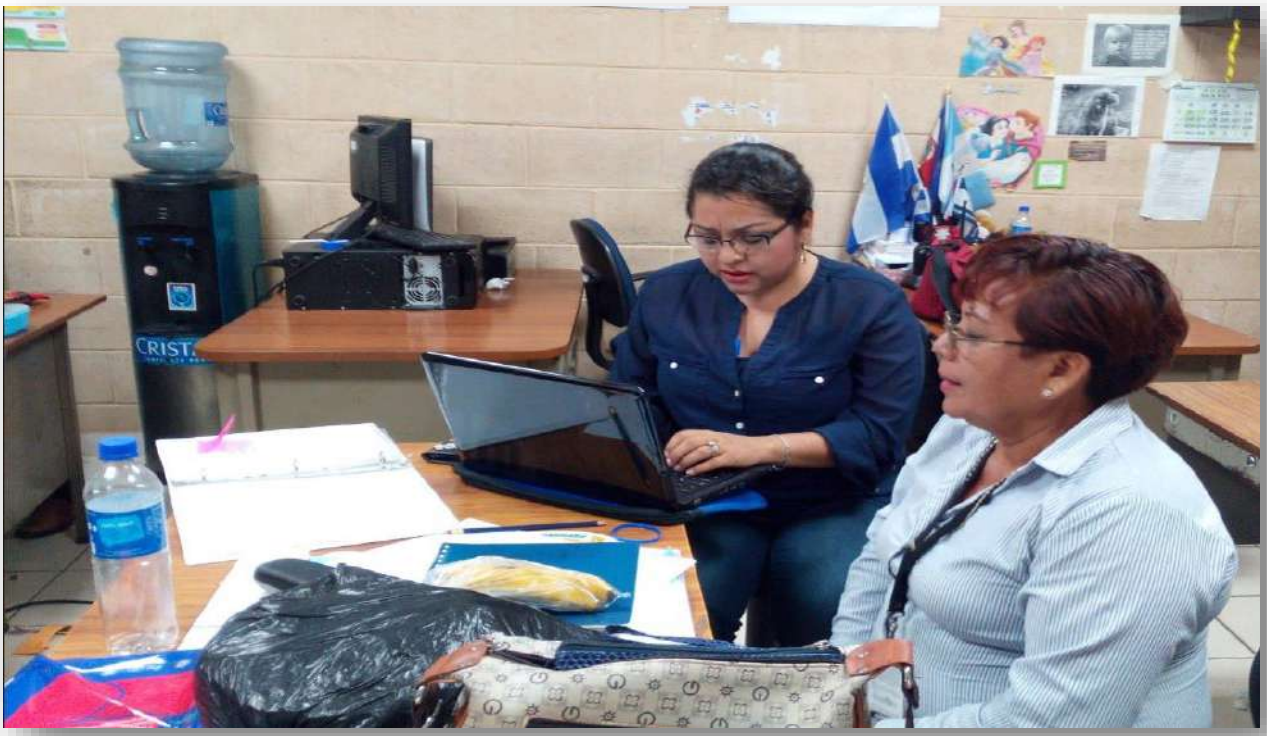
Industrial Traffic 60%

Traffic of Inhabitants 25%

Traffic of service Collective 10%

Traffic for tourism 5%

EDP Baseline Interview Guide



Key Informant Guide to Health-Dr. Juan Carlos Perez Pineda - Director in Functions of Community Unit of Family Health of Acajutla

1. How many years have you practiced medicine in this community / hamlet? From what year does this establishment exist, health clinic? The Health Center was founded in 1964.

- How many people work here?
  27 people (Doctors, Nurses, Technicians, Lic. In Laboratory and Pharmacy, Administrative Staff)

2. What communities / hamlets do you serve from here?

This health center, serves all 7 of the 8 cantons, as Canton Metalio has its Health Center. In addition, it serves the urban area of the Municipality.
The longest distance patients travel to the Acajutla Health Center is 12 km approximately one hour by public transport.
Can you name other communities where patients come from?
All the communities of the cantons (See Map of Territorial Division of Acajutla)

3. What health problems are most common in the community?

- Skin infections
- Diarrhea / stomach problems
- Respiratory diseases
- Malnutrition
- Complications of labor
- Traffic Accident / Other Accidents
- Others?

- Have these problems increased or decreased in recent years?

The last two years diseases caused by mosquitoes have increased.

- Are there variations depending on the season of these problems? That is, how do health problems change in relation to the season?

In rainy seasons increase the infections of the skin, stomach and respiratory, because of the change of climate.

4. In your opinion, what are the factors that influence or increase the risks of poor health in the community? Please explain.

• Lack of economic resources (poverty / vulnerability) In the case of lack of economic resources, it is impossible to travel to health centers and any additional costs that this generates, besides the purchase of medicines that are not provided by the Health Center.

• Lack of access to health services

Not being close to their places of habitation, and the lack of economic resources to move

• Limited quality of health services.

Lack of conditions required to provide quality care in health centers (equipment in poor condition and lack of staff)

• Because of the cost of health services; medicine or transportation
• Malnutrition
• Migration of the population in the region
• Violence
• Abuse of narcotics (alcohol, drugs, tobacco)

• Lack of access or problems with drinking water sources / lack of sanitation

The lack of these basic services, translate into abundant diseases.

• Conditions of Street network/ traffic / accidents

Some streets are not accessible.

• Environmental pollution (water, air, soil) -provide explanation

Environmental pollution in general is a major source of disease in communities.

- Have these factors changed dramatically in recent years? If yes, please explain the causes. No
- Are there people who are more susceptible or more vulnerable to health problems? Children under 5 years and adults over 60.
- What are the most important sources of protein for households in this area?
- Is one source more important than another?

The diet of the families is not balanced, it is generally considered that meat is the only source of protein that is consumed in households more frequently.

5. Has your community been affected by some natural disasters in recent years?

• Hurricanes
• Flooding
• Landslides
• Droughts

- Forest Fires
- Other? High Tides
  - If so, what were the impacts?

Destruction of housing in areas near rivers and streams. As for the high tides, there has also been destruction of houses by the sea.

6. Do you consider that your community is vulnerable to natural disasters? Please explain. Yes it is vulnerable, because it is in coastal zone.

- Do you consider that your community is well prepared to respond to natural disasters? Why? Why not? Although there is a Civil Protection area in the Municipality, it does not have the capacity to respond to these disasters.

7. When someone in the community is sick, what is the primary access point for care? To get medicine? The health center of Acajutla

- Are there challenges for obtaining medical goods and services and / or medicines? Please explain. (Distance to the nearest health center, quality of care / resources of the center, hours of operation, etc.). For rural areas the nearest point is 20 min. In the urban area maximum 10 min. The care received is limited to general practitioners' consultations and sometimes they do not have medicines or the necessary equipment to assist the patient. (Lack of tensiometers, ambulance in bad condition and without fuel to mobilize patients to hospitals)

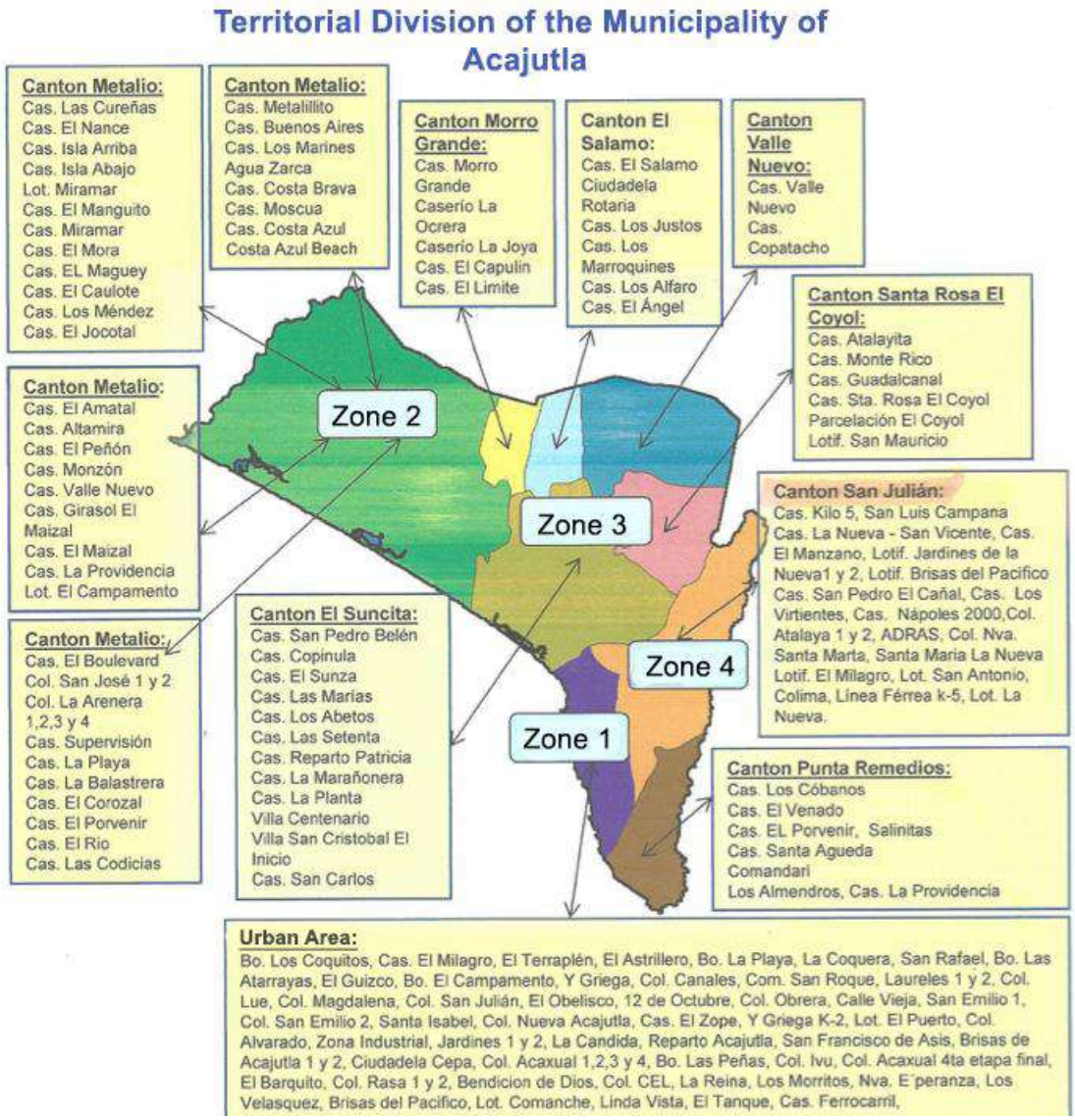
8. In your opinion, have you noticed any changes in the quality of life in your community in the last 5 years? Has it increased or decreased? It has decreased.

➢What are the causes of the changes? (i.e. population changes, economic opportunities, environmental quality) Mainly economic opportunities

9. Do you or the community have any concerns about the potential health or safety impacts associated with the development of the Project? Yes, contamination can lead to respiratory diseases.

10. Can you explain if traditional medicine is used and how is it used in the community?

    Many people turn to healers, mainly to cure to children of what they commonly call "eye", which is clinically considered an infection that can be from stomach or throat. In addition to people who self-medicate.


Territorial Division of the Municipality of Acajutla
Canton Metalio:
Cas. Las Cureñas
Cas. El Nance
Cas. Isla Arriba
Cas. Isla Abajo
Lot. Miramar
Cas. El Manguito
Cas. Miramar
Cas. El Mora
Cas. EL Maguey
Cas. El Caulote
Cas. Los Méndez
Cas. El Jocotal
Canton Metalio:
Cas. Metalillito
Cas. Buenos Aires
Cas. Los Marines
Agua Zarca
Cas. Costa Brava
Cas. Moscua
Cas. Costa Azul
Costa Azul Beach
Canton Morro Grande:
Cas. Morro Grande
Caserío La Ocrera
Caserío La Joya
Cas. El Capulín
Cas. El Limite
Canton El Salamo:
Cas. El Salamo
Ciudadela Rotaria
Cas. Los Justos
Cas. Los Marroquines
Cas. Los Alfaro
Cas. El Ángel
Canton Valle Nuevo:
Cas. Valle Nuevo
Cas. Copatacho
Canton Santa Rosa El Coyol:
Cas. Atalayita
Cas. Monte Rico
Cas. Guadalcanal
Cas. Sta. Rosa El Coyol
Parcelación El Coyol
Lotif. San Mauricio
Canton Metalio:
Cas. El Amatal
Cas. Altamira
Cas. El Peñón
Cas. Monzón
Cas. Valle Nuevo
Cas. Girasol El Maizal
Cas. El Maizal
Cas. La Providencia
Lot. El Campamento
Zone 2
Zone 3
Zone 4
Zone 1
Canton San Julián:
Cas. Kilo 5, San Luis Campana
Cas. La Nueva - San Vicente, Cas. El Manzano, Lotif. Jardines de la Nueva1 y 2, Lotif. Brisas del Pacifico
Cas. San Pedro El Cañal, Cas. Los Virtientes, Cas. Nápoles 2000,Col. Atalaya 1 y 2, ADRAS, Col. Nva. Santa Marta, Santa Maria La Nueva
Lotif. El Milagro, Lot. San Antonio, Colima, Línea Férrea k-5, Lot. La Nueva.
Canton Metalio:
Cas. El Boulevard
Col. San José 1 y 2
Col. La Arenera 1,2,3 y 4
Cas. Supervisión
Cas. La Playa
Cas. La Balastrera
Cas. El Corozal
Cas. El Porvenir
Cas. El Rio
Cas. Las Codicias
Canton El Suncita:
Cas. San Pedro Belén
Cas. Copinula
Cas. El Sunza
Cas. Las Marías
Cas. Los Abetos
Cas. Las Setenta
Cas. Reparto Patricia
Cas. La Marañonera
Cas. La Planta
Villa Centenario
Villa San Cristobal El Inicio
Cas. San Carlos
Canton Punta Remedios:
Cas. Los Cóbanos
Cas. El Venado
Cas. EL Porvenir, Salinitas
Cas. Santa Agueda
Comandari
Los Almendros, Cas. La Providencia
Urban Area:
Bo. Los Coquitos, Cas. El Milagro, El Terraplén, El Astrillero, Bo. La Playa, La Coquera, San Rafael, Bo. Las Atarrayas, El Guizco, Bo. El Campamento, Y Griega, Col. Canales, Com. San Roque, Laureles 1 y 2, Col. Lue, Col. Magdalena, Col. San Julián, El Obelisco, 12 de Octubre, Col. Obrera, Calle Vieja, San Emilio 1, Col. San Emilio 2, Santa Isabel, Col. Nueva Acajutla, Cas. El Zope, Y Griega K-2, Lot. El Puerto, Col. Alvarado, Zona Industrial, Jardines 1 y 2, La Candida, Reparto Acajutla, San Francisco de Asis, Brisas de Acajutla 1 y 2, Ciudadela Cepa, Col. Acaxual 1,2,3 y 4, Bo. Las Peñas, Col. Ivu, Col. Acaxual 4ta etapa final, El Barquito, Col. Rasa 1 y 2, Bendicion de Dios, Col. CEL, La Reina, Los Morritos, Nva. E´peranza, Los Velasquez, Brisas del Pacifico, Lot. Comanche, Linda Vista, El Tanque, Cas. Ferrocarril,

Key Informant Guide on Religion / Beliefs – Fray. Napoleón Garcia – Parish Priest – Saint Francis of Assisi Parish

1. What's the mission of your organization? *The Catholic Church acts as a space so that the parishioners can have their moments of closeness with the Lord, and according to our Catholic faith, to carry out throughout our life what pleases God. Fulfill the commandments, perform the sacraments (Baptism, Eucharist, Confirmation, Marriage, Confession, Anointing of the Sick and Priestly Order.*
2. What are the main religious / spiritual institutions in the area?
    - What percentage do you estimate belongs to each belief?
      Catholic Church: 80% of the population
      Other Christian or Evangelical Churches: 15% of the population
      Other denominations: 5% of the population
    - What days do they meet?
      Catholic Church: From Tuesday to Sunday
      Evangelical Church And other Denominations: Each, according to its denomination has 3 or 4 days a week to meet.

3. Are there major religious / spiritual events in the community? Please describe, if there are any. The Catholic Church holds events with Preachers and Music Ministries that bring together the greater part of the community's parishioners. The Evangelical Church and other denominations carry out Evangelization Campaigns.
4. Are there places in the community that have special religious / spiritual importance to people? *Only the Catholic Church has special locations of some saints and the Grotto of the Virgin Mary located on one side of the Church of St. Francis of Assisi*.
5. Have you noticed any tension or disagreement between religious / spiritual groups in the area? *No*
    - Do you think there are any groups that are considered marginalized or discriminated against? *Some Christian denominations that emerge in the poorest communities that at some point could feel marginalized by other churches.*

- Have there been changes in religious / spiritual aspects in the community in recent years? *Yes, more Christian churches have emerged, even though they have a small number of members, they are diversifying*.
- In your opinion, what caused these changes? *Leadership changes.*

6. Are there religious / spiritual needs unsatisfied in the community? Please describe. *No, as the municipality has enough groups that can assist believers to their needs.*

Key Informant Guide on Police / Security – Professor Manuel de Jesús, Principal, School El Cafetal , Las Tablas and Estela Maritza, community leader.

1. Who is responsible for maintaining security in your community? (Eg local police, departmental police (state), national police, army, fire brigade, voluntary committee or other).
The Rural Police is responsible for maintaining security in the community.

- How many people are there permanently in the area of security / protection? *Are they sufficient to maintain the security of the community? They do not offer a continuous patrol, in fact, members of the community complain about it, since they only let themselves be seen from time to time, in certain areas of the community, since there is only one police post in the area where the School Las Tablas.*

2. What aspects of security are most relevant right now in community?
People are dissatisfied with the lack of daily surveillance.

- Have there been recent trends or changes in crime rates / types of crimes, narcotic abuse, etc. Or in conditions of public safety in general? *Trends in crime rates have been maintained.*
- Have there been recent changes in the community's perceptions and way of looking at their safety and well-being? *There are no notable changes.*
- Are there any areas of the community that can be considered more dangerous? If so, what types of problems, incidents occur in these areas? *The types of crimes that are manifested are: murders, common delinquency, theft of cattle and gangs extorting.*

3. What are the issues of greatest concern? Find information on small crimes, violence, non-violent crimes, drug addiction, alcohol use and prostitution. Have there been recent changes? What are the main causes of concern? Eg. Primordial causes such as factors of social or environmental origin, abuse of narcotics, presence of maras, etc.
Extortions are a common theme, as they occur more frequently, for example in livestock, the case of 2015 (previous comment) and a murder of a communal leader in the same period.

4. In relation to traffic accidents, are they common? Is there a great incidence? Do you have statistics on this? A specific program of sensitization or prevention ?.
In the community of the canton Las Tablas traffic accidents are not very common.

5. What do you think about the influence that the Project could have on security and protection issues?
It is thought that the influence of the project with the security of the area, would have no greater impact, but that one that has to do with the security of the electric line and the area where the towers are located. The security that the company must have with its personnel when working in

these rural areas, since it is not excluded that they can be the object of threats or extortions by criminal groups like the gangs.





Key Informant Guide on Infrastructure and Public Services - Mrs. Amelia Cruz – Social Promoter Town Hall of Acajutla

1. What is the infrastructure and public services responsibility of your organization? What is your mandate? *Infrastructure and public services are the responsibility of each institution, they have a domain and responsibility to be sustainable over time.*
2. Has the community / hamlet system:

The municipality in the urban area has: Drinking water, Sanitation, Electricity
In the rural area, there are different communities that do not have these services.

- If yes, how do these systems work? *They work through the administration of the institutions that provide them, ANDA: Drinking Water, CLESSA, DEL SUR, DEUSEM, EEO: Electricity, SANITATION: Municipality, Health Unit and inhabitants.*
- If yes, what percentage of households are covered? *In the Urban Zone 90% is covered, in the rural area only 50%.*
- If not, what sources do households use for water, sanitation, and energy?

In the rural area they are supplied with the rivers and wells that they have in their houses, in the case of electricity they use candles.

3. What type of infrastructure exists in the community / hamlet?

    • *Paved roads*

    • *Paved drainage canals*

    • *Sewers*

    • *Public transportation*

    • *Parks and public spaces*

    • *Cellular network, who are the providers: Movistar, Claro, Digicel, Tigo, Red.*

- What is the quality / reliability of these? Who is in charge of maintenance?

They have extensive telephony and internet services which are reliable, and the same companies that provide the services are responsible for maintenance.

4. Are there populations in the community that are not covered by water services?
    - What are your water sources? (Water committee, other water source)

Wells or Rivers.

5. What is the main water source for this community / hamlet?

ANDA, is the main provider.

6. How has access to public services and infrastructure changed over the last few years?
   Through management of the Municipality or directly from the communities through projects

supported with funds from cooperators or from the community, it's been accomplished to bring this service to more homes.

- Has there been any change in the population? *Yes, this service improves the health and living conditions of the beneficiary communities.*
- Has there been new investment in public services and infrastructure?
- What are the challenges of maintaining or creating new infrastructure in this community / hamlet? *Obtaining funds and community support.*

7. Are there priorities in the community about infrastructure development in the near future? Are there plans to address them? *In the PARTICIPATORY STRATEGIC PLAN of the Municipality is projected in the near future to make investments in infrastructure to benefit the community, in fact Energia del Pacifico with its social investment plan is supporting these initiatives.*



Key Informant Guide on Infrastructure and Public Services - Lic. Jaqueline E. Pastore. Head of Social Projection. Community Development. Town Hall of Sonsonate.

1. What is the infrastructure and public services responsibility of your organization? What is your mandate? All infrastructure and public service is managed and provided to the community by the Town Hall of Sonsonate.
2. Has the community / hamlet, the following systems:

• Drinking water and

• Electricity

If yes, how do these systems work? The community boards have a water system that is supplied by means of pitcher wells and electricity is through the poles network.

If yes, what percentage of households are covered? As they are located in specific areas the access is not very good because of the distance. The electrical system is very good because it covers 90% of the community.

If not, what sources do households use for water, sanitation and energy?

3. What type of infrastructure exists in the community / hamlet?

• Paved roads
• Paved drainage canals
• Sewers
• Public Transport
• Parks and public spaces
• Cellular network, who are the providers Claro, Movistar, Digicel and Tigo

What is the quality / reliability of these? It is good.

Who is in charge of the maintenance? Of the maintenance of electricity is in charge the town hall of Sonsonate. As for the water, the community is in charge.

4. Are there populations in the community that are not covered by water services? What are your water sources? (Water committee, other water source)

There is no drinking water system in the community, the water supply for the whole community is made through the manual pumps called by them "cantareras" (pitcher wells) that are located in certain sectors of the community and made by an organization called

Aguas Vivas. However, there are many families who have their wells and this water is usually used to irrigate, wash, bathe, etc. And drinking water comes from these "cantareras" pumps because they were recommended to be less contaminated and less harmful to health.

The town hall gives support to the entire network of neighborhood roads, subsidizes and maintains electricity.

5. What is the main water source for this community / hamlet? The sources of water in this community are underground systems that supply water by means of these methods mentioned above.
6. How has access to public services and infrastructure changed over the last few years? With this water system the health of the population has improved a bit because it is said that the depth of where this water is taken is greater than the well they have in houses.

Has there been any change to the population? Some are comfortable with what has been developed.

Has there been new investment in public services and infrastructure? It hasn't been invested in public services in this community yet.

What are the challenges of maintaining or creating new infrastructure in this community / farm? Some of the challenges facing the community are: coordination between local government and the community to manage new projects.

7. Are there priorities in the community about infrastructure development in the near future? Are there plans to address them?

If there are priorities such as the paving of its streets, the drinking water system and the sewer system. But there are still no plans to address these needs because they are way too expensive projects that involve efforts with donors who have already defined their zones to help.



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Key Informant Guide on Gender Issues - Lic. Jaqueline E. Pastore. Chief of Social Projection and Community Development, and Cristina García. Councilor and Las Tablas community leader.

1. What is the role of your organization? (In the event that there is an NGO or governmental organization that deals with these issues) There is no non-governmental organization that deals with this issue in the area or Las Tablas community, rather it's the Town Hall of Sonsonate that takes these initiatives for women through the office of community development.

2. What are the challenges women face in this community? (Ie. gender-based violence, discrimination, poorer access to education / employment, etc.) *The main challenges faced by women in this community are two, the first is male chauvinism. The second challenge is the violence that comes from the widespread delinquency that is happening in our country. These phenomena are not alien to other communities.*
   - How has this changed in the last few years? What are the possible causes? *It is believed that all this is the cause of bad education on these issues and the lack of awareness on the part of the community. The consequences of these problems are the discrimination of women in these fields; young women do not finish high school and have no aspirations for a higher academic study; Many opt to work in the field or housework as housewives at an early age. Violence against women is seen at an intra-familiar level and in the case of young women, the harassment of gang criminals.*
   - How is this different or similar to other communities in the area / in El Salvador? *It's considered to be a widespread problem.*
   - Are they recognized as issues that need to be addressed / prioritized by institutions or by society, or by both? *All this is recognized by the local government and approached by the community development office, working with the community.*
   - By men or women or both? *By both.*

3. What programs exist to address these challenges for women? Please describe.
   The programs that are planned from the social projection office for this sector are mechanisms that were implemented to ensure the rights of women, this has changed the participation of women in the directions of the Adesco, empowerment training where they have been taught "the option of learning to decide for herself and say that I want" and where it has integrated men in these trainings and realize the importance that women participate and is organized so that she watches with him after their home and children.

Other programs that have been done are those that are aimed at acquiring a craftsmanship such as: bakery workshops, florist, piñata making, etc. All this so that they learn to do their things and have their own income. One of these workshops is located in the Cafetal area, where women work collectively (some do it and others go out to sell).

4. In your opinion, how is the situation of women perceived in the community?
   The community perceives this situation very well because it is a benefit that is impacting their community.
   - Are there women in leadership positions within the community? *Yes, the councilor is an example of this.*
   - How has this changed in the last few years? *In the last years the negative perception of the participation of the woman in communal subjects has been lowered, there is always a level of male chauvinism but it is being overcome little by little.*
   - Is the increase of women in leadership positions considered a priority? *Yes.*

5. Do you think young women / women access or are given the same opportunities as boys? *With regard to equality between young people and young people in any field, they consider that it is not the same and that efforts to overcome this issue are lacking. Example of this is: the problem that occurred with a young woman who was studying a baccalaureate in health in Sonsonate, became pregnant and the principal of the study center didn't want her to continue studying.She was accompanied in her rights process and she was not discriminated against*



Key Informant Guide on Gender Issues - *Vilma Noemí Santos (Unit of the Woman Coordinator)*

1. What is the role of your organization?

The main objective of the Women's Unit is to prevent all types of violence against women, in addition to preventing pregnancy in the Young people. We provide psychological support to raped women and to pregnant minors.

2. What are the challenges women face in this community?

Combat the 7 types of Violence, of which 80% of the female population is Victim.

> *1. Economic Violence: It is any action or omission of the aggressor, which affects the economic survival of women, which is manifested through acts aimed at limiting, controlling or preventing the entry of their economic perceptions.*
>
> *2. Feminicidal Violence: It is the extreme form of gender violence against women, resulting from the violation of human rights, which can culminate in feminicide and other forms of violent death of women.*
>
> *3. Physical Violence: It is any conduct that directly or indirectly, is targeted to cause harm against women, exercised either by her spouse or by who is or has been connected.*
>
> *4. Psychological and Emotional Violence: It is any direct or indirect conduct that causes emotional damage, diminishes self-esteem, impairs the healthy development of the woman.*
>
> *5. Patrimonial Violence: These are the actions that affect the free disposition of the patrimony of a woman.*
>
> *6. Sexual Violence: Any conduct that threatens or violates the right of women to voluntarily decide their sex life.*
>
> *7. Symbolic Violence: These are messages, values, icons or signs that transmit and reproduce relations of denomination of inequality and discrimination in social relations.*

- How has this changed over the last few years?

The unit of women since 2009, through the collection of statistical data from some institutions (Courts, Police, and ISDEMU-Salvadoran Institute for the Development of Women), on demands made by women who have suffered some kind of violence, have been able to support these women by providing information on their rights, alternatives to economic independence and finally including them in small business development programs.

- What are the possible causes?

The information and awareness processes that have been carried out in recent years are the main causes of the achievements.

- How is this different or similar to other communities in the area / in El Salvador?

At the national level, through the Women's Secretariat, "Ciudad Mujer" has been created, these are support centers for women, in which training workshops are given, medical care, legal assistance and

other services are provided. The locations of Ciudad Mujer are located in strategic sectors, which have been determined through different studies. In these centers of support have also been significant achievements that have changed the lives of women who suffered some type of violence.

- Are they recognized as issues that need to be addressed / prioritized by institutions or by society, or both? By men or women or both? *The Secretary of Women at a country level prioritizes all issues related to the defense and protection of women's rights. And some organizations created by society, mostly women.*

3. What programs exist to address these challenges for women? Please describe.

   • *Training programs for means to obtain economic autonomy.*

   • *Formation of Student Circles in violence prevention, with the Schools (In these we work with both sexes)*

4. In your opinion, as is the situation of women perceived in the community

- Are there women in leadership positions within the community? How has this changed in the last few years? *Yes, there are women who lead in their communities, in recent years women have acquired greater commitments to society, such as the Presidency of the ADESCOS, Politics (forming part of the municipal councils) and in positions of headquarters in companies.*
- Is the increase of women in leadership positions considered a priority? *Yes, it is a Priority.*
- Do you think that young women / women access or are given the same opportunities as boys? *Currently there is still a percentage of discrimination against women, because they talk about the myth that they are weak when faced with some professional, work or personal situations.*

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Key Informant Guide on Agriculture - Lic. Jaqueline E. Pastore. Head of Social Projection. Community Development and Cristina García. Council and community leader of Las Tablas

1. What types of agriculture are being practiced in this community (crop / livestock types, large / small scale)?

In the canton Las Tablas the most common type of agriculture developed for the sowing of the corn and bean is the "secano" (developed without the irrigation of a farmer, in this way, the water is obtained from the rains or the soil.). Of these two, maize is the most exploited agricultural product. Another is the planting of vegetables, which will depend on the rainy seasons in the area. On the other hand, the second activity is the raising of cattle.

2. How many people in the community are directly involved in agricultural activities?

About 90% of the population
Estimated percentage of the population
The percentage of people involved in agricultural activities in the canton is 70% for maize and bean sowing and 30% for livestock rearing.
Are there demographic groups that participate more than others in specific agricultural activities?
Young adult men.
To what extent and capacity do women participate?
2% of the female population participates in it.
How has the sector changed in recent years?
In the last three years, the cattle ranch has decreased its activity to the crime, due to the extortions and thefts by criminal groups of the zone, causing that the owners of livestock sell their cattle and lower their production. On the other hand, the planting of maize and beans remains unchanged.

3. How much product is for domestic consumption and how much for sale?

For internal consumption is 20% and for sale 80%
Is cattle the primary source for protein in the community? No
How many days of the week do they meat eat?
It could be said that once a week, but what they consume more are beans.
To which market do they take their product? To the central market or mega plaza of Sonsonate
What days?
The sale is almost every day but it is variable in the product offered, as it's determined by the season in which it is cultivated or what is grown.
Is it profitable to take the product there? Yes

What is the most sold in that market?
Meat, beans, corn and maize.

4. What is the primary source of water that farmers use?
The sources used by cattlemen to feed their cattle are droughts and river; A specific place that distributes this vital liquid is the so-called "La Presa" (the dam) that fills it all year long, for that reason we've never had water shortages in this area for this activity.
Are these sources available year-round? Yes
If not, what are the sources they also use for water?
In what months / seasons are water resources scarce?
It could be said that diminishes in the summer.
How has water availability changed in the last few years?

5. What are the problems for the sector? Is there any specific problem in this area?
The problems they face in the livestock area are the common delinquency, the extortions and the robbery of cattle; In the area of planting are the droughts for those plots that are not close to the droughts and rivers, since many of the farmers do not have irrigation systems; another of the problems is the acquisition of fertilizers.

6. Is there commercial agriculture on a large scale in this area?
If so, what is the main crop and the size of the operation? Well, at the commercial level in the area we can mention the case of a food processing factory like chicken and pork, which belongs to the company ALBA (unverified) whose operations are large scale. In this factory, they process chicken and pork, where it is said that the pig is raised there and the chicken is brought from another place and processed in the factory.
On the other hand, the products harvested by the farmers in Las Tablas are not equivalent to a large commercial operation, since they are quantities that are sold in the central market of Sonsonate the same day they are taken there and another percentage is consumed in the community.

7. Is coffee a relevant crop in the area? It's not cultivated.
Ask for specific information about the most important crops, planting periods, harvests, used labor, community involvement, sector problems, etc.
The most important crops in the canton are maize, corn, beans and some vegetables. Maize is the main crop. They sow in periods between October and November and the rainy season in May. Beans are grown at the same time immediately after the maize harvest.

The labor used in these crops is the same community because they are their own or family plots.
One problem of the sector is the lack of fertilizer and artificial irrigation systems for the summer crop, since the greater use of water is occupied or monopolized by livestock.



Key Informant Guide on Agriculture - Mrs. Amelia Cruz- Social Promoter, Town Hall of Acajutla

1. What types of agriculture is being practiced in this community? (Crop / livestock types, large / small scale)?

- Harvest of Okras
- Maize Harvest
- Livestock on small scale

2. How many people in the community are directly involved in agricultural activities?
   - Estimated population share 15%
   - Are there demographic groups that participate more than others in specific agricultural activities? Yes, those of the rural area.
   - To what extent and capacity do women participate?

Women residing in rural areas, mostly engaged in sugarcane rubbing, work the Okra and Maiz crops.

   - How has the sector changed in recent years?

It has declined in recent years, as there is no support for marketing and those who are engaged in this, (Crops) is mostly for consumption. With the exception of raising cattle, which is marketed in the markets.

3. How much product is for domestic consumption and how much for sale?
   - Is cattle the primary source of protein in the community?
     No
   - How many days of the week do the meat eat?
     Once a week, in households where there is income from people with jobs in private companies, in the rural area the consumption of meat is every 2 weeks or a month approximately.
   - To what market do they carry the product?
     Acajutla Municipal Market and Mega Plaza Sonsonate Market.
     What days? Usually on Mondays
     Is it profitable to take the product there?
     The profitability depends on the operating costs for each week and the competition.
     What is the product most sold in that market?
     These markets are like supply centers, which allow them to sell all the products, however foods are the most demanded.

4. What is the primary source of water that farmers use?

Irrigation

- Are these sources available year-round? No, in times with no rain, there is no availability.
- If not, what are the sources they also use for water?

When they do not have the irrigation water, they must use cisterns to transfer water from other nearby sources.

- In what months / seasons are the water resources scarcer?

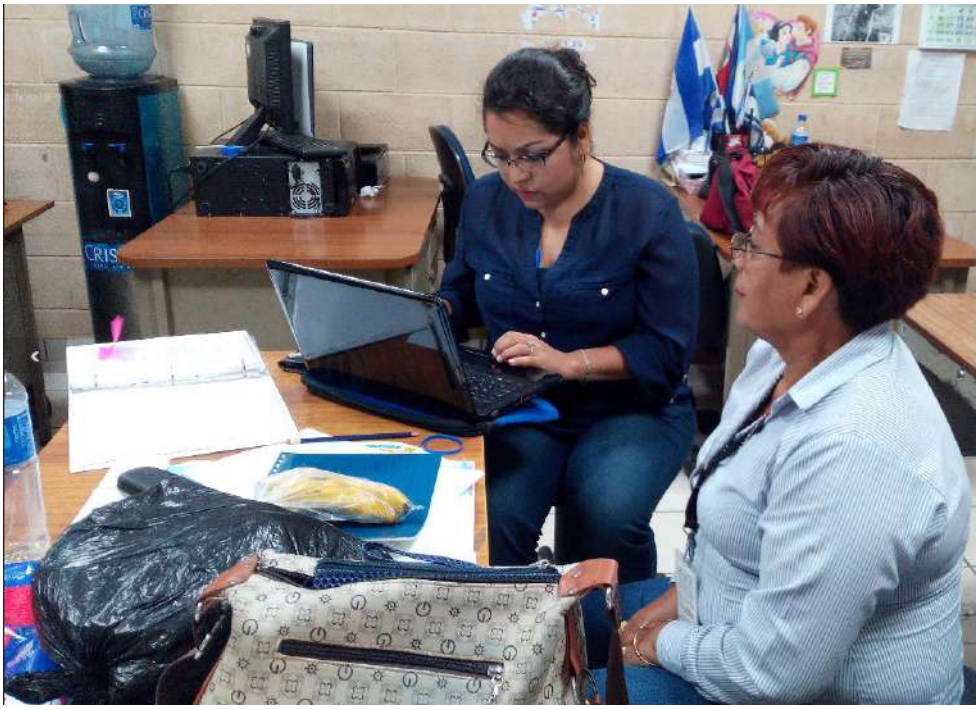
From January to June.

- How has water availability changed in recent years?

In the year 2015, the rainy season was not normal, which generated abundant losses in the harvests.

5. What are the problems for the sector? Is there any specific problem in this area? Lack of resources

6. Is there commercial agriculture on a large scale in this area? If so, what is the main crop and the size of the operation? There is no commercial agriculture on a large scale.
7. Is coffee a relevant crop in the area? No



Plantation of Okras





Acajutla Municipal Market



Mega Plaza Sonsonate Market



EDP Health Center Interview Guide

Interview Guide – Health Establishment

Interviewer: Brenda Lovato

Date: _____6 /06/2016_

GENERAL DATA

Name of the Establishment	Unidad Comunitaria de Salud Familiar Intermedia de Acajutla (Community Unit of Intermediate Family Health of Acajutla)	**Type of Establishment**		Public Health Unit	
Location Data	Community: Acajutla	Municipality: Acajutla		Community:	
Address**:**		Date of creation		SILAIS	
Data of the person in charge	Name: Dr. Juan Carlos Pérez	Position: Director in Function	Informant (*if it's not the person in charge*):		
Functioning	Days of attention: Monday through Friday	Time of attention: From 7:00AM -3:30 PM			
Communities/Regions that attends and size of the population of service: 7 Communities (5,000 users approximately), Urban Area 65 colonies		Health establishments in reference network: Metalio Health Unit, Sonsonate Health Unit			

SERVICES GIVEN / RESOURCES

What services are available in this health center?	**Yes**	**No**		**Yes**	**No**		**Yes**	**No**
Primary Health / medicine	X		Trauma / emergencies	**X**		Laboratory	**X**	
Obstetric	X		Ambulance services	**X**		Radio-diagnostic		**X**
Pediatric	X		Eye health attention		X	Internment		X
Dental	X		Immunizations **(children)**	**X**		Education / campaigns	**X**	
Topic		X	Mental Health		**X**	Other? Environmental Sanitation, "Abatizacion", Fumigation , Cleaning Campaigns, Control of establishments with food manipulation.	**X**	
Triage	X		Maternal-child Health	**X**				
Minor Surgery	X		Pharmacy	*X*				

EDP Health Center Interview Guide

Services Given (detailed questions)	Answer
Programs/projects of preventive health being coordinated? - By the government or together with other organizations? - Source of resources for these?	*Awareness campaigns in the population on how to avoid hatchlings and avoid the diseases of which they are transmitters. Campaigns on food hygiene to avoid outbreaks of infectious diseases.* *These are carried out with the support of the Ministry of Health, Private Institutions and companies that make contributions (Fuel for vehicles used in prevention projects and Fumigating Pumps, Didactic Material, so that the execution of these activities is a reality and a success, which translates into the reduction of diseases in the communities ..*
Health promoters / Community agents? - What areas? Beneficiaries? - How often are trainings done? - Topics / Programs?	*They have 12 Health Promoters, which are distributed in the cantons and communities of the Municipality of Acajutla, serving approximately 5,000 people, in the rural area.* *They carry out constant training; However there is no programming of this, because they are given according to the situation that is lived in the community and in the country.*
Is disease monitoring done? - Compulsory notification diseases (CND)? - Explain the process?	*Yes, CND monitoring is done. Each doctor completes his daily registration chart of consultations, which are delivered to the Health Center address. These contain: General information about the patient and the condition you are consulting.* *These records per doctor are filtered by the Director of the Health Center at the end of the week to send the report to the Epidemiology Department of the Ministry of Health.*
Statistics on health collected as a center? - How are they collected, organized and where are they reported? - Limitations / problems on your health center?	*Health statistics are extracted from the tables of daily records of consultation and information on the activities of health promoters in the communities, are organized based on the reporting requirement of the Ministry of Health, the Secretary of Health Clinic .* *The lack of an Epidemiological Research department in the health center limits to knowing only the health situations, the people who visit the Center or the information coming from the promoters of Health in the rural areas.*
* [If center / establishment has a pharmacy / medicine office] - Who pays for the drugs? - Are there other drug / pharmaceutical dispatches in the populated center (another health center / establishment)?	*The Ministry of Health supplies the drug store of the Health Center, according to inventory controls plus 10% for emergencies; However in the last years, we've had problems with this supply.* *There are no other pharmacies in the community that dispense drugs for free, except for the Social Security Medical Unit, which only a small percentage of the population has access to. (Employees - Cotizers to the ISSS)*
In the last year there were problems with the shortage of medicines or vaccines? - What medicines / vaccines?	*There was a shortage of BCG newborn vaccine, which was temporarily supplied by Social Security.*
What types of emergencies are addressed at this center? - - Description of the protocols to respond to an emergency? (ie. ambulance, trauma hospital assistance, coordination with police)	*Traumas, Wounds, Fractures, and Births.* *The patient is stabilized and evaluated, from the result of this evaluation, the doctor decides to take care of it at the Health Center, or Refer it to Sonsonate Hospital (Jorge Mazzini National Hospital, 30 minutes from Acajutla)*

EDP Health Center Interview Guide

Are there cases when it requires the transfer of a patient to a hospital? - Which hospital is transferred? - Is there any difficulty / barrier in the transportation or transfer of patients? - In the last year, how many transfers were there from the center?	□X Yes □ No *To the Jorge Mazzini National Hospital, are transferred patients who do not have the health service of the ISSS (Salvadoran Institute of Social Security).* *The limitation is that the ambulance does not have medical equipment, which allows the patients that the emergency merits to be transported with Sera, Oxygen or other drugs that require the support of some equipment installed in the ambulance.* *Last year approximately 100 emergencies were transferred.*
Administration	**Answers**
What is the main source of funding for the center?	*The Ministry of Health*
Staff working in the establishment?	*[include quantity of staff]* Doctor __*6*___ Nurse __*5*___ Dentist/a _*2*___ Obstetrician __*1*__ Laboratory worker _*4*___ Pharmacy technician _*2*___ Radiography technician _*0*___ Administration __*7*__ Other *1 Pediatrician*
Did the staff receive courses or training workshops during the past year? On what topics?	*X* Yes □ No *According to the needs of the country and each community, specific training is planned, in addition to updating the training of health professionals, facilitated either by the ministry or by international organizations that contribute to these issues worldwide.*
Are there gaps in human resources in the center? Explain - Courses or training of personnel? How often?	*There is no program of courses or training.*
In the last year where there changes in the staff of the center?	New staff: __0_____ Fired staff 0_____ *In May 2016, the Director of the Health Center was transferred to another community and in June the new Director was added.*
Infrastructure and Equipment / Machines	**Answers / Observation**
Infrastructure *[Comments / Observations - Condition of rooms / offices?]*	X □ Waiting room X □ Reception X □ Office X □ Bath (5 for staff and 4 for patients) □ Labor and Delivery (If there's an emergency, fit a clinic) X □ Laboratory X □ Immunization room

EDP Health Center Interview Guide

	X □ Drug store / pharmacy □ Maternity waiting room
Equipment *[Comments / Observations - Condition of equipment?]*	X □ Waiting Chair X □ Stretcher (Poor condition) X □ Balance X □ Stadiometer X □ Gynecological instrument (speculum for cytology only) □ Tensiometer (There is none in the health center, each doctor has his own) X □ Sterilization oven X □ Refrigerator □ Oxygen tank
Ambulance *[Group responsible for the ambulance; financing; Ambulance status; Year of the vehicle]*	X□ Yes □ No *In poor condition, without equipment and with problems of fueling.*
Continuous potable water service?	□ Yes □ No X □ Public network □ Public use pylon X □ Well □ River, ditch, spring X □ Other (CISTERNA)
Hygienic services	□ Yes □ No X □ Public drainage network □ Blind pit, latrines □ Septic well □ River ditch the canal □ Other
Other services	Electric power X □ Yes □ No Internet □ Yes X □ No (They only have intranet, it allows them to access mails and institutional pages) Phone (cell phone, fixed) X □ Yes □ No Radio □ Yes □ No
Are there medical equipment or machines that are old or do not work?	X□ Yes □ No

EDP Health Center Interview Guide

	List of machines and equipment: *Ambulance* *Dental Chair* *Air conditioners in some areas* *Tensiometers*

PACIENTS

An estimate, how many patients are being treated at this center? - What is the trend in recent years (increasing, decreasing, the same)? - The reasons for the changes?	1400 average patients per month 40,407 patients per year (According to Annex Report)
How many people with disabilities are seen in the center? - - Can you explain the actions they take in this center to serve this population?	They do not have care records for people with disabilities. Taking of data, taking of vital signs, registry of turn for its Consultation, Consultation and Delivery of Medications.
In your opinion, what are the main barriers for communities to access health services? - Cost of services - Transport / distance (cost or lack of means of transport) - Lack of insurance - Capacity of health services - Lack of doctors or nurses - Others?	The capacity of health centers and the cost of services
Insurances - What proportion of the population that receives medical attention here has insurance? - Type of insurance? - Do the uninsured pay for services? Medicines?	*5% of 100% of patients who visit the Health Center, have medical insurance.* *The insurance with which this 5% counts, is earned by public and private employees who contribute to the national health system. (Salvadoran Institute of Social Security)*
Is there traditional medicine practice?	*There is no such practice in the health center.*

- Who provides the service? - Are there particular diseases or circumstances when populations prefer traditional medicine to other types of medicine? - Why? - Is there coordination between practitioners of traditional medicine with health centers?	

CAUSES OF MORBIDITY AND MORTALITY

Questions	**Comments**
What are the most common causes of death or death in [municipality / community]? - Which groups have the highest risk of suffering from these conditions? Or in this context that groups could be considered as the most vulnerable to these conditions? [Ask for statistics / data if they are accessible]	*Acute Myocardial Infarction, Unspecified Septicemia, Renal Failure, Other Heart Diseases, Stroke (During 2015)* *Health Center Data in the Report Attachment..*
What are the most common diseases / injuries (causes of morbidity) in the [municipality / community]? - Have there been different trends or patterns of illness / injury in recent years? Increase / decrease? - Do certain groups of the population affect in a different way than others? How? [Get statistics or reports if they exist / are accessible]	*If it was not mentioned in the previous question - verify with the informant which of the following common health aspects* • *Malaria / Malaria* • *Dengue fever* • *Yellow Fever* • *Leishmaniasis* • *Hepatitis* • *Gastrointestinal diseases (parasites)* • *Sexually transmitted diseases (HIV / AIDS, syphilis, human papillomavirus, gonorrhea)* • *Respiratory diseases (TB, influenza, acute respiratory infections, asthma)* • *Malnutrition* • *Traffic Accidents / Other Wounds - Cause?* • *Mental health (depression / suicide)*
Total number or incidence rate of **traffic accidents** in your service area? Has it increased / decreased in the	*The accidents have had an increase in the last years mainly motorcycle, because in the community circulate many of these.*

EDP Health Center Interview Guide

last 5 or 10 years? Boat Accidents?	
In your opinion, what factors / risks influence health more in the population in your area of coverage? Just mention one or two topics below if they have difficulty, and ask for explanations • *Quality of roads / traffic / accidents* • *Lack of economic resources* • *Lack of access to health services* • *Lack of food* • *Pregnancy in adolescence* • *Quality of health services* • *Medical care costs; medicines* • *Migration in the region (increase in diseases, social risks)* • *Violence* • *Substance abuse (alcohol / drugs / tobacco)* • *Lack of access to drinking water sources / non-sanitary conditions* • *Lack of vaccines* • *Environmental pollution*	*-Lack of economic resources, this directly influences, since the areas most exposed to diseases such as gastrointestinal, are those that don't have the means to have a healthy and hygienic diet.* *-Environmental Contamination Many of the diseases are acquired by inhaling pollutants that are emitted by some of the companies that are in the area.*
Have there been **outbreaks of infectious diseases** in the (district / community) in recent years? - What diseases? What were the causes? - - What plans / programs are there to control outbreaks?	*Yes, Chikungunya, Malaria, Hepatitis and Gastrointestinal Diseases.*

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HEALTH AND SAFETY CONCERNS

Answers	Comments
1. According to the current health situation in your area of coverage what health conditions / diseases do you think will be the most important in the next 5-10 years? 2. What concerns or concerns do you have regarding health and safety issues associated with the development of the Canal Project?	*Respiratory diseases* *Heart diseases* *Gastrointestinal diseases*

Guide for Informant Key to Education - Prof. Manuel de Jesús, Principal, School El Cafetal, Las Tablas

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1. How many schools are there in the community or municipality? (i.e. preschool, primary, secondary, and university) Existing schools in Community "Las Tablas" are four: Las Tablas, serving children and youth from primary to third cycle (ninth grade); Agua Escondida, which serves until the sixth-grade level; Monte Rico and Cafetal, which serve until the sixth grade.

2. Is there children and young people attending the school in other communities? Yes. Where are these schools? El Cafetal and Las Tablas. How much time do they to take to get there? In the case of El Cafetal and Las Tablas, children and young people take to arrive at school about forty to forty-five minutes.

3. What is your opinion about the quality of education that is proportioned in school? The quality of education given in the community is poor because children and young people, mostly within their family nucleus, choose to work in the field or migrate elsewhere within the country or abroad, resulting in school dropouts.
   Another problem facing schools is that they serve two integrated sections, only in the Monte Rico area there are pure sections.
   At the moment no actions are planned that are implemented to overcome this problem.
   If it is good, what are the strengths of the education system in the community?
   If it is poor, what are the challenges facing the community?
   Maintain student population ratios until the end of the school year
   What are the main causes of these challenges? Keeping the infrastructure adequate and well maintained; That all national education projects get to the schools (as one computer per student)

4. Generally, what level / how many years of education does the adult population in the community have?
   The levels of education that are observed in the adult population of the canton oscillate between sixth grade and ninth; even when they are offered in the different schools of the community from first grade to high school.

5. What is the rate of school dropout (estimation)?
   The estimated dropout rate is 20% of the school population.
   Has this changed in recent years? No
   At what age is it more common for children to leave school?

The most common age of children and young people when they leave school is when they are 12, when they are in the sixth grade.

Are there demographic groups or certain specific areas that are more prone to dropping out of school?
The most likely to leave school are those students who live farther and have to walk 45 minutes daily.
What are the most common causes for dropout? *(i.e. work, Marriage, lack of interest, cost, mobility)*
The pressure of work in the field and the crime, which makes them recruitment targets to join gangs.

6.Are community members prepared for highly skilled work? No
Are there highly qualified jobs available in the area? No
Are there situations where people in the community do not have access to jobs due to lack of specific training?
In your opinion, which are the areas that would have to be developed more?
The areas that would have to be developed to improve academic quality
Of the inhabitants of the canton are those in which they adhere to the reality of the community, such as technification in agriculture and cattle raising.
Is education valued in the community? Not much. But they give more importance to the field work than to formal education.
Is school dropout considered as a priority issue for the department / municipality? Refrained from responding

7.How do you think the project could to affect the education or employment in your community? This type of projects could come to benefit the area, offering better jobs and job opportunities, boosting the economy of the place.





Guide for Informant Key to Education - Nun Isabel – Director School Liceo Acajutla

1. How many schools are there in the community or municipality?

In the Municipality of Acajutla there are 11 Educational Centers:

- *Preschool -2*
- *Elementary -8*
- *High School -1*
- *University -0*

  - Are there children and youth in the community going to schools in other communities? Yes, the young people of the municipality move to Sonsonate 18 km from the City (45 minutes by public transport), to carry out their studies in Secondary and University, in some cases if their economic situation permits, they travel to San Salvador, where they must be installed throughout the week, either by renting an apartment or in the home of a relative.

2. What do you think about the quality of education that is proportioned in school?

In the Public Education Centers, the quality of Education has been decreasing, due to the lack of controls in the institutions and mainly the lack of commitment of the staff, since in some cases it only complies with a working schedule and not with the work of expanding students' knowledge. In the case of Private Schools, the level of quality is higher, since there are other types of commitments between the institution and the parents so that education for their children is integral.

3. Generally, what level / how many years of education does the adult population have in the community?

The population has the level of high school in average.

4. What is the dropout rate (estimate)?

The dropout rate is 25%

  - Has this changed in recent years? *Yes, it's increasing.*

  - At what age is it more common for children to leave school? *Ages range from 12 to 17 years*

  - Are there demographic groups or certain specific areas that are more likely to drop out? *Those who lack economic resources, those who live in areas with higher rates of delinquency.*

- What are the most common causes of dropout?
- *Migration*
- *Lack of Economic Resources*
- *Delinquency*
- *Family disintegration*

5. Are community members prepared for highly skilled work?

Graduates of universities in the last 10 years, have the academic preparation, to perform in positions that require these levels; however due to the lack of opportunities of this type in the area, they don't have the years of experience that some companies demand, to complement the academic training.

- Are there highly skilled jobs available in the area? *No*
- Are there situations in which people in the community do not have access to jobs due to the lack or lack of specific training? *Yes*
- In your opinion, which areas should be developed further? *The industrial area*
- Is education valued in the community? *In the particular case of the rural areas, the trend is to dedicate themselves to works of either cultivating land or employing, they don't give greater importance to academic formation.*
  In the urban area of the municipality if there is a lot of interest of the young adults, culminating careers or taking courses that complement their knowledge and allow them to have greater opportunities (English courses, training in specific areas, etc.).
- Is school dropout considered a priority issue for your department / municipality? *Yes, because of what is organized with private companies, schools and people who can sponsor half a scholarship, for cases that lack of economic resources, it is the reason for dropout, and when it is for other reasons, we find the means to avoid the dropout.*

6. How do you think the Project could affect education and employment in your community?

No affectation is seen at the moment, in fact it is expected that the company will contribute with the generation of jobs in the area and with the support to schools oriented to contribute to the integral education of the students.





Key Informant Guide to Health. - Estela Maritza. Communal Leader (President and Head of Community Health Clinic Las Tablas)

1. How many of years have you practiced medicine in this community? Since when does this health clinic exists? In Community "Las Tablas" there is only one health clinic, which is attended by a health worker who came every month, but to date she has almost 8 months of not attending the clinic. It is usually the neighbors to the establishment who are in charge of taking care of this health center. The clinic has more than 12 years in the community.

- How many people work here? A health promoter who attends every month.

What communities are served from here? The areas that this clinic attends are: Las Tablas, Monte Rico, El Cafetal and Agua Escondida. Could you tell me which is the longest distance that patients travel to receive care? From the furthest point, such as the area of Monte Rico to the clinic, the time it takes to reach this place is 45 minutes, using the neighborhood roads.
Can you name other communities where patients come from?
Only those named above.

2. What health problems are most common is in the community?
The most common health problems are: diarrheal diseases, stomach problems, respiratory diseases, malnutrition, malnutrition, complications of childbirth, skin infections, work-related injuries such as: injuries from agricultural labor instruments.
Have these problems increased or decreased in recent years? In recent years, cases of viral diseases such as: chikungunya and zika have increased.
Are there variations depending on the season of these problems? That is, how do health problems change in relation to the season? The variations of the diseases depend on the seasons of the year, in summer it presents more diseases of the skin and winter presents stomach and respiratory problems.

3. In your opinion, what are the factors that influence or increase the risks of precarious health in the community? Please explain.
Among the factors that influence health risks are: water quality, poor dietary orientation, malnutrition, lack of access to health services, which in the opinion of the actors involved in the interview urges to solve, as this limits the economy and stability of families and the community. Another risk factor is the violence that has caused the migration of some people safeguard their life, deteriorating their mental health; Lack of sanitation; The poor conditions of the network of streets because the accesses do not give a good service and in any case of an emergency, the patient does not arrive soon to the Health Unit of Sonsonate or other hospitals in the departmental head; The environmental contamination referring to the less deep aquifers of which the population has access through the wells and burning of cane

that produces smoke that pollutes the air. All these are determining factors that influence the health of the community.

Have these factors changed significantly in the last few years? If yes, please explain the causes. The health risk factors in the canton "Las Tablas" community have changed in the last 9 years, as new diseases and viruses that tolerate antibiotics are observed.

Are there people who are more susceptible or more vulnerable to health problems? Explain (i.e disabled persons, elderly, etc.) The most susceptible or vulnerable to health problems in the community are the children and the elderly, because of the ages and metabolisms of their own age, they can present delicate diagnostic of previously mentioned diseases.

What are the most important sources of protein for households in this area? Is one source more important than another? The most common sources of nutrition in the inhabitants of the canton are those that can be taken from the harvest such as beans, tortilla, milk and coffee. The consumption of artificial products, such as coke, refreshment with dyes and unhealthy snacks is not ruled out.

4. Has the community been affected by some natural disasters in recent years?

- Hurricanes
- **Floods**
- Glides
- Droughts
- Forest fires
- Other?

But it is considered that before an earthquake are not prepared because there are no plans to prevent these phenomena

- If it is true, what were the impacts? They only represent minor problems such as late arrivals to work or school.

5. Do you think that s or community is vulnerable to give to s tr is natural? Please explain.

There are only a few river floods, which represent only minor problems such as delays in work or school arrivals.

Do you consider that your community is well prepared to respond to natural disasters? Why? Why not? It is considered that before an earthquake are not prepared because there are no plans to prevent these phenomena.

6. When someone in the community is sick, what is the primary access point to receive attention? To get medicine? The primary point of attention is the clinic, but not working from 8 months ago, and members of the community can only take care of it, because it cannot be used as it's in deplorable conditions and does not have a medicine warehouse. For this reason, the residents have to pay a car to move to the departmental head to a hospital or health unit and opt for natural medicines or interventions with a high risk of acquiring an infection.
   - Are there challenges to obtain medical goods and services and / or medicines? Please explain. (Distance to the nearest health center, attention quality / center resources, hours of operation, etc.) The distance is an incident factor, as there are about 18 km to the nearest health center such as the Sonsonate Hospital. The quality of the attention is deplorable in the community clinic. There are no resources and for 8 months the health promoter has not been present.

7. In your opinion, have you noticed any change in the quality of life in the community in the past 5 years? Has it increased or decreased? No change has been noticed, but rather it has been declining in the last year.

It is expressed that the reactivation of the health clinic is urgently needed, that health days are needed, training of community promoters with community leaders, more clinics in the canton because it is a very large area and continues to expand, visits of the promoter at least twice a month.

   - What are the causes of change? (i.e. Population changes, economic opportunities, environmental quality)

8. Do you or believe the community does have some concern on the potential impacts to the health or safety related to the development of the Canal Project? Please explain.

There are some questions about the type of laying that will be put, the ways of maintenance and the security that will be put around these towers since they know that it is a transmission of thousands of volts and that could bring some problems if you do not have security in those towers.

9. Can you explain if used and how traditional medicine is used in the community? *(Ask* for *explanations about the existence of practitioners / healers vs. self-care, herbs / plants used, types of diseases treated, and when and / or which diseases or sing health services ministry, list each mentioned plants and their uses)*

Because of the problem of the absence of promoters or health assistants; The population always resorts to traditional natural medicines; Like the use of plant as: the chichipinse that serves for the wounds and stomach problems; The candle

of izote used for cough and pregnant; Hulls of nose and flowers of chula for the throat; Lemon tea for birth pangs and others; Aloe for different occupations: wounds, hair and stomach; Leaves of narcissus flower as antimycotic for the feet.



Date	March 1, 2016	By: Carlos Reyes
Location: Municipality of	Apaneca	Doc. No. File 2
Reference:	Meeting with Social Promotion and Mayor	
Objectives	These were defined as meeting objectives: • Report on the development of the project and its different stages study • Request information or development plans and development organizations • Report on location on the trace in their municipality • Report the main results of the work done • Share and analyze the main findings of the different specialties • Share with the community the results of the work • Collect contributions, questions and comments from the community	
Participants: Mayor	Lic. Osmin Antonio Guzman (Mayor) Lic. Walter Cardona (Municipal Trustee) Oswaldo Nájera (Support to the community)	
Participants: Pacific Energy	Brenda Lobato, Community Relations Coordinator	
Consulting	Dr. Manuel Roman "ERM" Ing. Roberto Escalante "Local Consultant" Carlos Reyes	

	Action	Description
1	Activities	Proceeded to make the team presentation and the role that each has in the study process led by Dr. Manuel Roman, explained the objectives of the visit and the location of the trace in the municipality generating space for questions, opinions and suggestions. The activity did not have an established program, it began at 9:00 pm and concluded at 10:00 pm.
2	Results. Main Comments	The queries / comments that emerge from the participants and the respective responses are as follows: 1. Knowing about the project and location of the trace Answer: they were explained that it is an approach to inform them of the different stages of the project, when there's more precise information it will be summoned to the formal presentation. 2. Regarding employment generation Answer (Dr. Manuel Roman and Mr. Roberto Escalante.): They mentioned that this process of study is limited to the environmental and social impact, but that the project will give preference to hiring local unskilled workers in each municipality 3. Are you willing to support development projects?

3	Main commitments	• Summon the presentation of the project when the trace of the project it has been defined by different specialists. • Share the different results of the environmental and social study with regarding their development plans • Instances will help summon the different actors at the time of presentation or meeting being prompted • Request in writing the information requested in the development of the meeting**.**
4	Relevant issues to consider	• They emphasis on knowing the location of the trace to make decisions on their future development plans.

Manuel Roman and Oswaldo Najera



Mayor y Manuel Roman



Town Hall of Apaneca



Date	March 1, 2016	By: Carlos Reyes
Location: Municipality of	Ahuachapan	Doc. No. File 3
Reference:	Meeting with Social Promotion	
Objectives	These were defined as meeting objectives: • Report on the development of the project and its different stages study • Request information or development plans and development organizations • Report on location on the trace in their municipality • Report the main results of the work done • Share and analyze the main findings of the different specialties • Share with the community the results of the work • Collect contributions, questions and comments from the community	
Participants: Mayor	Lic. Claudia Azucena López (Social Promotion)	
Participants: Pacific Energy	Brenda Lobato, Community Relations Coordinator	
Consulting	Dr. Manuel Roman "ERM" Ing. Roberto Escalante "Local Consultant" Carlos Reyes	

	Action	Description
1	Activities	Proceeded to make the team presentation and the role that each has in the study process led by Dr. Manuel Roman, explained the objectives of the visit and the location of the trace in the municipality generating space for questions, opinions and suggestions. The activity did not have an established program, it began at 9:00 pm and concluded at 10:00 pm.
2	Results. Main Comments	The queries / comments that emerge from the participants and the respective responses are as follows: 1. Knowing about the project and location of the trace Answer: they were explained that it is an approach to inform them of the different stages of the project, when there's more precise information it will be summoned to the formal presentation. 2. Regarding employment generation Answer (Dr. Manuel Roman and Mr. Roberto Escalante.): They mentioned that this process of study is limited to the environmental and social impact, but that the project will give preference to hiring local unskilled workers in each municipality 3. Are you willing to support development projects?

3	Main commitments	• Summon the presentation of the project when the trace of the project it has been defined by different specialists. • Share the different results of the environmental and social study with regarding their development plans • Instances will help summon the different actors at the time of presentation or meeting being prompted • Request in writing the information requested in the development of the meeting**.**
4	Relevant issues to consider	• They emphasized on knowing the location of the trace to make decisions on their future development plans.

Lic. Claudia Azucena López, Social Promotion



Ahuachapan Town Hall



Date	February 29, 2016	By: Carlos Reyes
Location: Municipality of	Acajutla	Doc. No. File 1
Reference:	Meeting with Social Promotion and Municipal Trustee, of the Town Hall of the municipality	
Objectives	These were defined as meeting objectives: • Report on the development of the project and its different stages study • Request information or development plans and development organizations • Report on location on the trace in their municipality • Report the main results of the work done • Share and analyze the main findings of the different specialties • Share with the community the results of the work • Collect contributions, questions and comments from the community	
Participants:	Lic. Moises Bonilla (Promoción Social 7749-1920) Lic. Mardoqueo Flores (Síndico Municipal 2429-7300)	
Participants: Pacific Energy	Brenda Lobato, Community Relations Coordinator	
Consulting	Dr. Manuel Roman "ERM" Ing. Roberto Escalante "Local Consultant" Carlos Reyes	

	Action	Description
1	Activities	Proceeded to make the team presentation and the role that each has in the study process led by Dr. Manuel Roman, explained the objectives of the visit and the location of the trace in the municipality generating space for questions, opinions and suggestions. The activity did not have an established program, it began at 9:00 pm and concluded at 10:00 pm.
2	Results. Main Comments	The queries / comments that emerge from the participants and the respective responses are as follows: 1. Knowing about the project and location of the trace Answer: they were explained that it is an approach to inform them of the different stages of the project, when there's more precise information it will be summoned to the formal presentation. 2. Regarding employment generation Answer (Dr. Manuel Roman and Mr. Roberto Escalante.): They mentioned that this process of study is limited to the environmental and social impact, but that the project will give preference to hiring local unskilled workers in each municipality 3. Are you willing to support development projects?

3	Main commitments	• Summon the presentation of the project when the trace of the project it has been defined by different specialists. • Share the different results of the environmental and social study with regarding their development plans • Instances will help summon the different actors at the time of presentation or meeting being prompted • Request in writing the information requested in the development of the meeting.
4	Relevant issues to consider	• They emphasized on knowing the location of the trace to make decisions on their future development plans.

Key Informant Guide on Gender Issues – Rodrigo Rivas, Apaneca

1. What is the role of your organization? *(*In the event that any NGO or governmental organization is engaged in these issues there*) Secretary of the Town Hall*

2. What are the challenges that women face in this community? (i.e. gender based violence, discrimination, less access to education / employment etc.) All of them

   - How has this changed in recent past years? *Change in the sense that more young women are graduating from elementary, middle and high school, although it 's still less than men.*

   - What are the possible causes? *Greater openness in general, need for the absence of the traditional productive role of men in households (threat of gangs, unemployment, etc.)*

   - How is this different or similar to other communities in the area / in El Salvador? *Similar to neighbor municipalities, but less than in urban areas*

   - Are this recognized as issues that need to be addressed / prioritized by institutions or society, or both? By men or women or both? *There is no widespread recognition of the problem that underlies it or the possible consequences of the still existing disparity.*

3. Which programs exist to address these challenges for women? Please describe. *No specific programs in the municipality, more than someone in charge of the issue within the municipality (I).*

4. In your opinion, how is the situation of women perceived by the community

   - Are there women in leadership positions within the community? How has this changed in recent years? *Not many, but the number has increased (didn't give numbers to illustrate)*

   - Is the increase of women in leadership positions considered a priority? *Not necessarily.*

   - ¿Do you think that young women are given access or the same opportunities as young men? Overall yes, but there's also a belief that an unemployed man has an additional problem because they are more likely to join the activities of gangs that unemployed women (although girls are also involved).

We also deal with issues concerning people from the gay-lesbian-trans community, and it was mentioned that unlike neighboring municipalities of similar size, there seems to be more tolerance and cosmopolitanism in Apaneca for people who are perceived or openly gay in particular, even when there is still mockery and discrimination, these are sporadic, as well as physical abuse. Gender-based violence focuses more on violence against women.

Key Informant Guide on Gender Issues - Municipal Trustee Francisca Vasquez

1. What is the role of your organization? *(In case there* is *an NGO or government organization engaged in these issues)* Within the town hall to oversee improved opportunities for male and female genres, with emphasis on women (she does not mention or recognize any other vision of genre than that attached to the sex of the people).

2. What are the challenges that women face in this community? (i.e. gender based violence, discrimination, less access to education / employment etc.)

- How has this changed in recent past years? Not much, but it is to work in this direction.
- What are the possible causes? Lack of education or communication, in addition to the lack of knowledge of the inherent rights of each person.
- How is this different or similar to other communities in the area / in El Salvador? Not much.
- Are these recognized as issues that need to be addressed / prioritized by institutions or society, or both? By men or women or both? Yes, and together with Haisy Maricela Perez de Lopez, we are working to improve the communication or awareness about the support that abused women could receive, share with other like-minded people, with like challenges for lack of knowledge of laws and regulations.

3. Which programs exist to address these challenges for women? Please describe. Communication workshops or conversations that revolve around other domestic activities related to rural life.

4. In your opinion, how is the situation of women perceived to community

- Are there women in leadership positions within the community? How has this changed in recent years? Yes, the syndic and the Judge of Peace are women with a degree of recognition at a municipal level.
- Is the increase of women in leadership position considered a priority? Not immediate, but if it is to sow for this to occur with more frequency.
- Do you think that young women are given access or the same opportunities as young men? No, because they are restricted to the education beyond elementary for home and domestic issues. In addition, very often they stay to watch after domestic issues and sometimes they are the only ones in charge of their children.

Key Informant Guide on Gender Issues - Roxana Acosta de Recinos, Coordinator of the Committee for Prevention of Violence and Public Safety, Town Hall of Ahuachapán

1. What is the role of your organization? *(In the event that any NGO or governmental organization is engaged in these issues there)*

The Committee is a group of members composed of different governmental and non-governmental institutions, youth groups, associations of women working against violence, with a cross-cutting gender axis, which is implemented with youth and areas such as health, employment, education and gender per se.

2. What are the challenges that women face in this community? (i.e. gender based violence, discrimination, less access to education / employment etc.)

Violence against women and the lack of opportunities and ignorance of their rights

- How has this changed in recent past years?

  Women have been empowered more, there is a route outlined, which is taught to communities through workshops, informing them of their rights and which institutions to go if they are violated.

- What are the possible causes?

  The fight that the municipality does with workshops to inform their rights and know the instances to resort not to be violated, the route on which they are spoken is working.

- How is this different or similar to other communities in the area / in El Salvador?

  No, it is not different, it is the same as the general progress, there is leadership at the municipal level, and they replicate this to every woman of the municipality about their rights, there is an association (Citizen Window Las Gardenias) that is responsible for replicating in their communities the workshops that they receive

- Are these recognized as issues that need to be addressed / prioritized by institutions or society, or both? By men or women or both?

  Yes, it is a priority as gender tables, that all areas, youth, civil society should prioritize the gender issue.

3. Which programs exist to address these challenges for women? Please describe.

Prevention route workshops, with the Attorney General, human rights, National Police (PNC), Women's Network, ISDEMU (Salvadoran Institute for Women)

4. In your opinion, how is the situation of women perceived by the community

- Are there women in leadership positions within the community?

There is leadership in the different communities, and more women are being involved.

- How has this changed in recent years?

They have advanced in the topic of leadership from the workshops given in communities and institutions

- Is the increase of women in leadership position considered a priority?

Yes, the workshops seek to prioritize and generate more leadership

- Do you think young women are given access or the same opportunities as young men?

There are limitations but they are involved although the number of young people is greater, in the case of young women the number is lower because of the insecurity of the zones

EDP Baseline Interview Guide



EDP Health Center Interview Guide

Interview Guide – Health Establishment

Interviewer: _____

Date: _____

GENERAL DATA

Property name	UCSFI (Community Unit of Intermediate Family Health) Ahuachapán	**Type of Accommodation**		Health	
Location Data	Community: Ahuachapán	City: Ahuachapán		Community: Ahuachapán	
Address: 4th av. Nte and 2ª C pte B. San Juan de Dios		Creation date	Unknown	SILAIS	
Data of Responsible	Name:	Position: Secretary of management	Informant *(if not responsible):* Iris Figueroa		
Functioning	Days of Attention: 365 days	Hours of attention: 24 hours			
Communities / Municipalities / Districts served and size of service population: The whole municipality and other people who demand care		Health establishments in reference network: Cabeza de Red (Ataco, Apaneca, Ahuachapán)			

SERVICES PROVIDED / RESOURCES

What are the services available at this center?	**Yes**	**No**		**Yes**	**No**		**Yes**	**No**
Primary Health / Medicine	**X**		Trauma / Emergencies	**X**		Laboratory	**X**	
Obstetric		X	Ambulance Services	**X**		Radio-diagnosis		**X**
Pediatric	X		Eye health care		X	Internment		X
Dental	X		Immunizations **(children)**	**X**		Education / Campaigns		**X**
Topic	X		Mental health	**X**				
Triage	X		Maternal and child health	**X**				
Minor surgery		X	Pharmacy	X		Others?		

Services given (detail questions)	**Answer**
Programs / projects that coordinate **preventive health?** • By the government or in conjunction with other organizations? • Sources of resources for these?	___ Vaccination, medical brigades, approach ___Budget of the Health Unit

EDP Health Center Interview Guide

Health promoters / community agents? • What locations? Beneficiaries? • How often does training take place? • Topics / Programs?	Yes, we have promoters __All the municipality __ Continuous training —
Keep **(epidemiological) disease monitoring?** • Compulsory notification diseases or n (CND)? • Explain process?	*[CND includes: Scabies; chickenpox; Dengue fever; Rage; Epidemic conjunctivitis; Cutaneous leishmaniasis; gonorrhea; Viral hepatitis; Malaria vivax; Condylomata acuminata; Pulmonary TB; Pesticide intoxication; Acquired syphilis; Malaria falciparum; AIDS; Epidemic parotiditis; Leptospirosis; Soft chancre; Bacterial food intoxication; pediculosis; Hemorrhagic dengue; Bacterial meningitis; Chagas Venereal lymphogranuloma; Viral meningitis; Monocutaneous leishmaniasis; Toxoplasmosis; Congenital syphilis]* ___Yes ___All registered and established in the monitoring, is reported to SIBASI and the region and the region to the central where the data is recorded at the national level
Health **statistics** collected in the center? - How are they collected, organized and where are they reported? - Limitations / problems at your school level?	Yes ___ Every week, epidemiological surveillance is received and reported ___There are no problems reported
* *[If the center / post office has a **pharmacy / drug store]*** • Who pays for drugs? • There are other drug store / pharmacies in populated center *(another establishment / health center)?*	There is a pharmacy __The health ministry __The Health Unit and FOSALUD

In the past year there were problems with **medicines or vaccines shortage?** • What medicines / vaccines?	__No __There was no shortage
What types of **emergencies** are handled at this center? • *Describe protocols to respond to an emergency? (i.e. ambulance, hospital care, trauma, coordination with police)*	__The yellow and green codes are taken care of, red codes are evaluated and referred to the hospital which is the second level of care
Are there cases when required to **transfer** a patient to a hospital? • To which hospital is transferred? • Is there any difficulty / barrier in transporting the patient being transferred? • In the last year, how many transfers were made from the center?	□ Yes x □ No __The second level of care that is in the municipality __No, coordinate with other institutions to transfer patients __Does not know
Administration	**Answers**
What is the main source of funding for the center?	The heath ministry
Staff working in the establishment?	*[Insert number of staff]* Physician __7___ Nurse __17___ Dentist __3__ Obstetrician __0__ Pharmacy Technician __0__ Radiographer __0__ Administrative __14__ Laboratory __5__ Other 100

EDP Health Center Interview Guide

Did the staff receive courses or training workshops during the past year? What topics?	□ Yes X □ No ___ Infectious waste, human resources, professional ethics
Are there gaps in human resources in the center? Explain • Training or training of personnel? How often?	__No, solutions are always sought __Continued and different
In the last year there were changes in the staff in the center?	□ Yes X □ No New staff: ___1____ Staff dismissed ___0____
Infrastructure and Equipment / Machines	**Answers / Comments**
Infrastructure *[Comments / Observations - State of rooms / offices?]* _____ _____	1_ □ Waiting Room X 2_ □ Reception X 3_ □ Office X 4_ □ Bath X 5_ □ Delivery Room X 6_ □ Laboratory X 7_ □ immunization Room X 8_ □ Drug store / pharmacy X 9_ □ Delivery House / mother 's house
Equipment *[Comments / Observations - equipment?]*_____ _____	1_ □ Waiting Chair X 2_ □ Stretcher 3_ □ Balance X 4_ □ StadiometerX 5_ □ Gynecological instrument X 6_ □ Tension X 7_ □ Oven sterilization X 8_ □ Refrigerator X 9_ □ Oxygen tank

EDP Health Center Interview Guide

Ambulance *[Group responsible for the ambulance; financing; Ambulance status; Year of the vehicle]*	□ Yes X □ No __ The ministry
Continuous **water** service?	□ Yes X □ No 1_ □ Public Network X 2_ □ Public use pylon 3_ □ Dwell 4_ □ River, sluice, spring □ Other
Hygienic service	□ Yes X □ No 1_ □ Public network drain X 2_ □ Cesspit, latrines 3_ □ Septic tank 4_ □ River irrigation ditch or canal □ Other
Other services	*Electricity* □ Yes X □ No *Internet* □ Yes X □ No *Phone (cellular, fixed)* □ Yes x □ No *Radio* □ Yes □ No X
Are there medical equipment or machines that are old or do not work?	□ Yes □ No X *List of machines and equipment: None*

EDP Health Center Interview Guide

PATIENTS

An estimate, how many patients are being treated at this center? • What is the trend in recent years (increasing, reducing, the same)? • The reasons for changes?	__Don't know__ Patients per month __Do not know patients per year __Has increased __Changes in climate and environment, vector diseases
How many people with a disability are in the center? • You can explain the actions taken in this center to serve this population or n?	___Unknown amount ___There is a veterans' club, we organize to find quick ways to serve them
In your opinion, what are **the main barriers** for communities to access health services? • Cost of services ____ • Transport / distance (cost or lack of means of transport) ___ X ___ • Lack of insurance __ X ___ • Capacity health services ___ • Lack of doctors or nurses ____	Others?
Insurance What proportion of the population receiving medical attention here has insurance?	____Unknown

• Type of insurance? • Do the uninsured pay for services? Medications?	___Unknown ___No, the ministry provides them with medications
Where the practice of **traditional medicine?** • Who provides the service? • Are there particular diseases or circumstances when populations prefer traditional medicine to other types of medicine? • Why? • There is coordination between traditional medicine practitioners with establishments / health centers?	___We do not know ___We do not know if they exist __Unknown __No, with the Health Unit there's none

CAUSES OF MORBIDITY AND MORTALITY

Questions	**Comments**
What are the most common causes of **mortality** or death in the *[municipality / community]?* • Which groups have higher risk of suffering these conditions? Or in this context what groups could be considered as the more vulnerable to these conditions? ***[Request statistics / data if accessible]***	Children 0 to 5 years old and pregnant women
What are the *diseases* / most common *injury* **(causes of *morbidity)*** in	*[If it was not mentioned in the previous question - verify with the informant which*

the *[municipality / community]?* • There have been different trends or patterns of diseases / injuries in the past few years? **Increased / reduced?** _____ • Does it affect certain groups of the population in a different way than others? How? • Children and older adults *[Get statistics or reports if there* is */ are accessible]*	*of the following diseases are common* • *1_ Malaria / Malaria* ___ • *2_ Dengue* _ X ___ • *3_ Yellow Fever* ____ • *4_ Leishmaniosis* ____ • *5_ Hepatitis* ____ • *6_ Gastrointestinal diseases (Parasites)* ____ • *7_ Sexually transmitted diseases or n (HIV / AIDS, syphilis, human papilloma virus, gonorrhea)* __ X ___ • *8_ Respiratory diseases (TB, influenza, acute respiratory infections, asthma)*_____ • *9_ Malnutrition*__ X __ • ***10_ Traffic accident / other wounds*** *- Cause?* ____ • *11_ Mental health (depression / suicide)* __ X __ • *12_ Acute respiratory illnesses* __ X _ • *13_ Chikungunya* ___ • *14_ Diarrhea + GBA* ___ • *15_ Amoebiasis* __ X __ • *16_ Bruises* __ X __ • *17_ Urinary infections* __ X __ • *18_ Bacterial Conjunctivitis* ____ • *19_ Injury* __ X __ • *20_ Lumbago* __ X __ • *21_ Irritable bowel syndrome* __ X __ • *22_ Respiratory*__ X __ •
Total incidence rate of **traffic accidents** in its area? Has it increased / decreased in the last 5 or 10 years? Boat Accidents?	No changes are maintained ___ ___

EDP Health Center Interview Guide

In your opinion, which **factors / risks** more influence on health in the population in its coverage area? *Just mention one or two topics below if they have difficulty, and ask for explanations* • *1_ Quality of roads / traffic / accidents ____* • *2_ Lack of economic resources __ X __* • *3_ Lack of access to health services ____* • *4_ Lack of food __ X ___* • *5_ Teenage pregnancy __ X ___* • *6_ Quality of health services ____* • *7_ Costs of medical attention; medicines _____* • *8_ Immigration in the region (increase in diseases, social risks) X* • *9_ Violence ___ X ___* • *10_ Substance abuse (alcohol / drugs / snuff)_____* • *11_ Lack of access to potable water / unsanitary conditions ____* • *12_ Lack of vaccines _____* • *13_ Environmental pollution _____*	
There have been **outbreaks of infectious diseases** in the *(district / community)* over the years? • What diseases? Which were were the causes? • What plans / programs are there to control outbreaks?	No disease outbreaks ___ ___ They are responsive to these outbreaks

HEALTH AND SAFETY CONCERNS

Questions	Comments
1. According to the current situation of health in the area of coverage, which health conditions / diseases do you consider to be the most important in the next 5-10 years?	__I don't know about the project, I can't comment
2. You have questions or concerns regarding health issues and safety associated with the development of the project?	__I don't know about the project, I can't comment

EDP Health Center Interview Guide

Interview Guide – Health Establishment

Interviewer: Luis Ernesto Muñoz Canizales

Date: _____

GENERAL DATA

Property name	Medical Unit, Salvadoran Institute of Social Security	**Type of Accommodation**		Health
Location Data	Community: Ahuachapán	City: Ahuachapán		Community: Ahuachapán
Address: End of 10 C. Ote, exit to Sonsonate		Creation date	05/01/1974	SILAIS
Data of Responsible	Name: Luis Ernesto Muños Canizales	Position: Director of the Medical Unit		Informant *(if not the person in charge):*
Functioning	Days of Attention: 365 days	Hours of attention: 24 hours		
Communities / Municipalities / Districts served and size of service population: Ahuachapán, Tacuba, Amayo, Ahuachapán Río Frío. A population of 30,179		Health establishments in reference network: West of North Zone ISSS Network		

SERVICES PROVIDED / RESOURCES

What are the services available at this center?	**Yes**	**No**		**Yes**	**No**		**Yes**	**No**
Primary Health / Medicine	**X**		Trauma / Emergencies	**X**		Laboratory		X
Obstetric	X		Ambulance Services	X		Radio-diagnosis		**X**
Pediatric	X		Eye health care		X	Internment		X
Dental	X		Immunizations **(children)**	X		Education / Campaigns	X	
Topic		X	Mental health		X	Others?		X
Triage	X		Maternal and child health	X				
Minor surgery	X		Pharmacy		X			

Services given (detail questions)	**Answer**
Programs / projects that coordinate **preventive health?** • By the government or in conjunction with other organizations?	___ Work in all primary care programs ___ Five-year plan of the institution

• Sources of resources for these?	
Health promoters / community agents? • What locations? Beneficiaries? • How often does training take place? • Topics / Programs?	No, they don't have.
Keep **(epidemiological) disease monitoring?** • Compulsory notification diseases or n (CND)? • Explain process?	*[CND includes: Scabies; chickenpox; Dengue fever; Rage; Epidemic conjunctivitis; Cutaneous leishmaniasis; gonorrhea; Viral hepatitis; Malaria vivax; Condylomata acuminata; Pulmonary TB; Pesticide intoxication; Acquired syphilis; Malaria falciparum; AIDS; Epidemic parotiditis; Leptospirosis; Soft chancre; Bacterial food intoxication; pediculosis; Hemorrhagic dengue; Bacterial meningitis; Chagas Venereal lymphogranuloma; Viral meningitis; Monocutaneous leishmaniasis; Toxoplasmosis; Congenital syphilis]* ___Yes ___ Are reported to the national health system to continue monitoring.
Health **statistics** collected in the center? - How are they collected, organized and where are they reported? - Limitations / problems at your school level?	___Yes ___ They are reported to the national health system and also reported to the statistical system of our institution ___ No, there are no limitations
* *[If the center / post office has a **pharmacy / drug store]*** • Who pays for drugs? • There are other drug store / pharmacies in populated center *(another establishment / health center)?*	The institution __ No, the unit doesn't have any other dispatch

EDP Health Center Interview Guide

In the past year were there problems with **medicines or vaccines shortage?** • What medicines / vaccines?	__No, there were no shortages __None
What types of **emergencies** are handled at this center? • *Describe protocols to respond to an emergency? (i.e. ambulance, hospital care, trauma, coordination with police)*	_ Emergencies of green, yellow, red, and red codes are taken to the regional hospital in the Department of Santa Ana
Are there cases when required to **transfer** a patient to a hospital? • To which hospital is transferred? • Is there any difficulty / barrier in transporting the patient being transferred? • In the last year, how many transfers were made from the center?	□ Yes x □ No __ Yes, they are transferred to the regional hospital in the Department of Santa Ana __ No, there is no difficulty Shuttle __ 230 transfers
Administration	**Answers**
What is the main source of funding for the center?	The discounts of the insured of the country
Staff working in the establishment?	*[Insert number of staff]* Doctor __13___ Nurse __14___ Dentist __2__ Obstetrician __3__ Pharmacy Technician __5_ Radiographer __0__ Administrative __7__ Laboratory __0__ Other 35
Did the staff receive courses or training workshops during the past year? What topics?	□ Yes X □ No ___ Management courses and human development

EDP Health Center Interview Guide

Are there gaps in human resources in the center? Explain • Training or training of personnel? How often?	__There are no gaps
In the last year, there were changes in the staff in the center?	□ Yes X □ No New staff: ___1____ Staff dismissed ___0____
Infrastructure and Equipment / Machines	**Answers / Comments**
Infrastructure *[Comments / Observations - State of rooms / offices?]* _____ _____	1_ □ Waiting Room X 2_ □ Reception X 3_ □ Office X 4_ □ Bath X 5_ □ Delivery Room 6_ □ Laboratory 7_ □ Immunization Room 8_ □ Drug store / pharmacy X 9_ □ Delivery house / mother's house
Equipment *[Comments / Observations - equipment?]*_____ _____	1_ □ Waiting Chairs X 2_ □ Stretcher X 3_ □ Scale X 4_ □ StadiometerX 5_ □ Gynecological instrument X 6_ □ Tension X 7_ □ Sterilization Oven _ X 8_ □ Refrigerator X 9_ □ Oxygen tank
Ambulance *[Group responsible for the ambulance; financing; Ambulance status; Year of the vehicle]*	□ Yes X □ No __ Institutional

Continuous **water** service?	□ Yes X □ No 1_ □ Public Network X 2_ □ Public use pylon 3_ □ Dwell 4_ □ River, sluice, spring □ Other
Hygienic service	□ Yes X □ No 1_ □ Public network drain X 2_ □ Cesspit, latrines 3_ □ Septic tank 4_ □ River irrigation ditch or canal □ Other
Other services	*Electricity* □ Yes X □ No *Internet* □ Yes X □ No *Phone (cellular, fixed)* □ Yes x □ No *Radio* □ Yes X □ No
Are there medical equipment or machines that are old or do not work?	□ Yes □ No X *List of machines and equipment: None*

PATIENTS

An estimate, how many patients are being treated at this center? • What is the trend in recent years (increasing, reducing, the same)? • The reasons for changes?	_6223__ Patients per month *74679*__ patients per year __Has increased __Changes in climate and seasons of winter and summer.

EDP Health Center Interview Guide

How many people with a disability are in the center? • You can explain the actions taken in this center to serve this population or n?	___ We do not have reliable data, we do not keep track of this kind of attention ___ We do not have
In your opinion, what are **the main barriers** for communities to access health services? • Cost of services ____ • Transport / distance (cost or lack of means of transport) ___ X ___ • Lack of insurance __ X ___ • Capacity health services ___ • Lack of doctors or nurses ____	Others? Must be a person with formal employment and be subject to ISSS discount
Insurance What proportion of the population receiving medical attention here has insurance? • Type of insurance? • Do the uninsured pay for services? Medications?	___ We don't know ___ We don't know ___ We don't know

•	
Where the practice of **traditional medicine?** • Who provides the service? • Are there particular diseases or circumstances when populations prefer traditional medicine to other types of medicine? • Why? • There is coordination between traditional medicine practitioners with establishments / health centers?	___We do not know ___We do not know, people tend to hide information for fear ___We don't know ___No

CAUSES OF MORBIDITY AND MORTALITY

Questions	Comments
What are the most common causes of **mortality** or death in the *[municipality / community]?* • Which groups have higher risk of suffering these conditions? Or in this context what groups could be considered as the more vulnerable to these conditions? ***[Request statistics / data if accessible]***	___We have no records of mortality ___We don't know
What are the *diseases* / most common *injury* **(causes of *morbidity)*** in the *[municipality / community]?*	*[If it was not mentioned in the previous question - verify with the informant which of the following diseases are common*

• There have been different trends or patterns of diseases / injuries in the past few years? **Increased / reduced?** _____ • Does it affect certain groups of the population in a different way than others? How? • Children and older adults *[Get statistics or reports if there* is */ are accessible]*	• *1_ Malaria / Malaria ___* • *2 _Dengue _____* • *3_Yellow Fever ____* • *4_ Leishmaniosis ____* • *5_ Hepatitis ____* • *6_ Gastrointestinal diseases (Parasites) ____* • *7_ Sexually transmitted diseases (HIV / AIDS, syphilis, human papilloma virus, gonorrhea) _____* • *8_ Respiratory diseases (TB, influenza, acute respiratory infections, asthma)_____* • *9_ Malnutrition___* • ***10_ Traffic accident / other wounds** - Cause? ____* • *11_ Mental health (depression / suicide) ____* • *12_ Acute respiratory illnesses ___* • *13_ Chikungunya _ X __* • *14_Diarrhea + GBA _ X __* • *15_ Amoebiasis __ X __* • *16_ Bruises __ X __* • *17_ Urinary infections __ X __* • *18_ Bacterial Conjunctivitis__ X __* • *19_ Injury__ X __* • *20_ Lumbago __ X __* • *21_ Irritable bowel syndrome __X__* • *22_ Respiratory __X__*
Total incidence rate of **traffic accidents** in its area? Has it increased / decreased in the last 5 or 10 years? Boat Accidents?	___ They have increased ___ There are none in the area

EDP Health Center Interview Guide

In your opinion, which **factors / risks** more influence on health in the population in its coverage area? *Just mention one or two topics below if they have difficulty, and ask for explanations* • *1_ Quality of roads / traffic / accidents ____* • *2_ Lack of economic resources __X __* • *3_ Lack of access to health services ____* • *4_ Lack of food _____* • *5_ Teenage pregnancy _____* • *6_Quality of health services ____* • *7_ Costs of medical attention; medicines _____* • *8_ Immigration in the region (increase in diseases, social risks) X* • *9_ Violence ___ X ___* • *10_ Substance abuse (alcohol / drugs / snuff)__ X ___* • *11_ Lack of access to potable water / unsanitary conditions __X __* • *12_ Lack of vaccines _____* • *13_ Environmental pollution __ X ___* •	
There have been **outbreaks of infectious diseases** in the *(district / community)* over the years? • What diseases? Which were were the causes? • What plans / programs are there to control outbreaks?	___ No ___ Institution plans are activated according to the needs

EDP Health Center Interview Guide

HEALTH AND SAFETY CONCERNS

Questions	Comments
1. According to the current situation of health in the area of coverage, which health conditions / diseases do you consider to be the most important in the next 5-10 years? 2. You have questions or concerns regarding health issues and safety associated with the development of the project?	___Doesn't know ___Doesn't know the project

EDP Health Center Interview Guide



Key Informant Guide for Health - Iris de Figueroa, Secretary of the Director of the Health Unit of Ahuachapan.

1. How many years have you practiced medicine in this community?
   2 years of practice in this Health Unit

   - From what year does this establishment exist, health clinic?
     Since the year 1980

   - How many people work here?
     There are 145 employees

2. What communities / hamlets do you serve from here?
   To the whole municipality

   - Could you tell me the longest distance that patients travel to receive care?
     30 kilometers

   - Can you name other communities where patients come from?
     From different places and municipalities and all the people who demand the service.

3. What health problems are most common in the community?

   - 1- Skin infections_____
   - 2- Diarrheal diseases / stomach problems __X__
   - 3- Respiratory diseases_ X__
   - 4- Malnutrition _____
   - 5- Complications of labor _____
   - 6- Traffic accidents/ Other Accidents_____
   - Other? Headaches

   - Have these problems increased or decreased in recent years?
     They have been increased by the climate changes that are generated.

   - Are there variations of these problems depending on the season of the year? That is, how do health problems change in relation to the season?

Variations or changes are respiratory diseases, dengue, chickungunya, zika

4. In your opinion, what are the factors that influence or increase the risks of poor health in the community? Please explain.
    - 1-Lack of economic resources (poverty / vulnerability) _X__
    - 2-Lack of access to health services
    - 3-Limited quality of health services ____
    - 4-Because of the cost of health services; medicine or transportation
    - 5-Malnutrition ___
    - 6-Migration of the population in the region _X__
    - 7-Violence ____
    - 8-Abuse of narcotics (alcohol, drugs, tobacco) ___
    - 9-Lack of access or problems with sources of drinking water / lack of sanitation____
    - 10-Conditions of the street network / traffic / accidents __ X__
    - 11-Environmental pollution (water, air, soil) -provide explanation ____

    - Have these factors changed dramatically in recent years? If yes, please explain the causes.
      Deforestation and its causes

    - Are there people who are more susceptible or more vulnerable to health problems? Explain (i.e. disabled persons, elderly, etc.)
      Children and the elderly

    - What are the most important sources of protein for households in this area? Is one source more important than another?
      Chicken for being cheaper.

5. Has your community been affected by some natural disasters in recent years?
    - 1- Hurricanes ___
    - 2- Flood ____
    - 3- Landslides ___
    - 4- Sequias __X___
    - 5- Forest Fires___
    - Other?_____

    - If so, what were the impacts?

The impacts were minimal and we have no records of them

6. Do you consider your community vulnerable to natural disasters? Please explain.
   Floods, but they are minimal

   - Do you consider your community well prepared to respond to natural disasters? Why? Why not?
     There are trained personnel and therefore there is capacity of response.

7. When someone in the community is sick, what is the primary access point for care? To get medicine?

   It depends on the area, if there is an ECOSFB (Basic Family Health Community Facility) is taken care there, if not the patient is transferred to the Health Unit, and this to the hospital if necessary.

   - Are there any challenges to obtaining medical goods and services and/or medicines? Please explain
     There is a basic supply of drugs to provide different levels of care.

   - Distance to the nearest health center, quality of care / resources of the center, hours of operation, etc.)
     100 meters is the closest distance

8. In your opinion, have you noticed any changes in the quality of life in your community in the last 5 years? Has it increased or decreased?

   The population maintains a good standard of living.

   - What are the causes of the changes? (i.e. changes in population, economic opportunities, environmental quality)

   _____
   _____
   _____

9. Do you or the community have any concerns about the potential health or safety impacts associated with the development of the project? Please explain.

   I cannot say, I don't know about the project, nor do I hear comments from people who care.

10. Can you explain if traditional medicine is used and how is used in the community?
    Do not know if there is practice

(Ask for explanations about: the existence of practitioners / healers vs. self-care, herbs / plants used, types of diseases treated, and when and/or for which diseases ministry health services are used, list each of the plants mentioned and their uses.)

_____
_____
_____
_____
_____
_____

Key Informant Guide for Health – Luis Ernesto Muños Canizales, Director of the Health Unit of Social Security Ahuachapan.

1. How many years have you practiced medicine in this community?

   6 years

   - From what year does this establishment exist, health clinic?

     Since may 1979

   - How many people work here?

     There are 79 employees

2. What communities / hamlets do you serve from here?
   Municipalities of Ahuachapan, Tacuba, Turin, Ataco and emergencies of the population of any place of the country.

   - Could you tell me the longest distance that patients travel to receive care?
     30 kilometers the furthest patient.

   - Can you name other communities where patients come from?
     Tacuba, Amayo, Ahuachapan, Rio Frio.

3. What health problems are most common in the community?

   - 1- Skin infections___X____
   - 2- Diarrheal diseases / stomach problems ____
   - 3- Respiratory diseases_ X__
   - 4- Malnutrition _____
   - 5- Complications of labor _____
   - 6- Traffic accidents/ Other Accidents_____X_____
   - Other? _____
     _____

   - Have these problems increased or decreased in recent years?

     They have been increased by the climate changes and the increase of the population and the vehicles.

- Are there variations of these problems depending on the season of the year? That is, how do health problems change in relation to the season?
  Yes, it's controlled according to the summer and winter season.

4. In your opinion, what are the factors that influence or increase the risks of poor health in the community? Please explain.
   - 1-Lack of economic resources (poverty / vulnerability) ___
   - 2-Lack of access to health services ____
   - 3-Limited quality of health services ____
   - 4-Because of the cost of health services; medicine or transportation __X__
   - 5-Malnutrition ___
   - 6-Migration of the population in the region __X__
   - 7-Violence __X__
   - 8-Abuse of narcotics (alcohol, drugs, tobacco) __X__
   - 9-Lack of access or problems with sources of drinking water / lack of sanitation _X_
   - 10-Conditions of the street network / traffic / accidents ____
   - 11-Environmental pollution (water, air, soil) -provide explanation __X__

   - Have these factors changed dramatically in recent years? If yes, please explain the causes.
     Yes, because of the migration of the population, there are forced settlements that don't comply with health requirements to live.

   - Are there people who are more susceptible or more vulnerable to health problems? Explain (eg disabled persons, elderly, etc.)
     Yes, specially the elderly with problems.

   - What are the most important sources of protein for households in this area? Is one source more important than another?
     Chicken is more accessible to the population.

5. Has your community been affected by some natural disasters in recent years?
   - 1- Hurricanes ___
   - 2- Flood __X__
   - 3- Landslides _X__
   - 4- Sequias _____
   - 5- Forest Fires___
   - Other?_During the E12 storm____

- If so, what were the impacts?
  Floods because of the E12 Storm.

6. Do you consider your community vulnerable to natural disasters? Please explain.

   Yes, to landslides and floods.

   - Do you consider your community well prepared to respond to natural disasters? Why? Why not?
     No, people is apathetic to participate in preventive activities.

7. When someone in the community is sick, what is the primary access point for care? To get medicine?
8.

   If he/she has insurance, it is attended. If not, the national health system will be the one who gives them the appropriate attention.

   - Are there any challenges to obtaining medical goods and services and/or medicines? Please explain
     There is a basic supply of drugs to provide different levels of care.

   - Distance to the nearest health center, quality of care / resources of the center, hours of operation, etc.)
     The greatest distance is 30 kilometer and the lesser is 100 meters

9. In your opinion, have you noticed any changes in the quality of life in your community in the last 5 years? Has it increased or decreased?

   Yes, the quality of life of the insured has increased.

   - What are the causes of the changes? (i.e. changes in population, economic opportunities, environmental quality)
     Greater increase in health indexes.

   _____
   _____
   _____

10. Do you or the community have any concerns about the potential health or safety impacts associated with the development of the project? Please explain.
    I don't know about the project.

    Can you explain if traditional medicine is used and how is used in the community?
    I don't know if it's practiced

(Ask for explanations about: the existence of practitioners / healers vs. self-care, herbs / plants used, types of diseases treated, and when and/or for which diseases ministry health services are used, list each of the plants mentioned and their uses.)

_____
_____
_____
_____
_____
_____

Key Informant Guide on Infrastructure and Public Services - María Olivia Pérez, head of Cadastre, Town Hall, Santo Domingo de Guzman

1. What is the infrastructure and public services responsibility of your organization? What is your mandate?

Public lighting, municipal cleaning and drinking water and maintenance

2. Has the community / hamlet:

• 1_ Drinking water X

• 2_Sanitation X

• 3_Electricity X

➢If yes, how do these systems work?

In the urban area under municipal administration and in the rural are water joints, energy is provided by CLESA, the town hall is in charge of the sanitation in the municipality

➢If yes, what percentage of households are covered?

In the urban area, 100% has access to water,. In the rural area, 90% has domestic water,. Urban sanitation is covered 100% by the town hall. All of the families in the urban area have electricity.

➢If not, what sources do households use for water, sanitation, and energy?

Families are provided by slopes and rivers. For sanitation outside of the urban area, the town hall goes by once a month, other families bury the garbage or burn it, in lack of energy they are lit with candles

3. What type of infrastructure exists in the community / hamlet?

• 1_Paved road___ X____
• 2_Paved drainage canals ___ X____
• 3_Sewages_____
• 4_ Public transport___ X__
• 5_Parks and public spaces ____ X____
• 6_Celular network, who are the providers: Tigo, Digicel, Claro, Movistar

➢What is the quality / reliability of these? Who is in charge of maintenance?

The municipality guarantees the maintenance and in according to the agreements with the MOP, the communication services the owner companies guarantee it

4. Are there populations in the community that are not covered by water services?

The communities in general have domestic water, there are few families who do not directly have the water to their home but have very close access

What are your water sources? (Water committee, other water source)

It is taken from the slopes and water is taken by gravity, also has underground water and rivers

5. What is the main water source for this community /hamlet?

They are subterranean, located in the canton El Caulote and springs where the communities are provided.

6. How has access to public services and infrastructure changed over the last few years?

➢Have there been any changes to the population?

Yes, changes were made to larger diameter pipes and tank construction so that more families have access to domestic water

➢Has there been new investment in public services and infrastructure?

The investment is to improve access to potable water, greater pumping, tank and pipe changes

➢What are the challenges of maintaining or creating new infrastructure in this community / hamlet?

Implement grey water management

7. Are there priorities in the community about infrastructure development in the near future? Are there plans to address them?

Only in the maintenance of existing small programs



Key Informant Guide on Infrastructure and Public Services – Edwin Alfonzo Olivares Mancia, Municipal Services Administrator, Town Hall of San Pedro Puxtla

1. What is the infrastructure and public services responsibility of your organization? What is your mandate?

Maintenance and execution of infrastructure.

2. Has the community / hamlet:

- 1_ Drinking water X
- 2_Sanitation X
- 3_Electricity X

➢If yes, how do these systems work?

Potable water is administered by ANDA, electricity is served by CLESA and sanitation is supplied by the town hall.

➢If yes, what percentage of households are covered?

97% has household water in the urban area, in the rural area 37% has water supplied buy the water joints, 95% in the urban area have electricity and 75% in the rural area, 100% of the families in the urban area have sanitation, in the rural area once a month.

➢If not, what sources do households use for water, sanitation, and energy?

Few families don't have household water, but its accessible to them, the families that don't have electricity use candles. In the rural area families throw garbage to the field or they bury it.

3. What type of infrastructure exists in the community / hamlet?

- 1_Paved road___ X____
- 2_Paved drainage canals ___ X____
- 3_Sewages_____
- 4_ Public transport___ X__
- 5_Parks and public spaces ____ X____
- 6_Celular network, who are the providers: Tigo, Digicel, Claro, Movistar

➢What is the quality / reliability of these? Who is in charge of maintenance?

The town hall guarantees the services, the rest is guaranteed by the companies responsible of the service.

4. Are there populations in the community that are not covered by water services?

Families without household water are few in the urban area but they have close access, wateter in the rural area they stock up from rivers and springs.

- What are your water sources? (Water committee, other water source)

There are different rivers, one of them is the Texispulco.

5. What is the main water source for this community /hamlet?

Underground water and springs.

6. How has access to public services and infrastructure changed over the last few years?

➢Have there been any changes to the population?

The access to water for the families has increased, the electricity coverage is increasing.

➢Has there been new investment in public services and infrastructure?

Yes, in household water services and electricity and access to paths to different areas of the municipality and access to touristic areas.

➢What are the challenges of maintaining or creating new infrastructure in this community / hamlet?

Have a green and productive municipality, for it we've started executing plans.

7. Are there priorities in the community about infrastructure development in the near future? Are there plans to address them?

Yes, in the economic and agriculture with the goal of having a green and productive municipality.


EMS

San Pedro Puxtla - Moises Bonilla, Infrastructure, Engineer Jesús Romero – Head of Projects, Environment in Projects Comision. Key Informant Guide on Infrastructure and Public Services.

1. What is the infrastructure and public services responsibility of your organization?
Roads, 10 schools, 6 municipal courts (soccer) (Guachipilin 2, 3, 4, 5), ditches, walls, signage, passable road all year 80%. 6 cantons, 37 villages, about 10,000 inhabitants (2010 census was 7,800), 1500 urban.

2. What is your mandate? Green and Productive Municipality (42km^2)
Corduguatec (500-800 users) 1500 Lack of water- ANDA-> Guaymango / San Pedro Puxtla 1 Water board (chlorine water treatment)

3. Has the community / hamlet:
   - Drinking water - Yes, poorly managed in urban area (by ANDA and a Water Board). The water is treated with chlorine.
   - Sanitation - no sewage (many latrines, "aboneras" and no septic tanks in urban areas).
   - Electricity - Yes.

➢If yes, how do these systems work?
➢Drinking water is poorly managed, and despite having large sources, there is shortage in service.
➢Electricity is distributed by national network, although there is nonconformity for tariffs and supplies sometimes. In general, if there is no electrical connection is due to lack of resources.
➢If yes, what percentage of households are covered?
➢Electricity 67% rural => 97% urban
➢Water almost 100% in urban area. In rural areas it depends more on wells than on centralized supply network.
➢If not, what sources do households use for water, sanitation, and energy?
➢Rural households use latrines (or less under precarious conditions), wells or fountains up to 3-5km from the dwelling itself. Instead of electricity, traditional methods such as candles, firewood are used; Batteries for radio transmitters.

4. What kind of infrastructure exists in the community / hamlet?

There are energy-saving lamps, although previously there were mercury lamps (lasting longer) and a cost-benefit analysis is now being considered

• Paved road and paved access between Santo Domingo and Apaneca (9.7km) with sidewalk, gutter and signposting
• Paved drainage canals
• Sewers
• Public transportation - Yes, in a limited network, primarily connecting with Sonsonate.
• Parks and public spaces. Yes and soccer fields
• Cellular network, who are the suppliers - all (Tigo, Movistar, Claro, Telcel)

➢What is the quality / reliability of these? Who is in charge of maintenance?

➢Public transport is private, as well as mobile telephone networks.

5. Are there populations in the community that are not covered by water services?

➢What are your water sources => wells, rivers.

6. What is the main water source for this community / hamlet? Guaymango River and wells, in addition to surface waters, (including nearby aquifer outcrops).

7. How has access to public services and infrastructure changed over the last few years?

➢Have there been any changes to the population? Increase of almost 20% in the last 8 years.

➢Has there been new investment in public services and infrastructure? Yes, development is slow but steady over the years, following population growth and development of new housing and access roads.

➢What are the challenges of maintaining or creating new infrastructure in this community / hamlet? Budget, Access.

8. Are there community priorities for infrastructure development in the near future? Paving of communication route between neighboring municipalities, improvements in the potable water system, Are there plans to address them?

Reforestation is intended to plant 10,000 trees in watersheds and water sources to contribute to its preservation and protection.

Agricultural packages from 400-500 to 200 currently Radio program

Two Councilmen. Coastal Croaces- New Gardens- Lotification wind blew a cable in place where it was populated. Syndic _> Municipal Council UATM Environment, Dept Projects

Meeting with technical team

Sonsonate Social Projection Jaqueline Pastore 2469-3246 -> Talking to the Mayor Tuesday / Thursday 8am
Dept of Projects
Management -> Development Plan
Environmental - Mario Marquez

Santo Domingo de Guzman - Gerardo Cuellar
Planning Manuel Vasquez - 2420-6009
Nahuablantes -
Submit Project - Wind
"Indigenous Mentality"
Manage -> Council Development Plan? Another dependency.

San Pedro Puxtla - Lic. Carlos Cabrera
Alcaldiamunicipal.sanpedropuxtla@yahoo.es
Baking Unit - Gamanielo
Edwin Olivares
Sonsonate José Roberto Aquino Mayor _Carta S

Osmin Antonio Guzmán Tigre - Mayor by 9 terms (3/1/2016)
Tourism - Work Quezalapa Monte Sagrado San Ramoncito Quezalapa Street MARN Cordillera (3/2/16) Migratory Birds Salaverry Himalaya San Ramoncito Borja Rafael Silva First community that plays Monte Sarado 45 families Quezalapa 44 families San Ramoncito 12-13 families Saltillal 10 families Highly Coffee shop biosphere office 11 linked municipalities

Osbaldo Nagera 7697 2105
Walter Cardona 7396-2698
UNES Angel Ibarra Ricardo Navarro CIESTA
Fundesiran
FIAES – Environment

Ahuachapán – Lic. Mayor Abilio Flores
Claudia López Social Promotionl -2443-0082 – 029
2487-4800
alcaldia_ahuachapan@hotmail.com
1 Environmental NGO

Coffee (Tourism?) Owners support

Tree cut-down

Reserve of the biosphere

FISDL? How often

Caritas – Santa Ana, coffee, cocoa, plantain. CLUSA (¿)-> cocoa, sapote, loquat, organic orange, CRS CENTA (Nothing to see) UNES (Guaymango but now only in San Salvador), organic FUNDECIRAN, women credit organization, young entrepreneurs, productive 12 years in SPP, composting plant - > Fertilizer in nursery

Trash is processed 1 ½ - 2 ton daily

Key Informant Guide on Instrastructure and Public Services - Luis Alfonso Castillo, In charge of Environmental Unit, Town Hall of Ahuachapán

1. What is the infrastructure and public services responsibility of your organization? What is your mandate?

Maintenance and execution of road infrastructure, solid waste and electricity.

2. Has the community / farm system:

- 1_ Drinking water X
- 2_Sanitation X
- 3_Electricity X

➢If yes, how do these systems work?

The water is administered by the Water and Sewerage Administration (ANDA), in the urban area, in the rural by the water board.

➢If yes, what percentage of households are covered?

76% of the population has water in the urban, in the rural 75% has water and is administered by water boards, Environmental sanitation: 90% to 95% have it in the urban area, in the rural 6%. Electricity: 80% of the municipality has in their homes

➢If not, what sources do households use for water, sanitation, and energy?

The slopes and rivers provide water, pit services are used to defecate. In the rural area, garbage is burned, buried or thrown to the ground. They light up with candles and lamps

3. What type of infrastructure exists in the community / farm?

- 1_Paved road__ X_____
- 2_Paved drainage canals___ X____
- 3_Sewage__X___
- 4_Public transport ___ X__
- 5_Parks and public spaces ____ X____
- 6_ Cellular network, who are the providers: Claro, Tigo, Telefonica, Digicel

➢What is the quality / reliability of these? Who is in charge of maintenance?

The municipality holds and executes and is responsible for the data with its suppliers

4. Are there populations in the community that are not covered by water services?

There are communities without services in the rural area and in the urban area because they are illegal communities

➢What are your water sources? (Water committee, other water source)

Underground water and water sources for the urban area, for the rural water boards for administration are legalized.

5. What is the main water source for this community / hamlet?

Underground water administered by ANDA

6. How has access to public services and infrastructure changed over the last few years?

➢Have there been any changes to the population?

Land tenure has allowed changes to the household services of families

➢Has there been new investment in public services and infrastructure?

There is investment in public services, drilling wells (in San Lazaro) different communities are supported in the introduction of household water

➢What are the challenges of maintaining or creating new infrastructure in this community / hamlet?

The current administration is committed to the construction of infrastructure for the prevention of violence.

7. Are there priorities in the community about infrastructure development in the near future? Are there plans to address them?

There is priority to cover all the social, economic and environmental services that the communities require.



Key Informant guide on Agriculture - Lucas Cortez, In charge of Environment and Civil Protection, Town Hall of Santo Domingo de Guzmán

1. What types of agriculture is practiced in this community (crop / livestock types, large / small scale)?

   Corn, maize, beans, all on a small scale

2. How many people in the community are directly involved in agricultural activities?

   - Estimated percentage of population

   1,282 people are dedicated to the crops mentioned, according to own records of the mayor's office

   - Are there demographic groups that participate more than others in specific agricultural activities?

   Generally, they are adult men, few young people are integrated to working on the crop, this leaves outside a generational relay in agriculture.

   - To what extent and capacity do women participate?

   The number is quite small both in the urban area and in the rural area, we do not have it in terms of percentage how much would it represent, but the same as youth, the female gender is lesser than the male.

   - How has the sector changed in recent years?

   Agriculture has declined in the municipality, for various social and economic reasons

3. How much product is for domestic consumption and how much for sale?

The crop is small scale and production is mostly for family consumption, sales are made by a necessity.

- Is cattle the primary source of protein in the community?

  i. How many days of the week do the meat eat?

     Livestock is in like the third place in food, is eaten once a week.

- To what market do they carry the product?
  What days?

Maize and corn are taken on Saturdays, to the village for sale, in small quantities

Is it profitable to take the product there?

It is not profitable but it's the only place to sell, without paying transportation

What is the product most sold in that market?

Corn and Maize

4. What is the primary source of water that farmers use?

The rivers of the municipality such as Tepechapa, La Barranca, Aragan rivers, Frio river.

- Are these sources available year-round?

  Yes, we have water all year round

- If not, what are the sources they also use for water?

  They have no other sources, would be the water that families have in their homes

- In what months / seasons are the water resources scarcer?

  In the month of February and March they decrease their flow, until the arrival of winter.

- How has water availability changed in recent years?

  The sources have declined in recent years, due to changes in winter and summer seasons.

5. What are the problems for the sector? Is there any specific problem in this area?

   Pests such as yellow aphid, worm-eaters and droughts.

6. Is there commercial agriculture on a large scale in this area?

   It is little because of the pests, this is why the farmers are investing in large areas

If so, what is the main crop and the size of the operation?

Maize, beans, corn, are grown for dual purpose, for consumption and food of animals, cattle or poultry.

7. Is coffee a relevant crop in the area?

   No, coffee is not grown in the area

   Ask for specific information on the most important crops,

   Maize, beans, corn, for agricultural crops of family consumption

   Planting Periods

   May - August, August - November

   Harvest

   August November

   Labor used: The family is responsible for harvesting.

   Involvement of the community, there are no crops that involve the community, it is family farming

   Problems of the sector, etc. The lack of land to cultivate, the prices of the supplies and the pests and without a real technical assistance for all.



Key Informant Guide on Agriculture - Eligio Ruperto Ramírez, President of ADESCO El Salto canton El Caulote, Santo Domingo de Guzmán

1. What types of agriculture is practiced in this community (crop / livestock types, large / small scale)?

Peppers, tomato, cucumber, beans, corn and "castilla".

2. How many people in the community are directly involved in agricultural activities?

- Estimated percentage of population

The people involved are 44

- Are there demographic groups that participate more than others in specific agricultural activities?

Adults and older adults are those who cultivate are those who cultivate the aforementioned

- To what extent and capacity do women participate?

There are 10 women who are engaged in cultivation, adults and older adults

- How has the sector changed in recent years?

The number of producers and production decreased.

3. How much product is for domestic consumption and how much for sale?

2% of production is for consumption, the rest is for sale

- Is cattle the primary source of protein in the community?

    i. How many days of the week do they eat meat?
    They only eat meat once a week, is very expensive for our economic capacity

- To what market do they carry the product?

    Sold in Santo Domingo every day

Is it profitable to take the product there?

Yes, it's profitable for the sale of our crops, for the proximity and the transport is easy
What is the product most sold in that market?

Peppers, beans, blackberry, hard squash, tomato, cucumber, chipilin

4. What is the primary source of water that farmers use?

   No cattle are raised in the canton.

   ➢Are these sources available year-round?

   The sources for the crops are Rivers, El Salto, Tepechame, these have water all year round and is used as drinking water and irrigation.

   ➢If not, what are the sources they also use for water?

   These are the only sources for the crops.

   ➢In what months / seasons are the water resources scarcer?

   November and December

   ➢How has water availability changed in recent years?

   Its flow has greatly diminished, due to the changes in climate recorded

5. What are the problems for the sector? Is there any specific problem in this area?

   Care and maintenance of water sources and irrigation systems

6. Is there commercial agriculture on a large scale in this area?

   No large-scale crops, only small-scale crops

   If so, what is the main crop and the size of the operation?

   There is no cultivation on a large scale

7. Is coffee a relevant crop in the area?

   No, coffee is not cultivated in the area

Ask for specific information on the most important crops,

Peppers, tomato, bean, corn, are the crops of importance for the area and the association

Planting Periods
January - February, November - December, December - January

Harvest
February - March, November-December, December-January

Labor used, hire people to prepare the land

Involvement of the community, No, Individual work
Problems of the sector, etc. Pests such as dry leg, mite, white fly, palm weevil.



Key Informant Guide on Agriculture - Walter Santillana, Administrative Assistant, Foundation for the Socioeconomic Development and Environmental Restoration (FUNDESYRAM), San Pedro Puxtla

1. What types of agriculture are practicing in this community (crop / livestock types, large / small scale)?

   Organic Agriculture

2. How many people in the community are directly involved in agricultural activities?

   With 300 people working in the area of the municipality, adult women are the majority, have greater participation with capacity and leadership, youth use is minimal of both sexes

   - Are there demographic groups that participate more than others in specific agricultural activities?

     Adults and older adults are those who cultivate and show greater interest

   - To what extent and capacity do women participate?

     A good number of women with capacity and leadership, for the cultivation, young women do not have presence or participation

   - How has the sector changed in recent years?

     Organic production is on the rise and women have become more involved in this type of crop

3. How much product is for domestic consumption and how much for sale?

   20% is for family consumption, the rest of the production is for sale

   - Is cattle the primary source of protein in the community?

     I. How many days of the week do they eat meat?

     The community has consumption of livestock products, milk, cream, cheese, meat is only consumed on the weekend

   ➢ To which market do they carry the product?

No established market, no established days, sold in different ways in the municipality

Is it profitable to take the product there?
It is economical, no transportation is paid, it's the families of the municipality that consume it.

What is the product most sold in that market?
Tomato, green bell pepper, cucumber, are products of daily consumption

4. What is the primary source of water that farmers use?

The Sihuapan river is the one used as source for their crops

- Are these sources available year-round?

  It has water all year round and allows them to have more than one crop per year.

- If not, what are the sources they also use for water?

  It is the only one that has water all year round

- In what months / seasons are the water resources scarcer?

  From January to April it decreases its flow but maintains water all year round

- How has water availability changed in recent years?

  It has reduced its flow because there is no way to manage the water of the river and there's no work to recover the area.

5. What are the problems for the sector? Is there any specific problem in this area?

The poor condition of the land by the use of agrochemicals and deforestation

6. Is there commercial agriculture on a large scale in this area?

There is a lot of capacity in the municipality but they do not know the amounts

If so, what is the main crop and the size of the operation?

Don't know, the people of the association don't know about the crops

7. Is coffee a relevant crop in the area?

Coffee decreased production because of the problem of rust, coffee production has decreased in the area.

Ask for specific information on the most important crops,
Corn, maize, beans

Planting Periods
May - October, August - November,

Harvest
June - September, September - December,

Labor used, each family group grows does not hire labor

Involvement of the community, No the institution has its technicians that work with the families and is each attended with their crops

Problems of the sector, etc. The plagues and the condition of the land



Key Informant Guide for Tourism - Matilde Antonia Ramírez, Coordinator at Casa de la Cultura, Santo Domingo de Guzmán

1. Please describe the type of tourists coming to this area.

Cultural and holiday tourism

➢How many tourists visit each year?
4000 tourists received each year

➢Has this number changed in recent years?
When there is no cultural activity and there are no long vacations

➢What is the percentage of foreigners in relation to national tourism?
50% are foreigners

➢Where are the foreign tourists from? What are the countries of origin?
United States, Mexico, Spain, Sweden, Netherlands

➢How much time do they usually stay (estimate length of visit)?
They usually stay 8 days

➢Has this profile changed in recent years?
The type of tourists that visit us and the objective is still the same

2. What are the main destinations and attractions in this community for tourists?

The Escuco and Tepechape Cascades, the Enchanted Pool (Poza Encantada) and the Natural Arch.

➢Has it changed in recent years? In which way (s)?
Improved infrastructure and access to tourist attractions

And for which reasons?
Invest for the Tourist Attraction

Are services and hotels sufficient in number and quality to meet the demand?
There are no restaurants to serve, nor hotels to accommodate tourists

3. What are the busiest times for tourism?

➢What determines the seasons of greatest and least activity? (i.e. cultural festivals, natural phenomena, holidays, holidays)

Greater Activity
6 of January day of the Three Kings, Las Mascaradas (The Masquerades), August for San Salvador patron saint holiday

Lesser Activity
When there is no cultural activity and employees do not have long vacations

4. How has the tourism sector developed or changed in the community in recent years? (i.e. has progressed, is the same, has deteriorated). Please elaborate.

Has progressed, the municipality has more tourist activity

5. Is the development of the tourism industry considered a top priority in the community?

If it is a priority for the municipality, and the house of culture (Casa de la Cultura) gets very involved in cultural activities.

➢What is the vision for the next 5-10 years? (Please request plans and development for the sector or other relevant documents).

The house of culture has planned to encourage the artists of the municipality of the rural and urban area, (singing, dance, and a festival of bands)

➢What are the biggest planning challenges and priorities?

The meeting of artists with different houses of culture

➢Are there any current threats to the tourism sector in your community?

No, there are no threats to tourists

➢What resources do you consider necessary to overcome these threats / follow the priorities?

No threats

6. What percentage of the community participates in tourism activities?

Yes, it participates but depends on the activity that is carried out

➢ Are there demographic groups that are more involved in these activities?
There is not a difference, everyone participates

➢ To what extent and capacity do women participate?
The majority are women and they lead the activity

➢ How has it changed in the last few years?
Increased participation in numbers and capabilities.

7 How much of the other industries depend on or are affected by tourism in your community? (i.e. farmers, coffee growers, construction, vendors, etc.)

There are no such problems in the municipality

8 How do you anticipate that the Project could affect tourism in this area?

I do not know the project, could not comment.

Key Informant Guide on Tourism - Manuel Antonio Vásquez, Head of Social Projection, Town Hall, Santo Domingo de Guzman

1. Please describe the type of tourists coming to this area.

Cultural and ecological tourism

- How many tourists visit each year?
  5,000 tourists are received per year
  Has this number changed in recent years?
  The increase is not enough, but we are working on infrastructure investment that allows us to grow tourism.

- What is the percentage of foreigners in relation to national tourism?
  90% are locals and 10% are foreign

- Where are the foreign tourists from? What are the countries of origin?
  Denmark, Germany, Scotland, United States

- How much time do they usually stay (estimate length of visit)?
  Usually a week

- Has this profile changed in recent years?
  It's the same type of tourists who visit us

2. What are the main destinations and attractions in this community for tourists?

El Salto del Escuco, Salto de Tepechame, La Poza Encantada, The Colonial Church, The Natural Arch, (historic stone cave), The Pottery and The Nahuat Cuna.

- Has it changed in recent years? In which way (s)

  Works in maintenance and improvement of the access to the touristic places
  And for which reasons
  Priority for the tourists, who has better access thus promoting tourism
  Are services and hotels sufficient in number and quality to meet demand?

There are no places to attend the tourists, we are working on proposals from the municipality

3. What are the busiest times for tourism?
   - What determines the seasons of greatest and least activity? (i.e. cultural festivals, natural phenomena, holidays, holidays)

   Greater Activity
   Easter, August holidays, Christmas

   Lesser Activity
   When there is no cultural activity and there are no long vacations

4. How has the tourism sector developed or changed in the community in recent years? (i.e. has progressed, is the same, has deteriorated). Please explain.
   Progress has been made and the population has its benefits, but lack of organization

5. Is the development of the tourism industry considered a top priority in the community?
   Yes, a priority for the town and the town hall.

   - What is the vision for the next 5-10 years? (Please request plans and development for the sector or other relevant documents).
     The municipality has a characteristic, doesn't keep a mayor for more than a period (3 years), mayors change or abandon the proposed projects, inhabitants do have the projection to improve tourism.

   - What are the biggest planning challenges and priorities?
     Strengthen the population and give them resources to promote the municipality at a national level and consolidate it in tourism.

   - Are there any current threats to the tourism sector in your community?
     No threat to tourists

   - What resources do you consider necessary to overcome these threats / follow the priorities?
     No threats

6. What percentage of the community participates in tourism activities?

60% of the population participates in cultural and tourist activities

   - Are there demographic groups that are more involved in these activities?

   - To what extent and capacity do women participate?
     They have a lot of participation for its capacity and the integration in the cultural activities that are developed.

- How has it changed in the last few years?
  Cultural activities are maintained

7. How much of the other industries depend on or are affected by tourism in your community? (Eg, farmers, coffee growers, construction, vendors, etc.)

   No dependency

8. How do you anticipate that the Project could affect tourism in this area?

   Do not know the project in depth and cannot give an opinion



Key Informant Guide on Tourism - Gamaniel Salomón Pérez López, Head of Social Projection, Town Hall, San Pedro Puxtla

1. Please describe the type of tourists coming to this area.

Cultural (customs and traditions)

- How many tourists visit each year?
  There are 1,000 tourists per year

- Has this number changed in recent years?
  Is increasing

- What is the percentage of foreigners in relation to national tourism?
  90% national and 10% foreign, currently the largest number are nationals and we're working to increase the number of foreigners.

- Where are the foreign tourists from? What are the countries of origin?
  United States, Canada, Australia

- How long do they usually stay (estimate length of visit)?
  Between 15 days to a month

- Has this profile changed in recent years?
  It the same profile of the tourist, we works to increase the tourism maintaining its profile

2. What are the main destinations and attractions in this community for tourists?

Mirador de la Cruz, The Pool of the Zapote, The Colonial Church, El Salto de Tequendama

- Has it changed in recent years? In which way (s)
  The same sites are maintained but the accesses are improved

- And for what reasons?
  The municipality is projected as touristic from the municipality

- Are services and hotels sufficient in number and quality to meet demand?

There are no restaurants, hostels, hotels for tourists, we seek to project first the increase in tourism.

3. What are the busiest times for tourism?

   - What are the seasons of greatest and least activity? (i.e. cultural festivals, natural phenomena, holidays, holidays)

     Greater Activity
     August, Easter week and New Year's Eve

     Lesser Activity
     The weeks that are not vacation or cultural activity

4. How has the tourism sector developed or changed in the community in recent years? (i.e. has progressed, is the same, has deteriorated). Please elaborate.

   It has a tourism committee promoted by the municipality to project the cultural activities of the area

5. Is the development of the tourism industry considered a top priority in the community?

Priority is given to tourism by encouraging the municipality and people

   - What is the vision for the next 5-10 years? (Please request plans and development for the sector or other relevant documents).
     Having a green and productive municipality in all its areas, the proposals are expected to improve tourism with its inhabitants

   - What are the biggest challenges and priorities?
     The strengthening of people, which are the ones that generate the development of the municipality

   - Are there any current threats to the tourism sector in your community?
     There are no threats in the sector which allows to boost tourism, this is the strength of its inhabitants to promote culture.

   - What resources do you consider necessary to overcome these threats / follow the priorities?
     No threats

6. What percentage of the community participates in tourism activities?

   60% of the community participates in the cultural activities of the municipality

   - Are there demographic groups that are more involved in these activities?
     There is no difference in participation

   - To what extent and capacity do women participate?
     The majority are women with their different capacities depending on the cultural activity that takes place

   - How has it changed in the last few years?
     They participate more, the elder and young people in the different activities, we are working to involve people with average age and to relay on to the new generations.

7. How much of the other industries depends on or are affected by tourism in your community? (i.e., farmers, coffee growers, construction, vendors, etc.)

   There is no dependence because the municipality is mostly agricultural on a small scale

8. How do you anticipate that the Project could affect tourism in this area?

   It would help communities that have no electricity



Key Informant Guide on Tourism - Jonathan Menéndez, Head of Unit of Tourism, Town Hall, Ahuachapán.

1. Please describe the type of tourists coming to this area.

Eco tourism, night tourism

- How many tourists visit them each year?
  They are approximately 20,000 tourists

- Has this number changed in recent years?
  Yes, there is a significant increase for the various activities budgeted by the city and tourism institutions

- What is the percentage of foreigners in relation to national tourism?
  It has 70% of foreigners and 30% of national tourists

- Where are the foreign tourists from? What are the countries of origin?
  France, United States, Australia, Japan, Czech Republic

- How much time do they usually stay (estimate length of visit)?
  In general, foreign tourists stay for a month

- Has this profile changed in recent years?
  Yes, hotel demand has increased

2. What are the main destinations and attractions in this community for tourists?

Thermal Route, (geothermal power station, Coffee Route, Architectural Route and Historical Route)

- Has it changed in recent years? In which way (s)
  Yes, in the way that is being done by the municipality, projects that attract different types of tourists.

- And for which reasons?
  The investment of private companies in the area attracts more influx of tourists

- Are services and hotels sufficient in number and quality to meet demand?

No, but there are already new investments that are working in new hotels

3. What are the busiest times for tourism?
   - What determines the seasons of greatest and least activity? (i.e. cultural festivals, natural phenomena, holidays, holidays)

   Greater Activity
   In the months of September to May, holidays and holidays

   Lesser Activity
   In national festivals, due to lack of cultural promotion

4. How has the tourism sector developed or changed in the community in recent years? (i.e. has progressed, is the same, has deteriorated). Please elaborate.

   It has progressed with the few investments in infrastructure made by the town halls and private companies.

5. Is the development of the tourism industry considered a top priority in the community?

   Yes, we have the unconditional support of the commune for the execution of projects

   - What is the vision for the next 5-10 years? (Please request plans and development for the sector or other relevant documents).

     To be one of the municipalities most visited at national level according to the plans drawn up by the town hall.

   - What are the biggest planning challenges and priorities?

     Links with government institutions and private companies

   - Are there any current threats to the tourism sector in your community?

     There are no threats to tourism in the area, working together with institutions to provide security

   - What resources do you consider necessary to overcome these threats / follow the priorities?

     No threats

6. What percentage of the community participates in tourism activities?

   The community integrates in a 50% to 70% depending on the type of activity that is carried out

   - Are there demographic groups that are more involved in these activities?
     No, always everyone participates.

   - To what extent and capacity do women participate?
     As far as the organization and logistics of the programmed activity

   - How has it changed in the last few years?
     Change to improve as people from all environments and areas are involved

7. How much of the other industries depend on or are affected by tourism in your community? (i.e., farmers, coffee growers, construction, vendors, etc.)

   It depends on the activity performed, but it is about including all possible industries to make the event bigger

8. How do you anticipate that the Project could affect tourism in this area?

   Yes, it affects since this project is located in one of the areas where tourist activities are more frequent.



Key Informant Guide on Tourism- Manuel Melgar, Thermals of Santa Teresa, Assistant Manager, Ahuachapán

1. Please describe the type of tourists coming to this area.

Holiday tourism

- How many tourists visit them each year?

  Approximately 30,000 tourists are received per year

- Has this number changed in recent years?

  Yes, it's higher than previous years

- What is the percentage of foreigners in relation to national tourism?

  60% is national tourism and 40% is foreign

- Where are the foreign tourists from? What are the countries of origin?

  Argentinian, Venezuelan, Colombian, Swedish, Italian, United States and Canadian.

- How much time do they usually stay (estimate length of visit)?

  8 hours of the day in general

- Has this profile changed in recent years?

  It has changed in the sense that before, we only had national tourists and today it increased the foreign tourism.

2. What are the main destinations and attractions in this community for tourists?

Termales del Río, Alicante and Las Cabanas de los Ausoles

- Has it changed in recent years? In which way (s)

Places are the same, what has changed is more and better infrastructure

- And for which reasons?

Investment is the biggest reason to remain, in the resorts you being injected.

- Are services and hotels sufficient in number and quality to meet demand?

The services and hotels are sufficient for now for the number of tourists

3. What are the busiest times for tourism?
   - What determines the seasons of greatest and least activity? (i.e. cultural festivals, natural phenomena, holidays, holidays)

   Greater Activity
   The August holidays
   Easter
   End of the year
   Cultural events and holidays in the country

   Lesser Activity
   The workers do not have much time to go out, for their work and the economic part is determinant

4. How has the tourism sector developed or changed in the community in recent years? (i.e. has progressed, is the same, has deteriorated). Please elaborate.

   Tourism has grown with the promotion of the Ministry of Tourism and the tourist company, with the route of flowers and other cultural activities and have no problems of insecurity.

5. Is the development of the tourism industry considered a top priority in the community?

   The tourism industry has priority on the part of the central and municipal government and the owners of tourist centers.

   - What is the vision for the next 5-10 years? (Please request plans and development for the sector or other relevant documents).
     Development vision has been increased by increasing service and infrastructure

   - What are the biggest planning challenges and priorities?
     Expand the pool and restaurant area

   - Are there any current threats to the tourism sector in your community?
     There are no threats and there is constant presence of the police

   - What resources do you consider necessary to overcome these threats / follow the priorities?
     No threats

6. What percentage of the community participates in tourism activities?

80% of the employees are from the community who previously worked on the farm, that was a benefit, the resort is visited by local families

- Are there demographic groups that are more involved in these activities?
  As for employees, there are more men

- To what extent and capacity do women participate?
  There's no difference, they carry out the same activities

- How has it changed in the last few years?
  Much has changed with investment; more infrastructure has been built and the community progresses

7. How much of the other industries depend on or are affected by tourism in your community? (i.e., farmers, coffee growers, construction, vendors, etc.)

   No problems

   How do you anticipate that the Project could affect tourism in this area?

   They will not have problems where it is currently located, it will be a benefit to the other communities



Key Informant Guide for Religion / Beliefs - Abdulio López Cortez, Pastor, Evangelical Church Monte Horeb, Central American Mission, Santo Domingo de Guzman

1. What is the mission of your organization? What are the services provided by your organization?

Preach the gospel to believers or non-believe; Sunday worship and Sunday Bible study

To whom are these services provided?

To their conglomerates and others who wish to visit the church

2. What are the main religious / spiritual institutions in the area?

There is only one in the municipality

- What percentage do you think belongs to each belief?

  222 assembled in his church, Prince of Peace 200, Christ Calls You 50 , Israelites 200, Love and Faith 40, Tabernacle 20, Adventists 210, Assemblies of God 50, Holy Sion 60, Renewed (Catholic) 150

- What days do they meet?

  Every day from 3 to 5 (Central American mission)

3. Are there major religious / spiritual events in the community? Please describe.

There are 4 campaigns a year, Cult United Cheers 3 a year, 6 vigils a year

4. Are there places in the community that have special religious / spiritual importance to people? (Eg altar, views, routes, cemeteries, etc.)

There is only one house of prayer in the municipality

5. Have you noticed any tension or disagreement between religious / spiritual groups in the area?

No, there is respect for the freedom of worship

- Do you think there are any groups that are considered marginalized or discriminated against? Please describe.

  No, all of us have good relationships

6. Have there been changes in religious / spiritual aspects in the community in recent years? Please describe.

No, all of us have good relationships and we maintain our religious principles

- In your opinion, what caused these changes? (i.e. immigration / emigration, leadership changes, influence of culture / media, etc.)

  No, have had no changes

- Are there unmet religious / spiritual needs in the community? Please describe

  If families need God, they come or people are visited to increase their faith and fill their needs



Key Informant Guide on Religion / Beliefs Santo Domingo - Main Adventist Pastor José Solis 7398-1748 (contact accomplished by the municipal secretary Glandy Vasquez)

1. What is the mission of your organization? What are the services provided by your organization? Who do these services provide? Seventh-day Adventists are one of the strongest groups beyond the urban zone. Pastor Solis is in charge and has founded all Adventist temples in the area.

2. What are the main religious / spiritual institutions in the area?
   - What percentage do you think belongs to each belief? About 30% of believers could be Adventists (has to be confirmed)
   - What days do they meet? Saturdays

3. Are there major religious / spiritual events in the community? Please describe. Sometimes there are campaigns, but Adventists do not direct activities at the municipal level as the Catholic Church (only in the urban area) does

4. Are there places in the community that have special religious / spiritual importance to people? (i.e. altar, views, routes, cemeteries, etc.) Temples.

5. Have you noticed any tension or disagreement between religious / spiritual groups in the area? Not truly.
   - Do you think there are any groups that are considered marginalized or discriminated against? Please describe. No.

6. Have there been changes in religious / spiritual aspects in the community in recent years? Please describe. The number of evangelical churches has increased, although there are many denominations and little direction altogether by them.
   - In your opinion, what caused these changes? (i.e. immigration / emigration, leadership changes, influence of culture / media in the West etc.) The lack of evangelization in less accessible places by the Catholic Church.

7. Are there unsatisfied religious / spiritual needs in the community? Please describe. I could not tell.

Key Informant Guide on Religion / Beliefs - Carlos Alvarez, Pasrish Priest, The Assumption Parish (La Asunción), Ahuachapán

1. What is the mission of your organization? What are the services provided by your organization?

   Evangelize people living in the parish territory, especially the poorest. Services: care for children, young people, families and the sick in our parish

   To whom are these services provided?

   To people living in our parish territory

2. What are the main religious / spiritual institutions in the area?

   In the municipality of Ahuachapán there are four Catholic parishes with communities in the various sectors

   ➢What percentage do you think belongs to each belief?

   Catholics around 120,000, various denominations of churches and organizations with names known internationally, is the rest of the population

   ➢What days do they meet?

   Especially on Sundays but there are small community gatherings every day

3. Are there major religious / spiritual events in the community? Please describe.

   There are massive parish celebrations; In Lent and especially in Holy Week.
   On the occasion of the year of mercy, on May 14, we gathered 3,000 people

4. Are there places in the community that have special religious / spiritual importance to people? (i.e. altar, views, routes, cemeteries, etc.)

   The Parish Temples
   The small churches in each parish sector

5. Have you noticed any tension or disagreement between religious / spiritual groups in the area?

   No, in general there is tolerance and one lives peacefully among all

➢Do you think there are any groups that are considered marginalized or discriminated against? Please describe.

   There are areas living in extreme poverty: Cantons San Ramón and Suntecumat

6. Have there been changes in religious / spiritual aspects in the community in recent years? Please describe.

It is not noticeable at first sight but people are slowly changing, the people of the countryside are more religious, the city is more materialistic.

➢In your opinion, what caused these changes? (i.e. immigration / emigration, leadership changes, influence of culture / media, etc.)

Immigration
The migrations
Remittances from abroad
Gangs and corruption

➢Are there unmet religious / spiritual needs in the community? Please describe
Closer community care is needed
Lack of basic services in some places



Key Informant Guide on Religion / Beliefs - Nestor Henry Zamora, President, Iglesia de Jesucristo de los Santos de los Últimos Días, Ahuchapán

1. What is the mission of your organization? What are the services provided by your organization?

The mission of the organization is to provide a place of worship for people; as well as ecclesiastical services and religious proselytism

To whom are these services provided?

To the members of the church and to the community itself

2. What are the main religious / spiritual institutions in the area?

In the zone there are 6 buildings destined to the mission of offering religious services and of adoration.

➢What percentage do you think belongs to each belief?

Currently of the total number of members enrolled in the church, 21% are attending worship services

➢What days do they meet?

Tuesday, Thursday, Saturday, but especially on Sundays

3. Are there major religious / spiritual events in the community? Please describe.

An event every 6 months where all the units of the church are concentrated in one place

4. Are there places in the community that have special religious / spiritual importance to people? (i.e. altar, views, routes, cemeteries, etc.)

Only the chapels that already exist

5. Have you noticed any tension or disagreement between religious / spiritual groups in the area?

To this day, no

➢Do you think there are any groups that are considered marginalized or discriminated against? Please describe.

No, since we believe that the gospel is for all

6. Have there been changes in religious / spiritual aspects in the community in recent years? Please describe.

We do not see changes we maintain in our principles

_____
_____
_____

➢In your opinion, what caused these changes? (i.e. immigration / emigration, leadership changes, influence of culture / media, etc.)

Regarding the changes, they do not interfere with our activities

➢Are there unmet religious / spiritual needs in the community? Please describe

No, we don't have, our religious, spiritual needs are covered



Key Informant Guide on Transportation - Ahuchapaneco Transport Association (ASOTRA), Ismael Sambran, Legal Representative and President of the Association

1. What are the most common areas of travel or commuting among the inhabitants of this area? What is the frequency and the main reasons for the displacement? (Market, school, visit family, goods and services and / or rest, enjoy free time)

Most people use transportation routes to get to the workplace, trade and tourism

2. What types of transportation do you use to travel or displacement areas (Are these common transportation methods?)

- 1_ Public Transport (bus, minibus) __ X__
- 2_Bicycle ____
- 3_Motorcycle__
- 4_Car / truck ___
- 5_Taxi___
- 6_Aquatic transportation___
- 7_ Horse / Mule ___

➢Are there times of the year when it is not possible to use some types of transportation? Please specify.

Public transport transits the 365 of the year

3. There are access points for:

- 1_ Paved road __X___
- 2_Non-paved road__
- 3_Trail / Path__
- 4_River__

➢Are access points widely used?

Yes, the points are very used to approach the transport to get to work

➢What is the quality of access points? Are they safe to travel?
Yes __ No _X_

If they are dangerous, why?

They do not have areas to park and pick up passengers, this generates traffic, accidents and injuries to the pedestrians

Are there times of the year when they are unusable or unsafe?

No, they are always used throughout the year

➢Are there roads, intersections, etc.? In the area considered to be hazardous areas for traffic accidents? Yes ___ No __X__

The road is paved and the risk is minimal in winter and summer

4. What are the main factors that cause accidents?

The biggest cause of accidents is the distraction of the driver, the lack of driving manners that people have and the lack of road signs.
(Request information on accident data)

➢Have these changed in recent years?

The population is larger and the vehicle fleet is larger and the streets remain the same

➢Are there plans at the institution / department level to address them?

There are no plans for government institutions to address these issues

➢Are your organization's programs / activities related to accident prevention?

There are no plans to address these issues

5. Is there industrial development in the area that affects transport / road conditions?

There is no industrial development affecting the road, by traffic or heavy vehicles

➢Are there passing of industrial trucks / agricultural material (cheeses, bananas) that especially affect the road / road in this area?

If there is heavy commercial transportation coming from Guatemala, this makes heavy traffic and wear of the highway

➢Is there traffic of the industrial vehicle in the area? Tourism?

No, they do not have that problem with industrial vehicle traffic nor tourism.



Key Informant Guide on Education - Professor Jorge Alberto Barrera, principal, Caserio Los Rivera School, canton El Caulote Santo Domingo de Guzman.

1. How many schools are there in the community or municipality? (I.e. preschool, elementary, high school, and colleges)

Number of schools_____
Number of school centers 1
Number Educational complex_____
Number of universities_____

Observation:
In the canton El Caulote only exists this school that attends the hamlets, La Barranca, Las Promises, Los Arenales, Los Rivera and Los Perez

- Are there children and youth in the community going to schools in other communities?

Yes, in urban schools of the municipality

How long does it take to get there?

Depending on the location area, it will be between 30 and 40 minutes

2. What do you think about the quality of education that is proportioned in school?

If it is good, what are the strengths of the education system in the community?

It is good, we have good facilities and specialized teachers and a lot of work is done in the discipline, but there is always a lack of more training to provide a better service, greater support from the parents and have late allocated budgets.

If it is poor, what are the challenges facing the community? What are the root causes of these challenges?

3. Generally, what level / how many years of education does the adult population have in the community?

The degree of study reached by the adults in the area of attention of the school is sixth grade.

4. What is the dropout rate (estimate)?

From 2% to 3% in school

- Has this changed in recent years?

Yes, it has increased by crime and change of address, the town hall provides them with transportation to the school, to help with security and to avoid dropping out

- At what age is it more common for children to leave school?

Students leave school at age 12 and 15

- Are there demographic groups or certain specific areas that are more likely to drop out?

The areas covered by the school, can be said to be the same both in ages and sex

- What are the most common causes of dropout?

Delinquency, changes of address, family disintegration
(i.e. work, marriage, lack of interest, cost, mobility)

5. Are community members prepared for highly skilled work?

No, because of its low level of study and the area is of subsistence agricultural cultivation, to which the greater part of the population of the zone is dedicated

6. Are there highly qualified jobs available in the area?

- Are there situations in which people in the community do not have access to jobs due to the lack or lack of specific training? In your opinion, which are the areas that would have to be developed more?

There are no skilled jobs in the area, most of them work in domestic services and agricultural work, the information is not very accessible in the area because it is rural.

- Is education valued in the community?

It is of high priority in the school and community, the guidelines of the Ministry are applied, but it requires the help of the parents

- Is school dropout considered a priority issue for your department / municipality?

For the school, it it a priority and with the help of programs of the Ministry, home visits are made to them to know the reasons why the student is missing, with the help of the town hall with transportation, it is a question of overcoming drop out.

7. How do you think the Project could affect education and employment in your community?

He does not know the project, but supposes that it will help the communities



Key Informant Guide on Education– Professor Rodrigo Alfonso Nerio, Vice Principal, General Francisco Menéndez School, Apaneca

1. How many schools are there in the community or municipality? (i.e. preschool, elementary, high school, and university) Five schools, three 1-9 (elementary and middle school), kindergarten and high school. In Centro Menéndez there are two shifts with 350 students in the morning and 320 in the evening. At the Daniel Carias Institute there are 300 high school students. In general, the morning shift is dominated by people in the urban and peri-urban area of Apaneca, and others who travel about 4km, from more rural areas in the afternoon.
   - Are there children and youth in the community going to schools in other communities? If yes, where are these schools? How long does it take to get there? They can travel up to an hour to an hour and a half.

2. What is your opinion about the quality of education that is proportioned in school?
   - If it is good, what are the strengths of the education system in the community? It is accessible and quite complete, but some materials and highly qualified teachers are missing.
   - If it is poor, what are the challenges facing the community? What are the root causes of these challenges?

3. Generally, what level / how many years of education has the adult population in the community? Maybe they reach 6th grade if we merge rural and urban population.

4. What is the dropout rate (estimate)? For girls (40% after 6th grade) it is higher than for boys (20-30%)
   - Has this changed in recent years?
   - At what age is it more common for children to leave school? 13-14
   - Are there demographic groups or certain specific areas that are more likely to drop out? Girls after 6th grade
   - What are the most common causes of dropout? (i.e. work, marriage, lack of interest, cost, mobility) work, custom.

5. Are community members prepared for highly skilled work? No. Are there highly qualified jobs available in the area? Not truly.
   - Are there situations in which people in the community do not have access to jobs due to the lack or lack of specific training? Not very often.
   - In your opinion, which are the areas that would have to be developed more? Tourism

- Is education valued in the community? Yes, but only as far as the idea goes, not so much in practice.
- Is school dropout considered a priority issue for your department / municipality? Yes, especially for teenagers as they are considered to be at greater risk of being integrated into a gang for illicit activities, especially if they live in areas of greater risk.

6. How do you think the Project could affect education and employment in your community? I think that would not affect at all, if by chance could temporarily increase the income of some by employment.

Key Informant Guide on Education - Canton Los Magueyes School, Fausto Rodil Gómez Méndez, Principal, Ahuachapán

1. How many schools are there in the community or municipality? (I.e. preschool, primary, secondary, and colleges)

Number of schools_____
Number of school centers 2
Number Educational complex_____
Number of universities_____

Observation: The information refers to the zone of the Canton Los Magueyes, Schools closest to the project

- Are there children and youth in the community going to schools in other communities?

Yes, to the schools in the urban area of Ahuachapán

How long does it take to get there? 20 minutes from the community to the urban area of the municipality

2. What do you think about the quality of education that is proportioned in school?

It is good, teachers have their specialty according to the areas they teach

- If it is good, what are the strengths of the education system in the community?

The discipline, teachers committed to education and specialized

- If it is poor, what are the challenges facing the community? What are the root causes of these challenges?

3. Generally, what level / how many years of education does the adult population have in the community?

There is approximately 25% illiteracy and in general the population has up to ninth grade

4. What is the dropout rate (estimate)?

7% of 1,400 students

➢Has this changed in recent years?
Yes, it has changed in relation to the dropout of previous years

Observation:
_____

- At what age is it more common for children to leave school? In this area the students leave the school between the 12 and 13 years

- Are there demographic groups or certain specific areas that are more likely to drop out?

There is no specific area, in terms of gender of the students the percentages are the same

- What are the most common causes of dropout? (i.e. work, marriage, lack of interest, cost, mobility)

Change of address and delinquency

5. Are community members prepared for highly skilled work?

50% of the community has preparation for qualified jobs, the other 50% is dedicated to crafts

6. Are there highly qualified jobs available in the area?

- Are there situations in which people in the community do not have access to jobs due to the lack of specific training? In your opinion, which are the areas that would have to be developed more?

With the technological advance, people have all kinds of information but more than information is employment capacity of companies and government

➢Is education valued in the community?

Yes, in the community it is valued as well as in the school, that is why we strive and feel committed to the community

➢Is school dropout considered a priority issue for your department / municipality?

Yes, it is a priority to improve educational indicators on which the ministry emphasizes.

7. How do you think the Project could affect education and employment in your community?

We do not know the project, but it is a benefit not for the community directly but would always help the other communities.



Key Informant Guide on Education - Guía de Informante Clave de Educación- Bernandino E. Zamora School, Luis Ángel Lemus Martínez, Principal, Canton El Barro School

1. How many schools are there in the community or municipality? (I.e. preschool, elementary, high school, and colleges)

Number of schools_____
Number of school centers 1
Number Educational complex_____
Number of universities_____
Observation: The information is of the zone of the canton El Barro and we only have one school center

- Are there children and youth in the community going to schools in other communities?
  Yes, to the School Centers of the canton Los Magueyes or Las Victorias

How long does it take to get there?
They are 30 minutes away from each school

2. What do you think about the quality of education that is proportioned in school?

Strategically speaking, it is excellent because they are teaches with subject specialty

- If it is good, what are the strengths of the education system in the community?

Discipline and Specialized Teachers

- If it is poor, what are the challenges facing the community? What are the root causes of these challenges?

_____

3. Generally, what level / how many years of education does the adult population have in the community?

In the community the ninth grade is the highest level achieved.

4. What is the dropout rate (estimate)?

The 2% is the school dropout rate, of a population of 344 students

- Has this changed in recent years?

Yes, students change address, communities are left behind because of the social situation in the country

- At what age is it more common for children to leave school?

The most common ages that students have to leave the school are 13 and 14 years and are incorporated with families into subsistence agricultural production

- Are there demographic groups or certain specific areas that are more likely to drop out?

Because of the scarce economic resources of their families, without specific areas in the community

- What are the most common causes of dropout?

Lack of family work, lack of interest in the student and family

(i.e. work, marriage, lack of interest, cost, mobility)

5. Are community members prepared for highly skilled work?

Yes, because in the community there are engineers, teachers, nurses and young people, a very small percentage is concerned with getting ahead with their studies

6. Are there highly qualified jobs available in the area?

- Are there situations in which people in the community do not have access to jobs due to the lack or lack of specific training? In your opinion, which are the areas that would have to be developed more?

Education in general and technical education to have a better development in the different areas, have a population prepared in the technical and social makes communities grow.

➢Is education valued in the community?

It is essential for the educational community, for them to be the most essential in their development and for the institution

➢Is school dropout considered a priority issue for your department / municipality?

In the case of our school does not prioritize, there are specific cases in each of them and we address the situation of the student to avoid dropout

7. How do you think the Project could affect education and employment in your community?

It could not affect, instead it would be a source of work for the elderly for benefit of their economic and educational status.



Key Informant Guide for Police / Security – Secretary of Peace Court – Nelson Darío Magaña (2483-7007)

1. Who is responsible for maintaining security in your community? (E.j. local police, departmental police (state), national police, army, fire department, voluntary committee or other) Local Police
   - How many people are there permanently in the area of security / protection? Are they sufficient to maintain the security of the community? 14. No, many do not attend to cases where there may be involvement of gangs (who are usually better armed than police forces)

2. What aspects of security are most relevant to the community itself?
   - Have there been recent trends or changes in crime rates / types of crimes, narcotic abuse, etc. Or in conditions of public safety in general? The municipality in general is relatively healthy, it had one homicide in total last year. In general the gangs have limited themselves to making threats, although several years ago (2011) there was a case where four people were killed in a week. The reason was to silence witnesses who witnessed another homicide. Once the murderers were apprehended, a similar case has not been seen again.
   - Have there been recent changes in perceptions and ways of seeing the community about their safety and well-being? Not much, beyond fear of what happens in neighboring municipalities and how that activity intensifies.
   - Are there any areas of the community that could be considered most dangerous? If so, what types of problems, incidents occur in these areas? As you get closer towards San Antonio del Monte in the way to Sonsonate, the danger increases significantly. All criminal activity related to gangs increases (extortion, robbery, murder, drug trafficking, etc.).

3. What are the issues of greatest concern? In Santo Domingo, the main problem is the friction between neighbors for property issues and trespassing, or areas in dispute for inheritance, land rights (sometimes for non-existent or poorly written deeds). Find information on small crimes, violence, non-violent crimes, drug addiction, alcohol use and prostitution. There are no known instances of prostitution, but there are a few alcoholics known to the people (who have families or homes they could go to) but have caused some altercation in the center of the urban area. Cases of cattle theft occur, although in general they are opportunists, butchering the animal to sell the meat in Sonsonate the same day. Intrafamiliar violence, especially among the more rural communities, goes unreported most of the time due to fear and what it would mean to

lose the family bond. Clear accusations have sometimes been withdrawn. Have there been recent changes? No.What are the main causes of concern? i.e. Main causes such as factors of social or environmental origin, abuse of narcotics, presence of gangs, etc. The gangs could intensify their presence and influence at any time (there is presence, but generally do not cause problems of specific violence, and rather control or monitor areas, schools, activities.)

4. In relation to traffic accidents, are they common? In some turns, but they are not frequent and almost always from tiredness or perhaps intoxication, although from time to time by malfunctions. Is there a great incidence? Do you have statistics on this? No. Any specific awareness or prevention program? Unknown.

5. What do you think about the influence that the Project could have on security and protection issues? Minimum to none.

Mr. Magaña stated that the OAS has sponsored a program of judicial facilitators to seek satisfactory arrangements for both complaining parties and thus lower the burden of criminal and minor cases. The local judge is called Clara Luz Alferez Pérez since 1999 and is also an alternate judge of First Instance in Acajutla. It is a key person for the locality and for its link with Acajutla it could be interesting to have her in the workshops. He also informed us about the current Mayor's case, which recently lost a labor claim for dismissal of 13 Municipal employees earlier this year, after the current Mayor took command. This situation puts the budget of St. Domingo de Guzman at risk because now he has to reintegrate the ex-employees and compensate them according to the law, which does not allow him to act according to his works and government program.

Key Informant Guide for Police / Security – Mrs. Amelia Cruz- Social Promoter, Town Hall, Acajutla

1. Who is responsible for maintaining security in your community?
   - *National Civil Police*
   - *Municipal Police*

   How many people are there permanently in the area*? 15 Elements of the National Civil Police Approx. And 6 Municipal Police Elements*. Are they sufficient to maintain the security of the community? *No, they can not cover the entire municipality.*

2. What aspects of security are most relevant to the community itself?

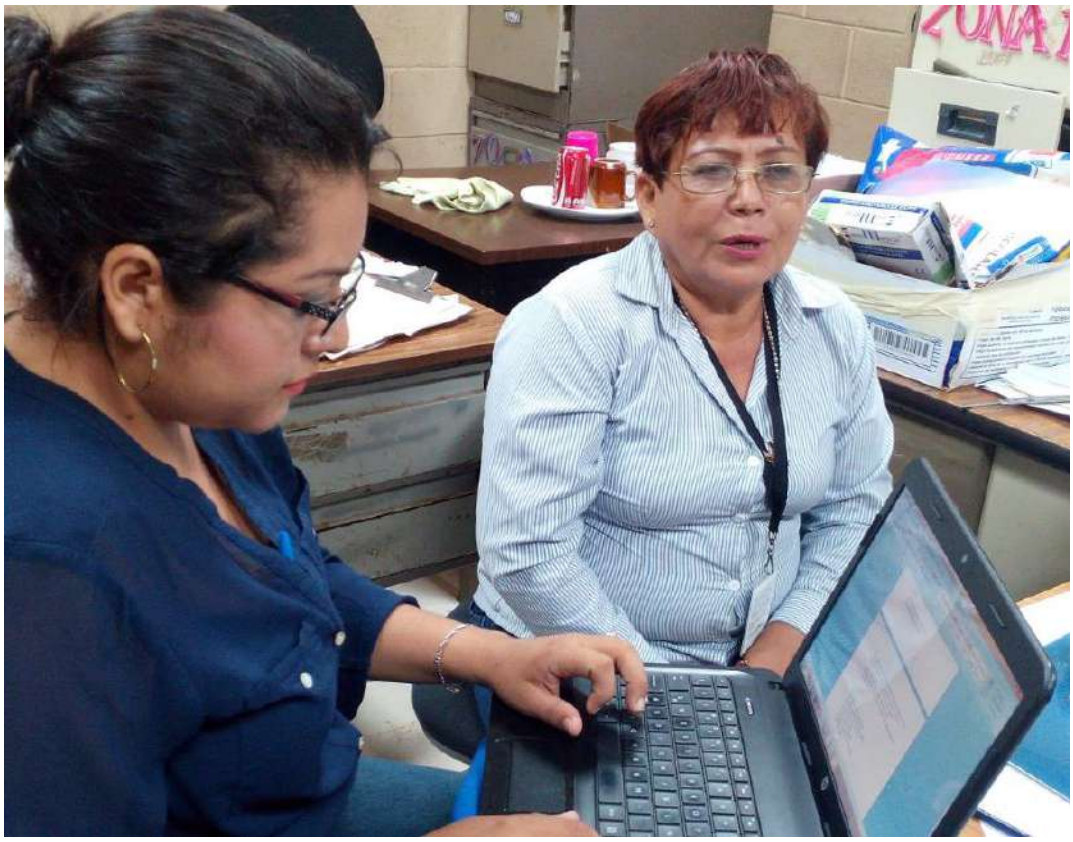
- Have there been recent trends or changes in crime rates / types of crimes, narcotic abuse, etc. Or in conditions of public safety in general? *The recent trend is extortion, narcotics abuse, vehicle airlift and the increase in gang members.*
- Has there been any recent change in the community's perceptions and way of looking at their safety and well-being?
- Are there any areas of the community that can be considered more dangerous? If so, what types of problems, incidents occur in these areas? *Yes, the most dangerous areas are where gang members reside. In the case of sellers or employees coming from opposing gang communities, there may be some clashes or extortions in the particular case of sellers.*

3. What are the issues of greatest concern? *The issue that generates greater concern is the existence and possible proliferation of gangs, which may be gaining strength.* Have there been recent changes? *At the moment its growth is not excessive and notorious, it is expected to stop or decrease.* What are the main causes of concern? *The presence of gangs.*

4. In relation to traffic accidents, are they common? Is there a great incidence? Do you have statistics on this? A specific program of sensitization or prevention? *The most common accidents in the area, are motorcycles, are mostly occurring because they are driven by unauthorized persons and therefore cause accidents. The National Civil Police, constantly conducts inspections in the area to sanction this fault to the traffic law and thus prevents accidents. There are no statistics in the municipality, this is data managed nationally through the Vice Ministry of Transportation*

5. What do you think about the influence that the Project could have on security and protection issues? *At the beginning of the project there could be immigration, in that case there is a risk that people from all over will enter the municipality, thus increasing the risk of installing delinquents who take advantage of the activity generated by the project, one of the cases could be the increase in thefts.*

EDP- Baseline Interview Guide



Appendix F – Interview Letters

San Salvador February 8, 2016

SIRS
MUNICIPALITY OF SAN PEDRO PUXTLA
MR. MUNICIPAL MAYOR
Mr. CARLOS ARMANDO JOMA CABRERA
PRESENT

Dear Mr, Joma,

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

We are grateful for the personal assistance we received with Mrs. Mercedes Vásquez Municipal Secretary on our recent visit.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and whose transmission line will go from that municipality until. Connect to the geothermal sub station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support in being able to provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular we aim to obtain information on: education, religion, gender, transport, tourism, livestock and agriculture, health centers, public infrastructure, police. Traffic, security, as well as any other relevant actor.

Local ERM professionals assigned to this task are Mr.. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

In advance we thank you for your attention to the present and we remain at your disposal for any communication to the telephones described below.

Attentively,

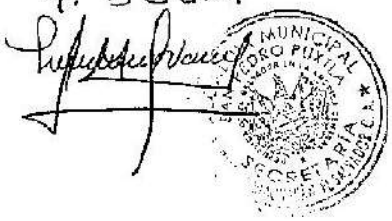
ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. Cesar Galdámez
Transmission Line Manager

Por recibido

13-04-16

9:33 am



Antiguo Cuscatlán, April 1, 2016

Mr. Arnoldo Benavides Larín
Western Regional Manager
ANDA

Dear Engineer Benavides:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we want to obtain information about:
The infrastructure and public services responsibility of the institution, how they work, type of existing infrastructure, and other aspects that we are interested to know for our preliminary studies in the different municipalities where the project is located. We are waiting for your response to interview the people you refer to us.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

RECIBIDO
04 ABR. 2016
2456 2603

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

San Salvador February 8, 2016

SIRS
MUNICIPALITY OF SONSONATE
MR. MUNICIPAL MAYOR
Mr. JOSE ROBERTO AQUINO RUIZ
PRESENT

ALCALDIA MUNICIPAL Y JEFATURA DEL DISTRITO
DESPACHO MUNICIPAL
SONSONATE
8:52am
2469-3131
14 ABR 2016

Dear Mr, Aquino,

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

We thank you personally for our recent visit.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and whose transmission line will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support in being able to provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular we aim to obtain information on: education, religion, gender, transportation, tourism, livestock and agriculture, health centers, public infrastructure, police. Traffic, security, as well as any other relevant actor.

Local ERM professionals assigned to this task are Mr.. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

In advance we thank you for your attention to the present and we remain at your disposal for any communication to the telephones described below.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. Cesar Galdámez
Transmission Line Manager

San Salvador February 8, 2016

SIRS
MUNICIPALITY OF SANTO DOMINGO DE GUZMAN
MR. MUNICIPAL MAYOR
Mr. GUILLERMO SENSENTE SANTIAGO
PRESENT

Dear Mr, Sensente,

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

We are grateful to Mr. Manuel Vasquez of Social Promotion for our recent visit.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and whose transmission line will go from that municipality until. Connect to the geothermal sub station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support in being able to provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular we aim to obtain information on: education, religion, gender, transport, tourism, livestock and agriculture, health centers, public infrastructure, police. Traffic, security, as well as any other relevant actor.

Local ERM professionals assigned to this task are Mr.. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

In advance we thank you for your attention to the present and we remain at your disposal for any communication to the telephones described below.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. Cesar Galdámez
Transmission Line Manager

Recibido
12/04/2016

ALCALDIA MUNICIPAL SANTO DOMINGO DE GUZMAN
SECRETARIA

Antiguo Cuscatlán, April 1, 2016

Mr. Luis Alfredo Gomez
Christian Mission ELIM
Ahuachapan

Dear Mr. Gomez:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we seek to obtain information and know the mission of your organization:
For which we have elaborated a Guide with different questions such as: what is its mission, who provides the services, its institutions, population and other aspects that we are interested to know for our preliminary studies in the municipality.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

07/04/2016

San Salvador February 8, 2016

SIRS
MUNICIPALITY OF AHUACHAPAN
MR. MUNICIPAL MAYOR
Mr. ABDILIO FLORES VASQUEZ
PRESENT

Dear Mr, Vasquez,

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

We are grateful to Mrs. Claudia Azucena of Social Promotion for our recent visit.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and whose transmission line will go from that municipality until. Connect to the geothermal sub station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support in being able to provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular we aim to obtain information on: education, religion, gender, transport, tourism, livestock and agriculture, health centers, public infrastructure, police. Traffic, security, as well as any other relevant actor.

Local ERM professionals assigned to this task are Mr.. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

In advance we thank you for your attention to the present and we remain at your disposal for any communication to the telephones described below.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. Cesar Galdámez
Transmission Line Manager

Recibido Claudia Lopez 12-03-2016 10:00 a.m.

PROMOCIÓN SOCIAL ALCALDÍA MUNICIPAL DE AHUACHAPAN

Antiguo Cuscatlán, April 1, 2016

Dr. Luis Ernesto Muñoz Canizalez
Director Medical Unit
Salvadoran Institute of Social Security (ISSS)
Ahuachapan

Dear Dr. Muñoz:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular we intend to obtain information and know about:
Infrastructure and services available types of epidemiological surveillance, how they work, type of existing infrastructure, and other aspects that we are interested to know for our preliminary studies in the municipality.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

05/04/2016
11:46 a.m.

Antiguo Cuscatlán, April 1, 2016

Mr. Santos Rafael Aleman Ortega
Executive Director
National Center for Agricultural and Forestry Technology
"Enrique Alvarez Cordova"
Road to Santa Ana, Km 33 1/2, Municipality of Ciudad Arce,
La Libertad

Dear Engineer Benavides:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular we intend to obtain information and know about:
Types of agriculture are being practiced in the communities, demographic groups involved, to what extent and capacity, harvested products and their consumption, and other aspects that we are interested to know for our preliminary studies in the different municipalities where the project is located. We are waiting for your response to interview the people you refer to us.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

CENTA
DIRECCIÓN EJECUTIVA
RECEPCIÓN DE CORRESPONDENCIA
Recibido por: Sandra Yanira Ortiz M.
Fecha: 04/04/16 Hora: 09:55 Am

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager

Antiguo Cuscatlán, April 1, 2016

Dr. Cecilia Herrera
Director of UCSFI
Ahuachapan

Dear Dr. Herrera:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular we intend to obtain information and know about:
The infrastructure and services available, types of epidemiological surveillance, how they work, type of existing infrastructure, morbidity statistics, health units, health homes and other aspects that we are interested to know for our preliminary studies in the municipality.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

Antiguo Cuscatlán, April 1, 2016

Sirs
National Civil Police, Land Transit
Chief Sub Inspector Ahuachapan Delegation
Carlos Antonio Garcia

Dear Sub Inspector Garcia:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we seek to obtain information on:
Relevant aspects of security and protection of the municipality and to know traffic statistics, as well as any relevant aspects.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

Arévalo Rojas
2016 11:10 Hrs

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

Antiguo Cuscatlán, April 1, 2016

Mrs. Beatriz de Contreras
General Manager
Tours Universales

Dear Mrs. Contreras:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we seek to obtain information on:
Types of tourists that come to the area, number of visits, changes in recent years, countries of origin of tourists, their challenges, programs, and other aspects that we are interested to know for our preliminary studies in the municipality.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacífico, S.A. de C.V.

04/4/2016
24132002

Antiguo Cuscatlán, April 1, 2016

Mrs. Evelin Saz Madrid
Departmental Coordinator
ISDEMU

Dear Mrs. Madrid:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we seek to obtain information on:
Gender, for which we have elaborated a Guide with different questions such as: what is the role of your organization, its challenges, programs, observed changes, causes and other aspects that we are interested to know for our preliminary studies in the municipality.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

4-4-2016

Antiguo Cuscatlán, April 1, 2016

Hector Donald Aquino Pimentel
Departmental Director of Education
Ahuachapan

Dear Mr. Aquino:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular we intend to obtain information and know about:
The infrastructure and number of schools, educational complexes, universities, and their population, how they work and other aspects that we are interested to know for our preliminary studies in the different municipalities of the department where the project is located. In addition we hope to allow us to interview the schools closest to the project when the stroke is determined.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

MINISTERIO DE EDUCACIÓN
DIRECCIÓN DEPARTAMENTAL
AHUACHAPAN
EL SALVADOR, C.A.

Recibí:
04-04-2016

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

Antiguo Cuscatlán, April 1, 2016

Ismael Sambrano
President and Legal Representative
ASOTRA

Dear Mr. Sambrano:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we seek to obtain information on:
On which are the most frequent destinations of the inhabitants of the zone, types of transport and their appreciation of the road infrastructure, and other aspects that we are interested to know for our preliminary studies in the municipalities.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacífico, S.A. de C.V.

Lourdes Morán
05-04-2016

ASOTRA GERENCIA GENERAL

Antiguo Cuscatlán, April 1, 2016

Nestor Zamora
Stake President
Church of Jesus Christ of Latter-day Saints
Ahuachapan

Dear President Zamora:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we seek to obtain information and know the mission of your organization:
For which we have elaborated a Guide with different questions such as: what is its mission, who provides the services, its institutions, population and other aspects that we are interested to know for our preliminary studies in the municipality.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

Recibido 5/19/16

Antiguo Cuscatlán, April 1, 2016

Reverend Carlos Alvarez m.j
Parish Church of Our Lady of the Assumption
Ahuachapan

Reverend Father Alvarez:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we aim to obtain Information on:
What is its mission, who provides the services, its institutions, population and other aspects that we are interested to know for our preliminary studies in the municipality.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO, S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

Antiguo Cuscatlán, April 1, 2016

Mr. Arnoldo Benavides Larín
Western Regional Manager
ANDA

Dear Engineer Benavides:

Receive a warm greeting from ENERGIA DEL PACIFICO, S.A. de C.V.

Our company has been designated to produce electricity based on natural gas whose generation plant will be located in Acajutla and a transmission line that will go from that municipality to connect to the sub-geothermal station in Ahuachapán.

We are in the initial stage of the preliminary studies corresponding to eventually obtain the permits of construction of this line, for this purpose we have contracted the services of the company ENVIRONMENTAL RESOURCE MANAGEMENT (ERM) established in Washington, DC, for which we request your collaboration And support we can provide information and identify the actors in the area to publicize the project and collect their impressions.

In particular, we want to obtain information about:
The infrastructure and public services responsibility of the institution, how they work, type of existing infrastructure, and other aspects that we are interested to know for our preliminary studies in the different municipalities where the project is located. We are waiting for your response to interview the people you refer to us.

Local ERM professionals assigned to this task are Mr. Carlos Reyes and Mr. Roberto Escalante, as well as Mrs. Brenda Lovato of ENERGIA DEL PACIFICO, S.A. de C.V.

Cordially,

ENERGIA DEL PACIFICO S.A. de C.V.

Ing. César Galdámez
Project manager
Energía del Pacifico, S.A. de C.V.

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(503) 2133-0700

Appendix G – Right of Way Management Report



MANAGEMENT OF RIGHT OF WAY AND INVOLUNTARY RESETTLEMENT OF THE PROJECT:

"GENERATION OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT IN ACAJUTLA, SONSONATE".

Sonsonate, July 2016.

MONTHLY REPORT NO.10
JULY 2016

Management of Right of Way and Involuntary Resettlement of the Project:

"GENERATION OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT IN ACAJUTLA, SONSONATE."

PRESENTS:

GRUPO INTEGRAL DE SERVICIOS, S.A. DE C.V.
Specialists in Rights of Way

Sonsonate, July 30, 2016.

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INTRODUCTION

This report contains a description of the activities and results achieved in the tenth month of Management of Right of Way of the Transmission Line (TL) for the project "Generation of 355 MW BASED ON NATURAL GAS WITH GENERATION PLANT IN ACAJUTLA, SONSONATE ".

The report is developed according to the three main areas of work which includes the management of rights of way: Social Management, Technical Management and Legal Management, and according to the main and relevant activities are reflected in **Appendix No. 1**: Work Programme of Right of Way Management.

At the closing of this report, it has reached 83% of design validation of the trace of the TL overall, with 88% viability. The three 3 sections of the project that have been determined according to the progress in the definition of design and management of right of way are maintained, representing the 3 work fronts for the various studies underway:

Section A, Comprising 77 plots in 17.00 km within the coffee-growing region of Ahuachapán and Apaneca, with a design defined in 100% to date. The intermediate section identified as " East Option " includes 27 plots on a length of 7.30 km, and is currently at the stage of preliminary studies, starting with the detailed topographical survey. This section has already been fully traversed in the field with the team of designers and accompanied by the owners of some of the affected properties, projecting to this date an 83% of viability. The remaining 9.50 km, is already under negotiation and payment of rights of way, processing simultaneously the approvals of the right of way blueprints by Cadastre-CNR of the department of Ahuachapán.

Section B, Comprising 133 plots in 19.50 km, currently under negotiation, payment and deed for the constitution of the rights of way of the electroduct. Of the 133 plots, it's been managed to submit economic bids on 112 plots (84%), achieving close economic agreements with the owners of 86 plots (65%) of which have been fully or partially paid and deeded 71 plots (54%). Pending economic offers to present and / or pending payments to be done correspond to the plots where legal problems are being solved and it is necessary to advance the process, to avoid jeopardizing the funds for compensation.

Section C, Comprising 59 plots in 6.90 km at the exit of Acajutla and where they continue to study various alternatives projected onto private property, east and away from the CA12; however, in the alternatives were found limits for social and environmental aspects, legal situations and lack of acceptance of owners in some properties, in addition to the reduced space for the execution of the TL due to saturation of the sector by transmission lines and existing distribution besides the current high demand for the development of related projects. To date, it's being given emphasis to the projected trace over the CA12 on the right side of the road from Acajutla to Sonsonate, which propitiate less execution risk by projecting all the infrastructure over the right of way, and strips not greater than 10. 00 meters wide to acquire estate in private

property. EDP is already reconciling technical solutions between ETESAL and AES for the solution over CA12.

To date, the length of the trace study of TL is approximately 43.40 km, keeping it way through the municipalities of Ahuachapán, Apaneca and San Pedro Puxtla in the department of Ahuachapán, and the municipalities of Santo Domingo, Sonsonate and Acajutla in the department of Sonsonate, with a total of 269 properties identified under the trace.

Management of rights of way, with a modification to the contract, continues to bear the consequences of arrears because of lack ok definition in the design of sections A and C in past months, specifically in the activities of development of individual blueprints, submission of blueprints to Cadastre -CNR for review and approval, valuations and negotiation, payment and deed of right of way strips. Although for mid-July / 2016 the presentation of drawings Cadastre-CNR department of Ahuachapan could be started, times for criteria and review-approval are greater than those who were experienced in the department of Sonsonate for section B , limiting us to make payments and title deeds to property owners affected in section A.

Also, the limitations that some property owners had to start the detailed topographical survey, in East Option of Section A, will delay obtaining information and the development of individual blueprints of affectation. In Section C, is still pending the start of the uprising in detail topography, if the latter is developed on private property and not on the right of way of the CA12 to Acajutla drives to Sonsonate as has been studying since March / 2016.

It is important to emphasize that the work program for the management of rights set out with the vision to implement activities simultaneously along the trace, so to this date and the lack of definition of the solution in the section C is imminently necessary to review the work program integrated all studies being run and adjust to the actual conditions of the project, to avoid falling into non-compliance of goals through causes outside of rights of way management.

1 SOCIAL AREA:

Social activities developed in this area in the tenth month of management, are described below:

1.1 PERFORMANCE OF SOCIAL MANAGEMENT OFFICE

For the month of July / 2016, attention to owners / holders is maintained; in total were recorded in our guestbook 7 people classifying them by subject and gender, presented in Table 1 below:

DETAILS TABLE OF VISITS TO SOCIAL MANAGEMENT OFFICE, SONSONATE		
REASON	**WOMEN**	**MEN**
Project information request, delivery of documents and legal procedures	1	1
Signature of valuation and compensatory payment notification	1	3
Delivery of resumes for job market	1	0
Filing of Complaints or Claims	0	0
Total	**3**	**4**

Table 1.- Details table of visits social management office, Sonsonate

1.1.1 ATTENTION OF OWNERS / HOLDERS AND RECEIPT OF DOCUMENTS

As detailed above in Table 1, one of the main reasons of attention to owners / holders was reporting of valuations and compensation payments, another reason to visit since the opening of the office has been the delivery of resumes of people interested in being hired in the construction stage of the project.

Likewise, continues the visit of owners / holders in order to follow up on the solution of legal cases in the estates to be occupied by the trace of the TL.



Illustration 1 - Attention to owners in Social Management Office.

1.1.2 JOB

In the Office of Social Management, has been received 1 person seeking information for a job opportunity and delivering his resume. This information is entered it in our database and thus is sent to the Office of Social Services in Acajutla, responsible for social information, product of the management for the power plant to be built in the same municipality.

1.1.3 RECEIVING COMPLAINTS AND RESOLUTION

To this date there have been no complaints or claims; however, the complaints mechanism remains active, which runs specifically in the Office of Social Management. For the benefit and ease of the inhabitants of the radius of influence of the project, work teams are mobilized in the field, they are ready to receive any kind of filing of complaint during home visits that develop daily.

1.2 PROGRESS IN IDENTIFYING ESTATES AND PROPERTY OWNERS / HOLDERS

Continued accompaniments to teams of technical and legal managers, to ensure collaboration of the owner / holder of the property, both field trips and topographical surveying activities, as for measurements that require processes with Cadastre-CNR for solving legal cases and approval of rights of way blueprints which will support the rights of electroduct acquired for EDP.

It also continued making home visits and presence in the sector " East Option " in the municipality of Apaneca, counting this date with 85% acceptance to the TL by owners / holders, with the remaining 15% will continue to make the necessary efforts running out alternative solutions to achieve viability. See Annex No.2: *General Plan of Design Definition on East Option.*

1.3 ADVANCES IN OBTAINING ENTRY PERMITS

For July / 2016, were reported a total of 243 permits obtained, of these 88 are verbal and 155 written of a total of 269 plots, so considering a 90% advance in collecting them.

The following table and graphs, summarizes the results achieved to date in obtaining permits to enter the properties, which in turn reflects the typology, that along with the advance of management reporting and compensatory payments are identified in Annex No. 3: General and Management Follow Up Plan.

SUMMARY TABLE OF ENTRY PERMITS						
Management	**Number of Permits**	**%**	**Affected length (Km) ***	**%**	**Affected area (m2)**	**%**
Verbal	88	32.71%	13.92	34.04%	542.600	34.00%
Written	155	57.62%	19.08	46.66%	758.781	47.54%
Process	19	7.06%	6.34	15.51%	242.065	15.17%
Denied	7	2.60%	1.32	3.23%	49.455	3.10%
Pending	0	0.00%	0.23	0.56%	3,194	0.20%
TOTAL	269	100.00%	40.89	100.00%	1596.094	100.00%

*This distance is equal to the sum of private land affected areas, not considered are streets, streams, rivers, etc. The total length of the trace is 41.92 km (according to trace under study)

Table 2.- Summary table of permits obtained to date

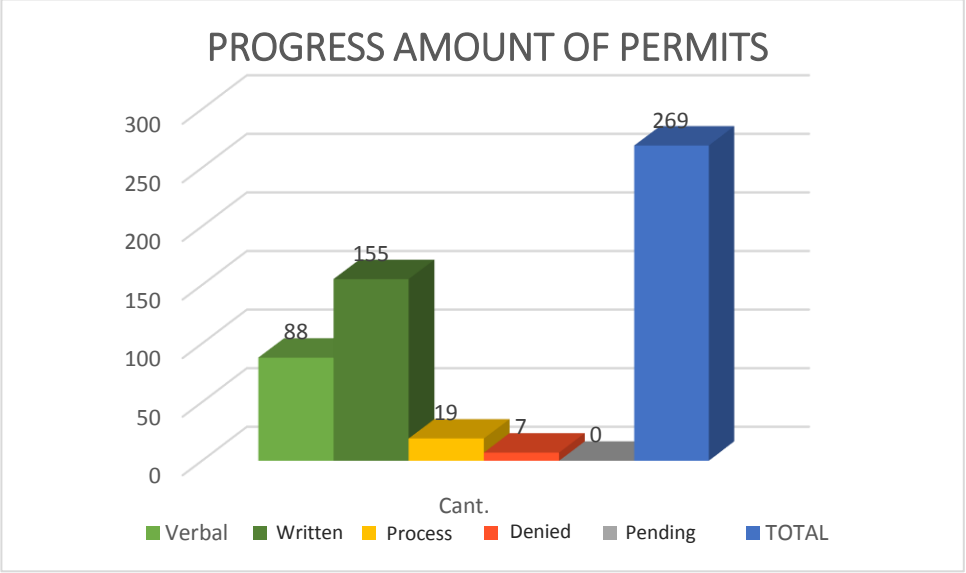


Illustration 2.- Bar Chart of advance in obtaining permits, according to number of permits.

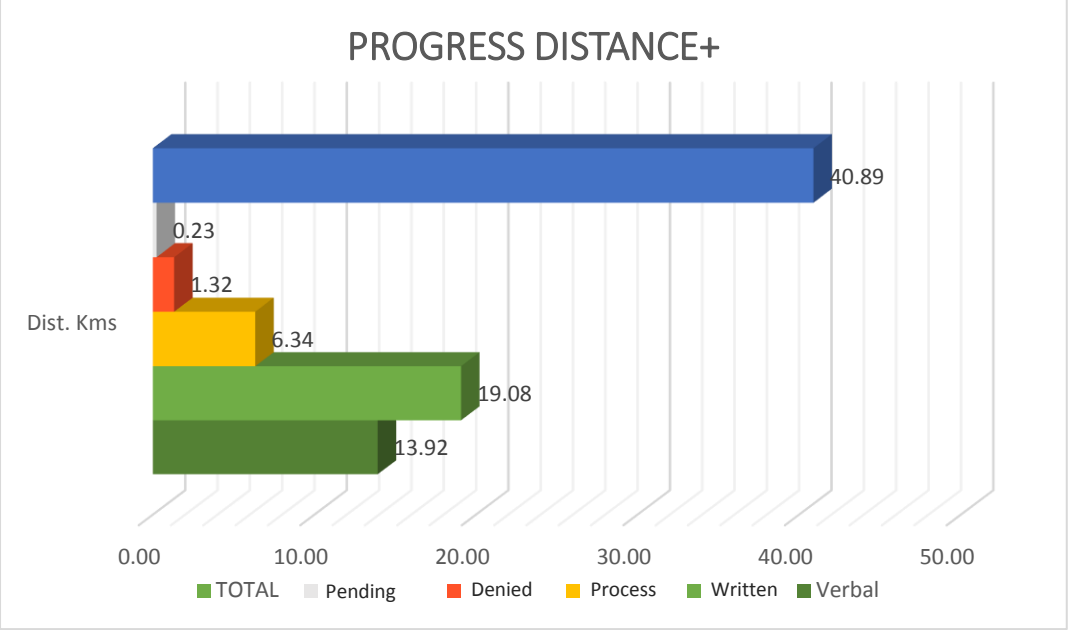


Illustration 3.- Bar Chart of advance of permits, according to length affected.

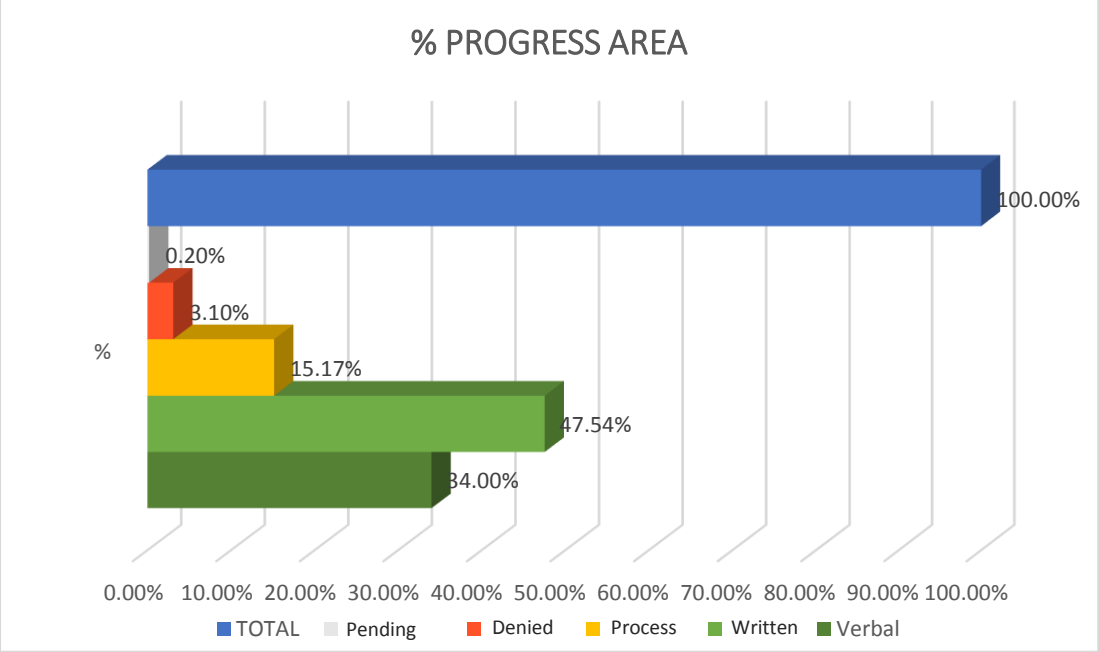


Illustration 4.- Bar Chart of advance of permits, according to affected areas.

1.4 PROGRESS IN THE COLLECTION OF DOCUMENTS

The social and legal team continues on home visits to collect personal documents (DUI and NIT) and property (deeds), complementing the latter with requests to the Registry of ownership of literals of deeds when necessary, this collection has been focused on section B where progress is made on the follow up of legal cases of the property to be used by the band and negotiations and payments thereof.

It is to note that the pending documentation will be complemented, when delivered by the owner at the time of negotiation and before deeding of the rights of way of the electroduct.

Table 3 summarizes the number and type of documents obtained to date.

SUMMARY OF COLLECTION OF DOCUMENTS			
DOCUMENTS (Owner, Holder, Legal Representative)	**AHUACHAPAN**	**SONSONATE**	**TOTAL**
DUI	64	99	163
NIT	95	63	158
DEED (Provided by owners and literal requested to CNR)	127	121	248

Table 3.- Summary of collection of documents.

1.5 IDENTIFICATION OF POSSIBLE CASES OF INVOLUNTARY RESETTLEMENT

In the report for July / 2016, 6 cases of involuntary resettlement remained, however, with design modifications for the aerial arrival of the TL to the GEO's electrical sub-station in the municipality of Ahuachapán, avoided affecting five cases identified above, reducing to 1 case of involuntary resettlement in the 43.4 Km designed to date projected.

The only case of resettlement is located on plot 246 where tower 128 is projected, boundary between Section B and Section C in the sector of the exit of Acajutla, identified as Rea-6. Below is the involuntary resettlement defined to date:

SUMMARY OF CASES OF INVOLUNTARY RESETTLEMENT DEFINED								
No.	**NOMENCLATURE**	**PLOT ACCORDING TO PROJECT**	**VERTICE / PARKING**	**NAME OF THE HEAD OF THE FAMILY**	**Head by genre**		**No STRUCTURES (HOUSES)**	**NUMBER OF HOUSEHOLDS**
					F	**M**		
1	Re-6	246	18/35 +000	Julio Alberto Menendez Ramirez		x	1	1

Source: Based on data collected by EDP Rights of Way Management team in field trip conducted between 12/08/2015 to 12/16/2015, municipalities of Acajutla and Ahuachapan.

Table 4- Summary table of cases involuntary resettlement defined.

The possibility of increasing cases of resettlement is still open, according to the definition of design of the TL in section C.

1.6 PROGRESS IN IDENTIFYING PROPERTIES FOR SOLVING INVOLUNTARY RESETTLEMENT.

After identifying property for the relocation of the affected family, progress is being made in the collection of documents of ownership, financial offers and personal documents of owners. Likewise, the valuations are made and property registry studies, to rule out any legal problem, in order to ensure legal tenure to the beneficiaries. For each of the alternatives, records have been conformed to assess each of the offerings and identify the most suitable for the family group who will be moved.

It should be noted that offers for sale, taken from about 3 months ago, are being followed up regarding their availability, in some cases there is no longer a sale offer; so, if the purchase of property continues to be postponed, there is a risk of not having any more availability of sale in any of the alternatives identified. If this happens, a new search and selection process must be made again, to have new alternatives that meet the IFC requirements and meets the needs of the beneficiary family.

1.7 SOCIOECONOMIC CENSUS

There's been a collection of information, in order to socioeconomically characterize the family to be moved and define eligibility, compensation and assistance in accordance with procedures for involuntary resettlement established by IFC in its Performance Standard 5.

As 100% of the trace of the TL is defined, the number of plots to censor will be determined, since only will be surveyed the families who are forced to move physically and outside the building that they currently inhabit due to the direct impact to be generated.

1.8 CUTOFF DATE

In section B it continues notifying the "Cut-off Date or Closing Date" dated April/ 05/ 2016, specifically to owners / holders and is simultaneously performed with the valuation notification prior to payment and deeding of the rights of way of the electroduct.

On July/ 07/ 2016 it's been defined the design of section A and thus the "Cut-off Date or Closing Date", which as in the section B are reported simultaneously to the valuation notification prior to payment and deeding f the rights of way of the electroduct.

Therefore, only Section C is pending to set a cut-off date and will be consistent with the definition of the design of the TL.

As we mentioned before, the cutoff date allows to inform and generate credibility of the processes, and safeguard from people who want to be favored of the compensatory processes. The written notification contains the name, location of the property, according to project identification, status of tenure and the stipulated closing date. Delivery is supported with a copy of the note and a list, which will be signed by the recipient of the notification, i.e. the owner or legal representative.

Bellow, illustration of home visits to notify the cut-off date to owners / holders of property affected by the passing of the TL:



Illustration 5.- Notification of cut-off date to owners / holders.

In relation to the case of resettlement, still has not been notified of the cutoff date until achieving an economic agreement with the owner of the property on which it now stands, to confirm the need to relocate the family, as in compliance with Standard 5 of the IFC, is necessary to prevent affected families entering a state of anxiety by moving them form the place that for many years has been their home, and false expectations generated with the possibility of improving their living conditions. As is the case of the last adjustment to the trace in July / 2016 which allowed to stop considering the families as possible beneficiaries and there will be no need to relocate them.

When notifying the cutoff date for resettlers, the process of choosing the alternative is initiated by the beneficiary families, negotiations must already exist, by EDP with the owners of alternative properties, offer for sale and purchase commitment in case the alternative it's selected by the beneficiary, which to this date has not been performed.

1.9 DISCLOSURE OF PROGRESS MANAGEMENT (OWNERS AND HOLDERS)

As the Performance Standard 5 of the IFC dictates, the disclosure of relevant information is crucial in the process of participation of those directly affected, so in the management of rights of way, from first contact an information flow was established directly with owners / holders to maintain good availability to grant the right of way of the TL in their properties.

At this stage of disclosure, it is being reported on the progress of the negotiations and the different steps involved in the project, to ensure a transparent and informed process for which a new information brochure has been made describing each step to develop in the stage of negotiation-payment and deeding, which is explained and delivered by social managers in home visits.

2 TECHNICAL AREA:

Below, activities in this area of study are described:

2.1 MAINTENANCE OF GENERAL PLANS AND MONITORING.

It continues to maintain general plans and monitoring of management, and the development and updating of individual plans of affection to be presented to Cadastre-CNR for their respective review and approval regarding design variations.

To date, in section B there's no projections of further modifications to trace, because of the progress in acquiring rights of way, so it's only being finalized the presentations of plans to the Cadastre-CNR in plots with legal processes, having to this date 100% of definition of properties and areas to be occupied by the TL.

In section A, dated July, 2016, the trace of the TL was defined and proceeded to review and define the areas to be occupied by the TL at each property to intervene.

In section C, it's still considering cadastral information to perform preliminary calculations and definition of general plans, based on the different traces being studied. Once the design has been defined and with detailed topographical information, the general project plans will be updated.

*In **Annex # 4**: General Affectation Plans*, it can be seen what to this date constitutes the total of the plots according to the project, identifying the owners, properties and areas to take over the TL.

2.2 REVIEW IN FIELD OF TOPOGRAPHICAL INFORMATION

To date, 100% of the detailed information of the topographical survey in the section B is had.

In section A and specifically in the trace of the East Option, they demarcations of bench marks for the CNR and limits of the primary polygonal have begun, planning to start the survey in detail in the first week of August / 2016.

2.3 ELABORATION OF PLANS AND TECHNICAL DESCRIPTIONS OF THE RIGHTS OF WAY STRIPS

In section B, between TP51 to the TP128 comprising 19.5 km and a total of 133 properties the total of affectation plans has been elaborated with their respective technical descriptions, which as there's progress in the management of negotiation and payment of the rights of way to owners will be provided to the legal area to be incorporated into deeding projects.

For this month of July in which the was endorsed the overall design of Section A, between TP1 and TP51 and comprising 17 km and a total of 76 plots, it has been revised and defined 48 individual blueprints in which detailed topographic information is available, which have started being presented to the Cadastre-CNR for their respective review and approval.

2.4 PLANS FOR FILING IN TECHNICAL REVIEW CATASTRO-CNR

With the endorsement of EDP as of April 4, 2016, in Section B started presenting plans to the Cadastre of the CNR in the department of Sonsonate and Ahuachapán, for technical review and approval of the affected portions of each property where rights of way of the electroduct should be built.

At the closing date of this report, have been submitted to the Cadastre-CNR in different departments, Ahuachapán and Sonsonate, plans for review and approval, as follows:

SUMMARY TABLE OF PRESENTATION OF PLANS FOR REVIEW AND APPROVAL		
SECTION	**PLANS SUBMITTED**	**PLANS APPROVED**
A	39	0
B	104	103

Table 5.- Summary table plans submitted to Cadastre-CNR.

2.5 VALUATION OF PROPERTIES

To date, there are 181 plots valuations comprised in 9.5 km of the trace of section "A" and 19.5 km of section "B", which designs have been defined since past months. For the month of July / 2016, field inspections have initiated for the development of 28 valuations in the plots included in the East Option, which design was recently defined.

3 LEGAL AREA:

In the month of July / 2016, it continues to develop 5 major activities in the Legal Area: Land Registry Research; Solving Problems / Legal Cases of the affected properties; Negotiation amounts to cancel by the Constitution of Rights of Way of Electroduct; Payment of full or partial compensation through deeding of the Constitution of Rights of Way or Constitution Pledge of Law of Rights of Way; and registration of Deeds of Rights of Way in the Land Registry and Mortgages.

The first operation or activity is aimed to feedback from the legal situation of each plot, while 100% of the trace of the TL is defined. Likewise, the CNR verified the legal status of properties located under the new traces studied to determine their viability and verifying the registration status of the property in deeding and payment process.

The second activity or management, is to start and monitor the proceedings or procedures that solve legal constraints identified in 132 buildings affected by the TL. So, the team of lawyers and notaries, continues to make visits to owners in order to generate an environment of trust, achieving timely collaboration for streamlining processes.

The third activity is the negotiation with each of the owners of the affected properties, this negotiation aims acceptance of the amount of compensation for the owner.

The fourth activity starts when it has been reached a financial agreement with the owner, and corresponds to the payment of the total or partial amount of the compensation within a period not exceeding fifteen working days, signing simultaneously the Public Deed of Constitution of Rights of Way of Electroduct or the Pledge of Constitution of Right of Way of Electroduct.

The fifth activity is the presentation to the Registry of Property and Mortgages of the Department of Ahuachapan and Sonsonate for prompt and timely registration. Concluding with the registration process of creation of rights of way on each parcel within the outline of the project.

3.1 PROGRESS IN THE REGISTRY AND CADASTRAL VERIFICATION

To date, we have 100% of the cadastral-registration verifications of the property under the trace currently being studied, as well as properties that have been affected by the projection of new traces proposed.

See **Annex No. 5**: *General Matrix of Plots and Owners* identified to date, which reflects all cadastral-registration information verified at the CNR in each of the properties affected by the TL.

3.2 IDENTIFICATION OF LEGAL CASES

To date 126 properties have been identified that have a problem or legal case to solve, equivalent to approximately 46.84% of all affected properties; 126 properties represent a total of 159 processes, proceedings or legal resolution procedures to solve any risk in the construction of the transmission line.

The 159 cases identified are classified as follows; 103 legal cases that have been identified through cadastral-registration verification in the CNR, and 56 legal problems identified by the approach to the owners / holders of the properties.

4. Bar graph illustration of progress in permits, according to affected areas.

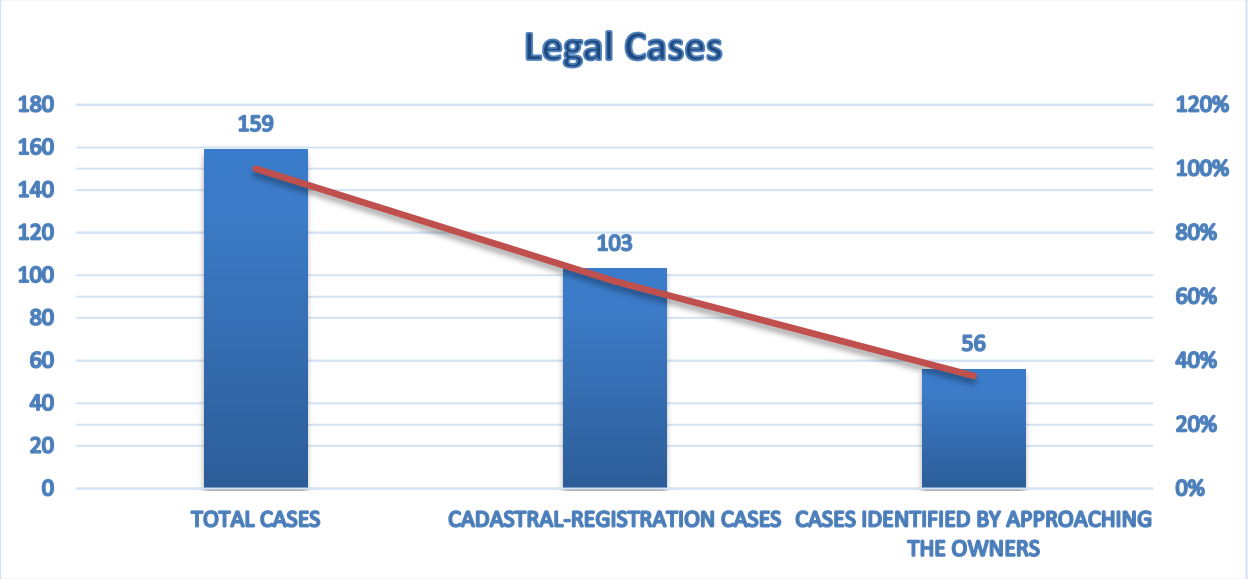


Illustration 6Bar Graph. - Legal Cases.

Legal cases and problems identified to date have been classified according to its complexity and solution time, defining four types described as follows:

1) Green: simple cases whose complexity and resolution times do not exceed 6 months in office.

2) Yellow: cases of medium complexity and those which resolution times are between 6 and 10 months in office.

3) Orange: cases of medium complexity and those with resolution times of over 11 contractual months in office, but not impossible to legalize the rights of way of electroduct.

4) Red: The highly complex cases without possibility of reaching a resolution, which represent impossibility to legalize the rights of way of electroduct.

It must be kept in mind that legal problems, both registry and field may coincide in the same property, presenting more than one case and of different complexity or color so the color that will prevail is the one indicating greater complexity.

Below are tables 7 through 10 summarizing the classification of legal cases identified by complexity and type of solution.

SUMMARY TABLE OF REGISTRY LEGAL CASES				
CORRELATIVE	**LEGAL CASE**	**AHUACHAPAN**	**SONSONATE**	**TOTAL**
1	**Mortgage**	25	12	37
2	**Right of Way**	3	22	25
3	**Presentations pending registration**	7	3	10
4	**Pledge**	4	4	8
5	**Well Family**	4	2	6
6	**Alerts**	9	0	9
7	**No history**	6	1	7
8	**Garnishment**	1	0	1
	TOTAL	**59**	**44**	**103**

Table 6.- Table summary of legal cases by type

SUMMARY TABLE OF LEGAL CASES BY ACCORDING TO COMPLEXITY OF SOLUTION				
DEPARTMENT	TYPE BY COMPLEXITY OF SOLUTION			
	GREEN	YELLOW	ORANGE	RED
Ahuachapán	55	0	4	0
Sonsonate	31	13	0	0
TOTAL	**86**	**13**	**4**	**0**

Table 7.- Table summary of legal cases by complexity of the solution

SUMMARY TABLE OF LEGAL ISSUES				
CORRELATIVE	LEGAL CASE	AHUACHAPAN	SONSONATE	TOTAL
1	**Proceedings for acceptance of inheritance**	12	4	16
2	**Supplementary title**	0	1	1
3	**Special power**	1	19	twenty
4	**Domain Transfer**	0	7	7
5	**Measures of re-measurement**	1	2	3
6	**Dismemberment led by its owner**	0	1	1
7	**Judicial partition**	4	0	4
8	**Meeting Properties**	1	2	3
9	**Adverse possession**	1	0	1
	TOTAL	**20**	**36**	**56**

Table 8.- Summary table of legal problems by type

SUMMARY TABLE OF LEGAL PROBLEMS BY COMPLEXITY OF SOLUTION				
DEPARTMENT	TYPE BY COMPLEXITY OF SOLUTION			
	GREEN	YELLOW	ORANGE	RED
Ahuachapán	1	6	13	0
Sonsonate	3	2. 3	10	0
TOTAL	**4**	**29**	**2. 3**	**0**

Table 9.- Summary table of legal problems by complexity of solution.

In **Annex No.6**: Matrix of Legal Cases, you can see in detail each case identified by the color of type that corresponds according to the complexity.

3.3 RESOLUTION OF LEGAL CASES

The legal team continues meeting with owners / holders on the premises of the Office of Social Management and / or home visits in support for social managers to obtain all necessary information and documents for monitoring processes, proceedings or legal procedures.

Below, the details of efforts made on the side of the legal team:

- Obtaining documents such as birth, death and marriage certificates, before the corresponding municipality for the various proceedings of acceptance of inheritance, for further and immediate start.

- Obtaining cadastral denomination certifications at the National Registration Center (CNR) for the Proceedings of Supplementary Titles.

- Obtaining authorization from the owners to present to the mortgagee for mortgage cancellations or request authorization for Constitution of Right of Way.

- Development of special attorney powers in cases of owners abroad

- Elaboration of Deeds of Domain Transfers.

As a progress of the resolution of the various legal situations that are in properties that must be sanitized by the legal team, the total 159 processes, proceedings or procedures identified in 126 properties across the trace; is currently developing these activities in Section B, to date there are 57 properties that have a problem or legal case to solve, what represents to us 76 processes, proceedings or procedures of legal resolution.

In Section B, until the month of July have been resolved a total of 30 legal problems, in process of resolution a total of 32 legal problems, from start to finish negotiations with the owner a total of 33 legal problems, not initiated by lack of cooperation by the owners a total of 11 legal problems.

Progress in resolving legal problems in section B represents us to this date, a 28.30%.

Here are some field visits and meetings in our facilities in Sonsonate conducted in July / 2016 with owners / holders by the legal area are illustrated.



Illustration 7.- Payment and Deeding of Constitution of Right of Way of electroduct.



Illustration 8.- Meeting with Cooperative Association, to explain how Legal Status will be obtained.



Illustration 9.- Notice of amount of compensation.



Illustration 10 - Payment and Deeding of Constitution busway.

Legal advice and notary services are performed at no cost to owners / holders of the affected properties, which has led them to cooperate and provide the necessary documentation; as some of the proceedings represent high costs that they cannot pay.

In legal cases and problems that have not been completed at the time of the negotiation, we will arrange the signing of deed of pledge of constitution of rights of way (if possible) versus paying a percentage of the compensation, in order to generate confidence on the owner / holder. At the end of the process in favor of the owners / holders, all of the negotiated rights of way will be payed and legalized in favor of EDP in cases where only a promise of constitution of rights was obtained.

This is to ensure the execution of the work and the subsequent legalization of rights of way of electroduct.

3.4 NEGOTIATING AMOUNTS TO PAY FOR CONSTITUTION OF RIGHTS OF WAY.

As part of the activities of legal area, notification and negotiation of the appraisals to the owners / holders of the affected properties it is performed.

Continuing the development of this activity, a total of 112 plots were notified, of which 86 plots are accepted, leaving 26 parcels pending response from the owners / holders and in some cases legal representatives.

It is noteworthy, that there has not been reported any negative or rejection by owners / holders / responsible of the property to date, there is an availability of negotiation, which minimizes the risk of executing the TL.

3.5 ELABORATION / REVIEW OF PROJECTS OF DEED OF PROMISE OR CONSTITUTION OF RIGHTS OF WAY.

As part of the activities of the Legal Department is the elaboration and review of projects of deeds of Constitution of Rights of Way or Promises of Constitution of Rights of Way, which must be signed when advance payment is made or the total amount of compensation result of the negotiation is paid.

In this activity, we have analyzed the legal / registration or legal cases of each plot to determine which instrument is to be implemented for payment of compensations, classified as follows:

a) Deeds of Constitution of Rights of Way shall be granted in plots that are free of encumbrances.

b) Deed of Promise of Constitution of Rights of Way on parcels which are being freed from legal problems.

3.6 TOTAL OR PARTIAL PAYMENT OF COMPENSATION BY THE DEEDING OF CONSTITUTION OF RIGHTS OF WAY OR PROMISE OF CONSTITUTION OF RIGHTS OF WAY.

This activity is being developed this July in section B, which consists of a total of 133 plots; and as a result of negotiations closed on that section it has proceeded to full or partial payment of compensation to owners of properties that constitute or promise to constitute the Rights of Way of the Electroduct.

Payment of compensation is done by providing and obtaining the signature of the Public Deed of Rights of Way or Promise of Constitution of Rights of Way.

At the close of this report it has been made full payment of compensation of 67 plots, obtaining the signature of the Deed of Constitution of Rights of Way by the owner and partial payment of compensation of 4 plots, with obtaining the signature of the Deed of Promise of Constitution of Rights of Way by the owner / holder.

3.7 REGISTRATION OF DEEDS OF CONSTITUTION OF RIGHTS OF WAY IN THE REGISTRY OF LAND AND MORTGAGES.

As a result of the payment and deeding done to the owners, there have been a total of 57 testimonies of Constitution of Rights of Way, to the Registry of Land and Mortgages, corresponding to the Department of Sonsonate 43 presentations and the Department of Ahuachapán 14 presentations.

To date 57 of the Deeds of Constitution of Rights of Way presented, have been obtained 41 deeds registered and withdrawn, finding a total of 16 presented and pending registration, corresponding 7 to the department of Ahuachapán and 9 to the department of Sonsonate.

3.8 REQUEST OF CADASTRAL LOCATIONS, LITERAL CERTIFICATIONS OF DEEDS AND LITERAL CERTIFICATIONS OF LEGAL STATUS.

To date, 425cadastral locations have been requested of which 255 are kept within the proposed trace, due to variations that the initial design has had. It continues with the cadastral identification of new properties by changes in the trace. Cadastral locations are broken down as follows: 116 cadastral locations of properties in the Department of Ahuachapan and 139 cadastral locations in the Department of Sonsonate.

Also, we have obtained a total of 325 literal certifications of deeds of properties located in different traces that have been studied, of which 213 literal certificates of deeds corresponding to 191 properties located under the trace currently held in study and definition, which are broken down as follows: 114 literals in the department of Ahuachapán and 99 literals in the department of Sonsonate.

It was obtained from the Registry of Commerce the literal certifications attesting the legal status of the companies that are in the validated trace, such as the Incorporation, modifications and Credentials. Accounting for a total of 41 certifications that are broken down as follows: 34 literal certifications of the department of Ahuachapán and 7 literal certifications of the department of Sonsonate, which complement information for 19 plots under the trace.

4 CONCLUSIONS

- In general, with a definition of 83% design (specifically in sections A and B), and 70% of topographic information of all the trace, and a revised work program in contractual deadline until November/12/2016, the management of rights of way has a lower percentage of progress than expected for this date.
- The project with 10 months of study, keeps a percentage of viability between about 85% - 90%, which includes the acceptance and cooperation to the project by the owners / possessors of property located in different sections of the trace.
- With the design defined in section A and based on the results of the first approaches to owners to start negotiation processes, a considerable level of risk is projected in East Option, where property owners have expressed having high economic expectations to yield the rights of way of electroduct for EDP, but do not present rejection of the project.
- To date, with an increase of 65% in economic agreements reached in Section B, in the remaining 35%, 8 plots are identified projecting a risk level for the implementation of the TL, where some owners are absent they are identified or have expressed having economic expectations well above the values determined in the market study of the radius of influence; by strategy, they will be treated as special cases to ensure that solutions to be implemented won't distort the results achieved with the other owners of neighboring properties.
- After a year of conducted market research with the basis on which the first budget for the acquisition of rights of way was made, and in compliance with the Performance Standard 5 of the IFC, an upgrade of market values will be required, specifically in sections A and C, representing the eco-touristic and industrial sectors respectively. This update of values modify the budget, with an upward trend.
- Arrears accumulated as a result of different circumstances, plus the lack of definition in the design in section C, continue to project risks in meeting goals in the management activities of rights of way and fund disbursement schedule. To date it is no longer possible to meet the targets set for the month of August / 2016 and on. It is essential that the design of section C is defined in the month of August / 2016 to start negotiations with owners.
- Archaeological findings and any results of EIA studies, that recommend extemporaneous changes in the trace currently under implementation and / or definition, jeopardize the progress achieved to date in studies of Design and Management of Rights of Way.

5 RECOMMENDATIONS

Due to the limited progress in the work program of management of rights of way, the recent start of the proceedings in section A and the lack of design of section C, the recommendations of past reports are repeated:

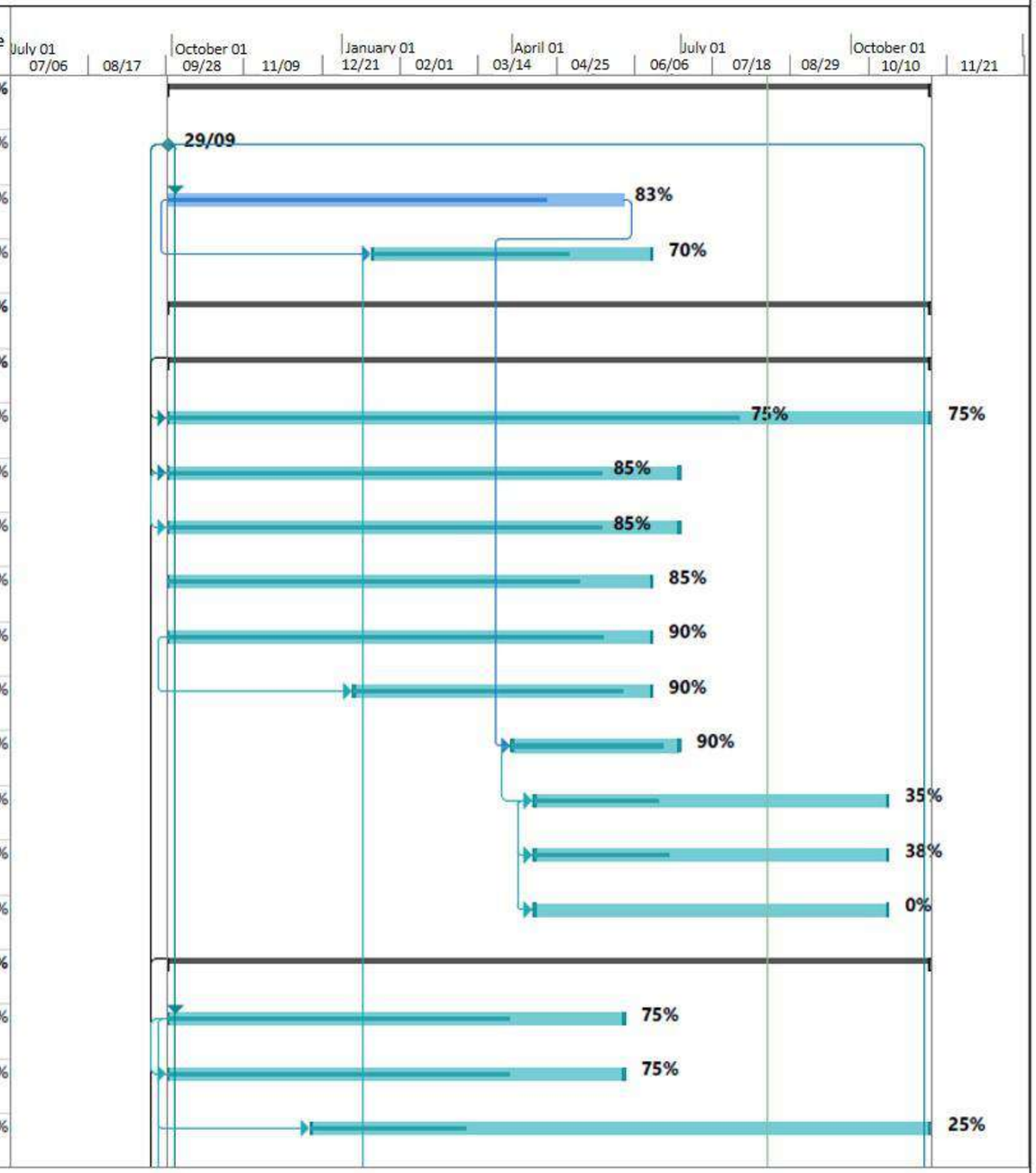
- It's recommended to define as soon as possible, the solution of the exit of the Acajutla plant until Km. 7 of the CA12 leading to Sonsonate, to start or continue with the efforts of the acquisition of rights of way.
- It is recommended to strengthen the various specialists to improve the degree of progress in the definition of the TL, ensuring full availability of the technical team of designers to meet the needs of the project (review and rethinking of design changes), as a product of the steps taken with the property owners in the negotiation process, also because of the different specialties of study that run simultaneously, enabling to fulfill the runtimes of the management activities of rights of way.
- Keep expedited payment and deeding that has developed after the negotiations, to ensure the environment of trust and credibility that has been earned the failure of compliance by EDP in the commitments agreed with the owners.
- Define and formalize new strategies for the acquisition of rights of way of electroduct with property owners whose expectations exceed the values for compensation studied and defined, both in section B that already has 65% progress in the negotiation process and 50% on payments to owners, and especially in the coffee growing sector of Apaneca, department of Ahuachapán.
- It reiterates the need to implement an information campaign of the project to publicize its benefits both at national and local levels, noting that will be public usefulness and be environmentally friendly, without forgetting the Social Responsibility of the Company.

- Review and modification is recommended for the work program of Management of Rights of Way, adapting to the possible dates of design definition in section C.

ANNEX 1: RIGHT OF WAY MANAGEMENT WORK PROGRAM.

RIGHT OF WAY MANAGEMENT WORK PROGRAM FOR THE PROJECT: GENERATION OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT IN ACAJUTLA. SONSONATE ".

Id	Task mode	Task name	Duration	Start	End	% Complete
1		MANAGEMENT OF LAND ACQUISITION AND INVOLUNTARY RESETTLEMENTS OF THE PROJECT: "GENERATION OF 355 MW BASED ON NATURAL GAS WITH A GENERATION PLANT IN ACAJUTLA, SONSONATE (JULY / 30 / 2016)	410 days	Tue 09/29/15	Sat 11/12/16	65%
2		STARTING ORDER	0 days	Tue 09/29/15	Tue 09/29/15	100%
3		DEFINITION OF TRANSMISSION LINE DESIGN	245 days	Tue 09/29/15	Tue 05/31/16	83%
4		TOPOGRAPHIC SURVEY DELIVERY	150 days	Sun 01/17/16	Wed 06/15/16	70%
5		PROCESS OF CONSTITUTION OF RIGHT OF WAY	410 days	Tue 09/29/15	Sat 11/12/16	64%
6		SOCIAL MANAGEMENT	410 days	Tue 09/29/15	Sat 11/12/16	69%
7		ATTENTION OF OFFICE OF ATTENTION TO OWNERS AND RECEPTION OF COMPLAINTS	410 days	Tue 09/29/15	Sat 11/12/16	75%
8		DOMICILIARY VISITS FOR THE IDENTIFICATION OF OWNERS / HOLDERS	275 days	Tue 09/29/15	Thu 06/30/16	85%
9		COLLECTION OF PERSONAL IDENTIFICATION DOCUMENTS AND OWNERSHIP OF PROPERTY	275 days	Tue 09/29/15	Thu 06/30/16	85%
10		OBTAINING INCOME PERMITS TO PROPERTIES FOR PRELIMINARY STUDIES.	260 days	Tue 09/29/15	Wed 06/15/16	85%
11		IDENTIFICATION OF HOUSING AND BUSINESS AFFECTED FOR THE DEFINITION OF POSSIBLE FAMILY RESIDENTIAL AND RE-LOCATION OF BUSINESS.	260 days	Tue 09/29/15	Wed 06/15/16	90%
12		IDENTIFICATION OF PROPERTIES FOR THE SOLUTION OF CASES OF RESETTLEMENT AND BUSINESS RELOCATIONS	160 days	Thu 01/07/16	Wed 06/15/16	90%
13		SOCIOECONOMIC CENSUS	90 days	Fri 04/01/16	Thu 06/30/16	90%
14		DEFINITION AND NOTIFICATION OF DEADLINE OR CUTOFF DATE	190 days	Wed 04/13/16	Thu 10/20/16	35%
15		DISCLOSURE OF PROGRESS MANAGEMENT (PROPERTY / HOLDERS)	190 days	Wed 04/13/16	Thu 10/20/16	38%
16		RESETTLEMENT PROCESS OF HOUSING AND BUSINESS RELOCATION	190 days	Wed 04/13/16	Thu 10/20/16	0%
17		LEGAL MANAGEMENT	410 days	Tue 09/29/15	Sat 11/12/16	55%
18		REGISTRATION AND CATASTRAL STUDIES	245 days	Tue 09/29/15	Tue 05/31/16	75%
19		QUANTIFICATION AND QUALIFICATION OF LEGAL CASES	245 days	Tue 09/29/15	Tue 05/31/16	75%
20		SOLUTION OF CASES AND LEGAL PROBLEMS	333 days	Tue 12/15/16	Sat 11/12/16	25%



GRIS, S.A. DE C.V.

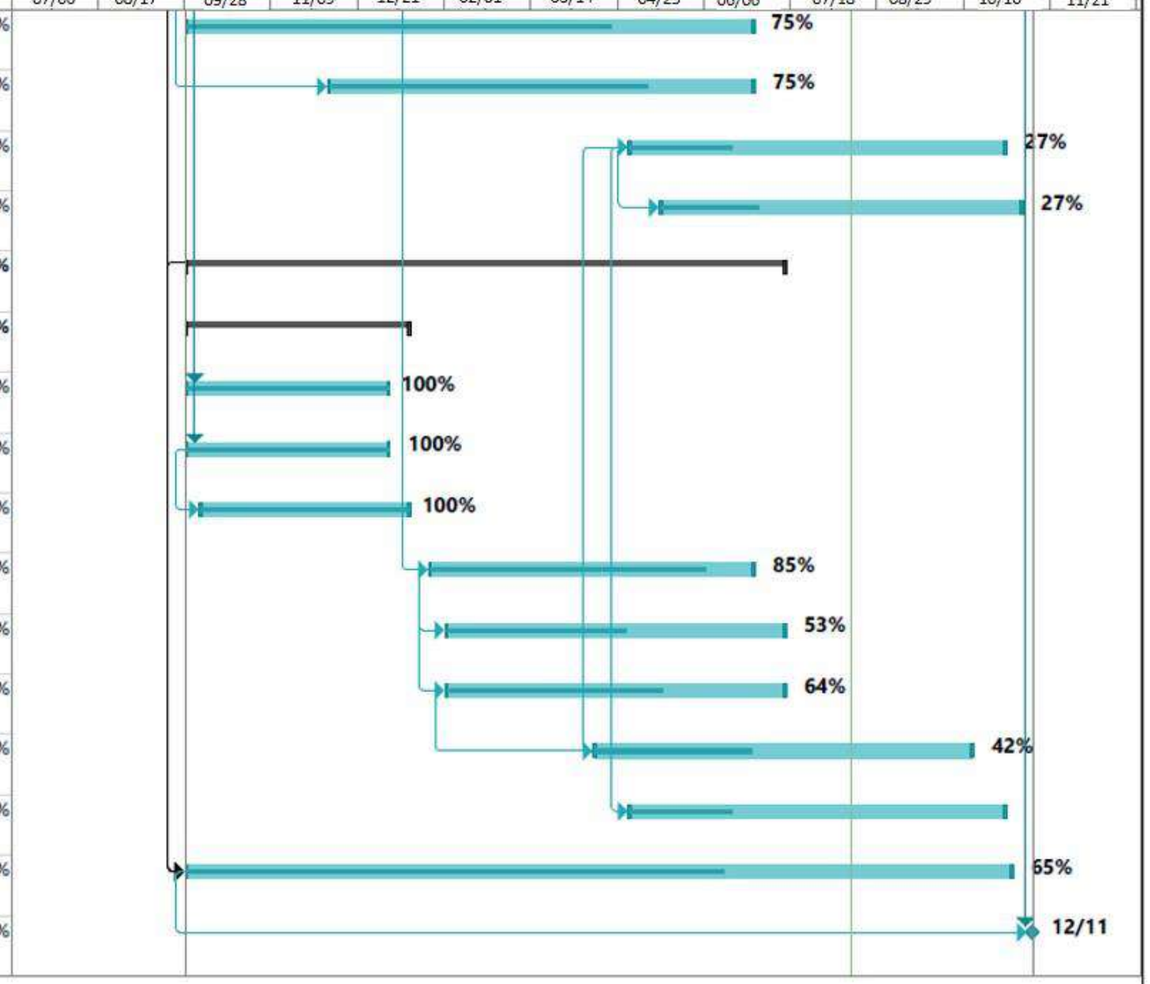
Homework	Project summary	Manual task	Only the beginning	Deadline
Division	Inactive task	Only duration	Just the end	Progress
Milestone	Inactive milestone	Manual summary report	External Tasks	Manual progress
Summary	Inactive Summary	Manual summary	External milestone	

NOTE: COMPLIANCE WITH THIS WORK PROGRAM SHALL BE SUBJECT TO THE DATE OF DELIVERY OF THE FINAL DESIGN OF THE TRANSMISSION LINE AND TOPOGRAPHIC LIFTING.

JULY/30/2016

RIGHT OF WAY MANAGEMENT WORK PROGRAM FOR THE PROJECT: GENERATION OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT IN ACAJUTLA. SONSONATE ".

Id	Task mode	Task name	Duration	Start	End	% Complete
21		APPLICATION OF CATASTRAL LOCATIONS	275 days	Tue 09/29/15	Thu 06/30/16	75%
22		APPLICATION FOR LITERAL CERTIFICATIONS OF PROPERTY SCRIPTURES	206 days	Mon 12/07/16	Thu 06/30/16	75%
23		SIGNATURE OF PROMISE AND / OR CONSTITUTION OF RIGHT OF WAY	182 days	Sun 05/01/16	Sun 10/30/16	27%
24		PRESENTATION OF DEED TO REGISTRATION OF PROPERTY FOR REGISTRATION	175 days	Mon 05/16/16	Mon 11/07/16	27%
25		**TECHNICAL MANAGEMENT**	**290 days**	**Tue 09/29/15**	**Fri 07/15/16**	**80%**
26	✓	**DOC. ZONING, DETERMINATION OF PRICE RANGES, DEFINITION OF VALUATION CRITERIA AND PARAMETERS, UPDATE OF UNIT BUILDING PRICES**	**108 days**	**Tue 09/29/15**	**Fri 01/15/16**	**100%**
27	✓	LAND USE ZONING OF THE SECTOR	98 days	Tue 09/29/15	Tue 01/05/16	100%
28	✓	MARKET STUDY OF THE SECTOR (LAND)	98 days	Tue 09/29/15	Tue 01/05/16	100%
29	✓	DEFINITION OF VALUE RANGES BY GROUND CLASS	101 days	Tue 10/06/15	Fri 01/15/16	100%
30		ELABORATION OF GENERAL AND INDIVIDUAL PLANS OF CONSTITUTION OF RIGHT OF WAY	157 days	Mon 01/25/16	Thu 06/30/16	85%
31		PRESENTATION AND APPROVAL OF INDIVIDUAL PLANS OF AFFECTATION TO CNR	164 days	Tue 02/02/16	Fri 07/15/16	53%
32		VALUATION OF BUILDINGS (LAND-CROPS, ADDITIONAL WORKS AND REMOVALS)	164 days	Tue 02/02/16	Fri 07/15/16	64%
33		NOTICE AND NEGOTIATION OF APPRAISALS	183 days	Thu 04/14/16	Fri 10/14/16	42%
34		PAYMENTS (RELEASE OF THE PROPERTY)	182 days	Sun 05/01/16	Sun 10/30/16	27%
35		CONFORMATION OF PHYSICAL AND DIGITAL RECORDS BY PLOT	400 days	Tue 09/29/15	Wed 11/02/16	65%
36		PRESENTATION OF THE FINAL MANAGEMENT REPORT	0 days	Sat 11/12/16	Sat 11/12/16	0%



GRIS, S.A. DE C.V.

Homework	Project summary	Manual task	Only the beginning	Deadline
Division	Inactive task	Only duration	Just the end	Progress
Milestone	Inactive milestone	Manual summary report	External Tasks	Manual progress
Summary	Inactive Summary	Manual summary	External milestone	

NOTE: COMPLIANCE WITH THIS WORK PROGRAM SHALL BE SUBJECT TO THE DATE OF DELIVERY OF THE FINAL DESIGN OF THE TRANSMISSION LINE AND TOPOGRAPHIC LIFTING.

JULY/30/2016

ANNEX 2: DEFINITION OF DESIGN OPTION EAST.

PARCELA	PROPIETARIO	M²	V²	X	Y
42	JOSE ERNESTO ROMERO BORJA PAPINI; JUAN JOSE BORJA PAPINI; JULIA MARGARITA BORJA PAPINI Y MARGARITA ALDEMIRA PAPINI RUIZ DE BORJA	25809.71	36928.53	411082.16	808355.04
43	NEGOCIOS MAGAÑA DELLA TORRE, S.A. DE C.V.	10839.24	15494.47	411377.41	807836.84
44-1	MONTECARLO ESTATE, S.A. de C.V.	12,426.35	17,779.62	411617.88	807634.62
46-1	NEGOCIOS MAGAÑA DELLA TORRE, S.A. DE C.V.	27,374.84	39,167.92	411824.25	807465.31
47-1	JOSE ROMERO ASCENCIO	2,594.92	3,712.80	411906.16	806825.77
48-1	MARIA ANGELICA BORJA DE FERGUSON	3,347.69	4,789.75	411991.20	806775.61
49-1	GLORIA BEATRIZ ARTURO MENDOZA	5,561.48	9,388.16	411835.42	806665.61
59-1	AGROPECUARIA GUADALUPE, S.A. DE C.V.	6,750.61	9,658.77	411714.05	806582.40
50	ERNESTO ANTONIO ANGULO MILLA; JOSE EDUARDO ANGULO MILLA; JUAN CARLOS ANGULO MILLA; NOEMY MARGARITA ANGULO DE ROMA; AMADA MARGARITA MILLA DE ANGULO; SANTA MARGARITA DE APANICA, S.A. DE C.V.	17,816.22	25,491.45	411712.32	806068.65
60-1	FLOR DEL TRANSITO ARTURO MENDOZA	5,257.13	7,521.89	411713.97	806538.29
61-1	BERTHA RODRIGUEZ VIUDA DE BORJA; ANA GLORIA BORJA RODRIGUEZ Y FRANCISCO MANUEL BORJA	12,510.45	17,899.95	411713.42	806395.34

NOMBRE DEL PROYECTO: GENERACIÓN DE 355 MW A BASE DE GAS NATURAL CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE	PRESENTA: ENERGIA DEL PACIFICO, LTDA. DE C.V.	CONTENIDO: **PLANOS DE SERVIDUMBRES DE ELECTRODUCTO OPCION ORIENTE**	DISEÑÓ:	REVISÓ: Arq. Isa Ramírez	ESCALA: 1:7,500	FECHA: JULIO / 2016
			CALCULÓ	DIBUJO: Tec. René Morales		HOJA: 1/3

PARCELA	PROPIETARIO	M²	V²	X	Y
62•1	MARIELLA SUARIZ DE BRIGHI	12,549.29	17,955.52	412912.72	9036779.44
63•1	ALLIDA CAMILA VALDIVIESO MARTINEZ Y GONZALO HERNANDO VALDIVIESO MARTINEZ	21,513.95	30,782.17	412159.34	9035457.21
64	ESCAFLOSA DE C.V.	6,898.49	9,870.56	412530.63	9034885.75
64•1	AIDA DEL ROCIO BOLAÑOS MILLA; MARIA AIDA MILLA DE BOLAÑOS; AMADA MARGARITA MILLA DE ANGULO Y NOEMY MARGARITA ANGULO DE POM	10,485.23	15,002.27	412427.31	9035011.25
65•1	ANA LIDIA DEL CARMEN PEREZ DE CHACON	8,196.43	11,727.45	412576.71	9034719.54
66•1	JULIO CESAR SALDAÑA AVELAR; ALEJANDRO ANTONIO SALDAÑA AVELAR; MARIO ARTURO SALDAÑA AVELAR Y ANA MARIA SALDAÑA AVELAR	4,910.18	7,024.07	412436.68	9034506.83
66•2	MARIO ARTURO ZALDAÑA AVELAR	37.51	53.67	412468.61	9034513.59
66•3	PEDRO JOSE ARTERO SALAZAR	769.59	1,101.13	412513.50	9034498.88
67•1	AMADA MARGARITA MILLA DE ANGULO	2,275.93	3,256.40	412487.48	9034357.53
68•1	MAURICIO ALFONSO AREVALO MAYA	5,607.82	8,023.67	412942.24	9034314.89
70•1	JESUS MILLIDA PEREZ ALARCON ; JOSE ABRAHAM PEREZ ALARCON y OSCAR ANTONIO PEREZ ALARCON	2,453.53	3,510.51	412670.09	9035053.99

NOMBRE DEL PROYECTO:	PRESENTA:	CONTENIDO:	DISEÑÓ:	REVISÓ:	ESCALA:	FECHA:
GENERACIÓN DE 355 MW A BASE DE GAS NATURAL CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE	ENERGIA DEL PACIFICO, LTDA. DE C.V.	**PLANOS DE SERVIDUMBRES DE ELECTRODUCTO OPCION ORIENTE**	CALCULÓ	Arq. Isa Ramírez DIBUJO: Tec. René Morales	1:7,500	JULIO / 2016 HOJA: 2/3

PARCELA	PROPIETARIO	M²	V²	X	Y
64	USCAMEL SA DE C.V.	5,898.49	9,870.36	412830.65	3043833.73
64-1	AIDA DEL ROCIO BOLAÑOS MILLA; MARIA AIDA MILLA DE BOLAÑOS; AMADA MARGARITA MILLA DE ANGULO Y NOEMY MARGARITA ANGULO DE POM	10,485.23	15,002.27	412427.51	3058011.25
65-1	ANA LIDIA DEL CARMEN PEREZ DE CHACON	8,196.43	11,727.45	412376.71	3047119.54
66-1	JULIO CESAR SALDAÑA AVELAR; ALEJANDRO ANTONIO SALDAÑA AVELAR; MARCO ARTURO SALDAÑA AVELAR Y ANA MARIA SALDAÑA AVELAR	4,916.18	7,034.07	412436.68	3045006.85
66-2	MARIO ARTURO ZALDAÑA AVELAR	37.51	53.67	412468.61	3045113.39
66-3	PEDRO JOSE ARTURO SALAZAR	769.59	1,101.13	412513.50	3045398.88
67-1	AMADA MARGARITA MILLA DE ANGULO	2,275.93	3,256.40	412487.48	3045857.33
68-1	MAURICIO ALFONSO AREVALO MATA	5,607.82	8,023.67	412502.24	3046313.89
70-1	JESUS MILLIDA PEREZ ALARCON; JOSE ABRAHAM PEREZ ALARCON Y OSCAR ANTONIO PEREZ ALARCON	2,453.55	3,510.51	412570.69	3045953.99
71	GLORIA VIRGINIA DE LA PAZ FERGUSON DE BORJA NATHAN	5,229.69	7,482.64	412839.46	3029917.72
71-1	ARIUS S.A. DE C.V.	14,636.01	20,932.88	412576.94	3039310.02
72	ANA MARINA MAGAÑA DE ORTEGA; ERNESTO FEDERICO MAGAÑA GRANADOS; JOSE MARIO MAGAÑA GRANADOS; MARIA ELENA MAGAÑA DE CASTILLO; ALVARO ALFREDO MAGAÑA GRANADOS; MARIA TERESA MAGAÑA GRANADOS	8,150.98	11,662.42	412749.05	3042834.04
72-1	MEMO S.A. DE C.V.	9,960.63	14,251.66	412249.45	3034417.44
73-1	DORA ESTELA BORJA NATHAN DE SALAVERRIA	11,148.79	15,951.68	411997.42	3032365.42

NOMBRE DEL PROYECTO: GENERACIÓN DE 355 MW A BASE DE GAS NATURAL CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE	PRESENTA: ENERGIA DEL PACIFICO, LTDA. DE C.V.	CONTENIDO: **PLANOS DE SERVIDUMBRES DE ELECTRODUCTO OPCION ORIENTE**	DISEÑÓ:	REVISÓ: Arq. Isa Ramírez
			CALCULÓ	DIBUJO: Tec. René Morales

ESCALA:	FECHA:
1/7,500	JUL[illegible]/2016
	HOJA: 3/3

ANNEX 3: RIGHT OF WAY GENERAL MANAGEMENT AND MONITORING PLAN

309000 310000 311000

411000 412000

AHUACHAPAN

LOS AUSOLES

V10 TP 13 V9 TP 12 V8 TP 11 V7 TP 9 V6 TP 8 V5 TP 7 TP 6 V4 TP 5 V3 TP 4 V2A TP3 V2 TP2 V1 TP 1 TP 0

Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (0)
- NEGOTIATED (4)
- NOTIFIED (16)
- REJECTED (0)
- WITHOUT NOTIFY (9)

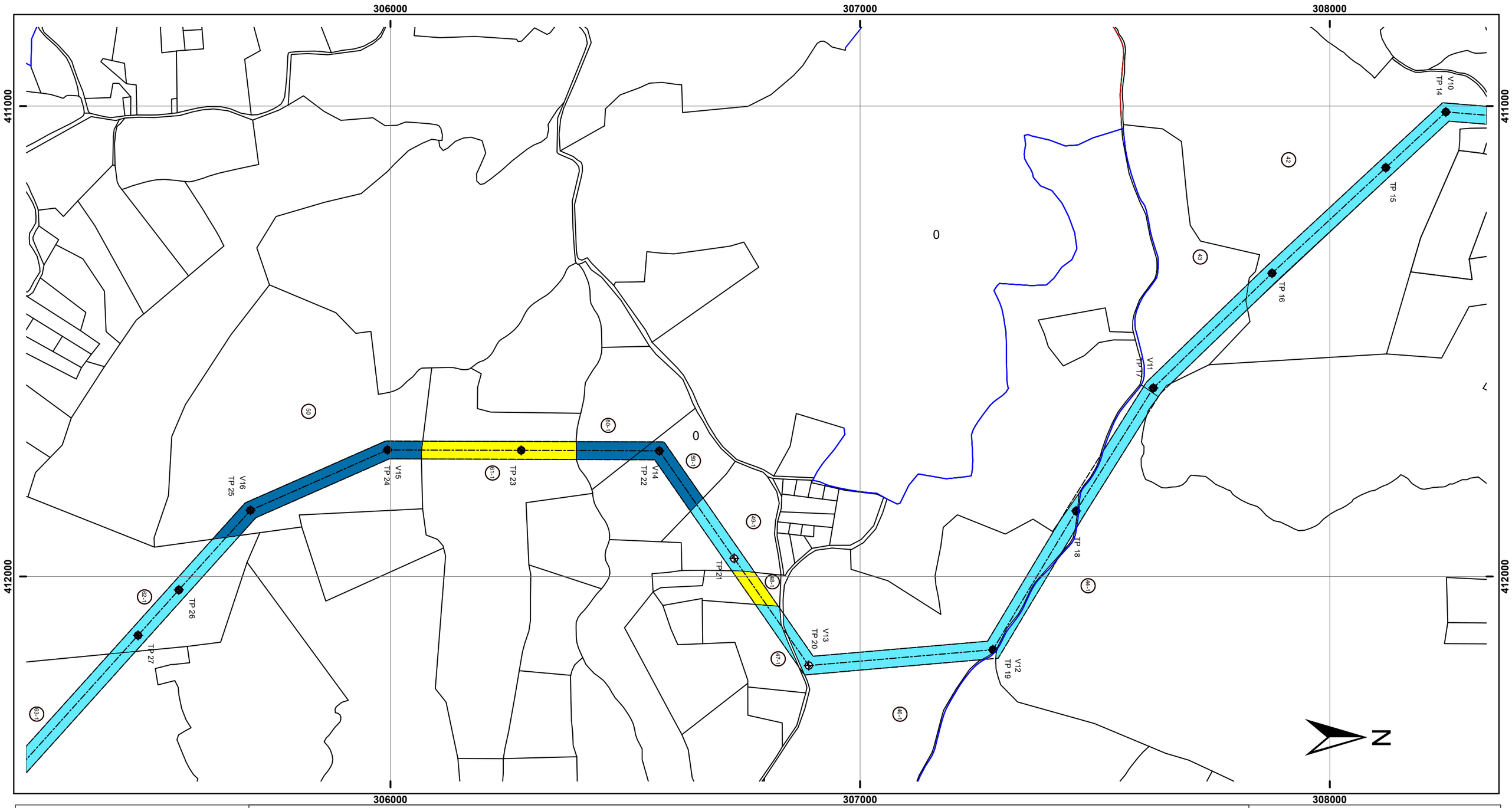
Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (3)
- VERBAL AUTHORIZATI... (9)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (0)
- NEGOTIATED (0)
- NOTIFIED (0)
- REJECTED (0)
- WITHOUT NOTIFY (13)

Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (3)
- VERBAL AUTHORIZATI... (8)
- NO STATEMENT (2)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros

303000 304000 305000

412000

V24 / TP 31
V35 / TP 32
V23 / TP 30
V22 / TP 29
V21 / TP 29G
V20 / TP 29F
V19 / TP 29C
V18 / TP 29A
V17 / TP 28
TP 29J
0
0
N

Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (0)
- NEGOTIATED (0)
- NOTIFIED (0)
- REJECTED (0)
- WITHOUT NOTIFY (17)

Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (6)
- VERBAL AUTHORIZATI... (8)
- NO STATEMENT (3)
- WITHOUT COOPERATION PROJECT (1)

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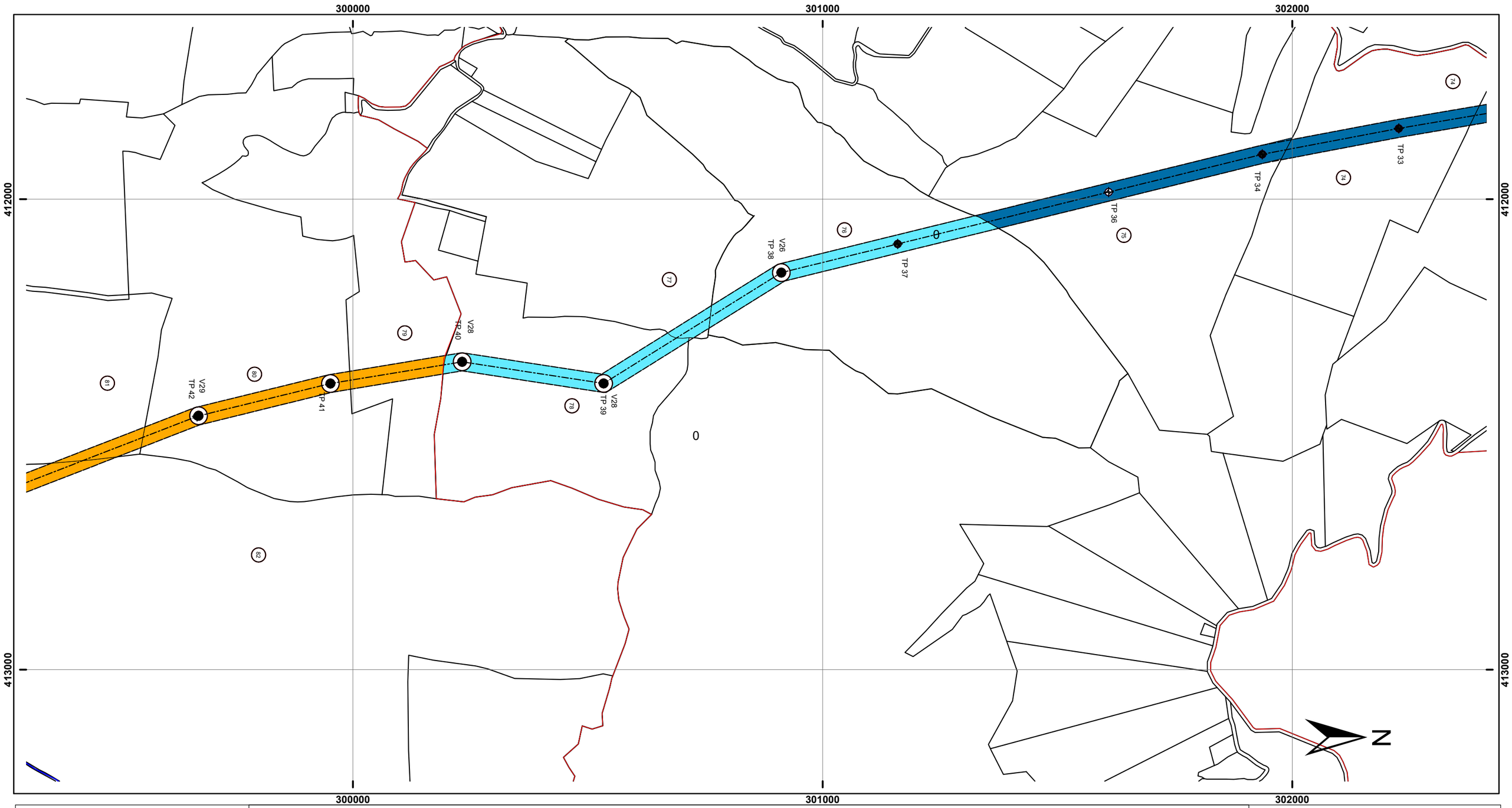
Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (0)
- NEGOTIATED (0)
- NOTIFIED (4)
- REJECTED (0)
- WITHOUT NOTIFY (3)

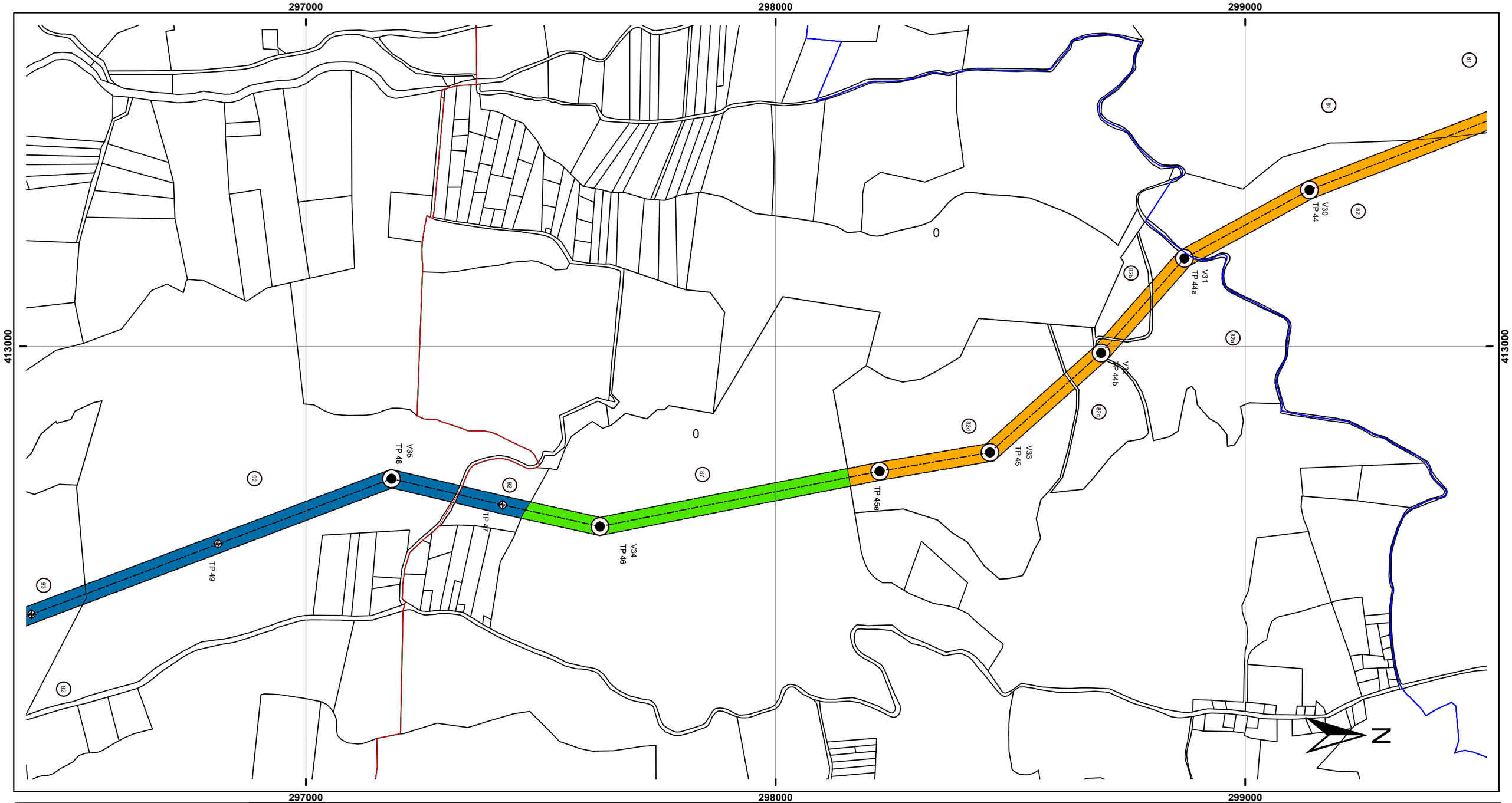
Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (3)
- VERBAL AUTHORIZATI... (3)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (0)
- NEGOTIATED (1)
- NOTIFIED (6)
- REJECTED (0)
- WITHOUT NOTIFY (2)

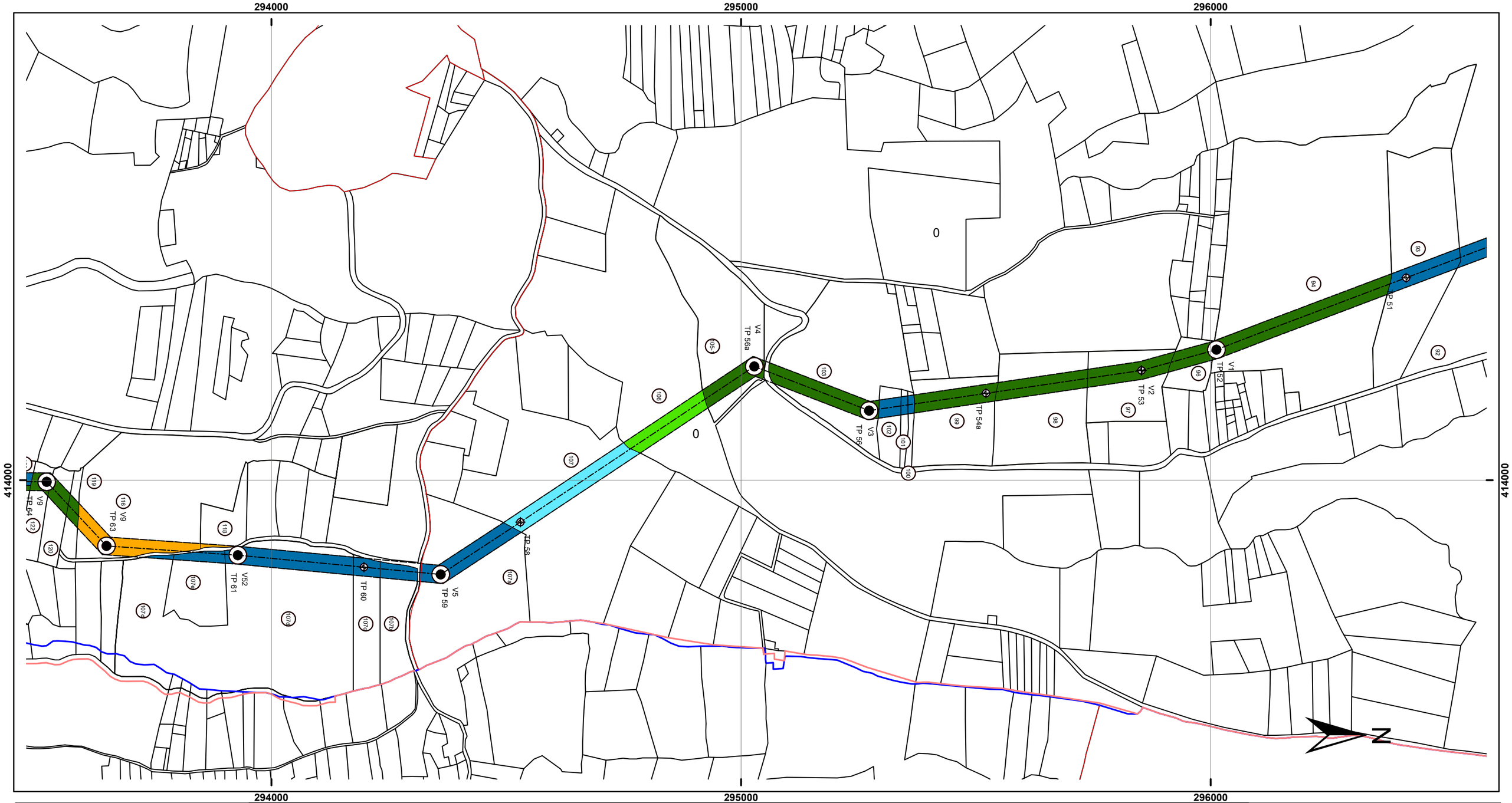
Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (2)
- VERBAL AUTHORIZATI... (0)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (11)
- NEGOTIATED (1)
- NOTIFIED (2)
- REJECTED (0)
- WITHOUT NOTIFY (8)

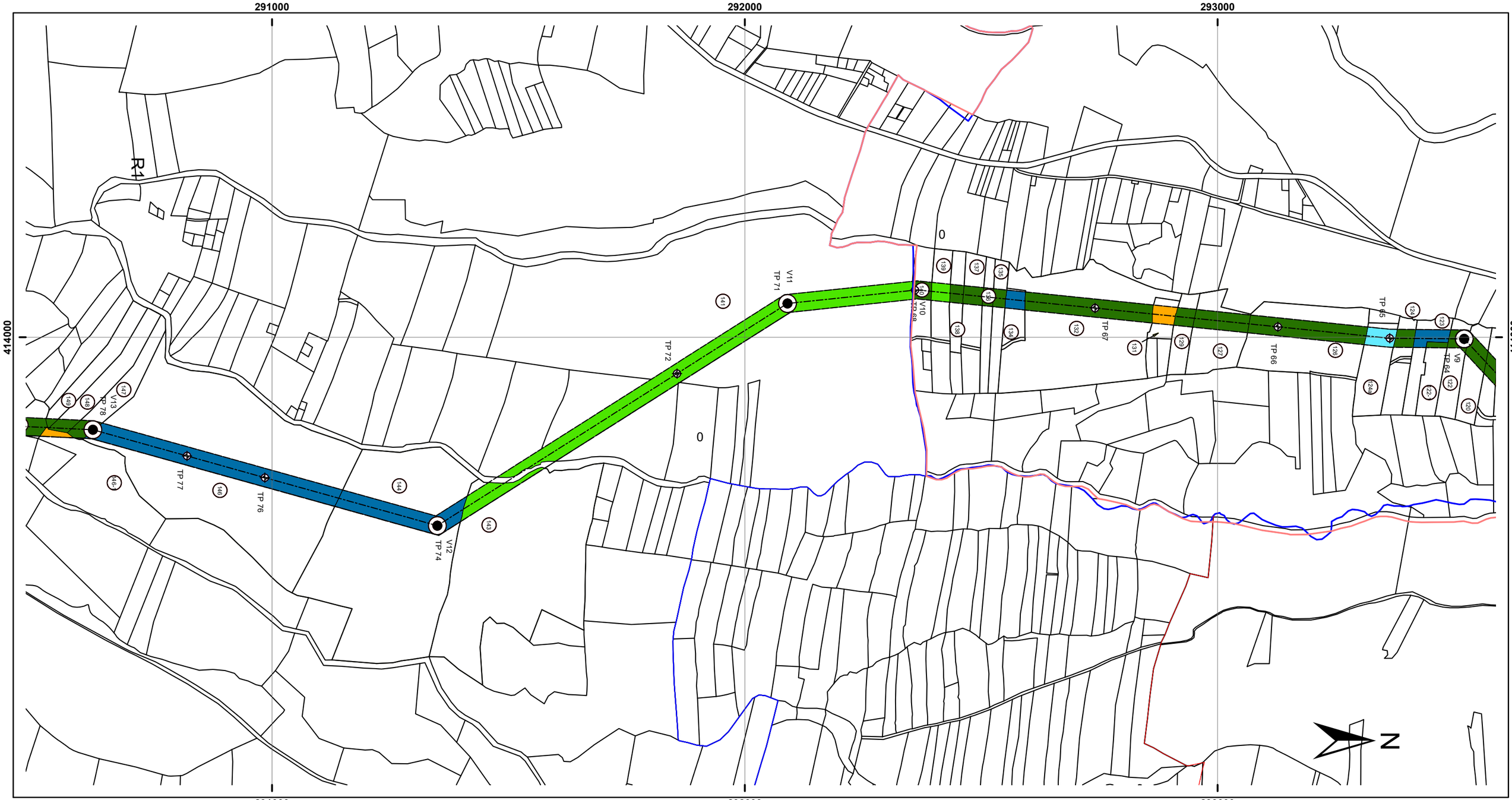
Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (12)
- VERBAL AUTHORIZATI... (1)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (18)
- NEGOTIATED (3)
- NOTIFIED (3)
- REJECTED (0)
- WITHOUT NOTIFY (5)

Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (4)
- VERBAL AUTHORIZATI... (1)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (22)
- NEGOTIATED (3)
- NOTIFIED (3)
- REJECTED (0)
- WITHOUT NOTIFY (4)

Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (2)
- VERBAL AUTHORIZATI... (2)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

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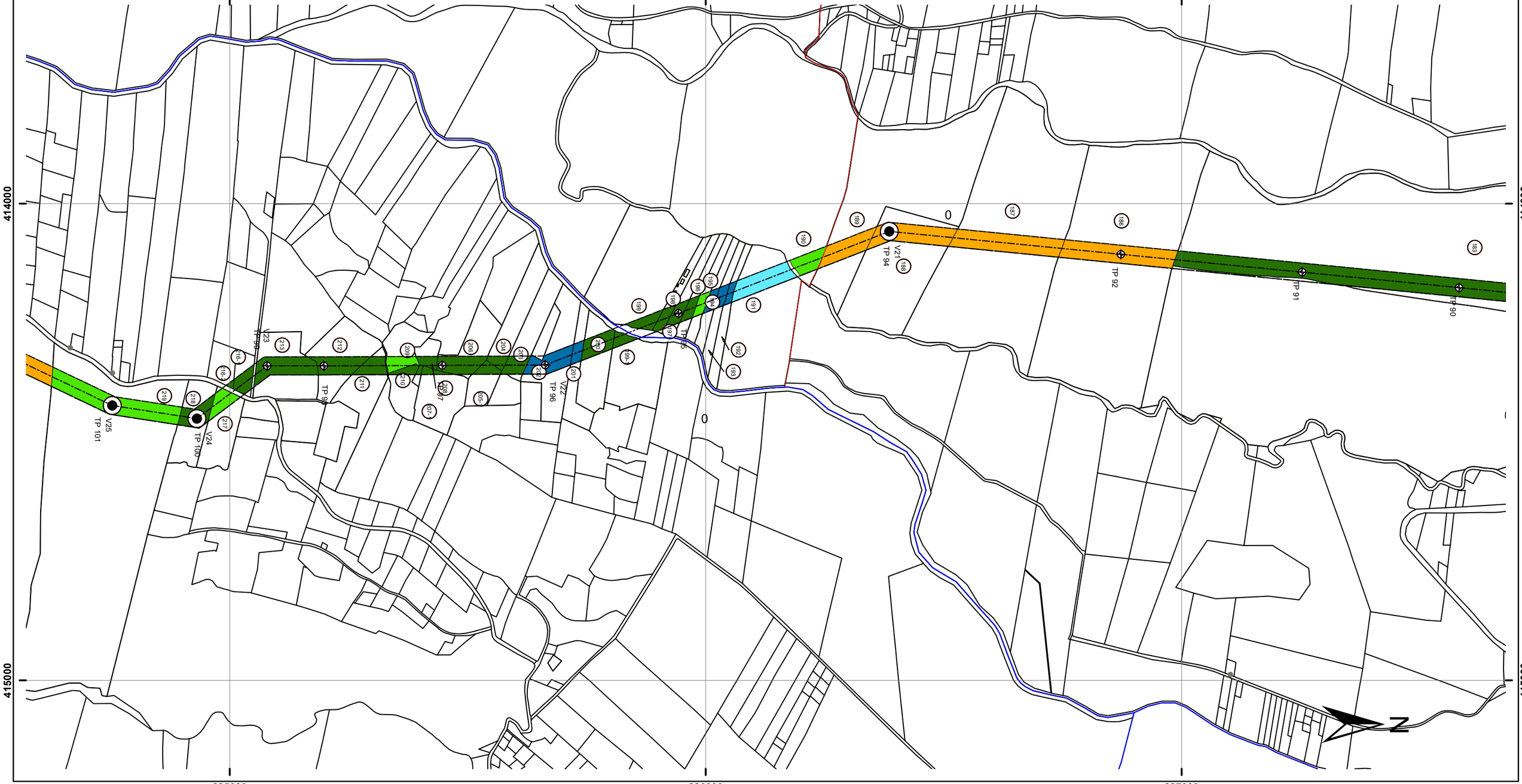
Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (20)
- NEGOTIATED (5)
- NOTIFIED (5)
- REJECTED (0)
- WITHOUT NOTIFY (6)

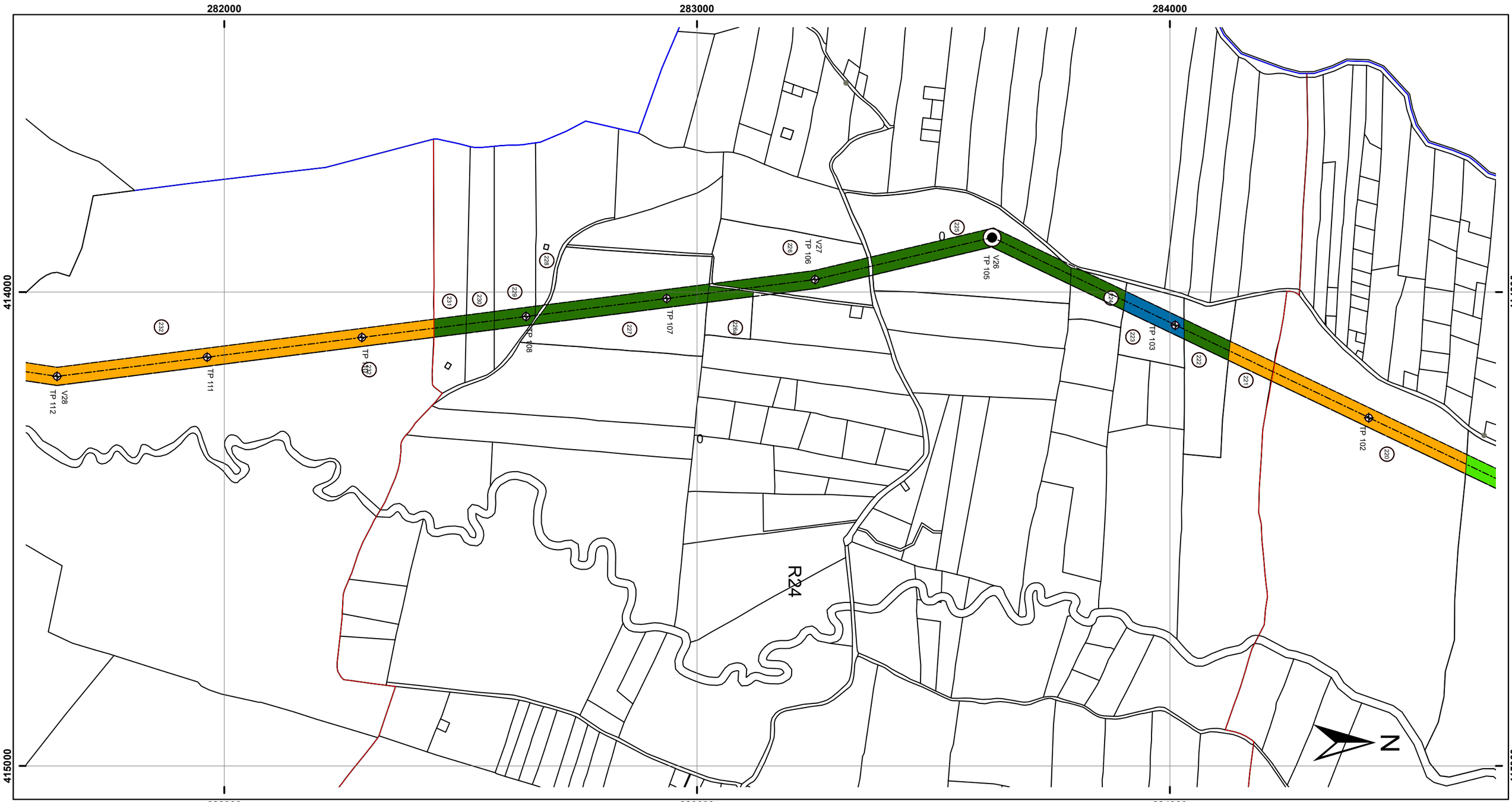
Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (5)
- VERBAL AUTHORIZATI... (1)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (10)
- NEGOTIATED (1)
- NOTIFIED (3)
- REJECTED (0)
- WITHOUT NOTIFY (1)

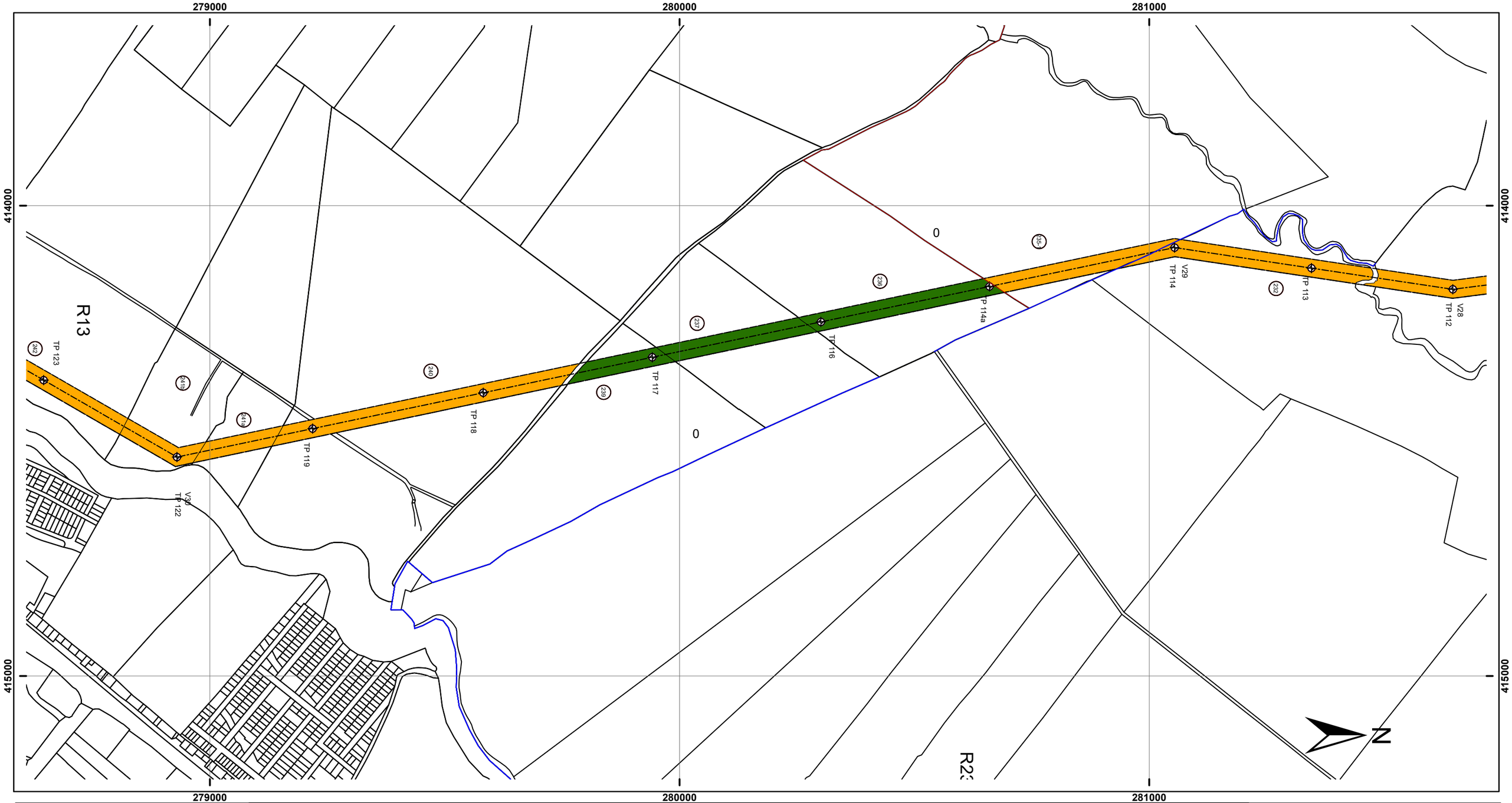
Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (1)
- VERBAL AUTHORIZATI... (0)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (3)
- NEGOTIATED (0)
- NOTIFIED (6)
- REJECTED (0)
- WITHOUT NOTIFY (0)

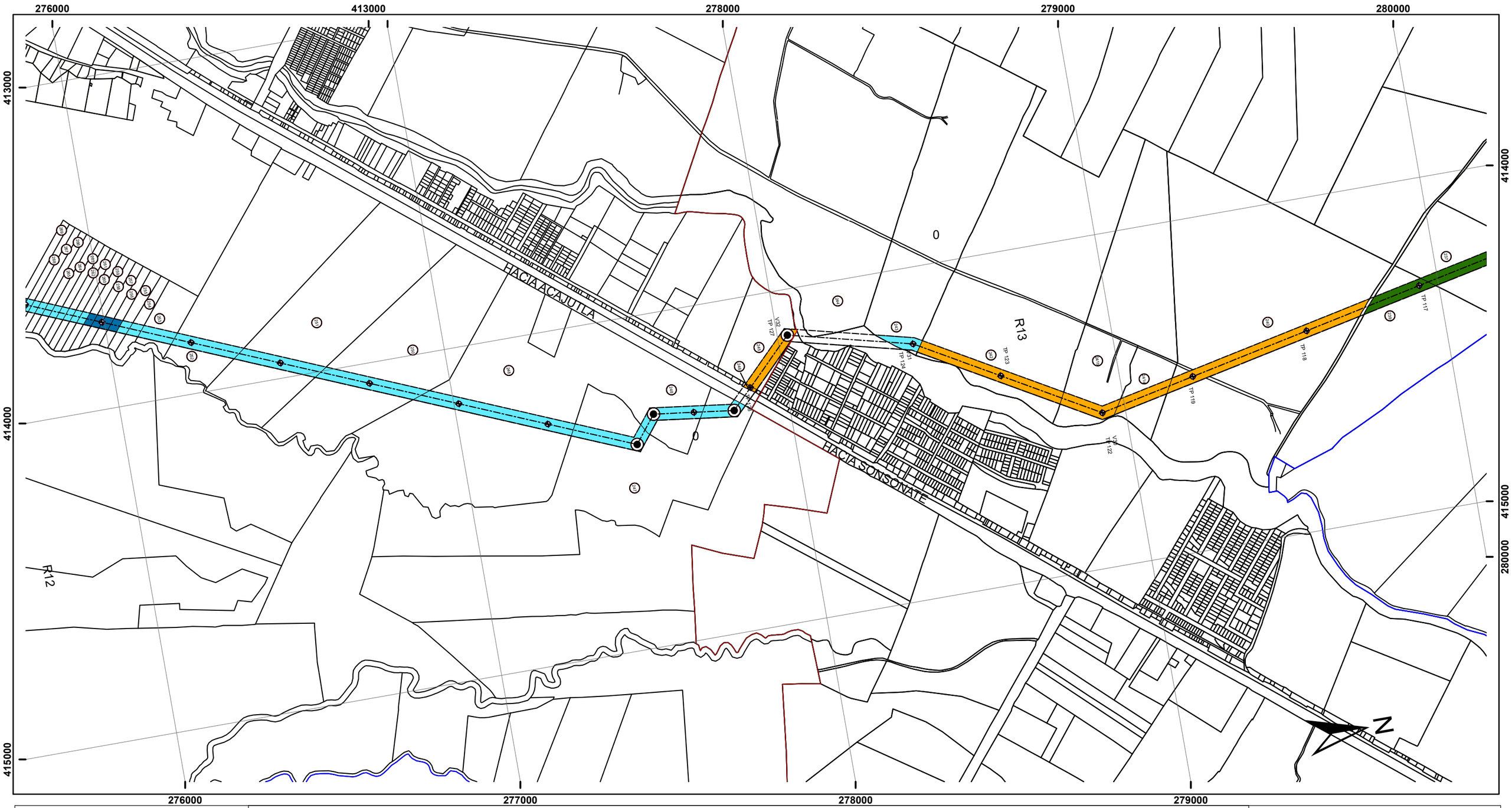
Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (0)
- VERBAL AUTHORIZATI... (0)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (2)
- NEGOTIATED (0)
- NOTIFIED (6)
- REJECTED (0)
- WITHOUT NOTIFY (1)

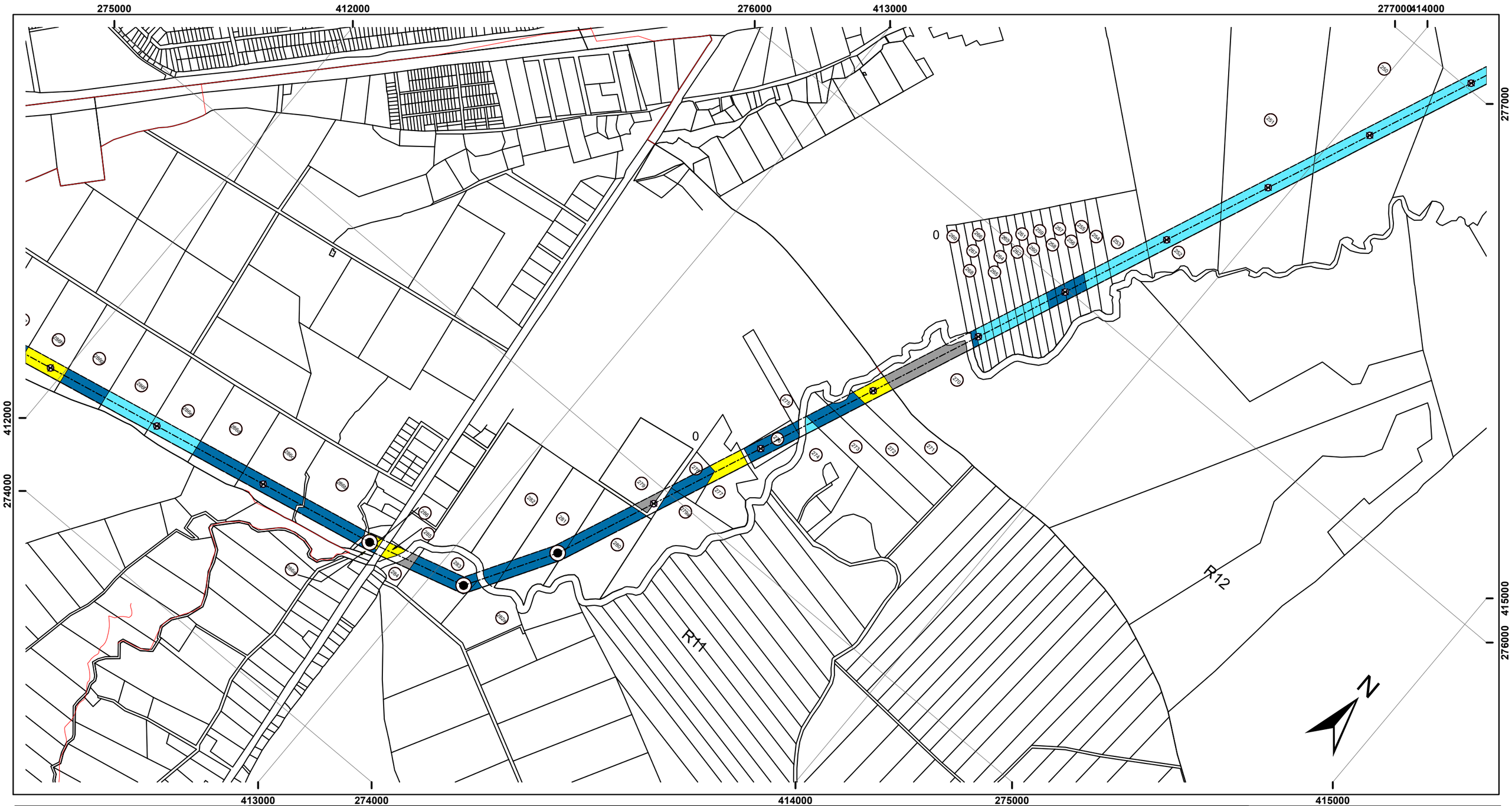
Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (5)
- VERBAL AUTHORIZATI... (18)
- NO STATEMENT (0)
- WITHOUT COOPERATION PROJECT (0)

0 100 200 300 400 500 600 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros



Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (0)
- NEGOTIATED (0)
- NOTIFIED (0)
- REJECTED (0)
- WITHOUT NOTIFY (0)

Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (22)
- VERBAL AUTHORIZATI... (19)
- NO STATEMENT (5)
- WITHOUT COOPERATION PROJECT (3)

0 100 200 300 400 500 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros

408000 409000 275000 410000 411000 276000 412000

U3 U4 U5 U10

ACAJUTLA

409000 410000 411000 273000 412000 413000 274000

408000 272000 276000 275000 413000

N

Advance

"GENERACION DE 355MW A BASE DE GAS NATURAL, CON PLANTA DE GENERACION EN ACAJUTLA, SONSONATE"

Energía del Pacífico

Legend Negotation Stage

- PROPERTY TITLE (0)
- NEGOTIATED (0)
- NOTIFIED (0)
- REJECTED (0)
- WITHOUT NOTIFY (0)

Legend Feasibility Stage

- WRITTEN AUTHORIZATI... (14)
- VERBAL AUTHORIZATI... (5)
- NO STATEMENT (4)
- WITHOUT COOPERATION PROJECT (3)

0 100 200 300 400 500 600 700 Meters

Escale 1:7,500

Lambert Conic Conformal Projection
Ellipsoid Clark 1866
Datum: El Salvador 3 Parámetros

ANNEX 4: GENERAL ALLOCATION PLAN.



PARCELA	PROPIETARIO	M²	V²
1	ETESAL, S.A. DE C.V.	1,359.79	1,945.59
1A	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL	303.16	433.76
2	HECTOR ENRIQUE MORAN BARRIOS	11,695.56	16,734.00
2A	HECTOR ENRIQUE MORAN BARRIOS	4,326.51	6,190.36
3	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL	3,195.12	4,571.58
4	EDUARDO RAFAEL MENDEZ FLOREZ CABEZAS	12,121.07	17,342.83
7	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL	12,111.67	17,329.37
13	RAMON RAMIREZ	8,033.95	11,494.98
14	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL	7,012.12	10,032.94
15	JOSE LINO VELASQUEZ GONZALEZ	7,210.57	10,316.88
16	JOSE LINO VELASQUEZ GONZALEZ	2,318.46	3,317.25
17	ANA MARIBEL ALVAREZ BORJA	1,102.65	1,577.67
18	ANA MARIBEL ALVAREZ BORJA	1,590.33	2,275.44
18-A	ANA MARIBEL ALVAREZ BORJA	1,433.44	2,050.97
19	ANA MARIBEL ALVAREZ BORJA	3,999.25	5,716.40
19-A	ANA MARIBEL ALVAREZ BORJA	789.32	1,129.36

PARCELA	PROPIETARIO	M²	V²
21	ANA MARIBEL ALVAREZ BORJA	350.17	501.02
21-A	ANA MARIBEL ALVAREZ BORJA	1,247.88	1,785.47
23	ANA MARIBEL ALVAREZ BORJA	1,244.63	1,780.82
25	ANA MARIBEL ALVAREZ BORJA	1,239.66	1,773.71
27	ANA MARIBEL ALVAREZ BORJA	1,123.66	1,607.73
29	ANA MARIBEL ALVAREZ BORJA	2,757.31	3,945.16
32	ANA MARIBEL ALVAREZ BORJA	241.60	345.68
33	ANA MARIBEL ALVAREZ BORJA	241.60	346.68
34	ANA MARIBEL ALVAREZ BORJA	241.60	345.68
35	ANA MARIBEL ALVAREZ BORJA	241.60	345.68
35-1	ANA MARIBEL ALVAREZ BORJA	34.18	48.90
36	CARLOS ALFREDO MENDEZ FLOREZ	17,189.60	25,594.88
37	CARLOS ALFREDO MENDEZ FLOREZ	1,027.37	1,469.96
38	CARLOS ALFREDO MENDEZ FLOREZ	2,020.00	2,890.22
39	GERARDO ENRIQUE MENDEZ FLOREZ CABEZAS	13,707.09	19,612.10

NOMBRE DEL PROYECTO:	PRESENTA:	CONTENIDO:	DISEÑÓ:	REVISÓ:	ESCALA:	FECHA:
GENERACIÓN DE 355 MW A BASE DE GAS NATURAL CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE	Energía del Pacífico, LTDA de CV	**PLANOS DE GENERALES SERVIDUMBRES DE ELECTRODUCTO**	SM INGENIERIA	Arq. Isa Ramírez	1:7,500	AGOSTO / 2016
			CALCULÓ GRIS S.A. DE C.V.	DIBUJÓ: Tec. René Morales		HOJA: 1/14



PARCELA	PROPIETARIO	M²	V²
39	GERARDO ENRIQUE MENDEZ FLOREZ CABEZAS	13,707.09	19,612.10
42	"JOSE ERNESTO ROMERO BORJA PAPINI; JUAN JOSE BORJA PAPINI; JULIA MARGARITA BORJA PAPINI Y MARGARITA ALDEMIRA PAPINI RUIZ DE BORJA"	25,809.71	36,928.53
43	NEGOCIOS MAGAÑA DELLA TORRE, S.A. DE C.V.	10,829.24	15,494.47
44-1	MONTECARLOS ESTATE, S.A. de C.V.	12,733.89	18,219.65
46-1	NEGOCIOS MAGAÑA DELLA TORRE, S. A. DE C.V.	27,219.09	38,945.07
47-1	JOSE ROMERO ASCENCIO	2,594.92	3,712.80
48-1	MARIA ANGELICA BORJA DE FERGUSON	3,347.60	4,789.75
49-1	GLORIA BEATRIZ ARTERO MENDOZA	6,561.48	9,388.16
59-1	AGROPECUARIA GUADALUPE, S.A. DE C.V.	6,750.61	9,658.77
50	ERNESTO ANTONIO ANGULO MILLA; JOSE EDUARDO ANGULO MILLA; JUAN CARLOS ANGULO MILLA; NOEMY MARGARITA ANGULO DE POMA; AMADA MARGARITA MILLA DE ANGULO; SANTA MARGARITA DE APANECA, S.A. DE C.V.	17,816.22	25,491.45

PARCELA	PROPIETARIO	M²	V²
60-1	FLOR DEL TRANSITO ARTERO MENDOZA	5,257.13	7,521.89
61-1	BERTHA RODRIGUEZ VIUDA DE BORJA; ANA GLORIA BORJA RODRIGUEZ Y FRANCISCO MANUEL BORJA	12,510.45	17,899.95

NOMBRE DEL PROYECTO:

GENERACIÓN DE 355 MW A BASE DE GAS NATURAL
CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE

PRESENTA:

Energía del Pacífico, LTDA de CV

CONTENIDO:

PLANOS DE GENERALES SERVIDUMBRES DE ELECTRODUCTO

DISEÑÓ:	REVISÓ:	ESCALA:	FECHA:
SM INGENIERIA	Arq. Isa Ramírez	1:7,500	AGOSTO / 2016
CALCULÓ	DIBUJÓ:		HOJA:
GRIS S.A. DE C.V.	Tec. René Morales		2/14



PARCELA	PROPIETARIO	M²	V²
63-1	ALEIDA CAMILA VALDIVIESO MARTINEZ Y GONZALO HERNANDO VALDIVIESO MARTINEZ	21,513.95	30,782.17
64	ESCAFE, S.A. DE C.V.	6,978.14	9,984.32
64-1	AIDA DEL ROCIO BOLAÑOS MILLA; MARIA AIDA MILLA DE BOLAÑOS; AMADA MARGARITA MILLA DE ANGULO Y NOEMY MARGARITA ANGULO DE POM	10,485.23	15,002.27
65-1	ANA LIDIA DEL CARMEN PEREZ DE CHACON	8,196.43	11,727.45
66-1	JULIO CESAR SALDAÑA AVELAR, ALEJANDRO ANTONIO SALDAÑA AVELAR; MARIO ARTURO SALDAÑA AVELAR Y ANA MARIA SALDAÑA AVELAR	4,916.18	7,034.07
66-2	MARIO ARTURO ZALDAÑA AVELAR	37.51	53.67
66-3	PEDRO JOSE ARTERO SALAZAR	769.59	1,101.13
67-1	AMADA MARGARITA MILLA DE ANGULO	2,275.93	3,256.40
68-1	MAURICIO ALFONSO AREVALO MATA	5,607.82	8,023.67
70-1	JESUS MELIDA PEREZ ALARCON ; JOSÉ ABRAHAM PÉREZ ALARCON y OSCAR ANTONIO PÉREZ ALARCÓN	2,453.53	3,510.51

PARCELA	PROPIETARIO	M²	V²
71-1	ARIES S.A. DE C.V.	9,413.92	13,469.44
71-2	CHALAN INVERSIONES, S.A. DE C.V.	5,202.08	7,443.14
72-1	MEMO S.A. DE C.V.	9,960.63	14,251.66
73-1	DORA ESTELA BORJA NATHAN DE SALAVERRIA	11,148.79	15,951.68
70	TAMALPAIS, S.A.	14,320.38	20,489.59
71	GLORIA VIRGINIA DE LA PAZ FERGUSON DE BORJA NATHAN	5,229.69	7,482.64
72	ANA MARINA MAGAÑA DE ORTEGA; ERNESTO FEDERICO MAGAÑA GRANADOS; JOSE MARIO MAGAÑA GRANADOS; MARIA ELENA MAGAÑA DE CASTILLO; ALVARO ALFREDO MAGAÑA GRANADOS; MARIA TERESA MAGAÑA GRANADOS	8,150.98	11,662.42
73	ALBERTO VALDIVIESO BORJA Y COMPAÑIA SUCESORES	6,279.85	8,985.21
74	SOCIEDAD VIVEROS SANTA CLARA, S.A. DE C.V.	15,502.18	22,180.52

NOMBRE DEL PROYECTO:

GENERACIÓN DE 355 MW A BASE DE GAS NATURAL
CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE

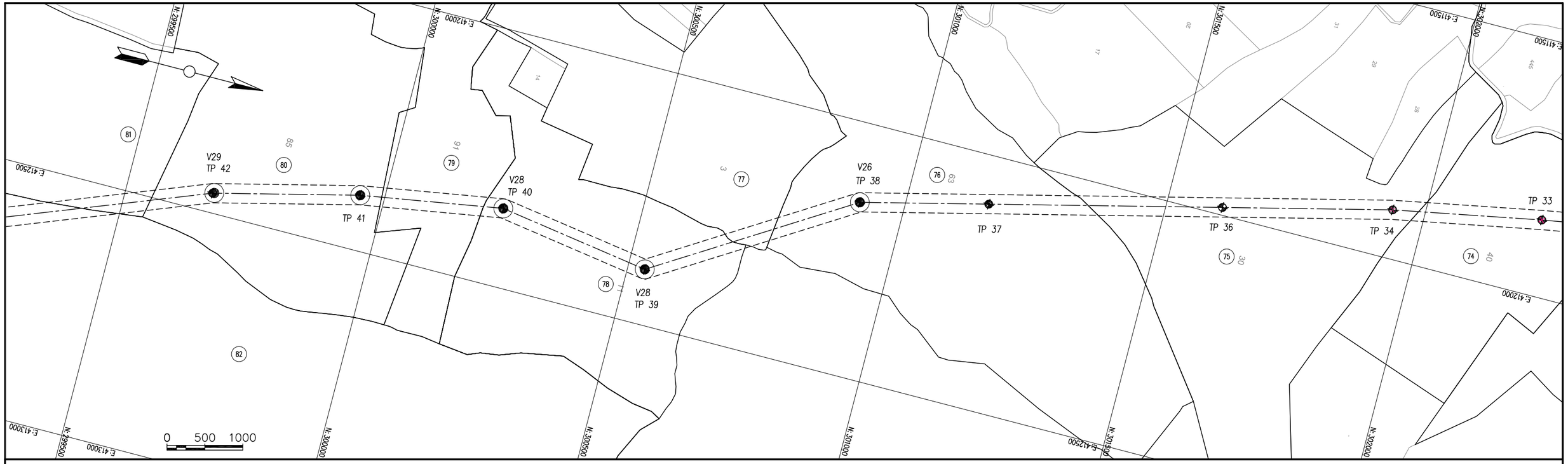
PRESENTA:

Energía del Pacífico, LTDA de CV

CONTENIDO:

PLANOS DE GENERALES SERVIDUMBRES DE ELECTRODUCTO

DISEÑÓ:	REVISÓ:	ESCALA:	FECHA:
SM INGENIERIA	Arq. Isa Ramírez	1:7,500	AGOSTO / 2016
CALCULÓ	DIBUJÓ:		HOJA:
GRIS S.A. DE C.V.	Tec. René Morales		3/14



PARCELA	PROPIETARIO	M²	V²
74	SOCIEDAD VIVEROS SANTA CLARA, S.A. DE C.V.	15,502.18	22,180.52
75	JOSE ANTONIO JESUS SALAVERRIA BORJA	24,956.69	35,708.03
76	REVAL, S.A.	23,936.68	34,248.60
77	SILVIA MARINA SALAZAR TOBAR Y VIDA ELIZABETH SALAZAR TOBAR	3,044.94	4,356.70
78	SOCIEDAD EL NARANJO, S.A. DE C.V.	20,135.53	28,809.92
79	REPUBLICA CAFETALERA S.A. DE C.V.	7,705.24	11,024.66
80	IRISH COFFEE S.A DE C.V.	17,431.95	24,941.63
81	REPUBLICA CAFETALERA S.A. DE C.V.	5,154.01	7,374.36
82	IRISH COFFEE S.A DE C.V.	22,683.72	32,455.87

NOMBRE DEL PROYECTO:

GENERACIÓN DE 355 MW A BASE DE GAS NATURAL
CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE

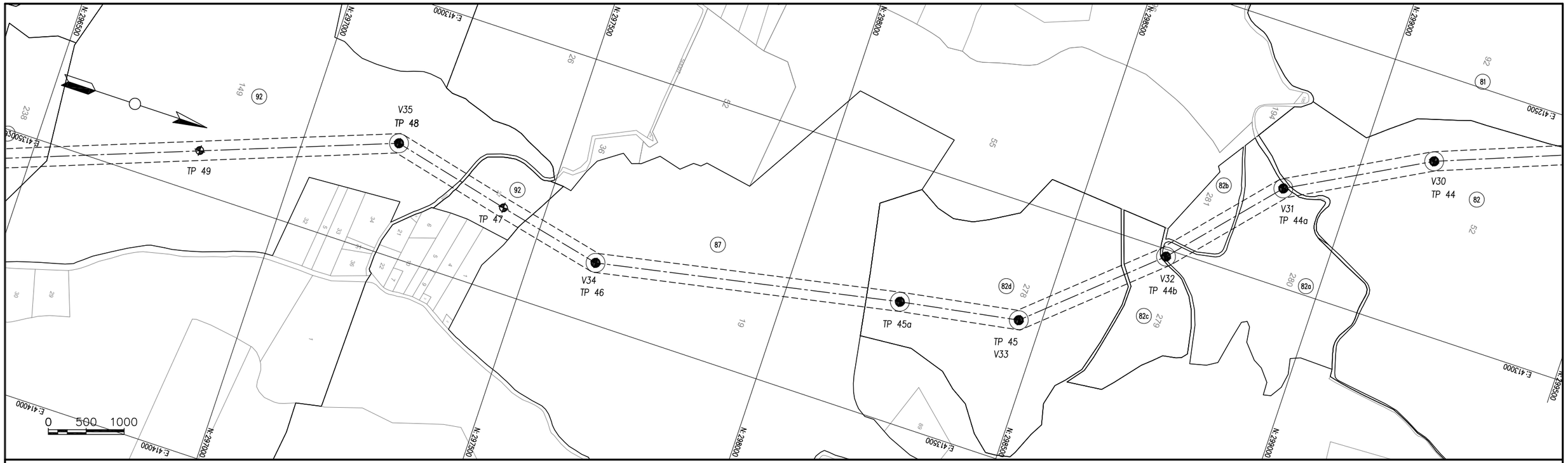
PRESENTA:

Energía del Pacífico, LTDA de CV

CONTENIDO:

PLANOS DE GENERALES SERVIDUMBRES DE ELECTRODUCTO

DISEÑÓ:	REVISÓ:	ESCALA:	FECHA:
SM INGENIERIA	Arq. Isa Ramírez	1:7,500	AGOSTO / 2016
CALCULÓ: GRIS S.A. DE C.V.	DIBUJÓ: Tec. René Morales		HOJA: 4/14



PARCELA	PROPIETARIO	M²	V²
81	REPUBLICA CAFETALERA S.A. DE C.V.	5,154.01	7,374.36
82	IRISH COFFEE S.A DE C.V.	22,683.72	32,455.87
82-A	IRISH COFFEE S.A DE C.V.	5,660.52	8,099.07
82-B	IRISH COFFEE S.A DE C.V.	4,429.97	6,338.40
82-C	IRISH COFFEE S.A DE C.V.	2,940.74	4,207.61
82-D	IRISH COFFEE S.A DE C.V.	20,232.36	28,948.46
87	SOCIEDAD VISTA HERMOSA S.A.	26,678.75	38,171.96
92	ROBERTO ANTONIO INOCENTE SALAVERRIA SALGUERO	37,391.71	53,500.06
93	ROBERTO ANTONIO INOCENTE SALAVERRIA SALGUERO	6,050.58	8,657.17

NOMBRE DEL PROYECTO:

GENERACIÓN DE 355 MW A BASE DE GAS NATURAL
CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE

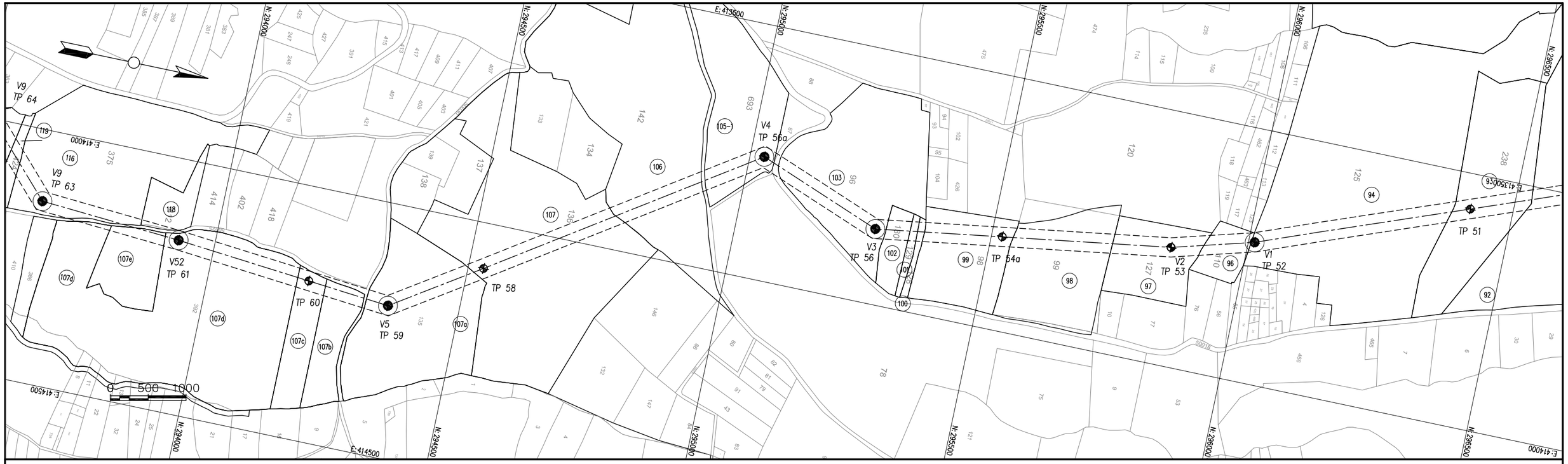
PRESENTA:

Energía del Pacífico, LTDA de CV

CONTENIDO:

PLANOS DE GENERALES SERVIDUMBRES DE ELECTRODUCTO

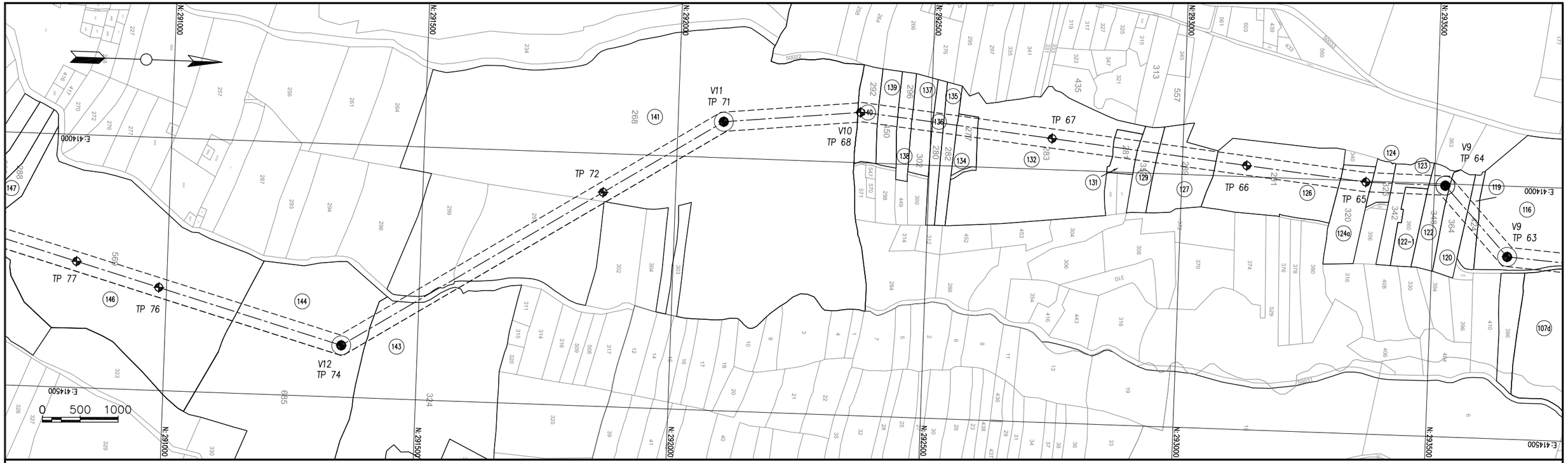
DISEÑÓ:	REVISÓ:	ESCALA:	FECHA:
SM INGENIERIA	Arq. Isa Ramírez	1:7,500	AGOSTO / 2016
CALCULÓ: GRIS S.A. DE C.V.	DIBUJÓ: Tec. René Morales		HOJA: 5/14



PARCELA	PROPIETARIO	M²	V²
92	ROBERTO ANTONIO INOCENTE SALAVERRIA SALGUERO	37,391.71	53,500.06
93	ROBERTO ANTONIO INOCENTE SALAVERRIA SALGUERO	6,050.58	8,657.17
94	PEDRO JOSE ARTERO SALAZAR Y MARIA DE JESUS CONTRERAS	15,245.10	21,812.69
96	PEDRO JIMENEZ PADILLA	3,550.42	5,079.94
97	HUGO ERNESTO PUENTE MEJIA	6,891.98	9,861.04
98	ANDRES ENRIQUE SIGUENZA JIMENEZ	7,482.59	10,706.09
99	ANDRES ENRIQUE SIGUENZA JIMENEZ; GUILLERMO ANTONIO SIGUENZA JIMENEZ, Y ANDRES JIMENEZ MONROY	6,694.85	95,78.99
100	ZOILA HAYDEE RUIZ	517.19	740.00
101	ZOILA HAYDEE RUIZ AGUIRRE DE RODRIGUEZ	562.34	804.60
102	OLIVIA ANTONIA RUIZ	1,809.97	2,589.71
103	GUILLERMO ANTONIO JIMENEZ SIGUENZA	9,409.75	13,463.48
105-1	GUILLERMO ANTONIO JIMENEZ SIGUENZA	5,667.45	8,108.99

PARCELA	PROPIETARIO	M²	V²
106	RAFAELA CASTRO VIUDA DE RUIZ	6,906.73	9,882.15
107	SUCESION MARIA JOSEFINA LETONA (Posible Heredera: Ana Margot Perez de Peters)	11,529.42	16,496.29
107-A	CLARA LUZ GUTIERREZ GARCIA, JOSE GUILLERMO GUTIERREZ GARCIA, DEYSI LISBETH GUTIERREZ JIMENEZ, PABLO REMBERTO OSORIO GARCIA, BLANCA DEYSI JIMENEZ DE GUTIERREZ, YESSICA TATIANA GUTIERREZ JIMENEZ, SILVIA DEL CARMEN GUTIERREZ GARCIA.	8,611.76	12,321.71
107-B	CLARA LUZ GUTIERREZ GARCIA, JOSE GUILLERMO GUTIERREZ GARCIA, DEYSI LISBETH GUTIERREZ JIMENEZ, PABLO REMBERTO OSORIO GARCIA, BLANCA DEYSI JIMENEZ DE GUTIERREZ, YESSICA TATIANA GUTIERREZ JIMENEZ, SILVIA DEL CARMEN GUTIERREZ GARCIA.	2,442.72	3,495.05
107-C	CLARA LUZ GUTIERREZ GARCIA, JOSE GUILLERMO GUTIERREZ GARCIA, DEYSI LISBETH GUTIERREZ JIMENEZ, PABLO REMBERTO OSORIO GARCIA, BLANCA DEYSI JIMENEZ DE GUTIERREZ, YESSICA TATIANA GUTIERREZ JIMENEZ, SILVIA DEL CARMEN GUTIERREZ GARCIA.	2,100.03	3004.72
107-D	CLARA LUZ GUTIERREZ GARCIA, JOSE GUILLERMO GUTIERREZ GARCIA, DEYSI LISBETH GUTIERREZ JIMENEZ, PABLO REMBERTO OSORIO GARCIA, BLANCA DEYSI JIMENEZ DE GUTIERREZ, YESSICA TATIANA GUTIERREZ JIMENEZ, SILVIA DEL CARMEN GUTIERREZ GARCIA.	10,560.82	15,110.42
107-E	MARÍA MERCEDES GARCÍA PÉREZ	2,108.49	3,016.83
116	ERCILIA RAFAELA CUELLAR DE ORTIZ	8,918.36	12,760.39
118	PABLO JIMENEZ	514.52	736.18
119	JULIO ADALBERTO PADILLA ALVAREZ	1,205.14	1,724.31

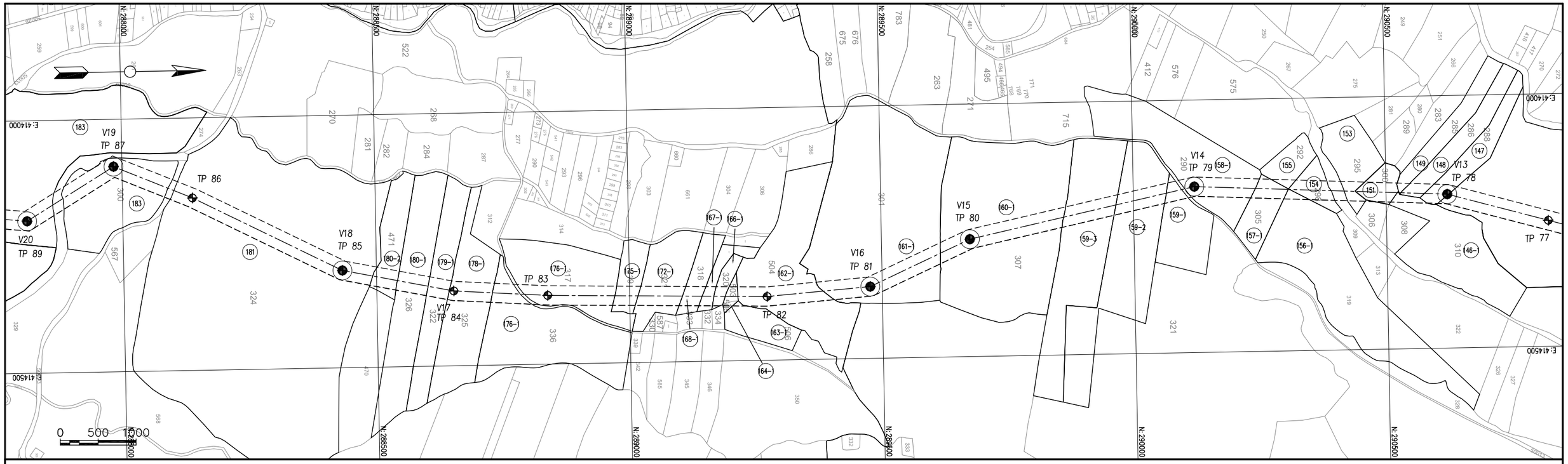
NOMBRE DEL PROYECTO: GENERACIÓN DE 355 MW A BASE DE GAS NATURAL CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE	PRESENTA: Energía del Pacífico, LTDA de CV	CONTENIDO: **PLANOS DE GENERALES SERVIDUMBRES DE ELECTRODUCTO**	DISEÑÓ: SM INGENIERIA	REVISÓ: Arq. Isa Ramírez	ESCALA: 1:7,500	FECHA: AGOSTO / 2016
			CALCULÓ GRIS S.A. DE C.V.	DIBUJÓ: Tec. René Morales		HOJA: 6/14



PARCELA	PROPIETARIO	M²	V²
116	ERCILIA RAFAELA CUELLAR DE ORTIZ	8,918.36	12,760.39
119	JULIO ADALBERTO PADILLA ALVAREZ	1,205.14	1,724.31
120	PANTALEO MARZULLO	2,148.90	3,074.65
122	SUCESION JORGE GARCIA (Posible heredero: José Mauro Hernández)	1,634.79	2,339.06
122-1	AMANDA EUGENIA GARCIA GARCIA	526.44	753.23
123	SUCESION LINO TORRES (Posible heredero: Marío Martínez Torrez)	2,240.65	3,205.92
124	MARIO MARTINEZ TORREZ	1,532.49	2,192.69
124-A	GUILLERMO RUIZ PEÑATE	2,366.37	3,385.80
126	SALVADOR LOPEZ GARCIA	9,458.73	13,533.55
127	SUCESION ISABEL JIMENEZ DE PEREZ (Posible Heredera: María del Transito Pérez de Guerra)	4,402.77	6,299.48
129	REYNA ELISABETH LOPEZ DE PEREZ	1,550.70	2,218.74
131	JOSEFINA JIMENEZ	1,841.72	2,635.13
132	GONZALO GUTIERREZ	10,295.17	14,730.33
134	SUCESION ANTONIO MEJIA (Posible Heredera: Ana Mejía de Ruíz)	1,569.97	2,246.31

PARCELA	PROPIETARIO	M²	V²
135	NUVIA ESPERANZA AGUIRRE DE OLIVARES	1,015.07	1,453.36
136	JOSE LUIS OLIVARES DULCE FLORES	834.44	1,193.92
137	MOISES ESCOBAR GARCIA	1,572.21	2,249.52
138	OVEL GARCIA Y MARIA ISABEL LOBOS REYES DE GARCIA	1,082.21	1,548.43
139	ANA MARIANA CORTEZ	1,491.51	2,134.05
140	SUCESION ROBERTO HERRERA (Posible Heredera: Concepción de Herrera)	1,536.41	2,198.30
141	SANTIAGO HUMBERTO RUIZ GRANADINO	35,050.77	50,150.64
143	PABLO ANTONIO SANTOS MACHADO	4,412.69	6,313.68
144	JOSE ADANILSON OSORIO PINEDA Y DAVID OSORIO CASTRO	10,723.92	15,343.78
146	JOSE ADANILSON OSORIO PINEDA	20,450.54	26,260.63
146-1	GUSTAVO ADOLFO RAMIREZ	797.80	1,141.49
147	RAMON MIRON	1,656.51	2,370.13
148	ALEJANDRO RAMOS GARCIA	1,184.59	1,694.91
149	RAMON MIRON	292.49	418.49

NOMBRE DEL PROYECTO:	PRESENTA:	CONTENIDO:	DISEÑÓ:	REVISÓ:	ESCALA:	FECHA:
GENERACIÓN DE 355 MW A BASE DE GAS NATURAL CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE	Energía del Pacífico, LTDA de CV	**PLANOS DE GENERALES SERVIDUMBRES DE ELECTRODUCTO**	SM INGENIERIA	Arq. Isa Ramírez	1:7,500	AGOSTO / 2016
			CALCULÓ GRIS S.A. DE C.V.	DIBUJÓ: Tec. René Morales		HOJA: 7/14



PARCELA	PROPIETARIO	M²	V²
146	JOSE ADANILSON OSORIO PINEDA	20,450.54	29,260.63
146-1	GUSTAVO ADOLFO RAMIREZ	797.80	1,141.49
147	RAMON MIRON	1,656.51	2,370.13
148	ALEJANDRO RAMOS GARCIA	1,184.59	1,694.91
149	RAMON MIRON	292.49	418.49
151	SALVADOR VASQUEZ PEREZ	2,622.96	3,752.93
153	ISRRAEL HERNANDEZ PEREZ	1,240.83	1,775.38
154	TITO LOPEZ	2,636.98	3,772.99
155	MARIA ANGELICA RAMOS DE MEJIA	445.29	637.12
156-1	CELESTINA CORTEZ	509.05	728.35
157-1	ALEJANDRO ALVAREZ CORTEZ	2,089.67	2,989.90
158-1	ARCADIO RAMIREZ GARCIA	5,319.40	7,611.00
159-1	FERNANDO SANTIAGO AREVALO	1,194.34	1,708.86
159-2	MARGARITO SANTIAGO SANCHEZ	3,890.62	5,566.70
159-3	BERNARDA SANTIAGO SANCHEZ	4,031.18	5,767.81
160-1	ASOCIACION COOPERATIVA DE PRODUCCION AGROPECUARIA DE HOMBRES INDIGENAS, SAN FRANCISCO DE ASIS DE R.L.	9,700.77	13,879.86
161-1	TEODORO PINEDA OSORIO	9,351.74	13,380.47

PARCELA	PROPIETARIO	M²	V²
162-1	FRANCISCO ERSIDES VASQUEZ	6,415.99	9,180.00
163-1	MARIA IGNACIA RAMIREZ RAMOS	118.59	169.68
164-1	SIMONA MARTINEZ DE RAMIREZ	880.45	1,259.75
166-1	AMADO RAMIREZ	848.54	1,214.09
167-1	JESUS RAMIREZ	884.50	1,265.54
168-1	MANUEL DE JESUS PINEDA RAMIREZ	1,491.14	2,135.32
172-1	ZAIDA JULIETA AREVALO DE FIGUEROA; MARIA LETICIA GUTIERREZ DE TOBAR Y ARTURO TOVAR AREVALO	3,336.26	4,773.52
175-1	GUSTAVO ADOLFO RAMIREZ	1,749.63	2,503.37
176-1	GILBERTO SERMEÑO CANDELL	8,851.82	12,665.18
178-1	FRANCISCA PEREZ DE AREVALO; HIPOLITA AREVALO PEREZ; JESUS ANTONIO AREVALO PEREZ; DANIEL AREVALO PEREZ; AMADEO AREVALO PEREZ Y ANTONIA AREVALO PEREZ	3,245.41	4,643.53
179-1	MARIA ROSA PEREZ GARCIA	1,634.77	2,339.03
180-1	EITHEL CANDELL GUTIERREZ, OSMIN CANDELL OSORIO, DELMA ADALINDA CANDEL OSORIO, OSBERTO CANDEL OSORIO, JOSE HITEL CANDEL OSORIO	2,340.68	3,349.04
180-2	JULIO MAGAÑA PINEDA	1,868.95	2,674.09
181	MARIA VERONICA ALFARO GARCIA, TERESA ELIZABETH DELGADO DE SENSENTE, ISMAEL SENSENTE SANTIAGO, NESTOR ALFONSO SENSENTE JIMENEZ, RINA RAMIREZ DE GUTIERREZ, OSBERTO CANDEL OSORIO, JAIRO ELY MAGAÑA GUTIERREZ, ALICIA CANDEL GUTIERREZ Y ROSA YEILIN PEREZ DE GALICIA	16,370.75	23,423.27
183	CARLOS CHRISTIAN MORAN NAVAS	41,416.62	59,258.90

NOMBRE DEL PROYECTO:

GENERACIÓN DE 355 MW A BASE DE GAS NATURAL
CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE

PRESENTA:

Energía del Pacífico, LTDA de CV

CONTENIDO:

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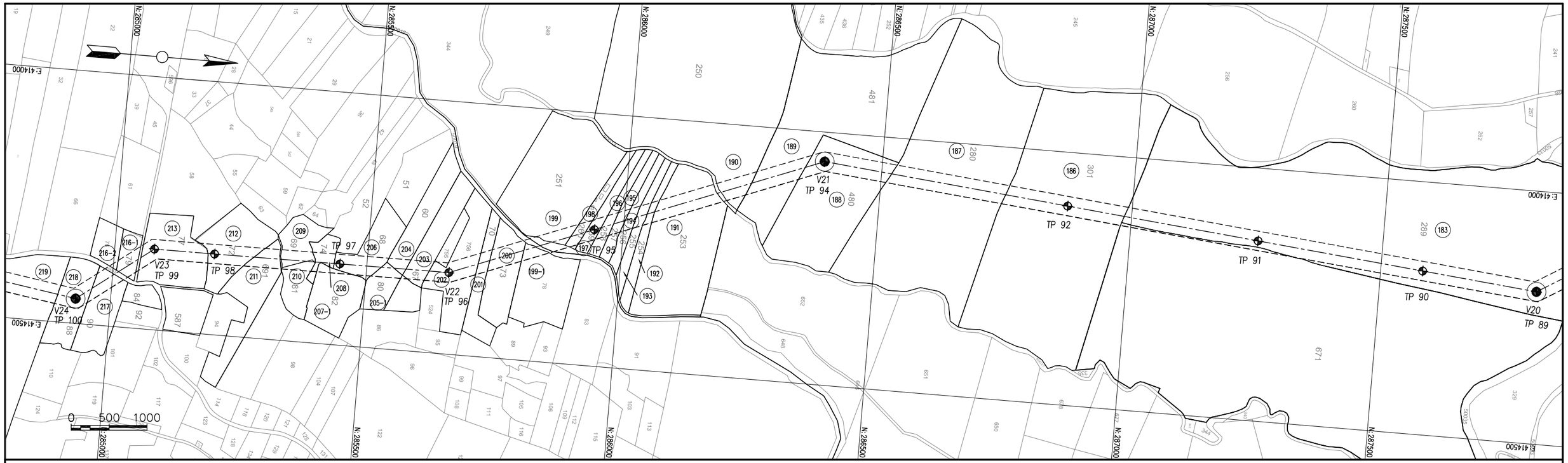
CALCULÓ	DIBUJÓ:		HOJA:
GRIS S.A. DE C.V.	Tec. René Morales		8/14



PARCELA	PROPIETARIO	M²	V²
186	OSCAR ARMANDO GUTIERREZ AREVALO EDUARDO ARMANDO GUTIERREZ RAUDA Y MARIA JULIA AREVALO VIUDA DE GUTIERREZ	9,075.04	12,984.57
187	BLANCA JULIA GUTIERREZ DE PALMA EDUARDO ARMANDO GUTIERREZ RAUDA Y MARIA JULIA AREVALO VIUDA DE GUTIERREZ	8,719.13	12,475.33
188	MARIA DEL CARMEN PINEDA DE GUTIERREZ	6,633.88	9,491.76
189	CARLOS PINEDA	4,218.17	6,035.36
190	EDWIN NELSON MAGAÑA SERMEÑO Y JUAN CARLOS MAGAÑA SERMEÑO, JULIO MAGAÑA PINEDA	2,374.98	3,398.12
191	SIN IDENTIIFICAR	4,918.20	7,036.96
192	SUCESION JOSE DOMINGO MARTINEZ (Posibles Herederos YURIN MARTINEZ DE VASQUEZ; ELWING MARTINEZ LOPEZ E IVAN MARTINEZ LOPEZ)	616.79	882.50
193	ELWING MARTINEZ LOPEZ	854.97	1,223.29
194	SUCESION RENE MARTINEZ LOPEZ (Posibles Herederos ANA GLORIA DE MARTINEZ, ANGELICA MARIA MARTINEZ, EDGARDO MARTINEZ)	860.74	1,231.55
195	IVAN MARTINEZ LOPEZ	918.44	1,314.10
196	YURIN MARTINEZ DE VASQUEZ	971.09	1,389.44
197	YURIN MARTINEZ DE VASQUEZ	1,240.86	1,775.42
198	OVIDIO GARCIA	1,106.01	1,582.48
199	YURIN MARTINEZ DE VASQUEZ	1,482.87	2,121.69
199-1	TERESA DE JESUS AYALA DE AREVALO	941.95	1,347.74

PARCELA	PROPIETARIO	M²	V²
200	CARLOS AREVALO OSORIO	2,655.17	3,799.02
201	INDALECIO ALVAREZ	907.32	1,298.19
202	INDALECIO ALVAREZ	3,672.46	5,254.56
203	RAMON SALAMA JUAREZ	1,762.55	2,521.86
204	RAMON SALAMA JUAREZ	862.67	1,234.31
205-1	BENJAMIN AREVALO OSORIO	1,016.63	1,454.59
206	SANDOR NECTALI REYES SALAMA	3,350.86	4,794.41
207-1	FELICIANO GUTIERREZ PEREZ	600.09	858.61
208	FELICIANO GUITIERREZ PEREZ	1,109.78	1,587.88
209	MARIA DELFINA OSORIO DE AREVALO	1,583.27	2,265.34
210	GABRIEL PIECHO REYES	855.17	1,223.56
211	BENJAMIN AREVALO OSORIO	1,976.81	2,828.41
212	BENJAMIN AREVALO OSORIO	3,568.53	5,105.86
213	BLANCA ZOILA MENDEZ DE CRESPIN	5,157.93	7,379.96
216-1	SONIA ELIZABETH OSORIO	1,597.00	2,284.99
216-2	JUAN DE JESUS ROSA	144.50	206.75
217	ALBA JANETH ELENA DE PEREZ	1,971.76	2,821.19
218	CESAR DOUGLAS MIRANDA RAMIREZ	2,845.67	4,017.59
219	PEDRO ANTONIO CASTILLO RIVAS	10,782.88	15,428.15

NOMBRE DEL PROYECTO:

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CON UNA PLANTA DE GENERACIÓN EN ACAJUTLA, SONSONATE

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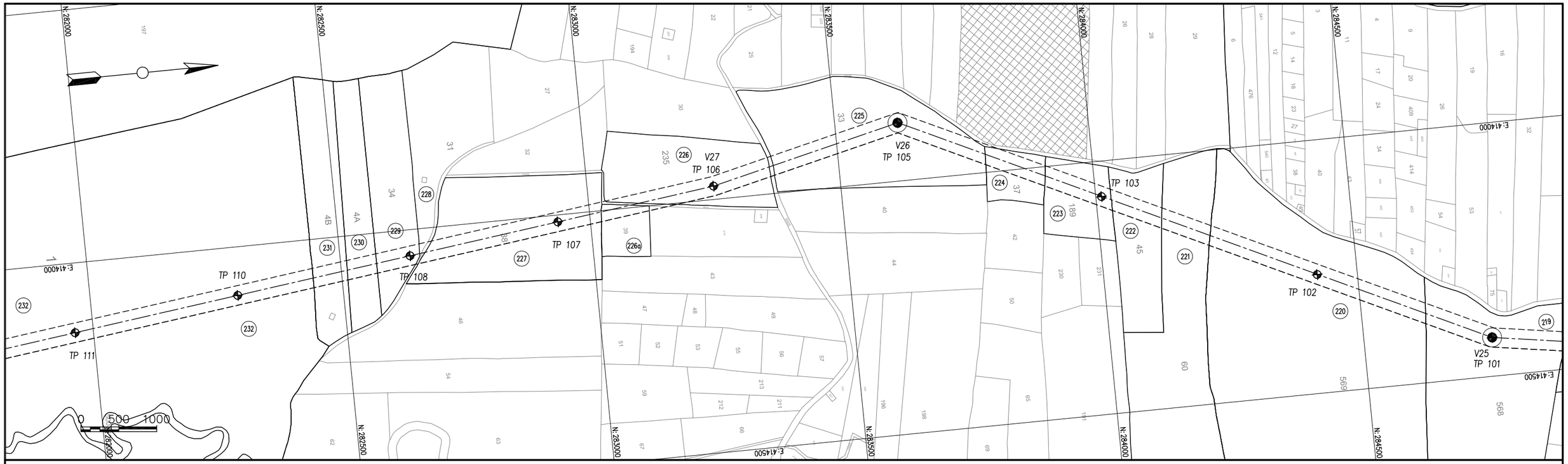

PARCELA	PROPIETARIO	M²	V²
219	PEDRO ANTONIO CASTILLO RIVAS	10,782.88	15,428.15
220	JUAN MANUEL JIMENEZ GUARDADO	17,231.47	24,654.79
221	ELSA GUADALUPE ESTRADA, VICTOR MANUEL ESTRADA Y JOSE ALFREDO ESTRADA	3,863.42	5,527.78
222	MILTON ADELMO SORIANO CACERES	4,031.48	5,768.24
223	TRINIDAD SEGOVIA DIAZ	5,293.26	7,573.60
224	DORA ALICIA SEGOVIA DE SERMEÑO	4,724.70	6,760.10
225	ISAIAS RAMOS MANGANDI	16,836.64	24,089.86
226	SUCESION JOSE LUIS ARCIA GARCIA (Posibles Herederos: MARIA LUPA NAVARRETE DE ARCIA)	10,151.85	14,525.27
226-A	EBERARDO JIMENEZ PEREZ Y ROGELIO PEREZ JIMENEZ	2,105.31	3,012.28
227	ROSALIO RAMOS MANGANDI	13,608.57	19,471.14
228	ANTONIA PEREZ DE GALICIA	234.45	335.45
229	ANIBAL DE JESUS SEGOVIA LEIVA E ISIDRO JESUS LEIVA	3,255.30	4,657.68
230	JOSE FIDENCIO SEGOVIA	2,263.58	3,238.73
231	JOSE FIDENCIO SEGOVIA	2,630.10	3,763.15
232	PRODUCTORA SALVADOREÑA DE CONCENTRADOS S.A DE C.V.	54,561.68	78,066.85

NOMBRE DEL PROYECTO:

GENERACIÓN DE 355 MW A BASE DE GAS NATURAL
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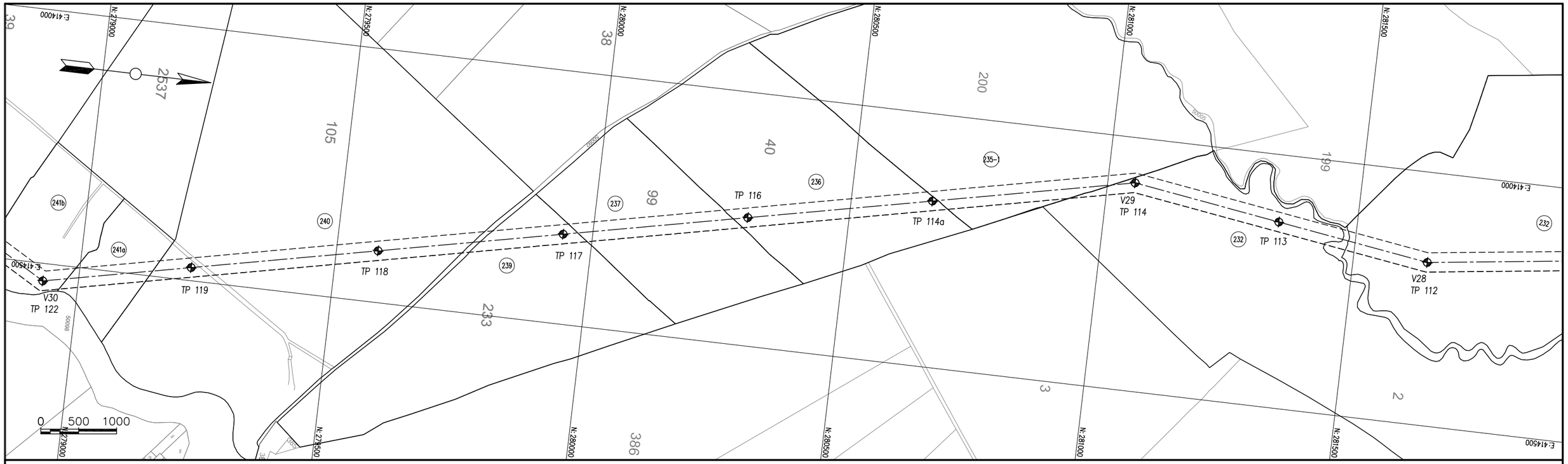

PARCELA	PROPIETARIO	M²	V²
232	PRODUCTORA SALVADOREÑA DE CONCENTRADOS S.A DE C.V.	54,561.68	78,066.85
235-1	MILTON BENITEZ Y BENITEZ	13,060.44	18,686.88
236	ROSARIO DEL CARMEN RIVERA FUNES	15,431.27	22,079.06
237	JOSE MANUEL RIVERA FUNES	11,736.60	16,792.73
239	JOSE MANUEL RIVERA FUNES	7,347.97	10,513.48
240	INVERSIONES AGROPECUARIAS DE OCCIDENTE, S.A. DE C.V.	24,178.00	34,593.88
241-A	INVERSIONES AGROPECUARIAS DE OCCIDENTE, S.A. DE C.V.	6,453.80	9,234.10
241-B	INVERSIONES DK, S.A. DE D.V.	6,814.05	9,749.54
242	ELBA GLADIS IRAHETA DE ESCOBAR	17,380.67	24,868.26

NOMBRE DEL PROYECTO:

GENERACIÓN DE 355 MW A BASE DE GAS NATURAL
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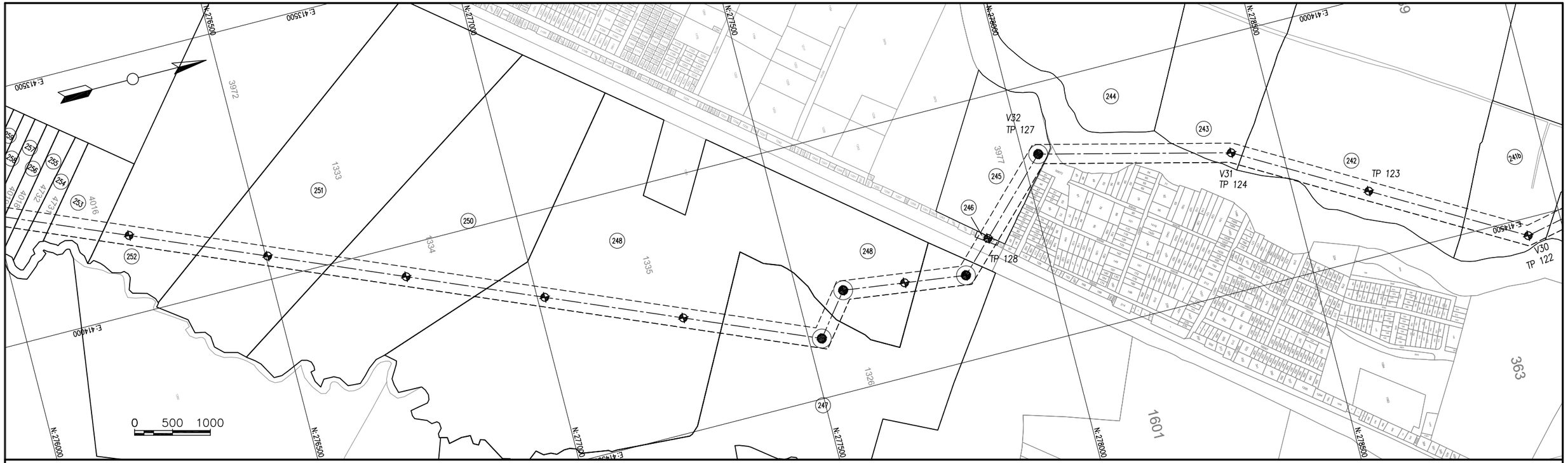

PARCELA	PROPIETARIO	M²	V²
241-B	INVERSIONES DK, S.A. DE D.V.	6,814.05	9,749.54
242	ELBA GLADIS IRAHETA DE ESCOBAR	17,380.67	24,868.26
243	HECTOR ALFREDO DUEÑAS y DEYSI NERIZ TURCIOS DE DUEÑAS	3,653.82	5,227.89
245	LEMAZA S.A. DE C.V.	7,933.98	11,351.94
246	PETRONA QUINTANILLA DE RIVAS	395.25	565.52
247	SIMON PEDRO VARELA TABLAS	14,205.31	20,324.95
248	SIMON PEDRO VARELA TABLAS	25,635.42	36,679.16
250	LUZ DE MARIA VARELA DE SUVILLAGA	11,880.58	16,998.74
251	SIMON PEDRO VARELA TABLAS	9,645.36	13,800.57
252	MARINA TABLAS DE VARELA Y ANA SILVIA LACAYO DE VARELA	7,634.88	10,923.98
253	TOMAS MOLINA FLORES	3,943.29	5,642.06
254	TOMAS MOLINA FLORES	1,355.74	1,939.79
255	VICTOR MANUEL ESCOBAR MENDEZ	1,151.15	1,647.06
256	MOISES HERNANDEZ ESTRADA	1,044.78	1,494.87
257	NANCY EVELYN BAUTISTA JOVEL	1,020.23	1,459.74
258	NANCY EVELYN BAUTISTA JOVEL	942.10	1,347.96
259	MOISES HERNANDEZ ESTRADA	888.11	1,270.70

NOMBRE DEL PROYECTO:

GENERACIÓN DE 355 MW A BASE DE GAS NATURAL
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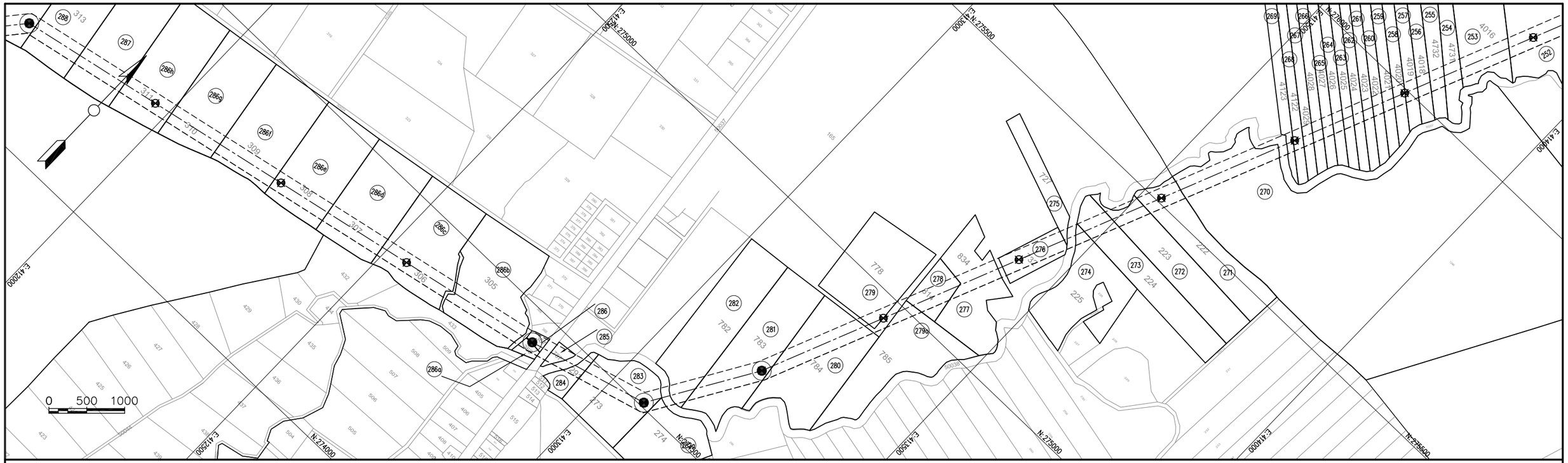

PARCELA	PROPIETARIO	M²	V²
253	TOMAS MOLINA FLORES	3,943.29	5,642.06
254	TOMAS MOLINA FLORES	1,355.74	1,939.79
255	VICTOR MANUEL ESCOBAR MENDEZ	1,151.15	1,647.06
256	MOISES HERNANDEZ ESTRADA	1,044.78	1,494.87
257	NANCY EVELYN BAUTISTA JOVEL	1,020.23	1,459.74
258	NANCY EVELYN BAUTISTA JOVEL	942.10	1,347.96
259	MOISES HERNANDEZ ESTRADA	888.11	1,270.70
260	JOSE ARTURO FLORES	818.82	1,171.57
261	JOSE ARTURO FLORES	804.25	1,150.72
262	JOSE ARTURO FLORES	809.52	1,158.25
263	JOSE ARTURO FLORES	808.42	1,156.68
264	JOSE ARTURO FLORES	839.98	1,201.84
265	OSCAR ARMANDO JIMENEZ	841.99	1,204.72
266	OSCAR ARMANDO JIMENEZ	820.75	1,174.33
267	OSCAR ARMANDO JIMENEZ Y LUCIA ESTELA PAZ DE JIMENEZ	790.57	1,131.15
268	OSCAR ARMANDO JIMENEZ Y LUCIA ESTELA PAZ DE JIMENEZ	785.82	1,124.35
269	CECILIA CORTEZ VIUDA DE CERON	541.32	774.51
270	DOUGLAS JONATAN SOLORZANO SALAZAR	7,601.34	10,876.00
271	MARIA CONCEPCION MENJIVAR ORELLANA	3,023.97	4,326.70
272	JOSE MARIA CHAVEZ	2,317.32	3,315.62
273	JOSE MARIA CHAVEZ	2,279.21	3,261.10
274	ADRIAN CALDERON	690.05	987.32
275	NAPOLEON HUEZO	245.33	351.02

PARCELA	PROPIETARIO	M²	V²
276	APOLINARIO GARCIA	5,047.61	7,222.12
277	MARIA CRISTINA BLANCO DE CAMPOS	3,418.53	4,891.23
278	NICOLASA CAMPOS DE GUTIERREZ	3,529.83	5,050.49
279	ISTA	1,226.35	1,754.66
279-A	NAPOLEON HUEZO	1,276.47	1,826.38
280	EDGAR EFRAIN SANCHEZ Y JUANA FRANCISCA SANCHEZ CAMPOS	7,516.52	10,754.63
281	ERMELINDA OSORIO DE GOMEZ, SAMUEL ELOP GOMEZ OSORIO	6,106.35	8,736.96
282	PEDRO ISRAEL HERNANDEZ TREJO	1,899.36	2,717.60
282-A	ROGELIO HERNANDEZ DIAZ Y ANTONIA CATALINA TREJO DE HERNANDEZ	352.61	504.51
283	DINA DEL CARMEN VAZQUEZ Y VICTOR MANUEL CARDONA RODRIGUEZ	6,114.54	8,748.68
284	ISTA	909.88	1,301.85
285	MARIA IRMA BERNAL DE GUEVARA	1,174.32	1,680.22
286	JOSE LUIS FRANCO JIMENEZ	868.16	1,242.16
286-A	RAFAEL EVARCISTO AGUILAR	644.49	922.13
286-B	CARLOS HUMBERTO MACAY GRANADOS	6,170.91	8,829.34
286-C	APOLINARIO GARCIA Y MARIA DEL CARMEN CARRANZA DE GARCIA	6,014.70	8,605.83
286-D	CARLOS HUMBERTO MACAY GRANADOS	4,855.34	6,947.02
286-E	CRUZ FLORES BATRES	4,722.84	6,757.43
286-F	CRUZ FLORES BATRES	4,873.45	6,972.93
286-G	CARLOS HUMBERTO MACAY GRANADOS	4,317.23	6,177.09
286-H	ELSA JEANETH RIVAS CAMPOS HOY DE FIGUEROA Y ALEX BLADIMIR FIGUEROA ALVARADO	4,178.75	5,978.96
287	MANUEL DE JESUS CORTEZ RAMIREZ Y PAZ TEJADA DE CORTEZ	3,988.15	5,706.24
288	ANA GLADIS CASTRO VIUDA DE MONTOYA	3,968.08	5,677.53

NOMBRE DEL PROYECTO:

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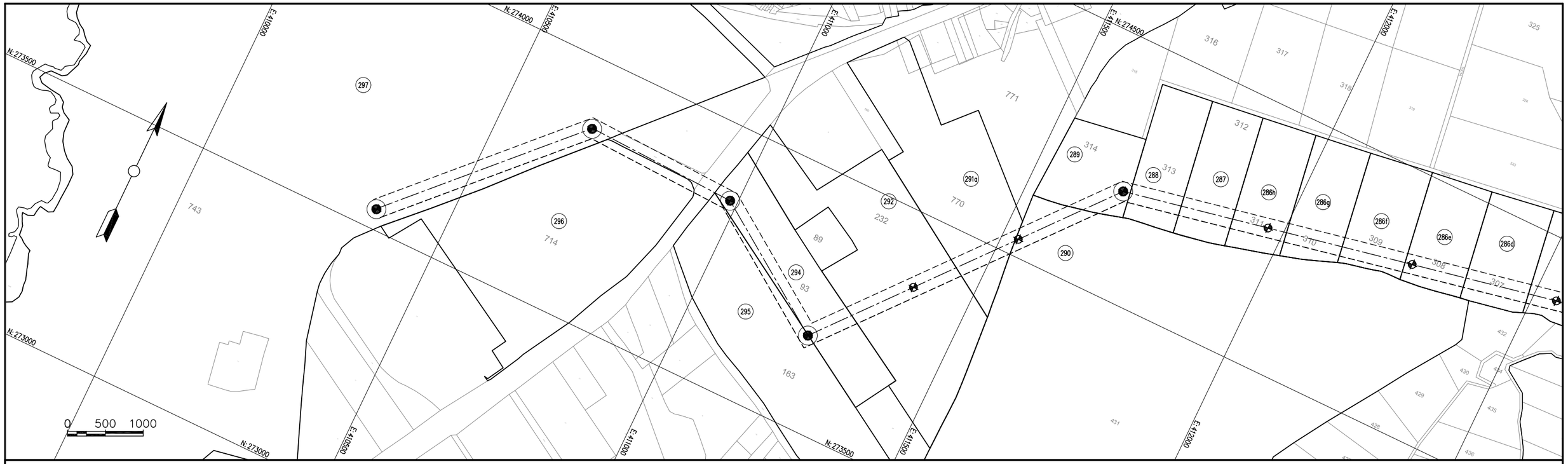

PARCELA	PROPIETARIO	M²	V²
286	JOSE LUIS FRANCO JIMENEZ	868.16	1,242.16
286-A	RAFAEL EVARCISTO AGUILAR	644.49	922.13
286-B	CARLOS HUMBERTO MACAY GRANADOS	6,170.91	8,829.34
286-C	APOLINARIO GARCIA Y MARIA DEL CARMEN CARRANZA DE GARCIA	6,014.70	8,605.83
286-D	CARLOS HUMBERTO MACAY GRANADOS	4,855.34	6,947.02
286-E	CRUZ FLORES BATRES	4,722.84	6,757.43
286-F	CRUZ FLORES BATRES	4,873.45	6,972.93
286-G	CARLOS HUMBERTO MACAY GRANADOS	4,317.23	6,177.09
286-H	ELSA JEANETH RIVAS CAMPOS HOY DE FIGUEROA Y ALEX BLADIMIR FIGUEROA ALVARADO	4,178.75	5,978.96
287	MANUEL DE JESUS CORTEZ RAMIREZ Y PAZ TEJADA DE CORTEZ	3,988.15	5,706.24
288	ANA GLADIS CASTRO VIUDA DE MONTOYA	3,968.08	5,677.53
289	CARLOS HUMBERTO MACAY GRANADOS Y MIRNA BEATRIZ CONTRERAS DE MACAY	3,862.02	5,525.78
290	EVER ALEXANDER OVANDO MEDRANO	5,608.35	8,024.42
291-A	JULIO CESAR COMANDARI JIMENEZ	4,859.26	6,952.62
292	SOCIEDAD EL MILAGRO 80, S.A. DE C.V.	8,642.62	12,365.85
294	AGAVE, S.A.	12,532.57	17,931.60
295	COMANDARI JIMENEZ	4,079.76	5,837.32
296	DUKE ENERGY INTERNACIONAL EL SALVADOR, SOCIEDAD EN COMANDITA POR ACCIONES DE C. V.	3,193.63	4,569.45
297	COMISION EJECUTIVA PORTUARIA AUTONOMA-CEPA	18,865.58	26,992.87

NOMBRE DEL PROYECTO:

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ANNEX 5: GENERAL MATRIX OF PARCELS AND OWNERS.

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: ¨GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA¨

	GENERAL DATA ON PROPERTY AFFECTED							FEASIBILITY STAGE				TECHNICAL DATA OF AREAS OF RIGHT OF WAY									
	CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			PROJECT INFORMATION AND AUTHORIZATION FOR PRELIMINARY STUDIES				DEFINITION AND APPROVAL OF THE RIGHT OF WAY AREA					AFFECTED AREA		LENGTH OF AFFECTION	COORDINATES	
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	WRITTEN AUTHORIZATION	VERBAL AUTHORIZATION	NO STATEMENT	NO COLLABORATION TO THE PROJECT	CADASTRAL LOCATION GENERAL PROPERTY	TOPOGRAPHIC SURVEY IN DETAIL	FRAME PLAN OF RIGHT OF WAY	CADASTRE PLAN PRESENTED-CNR	CADASTRE PLAN APPROVAL-CNR	M²	V²	M	X	Y
1	A H U A C H A P A N	101	R29	284	A	**1**	ETESAL, S.A. DE C.V.		1			1	1	1			303.16	433.76	30.75	411543.950	311174.486
2		101	R29	50	A	**1A**	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL		1			1					303.16	433.76	30.75	411583.054	311282.415
3		101	U29	132	A	**2**	HECTOR ENRIQUE MORAN BARRIOS		1			1	1	1	1		11,568.08	16,551.61	302.56	411487.106	311252.668
4		101	U29	132	A	**2A**	HECTOR ENRIQUE MORAN BARRIOS		1			1	1	1	1		2,843.59	4,068.61	78.38	411492.892	311268.884
5		101	R29	283	A	**3**	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL		1			1	1	1			4,326.51	6,190.36	145.71	411421.041	310968.986
6		101	U29	128	A	**4**	EDUARDO RAFAEL MENDEZ FLOREZ CABEZAS	1				1	1	1	1		3,195.12	4,571.58	77.62	411429.955	310868.602
7		101	U24	457	A	**7**	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL		1			1	1	1			12,121.07	17,342.83	299.12	411444.944	310699.821
8		101	U24	413	A	**13**	RAMON RAMIREZ		1			1	1	1	1		8,033.95	11,494.98	215.27	411315.635	310447.015
9		101	U21	29	A	**14**	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL		1			1	1	1	1		7,012.12	10,032.94	183.96	411268.860	310236.991
10		101	U21	2	A	**15**	JOSE LINO VELASQUEZ GONZALEZ		1			1	1	1	1		7,210.57	10,316.88	198.41	411219.846	310048.39
11		101	U21	1	A	**16**	JOSE LINO VELASQUEZ GONZALEZ		1			1	1	1	1		2,263.99	3,239.32	52.98	411156.323	309902.182
12		101	U20	105	A	**17**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		1,157.11	1,655.59	30.66	411114.391	309805.668
13		101	U20	109	A	**18**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		1,590.33	2,275.44	54.06	411098.488	309763.662
14		101	U20	110	A	**18-A**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		1,433.44	2,050.97	41.29	411094.593	309712.310
15		101	U20	106	A	**19**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		3,999.25	5,722.13	103.29	411093.557	309672.281
16		101	U20	128	A	**19-A**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		789.32	1,129.36	60.71	411150.916	309568.403
17		101	U20	103	A	**21**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		350.17	501.02	34.84	411123.014	309560.279
18		101	U20	120	A	**21-A**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		1,247.88	1,785.47	40.07	411133.452	309518.761
19		101	U20	114	A	**23**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		1,244.63	1,780.82	40.01	411120.178	309481.027
20		101	U20	111	A	**25**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		1,239.66	1,773.71	40.01	411106.903	309443.294
21		101	U20	108	A	**27**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		1,123.66	1,607.73	37.14	411093.629	309405.561
22		101	U20	98	A	**29**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		2,757.31	3,945.16	62.92	411069.806	309361.879
23		101	U20	85	A	**32**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1			241.60	345.68	24.16	411044.686	309298.511
24		101	U20	89	A	**33**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1			241.60	345.68	24.16	411053.975	309294.809
25		101	U20	94	A	**34**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1			241.60	345.68	24.16	411063.265	309291.107
26		101	U20	97	A	**35**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1			241.60	345.68	24.16	411072.554	309287.404
27		101	U20	100	A	**35-1**	ANA MARIBEL ALVAREZ BORJA		1			1	1	1	1		34.18	48.90	24.16	411081.843	309283.702
28		101	R32	81	A	**36**	CARLOS ALFREDO MENDEZ FLOREZ	1				1	1	1	1		17,189.60	24,594.88	453.63	411036.404	309266.583
29		101	R32	201	A	**37**	CARLOS ALFREDO MENDEZ FLOREZ	1				1	1	1	1		1,027.37	1,469.96	25.67	411041.255	308834.924
30		101	R32	43	A	**38**	CARLOS ALFREDO MENDEZ FLOREZ	1				1	1	1	1		2,020.00	2,890.22	54.11	411035.753	308767.051
31		101	R32	44	A	**39**	GERARDO ENRIQUE MENDEZ FLOREZ CABEZAS	1				1	1	1	1		13,707.09	19,612.10	378.44	411032.576	308727.869
32		101	R32	99 (today 221)	A	**42**	JOSE ERNESTO ROMERO BORJA PAPINI; JUAN JOSE BORJA PAPINI; JULIA MARGARITA BORJA PAPINI AND MARGARITA ALDEMIRA PAPINI RUIZ DE BORJA			1		1					25,809.71	36,928.53	681.21	411002.155	308353.043
33	A P A N E C A	101	R32	90	A	**43**	NEGOCIOS MAGAÑA DELLA TORRE, S.A. DE C.V.			1		1					10,829.24	15,494.47	266.06	411377.413	307826.839
34		101	R32	117	A	**44-1**	MONTECARLOS ESTATE, S.A. de C.V.		1			1					12,426.35	17,779.62	577.57	411617.878	307634.624
35		102	R01	28, 29 and 64 (today 374)	A	**46-1**	NEGOCIOS MAGAÑA DELLA TORRE, S. A. DE C.V.		1			1					27,374.84	39,167.92	850.77	411824.251	307465.514
36		102	R01	30	A	**47-1**	JOSE ROMERO ASCENCIO RECINOS AND FREDI RAFAEL ASCENCIO		1			1					2,594.92	3,712.81	161.49	412063.160	306825.774
37		102	R01	146	A	**48-1**	MARIA ANGELICA BORJA DE FERGUSON			1		1					3,347.60	4,789.75	87.72	411991.197	306775.605
38		102	R01	51	A	**49-1**	GLORIA BEATRIZ ARTERO MENDOZA		1			1					6,561.48	9,388.17	192.33	411833.421	306665.613
39		102	R01	36	A	**50**	ERNESTO ANTONIO ANGULO MILLA; JOSE EDUARDO ANGULO MILLA; JUAN CARLOS ANGULO MILLA; NOEMY MARGARITA ANGULO DE POMA; AMADA MARGARITA MILLA DE ANGULO; SANTA MARGARITA DE APANECA, S.A. DE C.V.	1				1					5,052.75	7,229.47	184.33	411712.315	306068.653
40		102	R01	53	A	**59-1**	AGROPECUARIA GUADALUPE, S.A. DE C.V.	1				1					6,750.61	9,658.77	185.67	411714.052	306582.396
41		102	R01	54	A	**60-1**	FLOR DEL TRANSITO ARTERO MENDOZA	1				1					5,257.13	7,521.90	162.76	411713.971	306558.289
42		102	R01	26	A	**61-1**	BERTA RODRIGUEZ VIUDA DE BORJA; ANA GLORIA BORJA RODRIGUEZ AND FRANCISCO MANUEL BORJA			1		1					12,510.45	17,899.95	330.29	411713.421	306395.528
43		102	R01	258	A	**62-1**	MARIETTA SUAREZ DE BRIGHT		1			1					12,549.29	17,955.52	331.97	411912.717	305679.435
44		102	R01	257	A	**63-1**	ALEIDA CAMILA VALDIVIESO MARTINEZ AND GONZALO HERNANDO VALDIVIESO MARTINEZ		1			1					21,513.95	30,782.16	630.25	412159.338	305457.205
45		102	R03	33 (today 801)	A	**64**	ESCAFE, S.A. DE C.V.				1	1					5,895.04	8,434.62	174.69	412530.650	304183.73

	PROGRESS IN THE MANAGEMENT OF NEGOTIATION, PAYMENT AND SCRIPTURE OF THE RIGHT OF WAY (Related data with plane PDF)				PROGRESS IN THE PRESENTATION AND REGISTRATION OF RIGHT OF WAY				IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.											
									SYMBOLS OF LEGAL TYPING:	Resolved Cases			Resolution period not exceeding 6 months		Resolution period not exceeding 10 months		Resolution period not exceeding 11 months		Complex legal situation	
No. Correlative	NOTIFIED (Including closed and pending negotiations)	CLOSED NEGOTIATION	PAYMENT AND SCRIPTURE	CASES IN WHICH CONSTITUTION PROMISE WAS SIGNED	SCRIPTURE PRESENTED AT CNR	REGISTERED AND WITHDRAWAL (Right of Way registered and in power of EDP)	ADVANCE OR WEEKLY UPDATE	COMMENTS	Enrollment or Registration	Pre antecedent	Area according to Document M²	Area according to System M²	Rest Registral M²	Property Location	Nature of the property	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
1									15082617-00000 AS. 4	15082617-00000 AS. 1	42,894.63	163,430.77	42,894.63	Portion B, Cantons Santa Rosa Acacalco, Los Magueyes and El Barro, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		10-07-2003		
2									NO BACKGROUND							NO BACKGROUND				
3									15027275-00000 as. 1	192 book 160	38,500.00	38,500.00	38,500.00	Canton Acacalco, denominated "San Juan", Jurisdiction and Department of Ahuachapán	Rural	Liens with Right of Way, Alert de FECAFE	Alert: property affected with restriction of domain transfer, by Emergency Coffee Fund (FECAFE) Debt $ 6,093.75. Property Liens with Right of Way of Transmission Line in favor of CEL, in an area of 21,693.00 m2, inscription 3 of volume 426.	10-15-1966		
4									15027274-00000 as. 1	193 book 160	14,000.00	13,287.88	13,287.88	Canton Acacalco, San Juan, Jurisdiction and Department of Ahuachapán	Rural	Liens with Right of Way, Alert of FECAFE	Alert: property affected with restriction of domain transfer, by Emergency Coffee Fund (FECAFE) Debt $ 6,093.75. Property Liens with Right of Way of Transmission Line in favor of CEL	10-16-1966		
5									NO BACKGROUND					Canton Santa Rosa Acacalco, Jurisdiction and Department of Ahuachapán		No Background				
6									15026755-00000 As.4	15026755-00000 As.2	25,570.63	75,126.65	25,570.63	Canton Los Magueyes, denominated El Regadío, Jurisdiction and Department of Ahuachapán	Rural	Liens with mortgage	Mortgage a / f of Banco de Fomento Agropecuario for an amount of $ 49, 275.00; For the term of 15 years; Beginning of Liens: 11/7/2014.	11-07-2014		
7									15012949-00000 as. 1	31 book 241	53,181.48	53,181.48	50,851.78	Lot N° 3, Canton El Barro, Jurisdiction and Department of Ahuachapán	Rural	Free of liens	A Portion was segregated by the North-East course of 2,329.70 M2; Enrolled to the Registry 15088158-00000, in favor of Geotérmica Salvadoreña S.A. de C.V (GESAL), Free of liens.	09-05-1974		
8									15019362-00000 as. 1	38 BOOK 592	35,000.00	35,000.00	35,000.00	Canton Apanzunco and El Barro de los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Liens with pledge	Liens with Pledge, in favor of Unión de Exportadores, S.A. de C.V:, amounted to $ 2,571.43; Term: 15 months; Interest: 16% per year; Date of beginning of liens 06/27/00.	07-16-1990		
9									15088157-00000 as. 1	15024107-00000 AND 15024511-00000	37,100.00	37,100.00	37,100.00	Canton El Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		12-02-2002		
10									15014411-00000 AS. 13	15014411-00000 AS. 6	28,000.00	28,000.00	28,000.00	Canton El Barro, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		06-03-2011		
11									15017007-00000 AS.13	15017007-00000 AS.6	17,500.00	17,500.00	17,500.00	Canton El Barro de los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		06-03-2011		
12									15090838-00000 as. 1	M03029393	1,735.40	1,735.40	1,735.40	parcel of land 13, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán.	Rural	Free of liens		05-05-1999		
13									15090834-00000	M03029392	2,915.88	2,915.88	2,915.88	parcel of land 12, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
14									15090830-00000 as. 1	M03029391	3,254.85	3,254.85	3,254.85	parcel of land 11, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
15									15090765-00000 as. 1	M03029378	7,343.81	7,343.81	7,343.81	Lot 3, Zona verde, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
16									15090821-00000 AS.1	M03029390	7,563.53	7,563.53	7,563.53	parcel of land 10, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
17									15090761-00000 AS. 1	M03029377	1,648.61	1,648.61	1,648.61	Lot 2, Green zone, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
18									15090816-00000	M03029389	4,383.31	4,383.31	4,383.31	parcel of land 9, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
19									15090812-00000	M03029388	4,341.75	4,341.75	4,341.75	parcel of land 8, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
20									15090804-00000 AS. 1	M03029387	3,785.27	3,785.27	3,785.27	parcel of land 7, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
21									15090800-00000	M03029386	3,188.56	3,188.56	3,188.56	parcel of land 6, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
22									15090786-00000 AS. 1	M03029382	2,757.31	2,757.31	2,757.31	parcel of land No. 2, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
23									15091637-00000 AS. 1	M03029346	241.60	241.60	241.60	Lot 8, Polygon 24, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
24									15091632-00000 AS. 1	M03029345	241.60	241.60	241.60	Lot 7, Polygon 24, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
25									15091628-00000 AS. 1	M03029344	241.60	241.60	241.60	Lot 6, Polygon 24, Lotification Las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
26									15091624-00000	M03029343	241.60	241.60	241.60	Lot 5, Pol. 24, Lotification las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
27									15091621-00000	M03029342	241.60	241.60	241.60	Lot 4, Pol. 24, Lotification las Arboledas, Canton o Barro de Los Ausoles, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		05-05-1999		
28	1						WEEK 30		15085673-00000 AS. 12	15085673-00000 AS. 10	172,800.00	172,800	172,800	Canton El Barro, of name Bélgica, Jurisdiction and Department of Ahuachapán	Rural	Liens with mortgage	Property Liens with First Mortgage Opened to Banco Hipotecario, from El Salvador, S.A. Amount: $ 200,000.00; Term: 180 months; Start of liens: 01-02-2011, was modified as to the term, which expires on 01/02/2037	02-01-2012		
29	1						WEEK 30		15017317-00000 AS. 7	15017317-00000 AS. 3	2,800.00	2,800.00	2,800.00	Canton El Barro de los Ausoles, La Conejera, Jurisdiction and Department of Ahuachapán	Rural	Liens with mortgage	Property Liens with First Mortgage Opened to Banco Hipotecario, from El Salvador, S.A. Amount: $ 200,000.00; Term: 180 months; Start of liens: 01-02-2011, was modified as to the term, which expires on 01/02/2037	02-01-2012		
30	1						WEEK 30		15014955-00000 AS. 7	15014955-00000 AS. 3	28,000.00	28,000.00	28,000.00	Called place Barro Blanco and el Agua Caliente, Canton El Barro, Jurisdiction and Department of Ahuachapán	Rural	Liens with mortgage	Property Liens with First Mortgage Opened to Banco Hipotecario, from El Salvador, S.A. Amount: $ 200,000.00; Term: 180 months; Start of liens: 01-02-2011, was modified as to the term, which expires on 01/02/2037	02-01-2012		
31	1						WEEK 30		15015687-00000 AS. 2	15015687-00000 AS. 1	35,000.00	35,000,00	35,000,00	Canton Barro de Los Ausoles, San Jorge, Jurisdiction and Department of Ahuachapán	Rural	Free of liens		11-07-2015		
32									15124370-00000 AS. 1	15010848-00000	1,033,762.284	1,033,762.285	1,033,762.286	Canton el Barro, Jurisdiction and Department of Ahuachapán.	Rural	Free of liens	It corresponded to the parcel of land cadastral 99, but was gathered generating parcel of land 221.	01-07-2009		
33									15036226-00000 AS. 4	15036226-00000 AS. 1	84,000.00	84,000.00	84,000.00	In the place el Saltillal, Jurisdiction of Apaneca, Department of Ahuachapán.	Rural	Liens with mortgage	Property Liens with First Open Mortgage, Amount: $ 133,535.00; Term: 180 months; Start of encumbrance: 05-28-2014. Denied Rehearing Presentation, 03-09-2015	05-15-2006		
34									15017218-00000 AS. 7	40 book 795	39,885.01	39,885.01	39,885.01	Canton El Barro de los Ausoles, know by Finca San José de la Montaña, Departament of Ahuachapán	Rural	Liens with mortgage	Liens with First Open Mortgage, amounted to $ 13,061.22; Term: 60 months; Interest: 6% per year; Start date 09/20/96, inscription 78 BOOK 437 of Mortgages; Liens with Second Mortgage, As. 3, amounted to $ 496,571; Term: 96 months; Interest: 9% per year; Start date: 03/25/03; Both in favor of Banco Salvadoreño, S.A. NIT OF COMPANY: 0614-120803-105-2; Deed of incorporation inscribed in 18 BOOK 1842 of Companies. BATRES family society	11-05-2004		
35									15143995-00000 as. 1	15086134-00000 AND 15129865-00000	222,375.53	222,375.53	222,375.53	In the place El Zaitillal, described in the literal C, of the first, Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Liens with mortgage	Liens with First Open Mortgage, in favor of Banco Hipotecario de El Salvador, S.A., amounted to $ 300,000; Term: 180 months; Start date of liens: 06/23/10	09-23-2014		
36									NO BACKGROUND							NO BACKGROUND				
37									NO BACKGROUND							NO BACKGROUND				
38									15036178-00000	34 book 274	14,547.71	14,547.71	14,547.71	Place El Zaitillal, Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Liens with pledge and Presentations pending registration	Property liens with Pledge in favor of Sociedad Cooperativa de Caficultores de Juayua de R.L .; Amount: $ 12,342.86; Term: 12 months; Interest: 14% per year. Start of liens: 11-03-1998. Presentations: Production Credit and Mortgage, both in favor of Sociedad Cooperativa de Caficultores de Juayua de R.L. Observed: does not compare with antecedent.	12-05-1973		
39									15036962-00000 AS. 4, 5, 6	1 book 185	189,000.00	189,000.00	189,000.00	Canton Saltillal, Finca El Naranjo, Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Alert of FECAFE	Alert Registry, the co-owner AMADA MARGARITA MILE CORNER, owed an amount of $ 25,646.75; Property affected with Restriction of Domain Transfer. Art. 21 Law of Creation of the Emergency Fund for Coffee.	02/17/07; and 07/10/12, the last		
40									15036413-00000 AS. 9	15036413-00000 AS. 1	47,661.28	47,661.28	47,661.28	Place El Zaitillal, Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Liens with mortgage and Alert FECAFE	Property Liens with Mortgages in favor of the International Bank of Costa Rica, S.A. (Panama): a) First Mortgage; Amount: $ 55,000.00; Term: 240 months; Beginning of Liens: 27-04-2006. And b) Second Open Mortgage; Amount: $ 6,937,463.29; Term: 108 months; Start of liens: 28-01-2011. Modified in terms of the term extending to 192 months. Owner owes an amount of $ 43,799.56. Affected with restriction of transfer of dominion, FECAFE.	04-27-2006		
41									15037588-00000 as. 1	62 book 300	47,661.28	47,661.28	47,661.28	Place El Zaitillal, hijuela 4, Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Liens with mortgage and presentations pending registration	Property Liens with Mortgages in favor of the CooperativeSociedad Cooperativa de Cafetaleros de San José de la Majada de R.L. A) First Open Mortgage; Amount: $ 14,285.71; Term: 240 months; Beginning of liens: 06-28-2001. And b) Second Open Mortgage; Amount: $ 4,571.43; Term: 240 months; Beginning of liens: 07-23-2001. Presentation of pledge 200301004125, observed since 07-04 -2014.	12-05-1973		
42									15036399-00000 AS. 1	14 BOOK 569 AND 21 BOOK 539	135,800.00	135,800.00	135,800.00	Finca San José, Canton El Zaitillal, Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Free of liens		09-14-1956 and 12-23-1952		
43									15036219-00000 AS.1	19 BOOK 511	218,605.17	218,605.17	218,605.17	Place La Cumbre, Hijuela D Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Liens with Mortgage and pledge, Alert	Property Liens with First Mortgage Opened to Sociedad Cooperativa de Cafetaleros de San José La Majada de R.L .; Amount: $ 57,143.00; Term: 240 months; Start of liens: 29-06-2001. Property Liens with Pledge in favor of Banco Salvadoreño, S.A .; Amount: $ 533,196.24. Start of liens: October 17, 2002.Alert from FECAFE, Producer owes $ 13,256.50. For which it has domain transfer restriction.	04-30-1987		
44									15077529-00000	15036676-00000	223,541.00	223,541.00	223,541.00	Hijuela B, place la Cumbre, Canton El Saitillal, denominated Montecasino, Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Presentations pending registration, free of liens	Presentations pending to register for segregation by sale and Donation observed 200401003406 and 200401004852.	04-25-2001		
45									15141164-00000 AS. 2	15141164-00000 AS. 1	488,937.85	483,031.18	488,937.85	Canton San Ramoncito, place denominated Sisiniapa, Jurisdiction of Apaneca, Department of Ahuachapán	Rural	Free of liens		07-10-2013		

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: "GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA"

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GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: "GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA"

| GENERAL DATA ON PROPERTY AFFECTED | | |

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: "GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA"

| GENERAL DATA ON PROPERTY AFFECTED | | |

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: "GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA"

GENERAL DATA ON PROPERTY AFFECTED							FEASIBILITY STAGE				TECHNICAL DATA OF AREAS OF RIGHT OF WAY												PROGRESS IN THE MANAGEMENT OF NEGOTIATION, PAYMENT AND SCRIPTURE OF THE RIGHT OF WAY (Related data with plane PDF)				PROGRESS IN THE PRESENTATION AND REGISTRATION OF RIGHT OF WAY		ADVANCE OR WEEKLY UPDATE	COMMENTS
CATASTRAL IDENTIFICATION OF PROPERTY					IDENTIFICATION OF THE PROPERTY BY PROJECT		PROJECT INFORMATION AND AUTHORIZATION FOR PRELIMINARY STUDIES				DEFINITION AND APPROVAL OF THE RIGHT OF WAY AREA					AFFECTED AREA		LENGTH OF AFFECTION	COORDINATES											
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land y/ Project	Owner / Possessor	WRITTEN AUTHORIZATION	VERBAL AUTHORIZATION	NO STATEMENT	NO COLLABORATION TO THE PROJECT	CADASTRAL LOCATION GENERAL PROPERTY	TOPOGRAPHIC SURVEY IN DETAIL	FRAME PLAN OF RIGHT OF WAY	CADASTRE PLAN PRESENTED CNR	CADASTRE PLAN APPROVAL CNR	M²	V²	M	X	Y	NOTIFIED (Including offers and pending negotiations)	CLOSED NEGOTIATION	PAYMENT AND SCRIPTURE	CASES IN WHICH CONSTITUTED FORCE MAJEURE	SCRIPTURE PRESENTED AT CNR	REGISTERED AND WITH FINAL Right of Way (Attach copy of power of EDP)			
165	SONSONATE	315	R25	78	B	**199-1**	TERESA DE JESUS AYALA DE AREVALO	1				1	1	1	1	1	941.95	1,347.74	24.53	414283.360	285858.009	1	1	1		1	1			10025176-00000 as. 5	10025176-00000 as. 1	13,741.21	13,741.21	13,741.21	parcel of land 76/16, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens		10-28-2002		
166		315	R25	73	B	**200**	CARLOS AREVALO OSORIO	1				1	1	1	1	1	2,655.17	3,799.02	70.24	414266.743	285809.493	1	1	1		1	1			10024669-00000 As. 5	10024669-00000 As. 3	9,875.78	9,875.78	9,875.78	parcel of land 76/15, denominated La Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens		11-24-2004		
167		315	R25	70	B	**201**	INDALECIO ALVAREZ	1				1	1	1			907.32	1,298.19	23.93	414286.412	285744.991									10023744-00000 As. 1	Real Folio 06-003838-000	7,018.81	7,018.81	7,018.81	parcel of land 76/14, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens	It enjoys Transit Right of Way of 4 meters wide on parcel of land 76/15, 76/16, 76/19, 76/6, 76/5, 76/4.	09-27-1983	Domain Transfer	Registered owner, who states that although he has not granted deeds of property to his daughters ladies Filomena, Isabel Reyna, Mercedes, Marta, Adilia Carolina all of Alvarez last name. He has physically determined their share of the property. All potential owners have expressed disagreement with the project.
168		315	R25	523 (today 756)	B	**202**	INDALECIO ALVAREZ	1				1	1	1			3,672.46	5,254.56	99.52	414294.999	285722.838									10023665-00000 As. 1	Real Folio 06-003860-000	20,483.73	20,483.73	14,418.17	parcel of land 77/1 , denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens	It enjoys Transit Right of Way of 4 meters wide on the parcel of land 77/2, 77/3 and property of Manuel de Jesus Jiménez. Segregation by the south - east course, of 3,496 M2, registered with the registration number 10124781 - 00000, identified as parcel of land 514. Segregation parcel of land 755.	10-12-1999	Domain Transfer	Registered owner, who states that although he has not granted deeds of property to his daughters ladies Filomena, Isabel Reyna, Mercedes, Marta, Adilia Carolina all of Alvarez last name. He has physically determined their share of the property. All potential owners have expressed disagreement with the project.
169		315	R25	67	B	**203**	RAMON SALAMA JUAREZ	1				1	1	1	1	1	1,762.55	2,521.86	46.20	414319.748	285632.495	1	1	1		1	1			10003591-00000 As. 4	Real Folio 06-003859-000	13,515.33	13,515.33	13,515.33	parcel of land 77/26, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens	It enjoys Transit Right of Way of 4 meters wide on parcel of land 77/4, and property of Manuel de Jesus Jiménez; Also supports traffic right of way of 4 meters wide that is constituted on parcel of land 77/26 and 77/25.	05-08-1996		
170		315	R25	60	B	**204**	RAMON SALAMA JUAREZ	1				1	1	1	1	1	862.67	1,234.31	23.29	414319.919	285586.202	1	1	1		1	1			10005754-00000 As. 6	10005754-00000 As. 5	8,193.76	8,193.76	8,193.76	parcel of land 77/25, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens	It enjoys Transit Right of Way of 4 meters wide on the parcel of land 77/27, 77/4, and property of Manuel de Jesus Jiménez	03-16-2000		
171		315	R25	80	B	**205-1**	BENJAMIN AREVALO OSORIO	1				1	1	1	1	1	1,016.63	1,454.59	25.64	414351.276	285571.545	1	1	1				WEEK 30		10037175-00000 AS. 3	10037175-00000 AS. 1	3,513.16	3,513.16	3,513.16	parcel of land 77/27, Canton Las Tablas, Jurisdiction of Sonsonate, Department of Sonsonate	Rural	Liens with Traffic Right of Way	Liens with Transit Right of Way of 4 meters of width.	04-25-2000	RESOLVED Domain Transfer	07-07-2016. Closed negotiation. 05-12-2016. parcel of land 215, of Mr. Hidelfonso was eliminated, and the situation is lack of collaboration on the part of the possible heirs. This prevents the Domain Transfer from completing the Inheritance Acceptance Diligences.
172		315	R25	68	B	**206**	SANDOR NECTALI REYES SALAMA	1				1	1	1	1	1	3,350.86	4,794.41	93.46	414320.081	285542.182	1	1	1		1	1			10013521-00000 AS. 1	10013229-00000	10,499.88	10,499.88	10,499.88	In the denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens	It enjoys Transit Right of Way by the north course of 4 meters of width	07-10-1998		
173		315	R25	82	B	**207-1**	FELICIANO GUTIERREZ PEREZ	1				1	1	1	1	1	600.09	858.61	71.05	414358.337	285473.110	1	1	1		1	1			10003437-00000 AS. 8	10003437-00000 AS. 1	9,570.64	9,570.64	9,570.64	parcel of land 77/5, Canton Las Tablas, Jurisdiction of Sonsonate, Department of Sonsonate	Rural	Free of liens	Owner lives in San Luis La Herradura. Tel. 6184-9159 and 7925-3371	10-01-2003		
174		315	R25	74	B	**208**	FELICIANO GUITIERREZ PEREZ	1				1	1	1	1	1	1,109.78	1,587.88	37.70	414320.470	285437.016	1	1	1		1	1			10023757-00000 AS.5	10023757-00000 AS. 1	3,874.94	3,874.94	3,874.94	parcel of land 75/53, was part of Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens	Owner lives in San Luis La Herradura. Tel. 6184-9159 and 7925-3371	12-29-2009		
175		315	R25	69	B	**209**	MARIA DELFINA OSORIO DE AREVALO	1				1	1	1	1		1,583.27	2,265.34	67.44	414320.639	285391.072	1	1							10023738-00000 AS.6	10023738-00000 AS.5	6,787.47	6,787.47	6,787.47	Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens		01-10-2014	Power of attorney special	Owner resides in USA. Mr. Carlos Osorio told us that the possible attorney will be Benjamin Osorio
176		315	R25	81	B	**210**	GABRIEL PIECHO REYES	1				1	1	1	1		855.17	1,223.58	57.26	414320.875	285327.087	1	1	1		1		WEEK 30		10023957-000000	06-003833-000	3,883.57	3,883.57	3,883.57	parcel of land 77/6, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens		09-27-1983		
177		315	R25	87 (today 691)	B	**211**	BENJAMIN AREVALO OSORIO	1				1	1	1	1		1,976.81	2,828.41	51.56	414320.875	285327.087	1	1	1		1		WEEK 30		10080418-000000	71 BOOK 1008	6,994.31	6,994.31	6,994.31	Hacienda Santa Clara, Canton Las Tablas. Jurisdiction and Department of Sonsonate	Rural	Free of liens		01-14-2011		
178		315	R25	72	B	**212**	BENJAMIN AREVALO OSORIO	1				1	1	1	1	1	3,568.53	5,105.86	91.67	414320.986	285297.048	1	1	1		1	1	WEEK 31		10080417-000000	70 BOOK 1008	23,600.00	23,600.00	23,600.00	Place know as Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens		10-05-1994		
179		315	R25	77	B	**213**	BLANCA ZOILA MENDEZ DE CRESPIN	1				1	1	1	1	1	5,157.93	7,379.96	138.29	414321.373	285167.770	1	1	1		1	1	WEEK 31		10002492-000000 AS.10	10002492-000000 AS.9	15,672.28	15,672.28	15,672.28	parcel of land 77/45, denominated Hacienda Santa Clara, Canton Las Tablas. Jurisdiction and Department of Sonsonate	Rural	Free of liens		03-17-2014		
180		315	R25	79	B	**216-1**	SONIA ELIZABETH OSORIO	1				1	1	1	1	1	1,597.00	2,284.99	45.81	414337.203	285051.088	1	1	1		1	1	WEEK 31		10071115-00000 AS. 1	81 BOOK 770	7,000.00	7,000.00	7,000.00	Located in the Jurisdiction and Department of Sonsonate, dismembered from lot 17, of the Río San Pedro Secton, of the Santa Clara Lotification.	Rural	Free of liens		02-26-1990		
181		315	R25	76	B	**216-2**	JUAN DE JESUS ROSA	1				1	1	1	1	1	144.50	206.75	20.16	414368.970	285008.723	1	1	1		1	1	WEEK 31		10071165-00000 AS.3	10071165-00000 AS.2	7,000.00	7,000.00	7,000.00	Located in the Jurisdiction and Department of Sonsonate, dismembered from another to the south-east course.	Rural	Free of liens		08-24-2007		
182		315	R25	90	B	**217**	ALBA JANETH ELENA DE PEREZ		1			1	1	1	1	1	1,971.76	2,821.19	51.74	414387.332	284984.237	1	1							10023576-00000 AS. 9	10023576-00000 AS.6	13,298.87	13,298.87	13,298.87	parcel of land 79/13, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens		05-04-2011	Power of attorney special	Owner lives in the USA.
183		315	R25	88	B	**218**	CESAR DOUGLAS MIRANDA RAMIREZ	1				1	1	1	1	1	2,845.67	4,071.59	74.75	414398.345	284969.551	1	1	1		1	1	WEEK 31		10023577-00000 AS.12	10023577-000000 AS.9	11,264.42	11,264.42	11,264.42	parcel of land 79/12, Belonged to the denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens		01-07-2016		Legal problem free
184		315	R25	568	B	**219**	PEDRO ANTONIO CASTILLO RIVAS	1				1	1	1	1	1	10,782.88	15,428.15	283.90	414426.956	284899.849	1	1							10139686-000000 AS.3	10139686-00000 AS 1	163,479.5772	163,479.5772	163,479.5772	Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	Free of liens		01-08-2004	Power of attorney special	07-07-2016. It will not have power, it will come in September. Owner in USA
185		315	R25	569	B	**220**	ELSA GUADALUPE ESTRADA, VICTOR MANUEL ESTRADA AND JOSE ALFREDO ESTRADA		1			1	1	1	1	1	17,231.47	24,654.79	453.46	414342.805	284628.109	1								10093414-00000 AS. 1 AND 3	10093414-00000 AS. 1	308,000.00	308,000.00	308,000.00	Segregated from lots numbers eighteen B, nineteen, twenty and twenty-one, from the Río San Pedro Section, Jurisdiction and Department of Sonsonate	Rural	Free of liens		10-06-1998 18-07-2007	Power of attorney special	Owners do not agree with project, unless it is monthly payment in the time that the right of way lasts.
186		315	R24	60	B	**221**	ELSA GUADALUPE ESTRADA, VICTOR MANUEL ESTRADA AND JOSE ALFREDO ESTRADA		1			1	1	1	1	1	3,863.42	5,527.78	101.58	414186.951	284213.527	1								10004683-00000 AS. 1	48 BOOK 1235	110,950.00	110,950.00	110,950.00	Located in Hacienda Santa Clara, marked with the number 55, Section Montaña Verde, Jurisdiction and Department of Sonsonate.	Rural	Liens with Mortgage	Property Liens with second mortgage in favor of Claudio Bautista, amount: $ 5,000.00; Term: 6 months, interest: 3% monthly; Beginning of liens: 04-26-2006	06-10-1998	Power of attorney special	Owners do not agree with project, unless it is monthly payment in the time that the right of way lasts.
187		315	R24	45	B	**222**	MILTON ADELMO SORIANO CACERES	1				1	1	1	1	1	4,031.48	5,768.24	106.16	414103.937	284127.864	1	1	1						10113253-00000 As. 3	Real Folio 06-003989-000	29,050.00	29,050.00	29,050.00	parcel of land 127/1, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Rural	RESOLVED Liens with Mortgage	In process of mortgage cancellation. Lien with first Open Mortgage in favor of Banco Procredit, S.A. ; Amount: $ 17,000.00; Term: 120 months; Start date: 04/30/07; Inscribed to seat 5. It was modified according to seat 6, extending the period of 5 more years, ending on 04/10/22	10-22-2002		
188		315	R24	189	B	**223**	TRINIDAD SEGOVIA DIAZ	1				1	1	1	1	1	5,293.26	7,573.60	139.21	414057.115	284029.808									10119932-00000 AS. 1	10013438-00000	21,000.00	21,000.00	21,000.00	Lot 54-A, Sección Montaña Verde, Hacienda Santa Clara, Jurisdiction and Department of Sonsonate	Rural	Free of liens		04-02-1969	Power of attorney special	Owner resides in USA. Possible attorney Ramón Segovia Ocotán.
189		315	R24	37	B	**224**	RAUL SEGOVIA	1				1	1	1	1	1	4,724.70	6,760.10	126.16	413998.250	283906.533	1	1	1		1	1	WEEK 30		10009008-00000 AS. 9	10009008-00000 AS. 8	13,581.27	13,581.27	13,581.27	Identified with Number 54, Section Montaña Verde, de la Hacienda Santa Clara, Jurisdiction and Department of Sonsonate	Rural	Free of liens		05-23-2016	RESOLVED Domain Transfer	5/23/2016. Purchase deeds were signed. Mr. Raúl Segovia showed a power of attorney special in his favor granted by the owner in which it empowers him to sell, likewise, the agent proclaims that he will make sale in favor of one of his children of that property, since it belonged to him and only He transferred it in favor of Mrs. Dora Alicia Segovia so that she could obtain a credit in the BFA that according to him still pending payment. Registralmente the property is free of liens.
190		315	R24	33	B	**225**	ISAIAS RAMOS MANGANDI	1				1	1	1	1	1	16,836.64	24,089.86	444.61	413948.625	283790.465	1	1							10068989-00000 AS.2	10068989-00000 AS.1	81,118.02	81,118.02	81,118.02	Lot number one, of the section Montaña Verde, of the Hacienda Santa Clara. Jurisdiction and Department of Sonsonate	Rural	Free of liens		04-19-2004	RESOLVED Power of attorney special	Owner resides in USA, but visits the country regularly. Social area already has telephone contact.
191		315	R24	35 (today 235)	B	**226**	SUCCESSION JOSE LUIS ARCIA GARCIA (Possible Heirs: MARIA LUPA NAVARRETE DE ARCIA)	1				1	1	1	1	1	10,151.85	14,525.27	268.77	413927.850	283360.330	1	1	1	1			WEEK 30		10079094-00000 AS.3	10079094-00000 AS. 2	34,625.36	34,625.36	34,229.82	Canton Santa Emilia, Was part of Lot Number Four, Section El Cafetal, Hacienda Santa Clara - Santa Emilia, Jurisdiction and Department of Sonsonate	Rural	Free of liens		11-11-2003	Inheritance Acceptance Diligences	Causing died 5 years ago in Sonsonate. The spouse has not started Inheritance Acceptance Diligences. Called to happen spouse, mother of the deceased, three children of legal age and a minor child. The spouse of Causante María Navarrete, telephone, provided the telephone. 7710-5512.
192		315	R24	39	B	**226-A**	EBERARDO JIMENEZ PEREZ Y ROGELIO PEREZ JIMENEZ	1				1	1	1	1	1	2,105.31	3,012.28	59.82	413999.840	283118.840	1	1	1		1	1			10074974-00000 AS. 2	10074974-00000 AS. 1	10,500.00	10,500.00	10,500.00	Lot number 24, Section El Cafetal, Hacienda Santa Clara, Jurisdiction and Department of Sonsonate	Rural	Free of liens		05-17-2007		Legal problem free
193		315	R24	38	B	**227**	ROSALIO RAMOS MANGANDI	1				1	1	1	1	1	13,608.57	19,471.14	357.47	413982.930	283026.018	1	1							10146096-00000 AS. 2	10146096-00000 AS. 1	70,252.13	70,252.13	70,252.13	Canton Las Tablas, Caserío El Cafetal, Jurisdiction and Department of Sonsonate	Rural	Free of liens		01-17-2008	RESOLVED Power of attorney special	Owner in USA. It will be necessary to obtain Power of attorney special and it is presumed that will be in favor of Enrique Ramos. Spouse of Mr. Enrique provided cell number 7106-5679
194		315	R24	31	B	**228**	ISABEL GALICIA PEREZ	1				1	1	1			234.45	335.45	19.12	414027.364	282677.317	1	1	1				WEEK 30		10044863-00000	10044863-00000	35,000.00	35,000.00	35,000.00	Lot 2, Section El Cafetal, Jurisdiction and Department of Sonsonate	Rural	Free of liens		06-19-2016	RESOLVED Domain Transfer	Domain Transfer will be made to Isabel Galicia Pérez.
195		315	R24	34	B	**229**	ANIBAL DE JESUS SEGOVIA LEIVA AND ISIDRO JESUS LEIVA	1				1	1	1	1	1	3,255.30	4,657.68	87.31	414029.781	282658.355	1	1	1		1				10065836-00000 AS,4	10065836-00000 AS.1	35,000.00	35,000.00	35,000.00	Lot Number 3, Section El Cafetal, Hacienda Santa Clara, Jurisdiction and Department of Sonsonate.	Rural	Free of liens		11-23-2004		Legal problem free
196		315	R24	36	B	**230**	JOSE FIDENCIO SEGOVIA	1				1	1	1	1	1	2,263.58	3,238.73	59.57	414040.926	282570.891	1	1	1		1	1	WEEK 31		10060537-00000	90 BOOK 433	27,039.0034	27,039.0034	27,039.0034	Lot Number 4-A, Section El Cafetal, Hacienda Santa Clara, Jurisdiction and Department of Sonsonate	Rural	Free of liens	parcel of land 36 is divided into two properties	01-12-1978		No legal problem will be dealt with Mr. Fidencio. In a field visit made on 12/09/15 the owner stated that his son Aníbal de Jesús Segovia is doing the topographical survey to begin the process of partition in favor of all the children of the owner. In the Place telephone was spoken with Mr. Aníbal and he promised to provide digital archive of the survey once it has. This will be until the end of January 2016.
197		315	R24	36	B	**231**	JOSE FIDENCIO SEGOVIA	1				1	1	1	1	1	2,630.10	3,763.15	69.22	414048.400	282512.244	1	1	1		1	1	WEEK 31		10060538-00000	90 BOOK 433	35,736.0020	35,736.0020	35,736.0020	Lot Number 4-B, Section El Cafetal, Hacienda Santa Clara, Jurisdiction and Department of Sonsonate	Rural	Free of liens	parcel of land 36 is divided into two properties	01-12-1978		No legal problem will be dealt with Mr. Fidencio. In a field visit made on 12/09/15 the owner stated that his son Aníbal de Jesús Segovia is doing the topographical survey to begin the process of partition in favor of all the children of the owner. In the Place telephone was spoken with Mr. Aníbal and he promised to provide digital archive of the survey once it has. This will be until the end of January 2016.
198		315	R23	1 2 today 871	B	**232**	PRODUCTORA SALVADOREÑA DE CONCENTRADOS S.A DE C.V.		1			1	1	1	1	1	54,561.68	78,066.85	1,448.29	414057.182	282443.325	1								10039494-00000 AS. 21	10039494-00000 AS. 15	1,635,064.98	1,635,064.98	1,345,886.85	Jurisdiction of Acajutla y Sonsonate, Department of Sonsonate	Rural	Free of liens	2 Segregations: 10196264-00000. parcel of land 870, map 0315r23 and 10196265-00000. parcel of land 608, map 0301r14	10-25-2012		Legal problem free
199		301	R14	200	B	**235-1**	MILTON BENITEZ Y BENITEZ		1			1	1	1	1	1	13,060.44	18,686.88	345.62	414072.008	281067.291	1								10064377-00000 AS. 1	23 BOOK 571	288, 245.07	288, 245.07	288, 245.07	Hacienda Jordania, Lot N° 2, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens, Presentations pending registration.	Presentation 20020300376, sale in favor of Carmen Elena Sosa de Benitez. Observed because the property had lien. Since 03-19-02.	10-02-1981		Pending registration for sale in favor of Carmen Elena Sosa de Benitez. Seller: Milton Benitez y Benitez (deceased)
200	ACAJUTLA	301	R13	40	B	**236**	ROSARIO DEL CARMEN RIVERA FUNES	1				1	1	1	1	1	15,431.27	22,079.06	406.94	414184.520	280691.946	1	1	1		1	1	WEEK 30		10093109-00000 AS 1	73 BOOK 1264	142, 363.55	142, 363.55	142, 363.55	Lot ONE B, Hacienda Jordania, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Traffic Right of Way		05-20-1998		Legal problem free
201		301	R13	99	B	**237**	ROSARIO DEL CARMEN RIVERA FUNES	1				1	1	1	1	1	11,736.60	16,792.73	308.76	414237.857	280252.421	1	1	1		1	1			10064378-00000 AS. 8	10064378-00000 AS. 7	104, 836.45	104, 836.45	104, 836.45	Lot ONE A, Hacienda Jordania, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Traffic Right of Way and aqueduct	Right of Way of Aqueduct in favor of Tomás Palomo from 07-10-1943.	04-01-2016		Legal problem free
202		301	R13	233	B	**239**	JOSE MANUEL RIVERA FUNES	1				1	1	1	1	1	7,347.97	10,513.48	193.75	414301.278	279949.964	1	1	1		1				10202438-00000	86 BOOK 581	201,156.46		127,656.46	Lot ONE A, Hacienda El Coyol, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with aqueduct Right of Way	Segregation to the North Route of 70,000, which was later divided into 2 one of 25 areas (10091024-0000) and the rest 10072440. Another segregation 3,500.00	07-10-1981		Legal problem free
203		301	R13	105	B	**240**	INVERSIONES AGROPECUARIAS DE OCCIDENTE, S.A. DE C.V.	1				1	1	1	1	1	24,178.00	34,593.88	636.53	414335.418	279787.151	1								10068706-00000 AS. 8	10068706-00000 AS. 7	349,208.17	349,208.17	349,208.17	Lot Number two, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Mortgage and Right of Way of Aqueduct and Transit	Property Lien with First Mortgage, in favor of María Magdalena Cárcamo Rodríguez amount with modification: $ 375,000.00; Term: 36 months; Interest: 12% per annum, beginning of lien: 04-11-2013.	04-11-2013		Partial lien deduction
204		301	R13	43 (today 2536)	B	**241-A**	INVERSIONES AGROPECUARIAS DE OCCIDENTE, S.A. DE C.V.	1				1	1	1	1	1	6,453.80	9,234.10	169.84	414467.786	279155.890	1								10189780-00000 AS. 1	10065047-00000	28,262.30	28,262.30	28,262.30	Canton El Coyol, Portion number two, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Mortgage	New parcel of land segregated from the 43. Property lien with First Mortgage, in favor of María Magdalena Cárcamo Rodríguez amount with modification: $ 375,000.00; Term: 36 months; Interest: 12% per annum, beginning of Lien: 11-04-2013.	04-11-2013		Partial lien deduction
205		301	R13	43 (today 2537)	B	**241-B**	INVERSIONES DK, S.A. DE C.V.	1				1	1	1	1	1	6,814.05	9,749.54	179.38	414502.211	278991.718	1								10065047-00000 as. 7	10065047-00000 as. 5	47,832.31	183,729.30	47,832.33	It formed part of the marking in its antecedent like LOT NUMBER THREE, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Aqueduct and Transit	According to registration information the property is Free of liens. But the document details that it is lien with Right of Way of Aqueduct and Transit.	12-20-2013		For notification
206		301	R13	39	B	**242**	ELBA GLADIS IRAHETA DE ESCOBAR		1			1	1	1	1	1	17,380.67	24,868.26	458.00	414452.535	278825.553	1								10062674-00000 as. 1	63 BOOK 514	174,604.085	174,604.085	174,604.085	Lot numer one, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Aqueduct and Transit	2 Right of Way of Aqueduct: 1) in favor of Tomás Palomo from 10-07-1943 and 2) in favor of Soc. Eduardo Shonemberg y Compañía from 07-04-1972. Traffic Right of Way. 1) It falls on Hacienda Santa Clara and Santa Emilia from 04-01-1949 and 2) 9 meters wide in favor of Hacienda Santa Clara from 03-07-1973.	05-29-1981		For notification
207		301	R13	37	B	**243**	HECTOR ALFREDO DUEÑAS AND DEYSI NERIZ TURCIOS DE DUEÑAS		1			1	1	1	1	1	6,261.66	8,959.18	95.86	414224.921	278430.703									10068756-00000	44 BOOK 705	174,604.085	174,604.085	174,604.085	Lot number two, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Aqueduct and Transit	2 Right of Way of Aqueduct: 1) in favor of Tomás Palomo from 10-07-1943 and 2) in favor of Soc. Eduardo Shonemberg y Compañía from 07-04-1972. Traffic Right of Way. 1) It falls on Hacienda Santa Clara and Santa Emilia from 04-01-1949 and 2) 9 meters wide in favor of Hacienda Santa Clara from 03-07-1973.	09-30-1986		For notification
208		301	R13	32	B	**244**	OSCAR MANUEL GUTIERREZ ROSALES	1				1	1	1	1	1	6,880.21	9,844.20		414134.084	278273.126	1								10024348-000000	41 BOOK 558	533,114.07	533,114.07	533,114.07	Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Transit	In a belt 12 meters wide by 300 meters long, located on the last section of the west course.	05-31-1983		For notification
209		301	R12	3977 today 4189	B	**245**	LEMAZA S.A. DE C.V.	1				1	1	1	1	1	7,744.56	11,080.92	209.03	414121.155	278057.302	1								10046230-00000 AS. 15	10046230-00000 AS. 1	63,413.20	65,682	63,413.20	In the place denominated La Majada, was part of the Hacienda denominated "La Yuca", Jurisdiction of Acajutla, Department of Sonsonate	Rural	Free of liens		02-25-2011		Legal problem free

IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.																				
SYMBOLS OF LEGAL TYPING:	Resolved Cases				Resolution period not exceeding 6 months					Resolution period not exceeding 10 months		Resolution period not exceeding 11 months		Complex legal situation						
	Enrollment or Registration	Pre antecedent	Area according to Document M²	Area according to System M²	Rest Registral M²	Property Location					Nature of the property	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems				
165	10025176-00000 as. 5	10025176-00000 as. 1	13,741.21	13,741.21	13,741.21	parcel of land 76/16, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate					Rural	Free of liens		10-28-2002						
166	10024669-00000 As. 5	10024669-00000 As. 3	9,875.78	9,875.78	9,875.78	parcel of land 76/15, denominated La Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate					Rural	Free of liens		11-24-2004						
167	10023744-00000 As. 1	Real Folio 06-003838-000	7,018.81	7,018.81	7,018.81	parcel of land 76/14, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate					Rural	Free of liens	It enjoys Transit Right of Way of 4 meters wide on parcel of land 76/15, 76/16, 76/19, 76/6, 76/5, 76/4.	09

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: ¨GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA¨

No. Correlative	GENERAL DATA ON PROPERTY AFFECTED							FEASIBILITY STAGE				TECHNICAL DATA OF AREAS OF RIGHT OF WAY										PROGRESS IN THE MANAGEMENT OF NEGOTIATION, PAYMENT AND SCRIPTURE OF THE RIGHT OF WAY (Related data with plane PDF)				PROGRESS IN THE PRESENTATION AND REGISTRATION OF RIGHT OF WAY		ADVANCE OR WEEKLY UPDATE	COMMENTS
	CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			PROJECT INFORMATION AND AUTHORIZATION FOR PRELIMINARY STUDIES				DEFINITION AND APPROVAL OF THE RIGHT OF WAY AREA					AFFECTED AREA		LENGTH OF AFFECTION	COORDINATES									
	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	WRITTEN AUTHORIZATION	VERBAL AUTHORIZATION	NO STATEMENT	NO COLLABORATION TO THE PROJECT	CADASTRAL LOCATION GENERAL PROPERTY	TOPOGRAPHIC SURVEY IN DETAIL	FRAME PLAN OF RIGHT OF WAY	CADASTRE PLAN PRESENTED-CNR	CADASTRE PLAN APPROVAL-CNR	M²	V²	M	X	Y	NOTIFIED (Including closed and pending negotiations)	CLOSED NEGOTIATION	PAYMENT AND SCRIPTURE	CASES IN WHICH CONSTITUTION PROMISE WAS SIGNED	SCRIPTURE PRESENTED AT CNR	REGISTERED AND WITHDRAWAL (Right of Way registered and in power of EDP)		
210	ACAJUTLA	301	R12	1267	B	**246**	PETRONA QUINTANILLA DE RIVAS		1			1	1	1			395.25	565.52	10.23	414283.708	277910.861	1							
211		301	R12	1325 and 1326 today 4232	C	**247**	SIMON PEDRO VARELA TABLAS		1								14,205.31	20,324.95	373.56	414302.065	277838.043								
212		301	R12	1335	C	**248**	SIMON PEDRO VARELA TABLAS		1								25,635.42	36,679.16	674.88	414303.766	277747.580								
213		301	R12	1334	C	**250**	LUZ DE MARIA VARELA DE SUVILLAGA		1								11,880.58	16,998.74	312.65	414114.575	276934.282								
214		301	R12	1333	C	**251**	SIMON PEDRO VARELA TABLAS		1								9,645.36	13,800.57	253.83	413989.872	276638.202								
215		301	R12	3972 today 1332	C	**252**	ANA SILVIA LACAYO DE VARELA		1								7,634.88	10,923.98	200.92	413890.690	276402.717								
216		301	R12	4016	C	**253**	TOMAS MOLINA FLORES		1			1					3,943.29	5,642.06	103.77	413810.565	276212.480								
217		301	R12	4731	C	**254**	TOMAS MOLINA FLORES		1			1					1,355.74	1,939.79	35.68	413770.265	276116.799								
218		301	R12	4732	C	**255**	VICTOR MANUEL ESCOBAR MENDEZ		1			1					1,151.15	1,647.06	30.29	413756.702	276084.596								
219		301	R12	4018	C	**256**	MOISES HERNANDEZ ESTRADA	1				1					1,044.78	1,494.87	27.49	413744.667	276056.024								
220		301	R12	4019	C	**257**	NANCY EVELYN BAUTISTA JOVEL	1				1					1,020.23	1,459.74	26.85	413733.995	276030.685								
221		301	R12	4020	C	**258**	NANCY EVELYN BAUTISTA JOVEL	1				1					942.10	1,347.96	24.12	413723.574	276005.942								
222		301	R12	4021	C	**259**	MOISES HERNANDEZ ESTRADA	1				1					888.11	1,270.70	23.37	413713.950	275983.094								
223		301	R12	4022	C	**260**	JOSE ARTURO FLORES		1			1					818.82	1,171.57	21.55	413704.871	275961.537								
224		301	R12	4023	C	**261**	JOSE ARTURO FLORES		1			1					804.25	1,150.72	21.16	413696.515	275941.697								
225		301	R12	4024	C	**262**	JOSE ARTURO FLORES		1			1					809.52	1,158.25	21.30	413688.299	275922.192								
226		301	R12	4025	C	**263**	JOSE ARTURO FLORES		1			1					808.42	1,156.68	21.27	413680.026	275902.550								
227		301	R12	4026	C	**264**	JOSE ARTURO FLORES		1			1					839.98	1,201.84	21.10	413671.772	275882.954								
228		301	R12	4027	C	**265**	OSCAR ARMANDO JIMENEZ		1			1					841.99	1,204.72	21.16	413663.192	275862.582								
229		301	R12	4028	C	**266**	OSCAR ARMANDO JIMENEZ		1			1					820.75	1,174.33	21.60	413654.591	275842.162								
230		301	R12	4029	C	**267**	OSCAR ARMANDO JIMENEZ AND LUCIA ESTELA PAZ DE JIMENEZ		1			1					790.57	1,131.15	20.80	413646.207	275822.257								
231		301	R12	4122	C	**268**	OSCAR ARMANDO JIMENEZ AND LUCIA ESTELA PAZ DE JIMENEZ		1			1					785.82	1,124.35	20.68	413638.125	275803.066								
232		301	R12	4123	C	**269**	FRANCISCO ADAN CERON CORTEZ	1				1					541.32	774.51	14.40	413630.103	275784.021								
233		301	R12	1246	C	**270**	DOUGLAS JONATAN SOLORZANO SALAZAR				1						7,601.34	10,876.00	211.12	413598.685	275709.428								
234		301	R11	222	C	**271**	MARIA CONCEPCION MENJIVAR ORELLANA			1							3,023.97	4,326.70	79.41	413532.745	275552.874								
235		301	R11	223	C	**272**	JOSE MARIA CHAVEZ	1									2,317.32	3,315.62	68.03	413500.207	275475.621								
236		301	R11	224	C	**273**	JOSE MARIA CHAVEZ	1									2,279.21	3,261.10	59.98	413473.801	275412.927								
237		301	R11	225	C	**274**	ADRIAN CALDERON		1								690.05	987.32	18.56	413450.519	275357.651								
238		301	R11	727	C	**275**	NAPOLEON HUEZO	1				1					245.33	351.02	6.08	413441.766	275339.019								
239		301	R11	732	C	**276**	APOLINARIO GARCIA	1				1					5,047.61	7,222.12	133.27	413435.925	275323.003								
240		301	R11	834	C	**277**	BLANCA LIZZETTE UMAÑA			1		1					3,418.53	4,891.23	83.38	413380.885	275192.327								
241		301	R11	814	C	**278**	NICOLASA CAMPOS DE GUTIERREZ	1				1					3,529.83	5,050.49	100.19	413348.274	275114.900								
242		301	R11	778	C	**279**	ISTA				1	1					1,226.35	1,754.66	30.71	413299.358	274998.765								
243		301	R11	785	C	**279-A**	NAPOLEON HUEZO	1				1					1,276.47	1,826.38	32.93	413310.756	275013.744								
244		301	R11	784	C	**280**	EDGAR EFRAIN SANCHEZ AND JUANA FRANCISCA SANCHEZ CAMPOS	1				1					7,516.52	10,754.63	197.87	413265.415	274918.178								
245		301	R11	783	C	**281**	ERMELINDA OSORIO DE GOMEZ, SAMUEL ELOP GOMEZ OSORIO	1				1					6,106.35	8,736.96	160.63	413126.984	274630.033								
246		301	R11	782	C	**282**	PEDRO ISRAEL HERNANDEZ TREJO	1				1					1,899.36	2,717.60	51.75	413089.591	274567.932								
247		301	R11	274	C	**282-A**	ROGELIO HERNANDEZ DIAZ AND ANTONIA CATALINA TREJO DE HERNANDEZ	1									352.61	504.51	37.33	413094.482	274540.530								
248		301	R11	273	C	**283**	DINA DEL CARMEN VAZQUEZ AND VICTOR MANUEL CARDONA RODRIGUEZ	1									6,114.54	8,748.68	167.90	413080.246	274552.412								
249		301	R11	291	C	**284**	ISTA				1						909.88	1,301.85	22.79	412931.075	274488.406								
250		301	R11	787	C	**285**	MARIA IRMA BERNAL DE GUEVARA			1		1					1,174.32	1,680.22	32.30	412872.669	274472.351								
251		301	R11	367	C	**286**	JOSE LUIS FRANCO JIMENEZ			1							868.16	1,242.16	38.36	412818.796	274458.332								
252		301	R11	366	C	**286-A**	RAFAEL EVARCISTO AGUILAR	1									644.49	922.13	43.57	412819.680	274441.457								
253		301	R11	305	C	**286-B**	CARLOS HUMBERTO MACAY GRANADOS	1									6,170.91	8,829.34	157.83	412644.932	274423.248								
254		301	R11	306	C	**286-C**	APOLINARIO GARCIA AND MARIA DEL CARMEN CARRANZA DE GARCIA	1									6,014.70	8,605.83	163.23	412486.763	274391.331								

No. Correlative	IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.											
	SYMBOLS OF LEGAL TYPING:	Resolved Cases			Resolution period not exceeding 6 months		Resolution period not exceeding 10 months		Resolution period not exceeding 11 months		Complex legal situation	
	Enrollment or Registration	Pre antecedent	Area according to Document M²	Area according to System M²	Rest Registral M²	Property Location	Nature of the property	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
210	10035323-00000 AS. 9	10035323-00000 AS. 8	572.00	572.00	572.00	Lot number four, polygon number 13, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Mortgage	Property Lien with First Mortgage, in favor of the Caja de Crédito de Acajutla, Sociedad Cooperativa de R.L. de Capital Variable; Amount; $ 16,000.00; Term: 240 months; Interest: 15% per year on balance; Beginning of liens: 12-02-2015.	12-02-2015	Power of attorney special	Owner lives in Canada. Mr. Wuilfin was handed power format, because he will be processed in Canada until July. But if it is necessary before the management will be done according to a possible proxy.
211	10191843-00000 AS. 2	10191843-00000 AS. 1	245,336.19	92,347.50	245,336.19	Caserío la Nueva, Canton San Julián, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL. Before parcel of land: 1325 and 1326	11-14-2013		
212	10137883-00000 AS. 3	10137883-00000 AS. 1	361,576.89	361,576.89	361,576.89	PORTION 4, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	11-17-2014		
213	10137882-00000 AS. 3	10137882-00000 AS. 1	180,788.45	180,788.45	180,788.45	PORTION 3, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	11-19-2014		
214	10137881-00000 AS. 6	10137881-00000 AS. 5	180,788.45	180,788.45	180,788.45	PORTION 2, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	02-13-2015		
215	10137880-00000 AS.6	10137880-00000 AS.5	180,742.76	180,742.76	179,773.68	PORTION 1, Jurisdiction of Acajutla, Department of Sonsonate	Rural	Liens with Right of Way of Electroduct	Property liens with right of way of electricity conduit in favor of CEL. The First Usufructuary and the second Nude Owner each of 100% of the right.	02-22-2016		
216	10145302-00000 AS. 5	10145302-00000 AS. 4	19,939.34	19,939.34	19,939.34	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 14, lot 10, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		12-02-2014		Visited, Legal problem free
217	10199359-00000 as. 1	10145303-00000	8,572.33	8,572.33	8,572.33	Hacienda San Jorge, Kilo 5, Lotification Agrícola, Pol. 14, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		06-09-2015		Visited, Legal problem free
218	10145303-00000 AS. 5	10145303-00000 AS. 4	16,834.97	16,834.97	8,262.64	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 14, lot 11, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		01-19-2015	Domain Transfer	The name of the new owner will be consulted with neighbors
219	10145214-00000 AS. 5	10145214-00000 AS. 4	7,169.93	7,169.93	7,169.93	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 1, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Liens with Mortgage	Property liens with First Mortgage in favor of Archimedes Hamilton Pineda Urías and Ofilia Urías Sánchez; Amount: $ 9,500.00; Term: 24 months; Beginning of Lien: 04/23/2015	01-19-2015		Visited, Legal problem free
220	10145215-00000 AS. 5	10145215-00000 AS.4	7,174.20	7,174.20	7,174.20	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 2, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		01-19-2015		Visited, Legal problem free
221	10145216-00000 AS. 5	10145216-00000 AS.4	7,143.84	7,143.84	7,143.84	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 3, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		05-08-2013		Visited, Legal problem free
222	10145217-00000 AS. 4	10145217-00000 AS.3	7,156.56	7,156.56	7,156.56	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 4, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		02-06-2013		Visited, Legal problem free
223	10145218-00000 AS.4	10145218-00000 AS.3	7,096.37	7,096.37	7,096.37	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 5, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		11-30-2012		Visited, Legal problem free
224	10145219-00000 AS.4	10145219-00000 AS.3	7,104.36	7,104.36	7,104.36	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 6, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		11-30-2012		Visited, Legal problem free
225	10145220-00000 AS.4	10145220-00000 AS.3	7,125.46	7,125.46	7,125.46	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 7, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		11-23-2012		Visited, Legal problem free
226	10145221-00000 AS.4	10145221-00000 AS. 3	7,089.69	7,089.69	7,089.69	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 8, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		11-23-2012		Visited, Legal problem free
227	10145222-00000 AS.4	10145222-00000 AS.3	7,136.57	7,136.57	7,136.57	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 9, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		11-23-2012		Visited, Legal problem free
228	10145223-00000 AS.5	10145223-00000 AS.4	7,152.09	7,152.09	7,152.09	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 10, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		02-21-2013	Power of attorney special	Owner in USA Responsible for the land Mr. José Arturo Flores, said that he has power, which will be provided in the course of the project.
229	10145224-00000 AS.5	10145224-00000 AS.4	7,137.29	7,137.29	7,137.29	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 11, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		02-21-2013	Power of attorney special	Owner in USA Responsible for the land Mr. José Arturo Flores, said that he has power, which will be provided in the course of the project.
230	10145225-00000 AS.5	10145225-00000 AS.4	7,154.15	7,154.15	7,154.15	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 12, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		08-19-2010	Power of attorney special	Both owners reside in EE. UU. Power must be obtained from the Mrs. Jiménez. In charge of the land Mr. José Arturo Flores, he said that he has Mr. Jiménez's power, which will be provided to us during the project.
231	10145226-00000 AS.5	10145226-00000 AS.4	7,116.28	7,116.28	7,116.28	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 13, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		08-19-2010	Power of attorney special	Both owners reside in EE. UU. Power must be obtained from the Mrs. Jiménez. In charge of the land Mr. José Arturo Flores, he said that he has Mr. Jiménez's power, which will be provided to us during the project.
232	10145227-00000 AS.4	10145227-00000 AS.2	7,137.81	7,137.81	7,137.81	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 14, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		01-19-2016		
233	10042333-0000'0 AS. 3	10042333-00000 AS. AS.2	329,691.81	329,691.81	329,691.81	Hacienda Kilo 5, Portion B, Hacienda Las Mercedes, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		07-15-2003		The property was visited, no owner was found,
234	10110559-00000 AS.15	10110559-00000 AS.5	22,039.37	22,039.37	22,039.37	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 6, lot 5, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	08-27-2011	Power of attorney special	Owner in USA. José Adán Menjívar who is the brother of the owner was not found on the property. Information was left with the head of the Hacienda. Dangerous zone by criminal groups.
235	10110558-00000 AS. 6	10110558-00000 AS.4	22,180.02	22,180.02	22,180.02	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 6, lot 4, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	02-11-2002		Owner was not found, already visited by another affected parcel of land in previous design proposal. It will be visited on December 30 to discuss the new parcel of land affected. It was re-visited on the 30th and granted permission for new parcel of land affected. No legal problem.
236	10110557-00000 as.4	10110557-00000 as.1	22,233.94	22,233.94	22,233.94	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 6, lot 3, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	01-24-2001		Owner was not found, already visited by another affected parcel of land in previous design proposal. It will be visited on December 30 to discuss the new parcel of land affected. It was re-visited on the 30th and granted permission for new parcel of land affected. No legal problem.
237	10110555-00000 AS.4	10110555-00000 AS.3	22,865.01	22,865.01	22,865.01	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 6, lot 1, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		07-25-2001		Owner resides in San Salvador, contacted without legal problem
238	10145245-00000 AS. 2	10145245-00000 AS. 1	7,327.42	7,327.42	7,327.42	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, Lot 32, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		08-17-2005		Visited, Legal problem free
239	10145250-00000 AS. 2	10145250-00000 AS. 1	7,175.81	7,175.81	7,175.81	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, Lot 37, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		08-17-2005		Visited, Legal problem free
240	10182941-00000 AS. 7	10182941-00000 AS. 2	21,223.06	28,434.90	21,223.06	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 12, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Liens with Mortgage	Lien with First Mortgage Opened to Banco Procredit, S.A.; Amount: $ 28,000.00; Term: 240 months; Start date: 02/29/2016; Inscribed to seat 8.	02-29-2016		New owner. Owner lives in the USA. The land manager, Mr. Victor Manuel Cruz, stated that he did not have a contact number, and she is the one who communicates with Mr. Víctor.
241	10189040-00000 AS. 1	10182941-00000	6,506.88	6,506.88	6,506.88	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Portion 3, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		09-01-2012		Visited, Legal problem free
242	10182932-00000 AS. 1	10178691-00000	26,768.16	26,768.16	26,768.16	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 4, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		03-31-2011	Domain Transfer	The Domain Transfer is limited according to articles 233 and 234, of the Constitution of the Republic
243	10182940-00000 AS. 2	10182940-00000 AS. 1	26,500.70	26,500.70	26,500.70	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 11, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		10-20-2011		Visited, Legal problem free
244	10182939-00000 AS. 2	10182939-00000 AS. 1	31,907.70	31,907.70	31,907.70	Lot Numer Ten, Polygon "Dos", of the Proyecto Lotification Agrícola San Jorge Kilo Cinco - First Portion, Portion two Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Family property	Start on 02-16-2012 and expires on 02-16-2032	02-16-2012		Edgar Efraín Sánchez sold his right in favor of Mrs. Nicolasa Campos Vda. De Gutiérrez
245	10182938-00000 AS. 2	10182938-00000 AS. 1	30,719.52	30,719.52	30,719.52	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 9, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Family property	Start on 01/19/2012 and beats on 01-19-2032	01-19-2012	Domain Transfer	In the field was found Mr. Rogelio Hernandez Diaz, who claimed to be the owner of the property. You should contact a lawyer who has done the paperwork.
246	10182937-00000 AS. 2	10182937-00000 AS. 1	30,238.77	30,238.77	30,238.77	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 8, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		12-14-2011	Power of attorney special	Owner is a sailor, is in the highlands, works in Plataformas Petroleras, the father Mr. Rogelio Hernández states that owner will come in February.
247	10121134-00000 AS.2	10121134-00000 AS.1	17,793.95	17,793.95	17,793.95	LOTIFICATION EL CORRALON, Lot #2, POLYGON 1OF THE SECOND PORTION OF THE HACIENDA SAN JORGE KILO 5	Rural	Free of liens		11-07-2011		Visited, provided, or displayed in writing when their child is present.
248	10121133-00000 AS. 2	10121133-00000 AS. 1	21,269.54	21,269.54	21,269.54	LOTIFICATION EL CORRALON, Lot #1, POLYGON 1 OF THE SECOND PORTION OF THE HACIENDA SAN JORGE KILO 5	Rural	Free of liens		06-27-2011		Interview with Owner Mr. Víctor Cardoña, provided us with a plan with polygons and Lots of a part of parcel of land 165 (according to cadastre). No legal problem
249	10010075-00000 as. 1	10006370-00000	539,688	64,564	64,564	HACIENDA SAN JORGE KILO 5, SECOND PORTION, CANTON SAN JULIAN, ACAJUTLA, SONSONATE	Rural	Free of liens		10-22-1998	Domain Transfer	The Domain Transfer is limited according to articles 233 and 234, of the Constitution of the Republic. In this parcel of land is a dam that is born from the river El Venado. Mr Víctor Cardoña said that Portion was left as a green zone for ISTA.
250	10182942-00000 AS. 3	10182942-00000 AS. 2	1,465.93	1,465.93	1,465.93	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. A, Solar 1, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Rural	Free of liens		04-04-2012		
251	10125643-00000 AS.3	10125643-00000 AS.2	960.47	960.47	960.47	HACIENDA SAN JORGE KILO 5, ASIENTO COMUNITARIO, POLYGON D, SOLAR #6, PORTION OF THE PORTION 3	Rural	Free of liens		03-20-2004	Power of attorney special	Owner in USA. In charge Santos Leticia de León, will pass information to the owner.
252	10125644-00000 AS.9	10125644-00000 AS.5	1,443.03	1,443.03	1,443.03	HACIENDA SAN JORGE KILO 5, ASIENTO COMUNITARIO, POLYGON D, SOLAR #7, PORTION OF THE PORTION 3	Rural	Free of liens		03-16-2005	Power of attorney special	Owner in USA. In charge Rafael Guerrido (brother-in-law), will pass information to owner.
253	10136226-00000 AS. 3	10136226-00000 AS. 2	32,584.51	32,584.51	32,584.51	HACIENDA SAN JORGE KILO 5, LOTIFICATION AGRICOLA POLYGON 3 Lot 1	Rural	Free of liens		11-25-2005		Visited, Legal problem free
254	10136227-00000 AS.2	10136227-00000 AS.1	30,109.75	30,109.75	30,109.75	HACIENDA SAN JORGE KILO 5, LOTIFICATION AGRICOLA POLYGON 3 Lot 2	Rural	Free of liens		06-27-2011		Visited, Legal problem free

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: "GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA"

| No. Correlative | GENERAL DATA ON PROPERTY AFFECTED | | | | | | | FEASIBILITY STAGE | | | | TECHNICAL DATA OF AREAS OF RIGHT OF WAY | | | | | | |

ANNEX 6: GENERAL MATRIX OF LEGAL CASES.

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: ¨GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA¨

GENERAL DATA ON PROPERTY AFFECTED								IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.								
CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			SYMBOLS OF LEGAL TYPING:	Resolved Cases		Resolution period not exceeding 6 months		Resolution period not exceeding 10 months	Resolution period not exceeding 11 months		Complex legal situation	
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	Enrollment or Registration	Area according to Document M²	Rest Registral M²	Property Location	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
1	AHUACHAPAN	101	R29	50	A	**1A**	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL	NO BACKGROUND				NO BACKGROUND				
2		101	U29	132	A	**2**	HECTOR ENRIQUE MORAN BARRIOS	15027275-00000 as. 1	38,500.00	38,500.00	Canton Acacalco, denominated "San Juan", Jurisdiction and Department of Ahuachapán	Liens with Right of Way, Alert de FECAFE	Alert: property affected with restriction of domain transfer, by Emergency Coffee Fund (FECAFE) Debt $ 6,093.75. Property Liens with Right of Way of Transmission Line in favor of CEL, in an area of 21,693.00 m2, inscription 3 of volume 426.	10-15-1966		
3		101	U29	132	A	**2A**	HECTOR ENRIQUE MORAN BARRIOS	15027274-00000 as. 1	14,000.00	13,287.88	Canton Acacalco, San Juan, Jurisdiction and Department of Ahuachapán	Liens with Right of Way, Alert of FECAFE	Alert: property affected with restriction of domain transfer, by Emergency Coffee Fund (FECAFE) Debt $ 6,093.75. Property Liens with Right of Way of Transmission Line in favor of CEL	10-16-1966		
4		101	R29	283	A	**3**	COMISION EJECUTIVA HIDROELECTRICA DEL RIO LEMPA, CEL	NO BACKGROUND			Canton Santa Rosa Acacalco, Jurisdiction and Department of Ahuachapán	No Background				
5		101	U29	128	A	**4**	EDUARDO RAFAEL MENDEZ FLOREZ CABEZAS	15026755-00000 As.4	25,570.63	25,570.63	Canton Los Magueyes, denominated El Regadío, Jurisdiction and Department of Ahuachapán	Liens with mortgage	Mortgage a / f of Banco de Fomento Agropecuario for an amount of $ 49, 275.00; For the term of 15 years; Beginning of Liens: 11/7/2014.	11-07-2014		
6		101	U24	413	A	**13**	RAMON RAMIREZ	15019362-00000 as. 1	35,000.00	35,000.00	Canton Apanzunco and El Barro de los Ausoles, Jurisdiction and Department of Ahuachapán	Liens with pledge	Liens with Pledge, in favor of Unión de Exportadores, S.A. de C.V:, amounted to $ 2,571.43; Term: 15 months; Interest: 16% per year; Date of beginning of liens 06/27/00.	07-16-1990		
7		101	R32	81	A	**36**	CARLOS ALFREDO MENDEZ FLOREZ	15085673-00000 AS. 12	172,800.00	172,800	Canton El Barro, of name Bélgica, Jurisdiction and Department of Ahuachapán	Liens with mortgage	Property Liens with First Mortgage Opened to Banco Hipotecario, from El Salvador, S.A. Amount: $ 200,000.00; Term: 180 months; Start of liens: 01-02-2011, was modified as to the term, which expires on 01/02/2037	02-01-2012		
8		101	R32	201	A	**37**	CARLOS ALFREDO MENDEZ FLOREZ	15017317-00000 AS. 7	2,800.00	2,800.00	Canton El Barro de los Ausoles, La Conejera, Jurisdiction and Department of Ahuachapán	Liens with mortgage	Property Liens with First Mortgage Opened to Banco Hipotecario, from El Salvador, S.A. Amount: $ 200,000.00; Term: 180 months; Start of liens: 01-02-2011, was modified as to the term, which expires on 01/02/2037	02-01-2012		
9		101	R32	43	A	**38**	CARLOS ALFREDO MENDEZ FLOREZ	15014955-00000 AS. 7	28,000.00	28,000.00	Called place Barro Blanco and el Agua Caliente, Canton El Barro, Jurisdiction and Department of Ahuachapán	Liens with mortgage	Property Liens with First Mortgage Opened to Banco Hipotecario, from El Salvador, S.A. Amount: $ 200,000.00; Term: 180 months; Start of liens: 01-02-2011, was modified as to the term, which expires on 01/02/2037	02-01-2012		
10		101	R32	90	A	**43**	NEGOCIOS MAGAÑA DELLA TORRE, S.A. DE C.V.	15036226-00000 AS. 4	84,000.00	84,000.00	In the place el Saltillal, Jurisdiction of Apaneca, Department of Ahuachapán.	Liens with mortgage	Property Liens with First Open Mortgage, Amount: $ 133,535.00; Term: 180 months; Start of encumbrance: 05-28-2014. Denied Rehearing Presentation, 03-09-2015	05-15-2006		
11		101	R32	117	A	**44-1**	MONTECARLOS ESTATE, S.A. de C.V.	15017218-00000 AS. 7	39,885.01	39,885.01	Canton El Barro de los Ausoles, know by Finca San José de la Montaña, Departament of Ahuachapán	Liens with mortgage	Liens with First Open Mortgage, amounted to $ 13,061.22; Term: 60 months; Interest: 6% per year; Start date 09/20/96, inscription 78 BOOK 437 of Mortgages; Liens with Second Mortgage, As. 3, amounted to $ 496,571; Term: 96 months; Interest: 9% per year; Start date: 03/25/03; Both in favor of Banco Salvadoreño, S.A. NIT OF COMPANY: 0614-120803-105-2; Deed of incorporation inscribed in 18 BOOK 1842 of Companies. BATRES family society	11-05-2004		
12		102	R01	28, 29 y 64 (hoy 374)	A	**46-1**	NEGOCIOS MAGAÑA DELLA TORRE, S. A. DE C.V.	15143995-00000 as. 1	222,375.53	222,375.53	In the place El Zaitillal, described in the literal C, of the first, Jurisdiction of Apaneca, Department of Ahuachapán	Liens with mortgage	Liens with First Open Mortgage, in favor of Banco Hipotecario de El Salvador, S.A., amounted to $ 300.000; Term: 180 months; Start date of liens: 06/23/10	09-23-2014		
13		102	R01	30	A	**47-1**	JOSE ROMERO ASCENCIO RECINOS AND FREDI RAFAEL ASCENCIO	NO BACKGROUND				NO BACKGROUND				
14		102	R01	146	A	**48-1**	MARIA ANGELICA BORJA DE FERGUSON	NO BACKGROUND				NO BACKGROUND				
15	APANECA	102	R01	51	A	**49-1**	GLORIA BEATRIZ ARTERO MENDOZA	15036178-00000	14,547.71	14,547.71	Place El Zaitillal, Jurisdiction of Apaneca, Department of Ahuachapán	Liens with pledge and Presentations pending registration	Property liens with Pledge in favor of Sociedad Cooperativa de Caficultores de Juayua de R.L .; Amount: $ 12,342.86; Term: 12 months; Interest: 14% per year. Start of liens: 11-03-1998. Presentations: Production Credit and Mortgage, both in favor of Sociedad Cooperativa de Caficultores de Juayua de R.L. Observed: does not compare with antecedent.	12-05-1973		
16		102	R01	36	A	**50**	ERNESTO ANTONIO ANGULO MILLA; JOSE EDUARDO ANGULO MILLA; JUAN CARLOS ANGULO MILLA; NOEMY MARGARITA ANGULO DE POMA; AMADA MARGARITA MILLA DE ANGULO; SANTA MARGARITA DE APANECA, S.A. DE C.V.	15036962-00000 AS. 4, 5, 6	189,000.00	189,000.00	Canton Saltillal, Finca El Naranjo, Jurisdiction of Apaneca, Department of Ahuachapán	Alert of FECAFE	Alert Registry, the co-owner AMADA MARGARITA MILE CORNER, owed an amount of $ 25,646.75; Property affected with Restriction of Domain Transfer. Art. 21 Law of Creation of the Emergency Fund for Coffee.	02/17/07; and 07/10/12, the last		
17		102	R01	53	A	**59-1**	AGROPECUARIA GUADALUPE, S.A. DE C.V.	15036413-00000 AS. 9	47,661.28	47,661.28	Place El Zaitillal, Jurisdiction of Apaneca, Department of Ahuachapán	Liens with mortgage and Alert FECAFE	Property Liens with Mortgages in favor of the International Bank of Costa Rica, S.A. (Panama): a) First Mortgage; Amount: $ 55,000.00; Term: 240 months; Beginning of Liens: 27-04-2006. And b) Second Open Mortgage; Amount: $ 6,937,463.29; Term: 108 months; Start of liens: 28-01-2011. Modified in terms of the term extending to 192 months. Owner owes an amount of $ 43,799.56. Affected with restriction of transfer of dominion, FECAFE.	04-27-2006		

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: ¨GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA¨

GENERAL DATA ON PROPERTY AFFECTED								IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.								
CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			SYMBOLS OF LEGAL TYPING:	Resolved Cases		Resolution period not exceeding 6 months		Resolution period not exceeding 10 months	Resolution period not exceeding 11 months		Complex legal situation	
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	Enrollment or Registration	Area according to Document M²	Rest Registral M²	Property Location	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
18	APANECA	102	R01	54	A	**60-1**	FLOR DEL TRANSITO ARTERO MENDOZA	15037588-00000 as. 1	47,661.28	47,661.28	Place El Zaitillal, hijuela 4, Jurisdiction of Apaneca, Department of Ahuachapán	Liens with mortgage and presentations pending registration	Property Liens with Mortgages in favor of the CooperativeSociedad Cooperativa de Cafetaleros de San José de la Majada de R.L. A) First Open Mortgage; Amount: $ 14,285.71; Term: 240 months; Beginning of liens: 06-28-2001. And b) Second Open Mortgage; Amount: $ 4,571.43; Term: 240 months; Beginning of liens: 07-23-2001. Presentation of pledge 200301004125, observed since 07-04 - 2014.	12-05-1973		
19		102	R01	258	A	**62-1**	MARIETTA SUAREZ DE BRIGHT	15036219-00000 AS.1	218,605.17	218,605.17	Place La Cumbre, Hijuela D Jurisdiction of Apaneca, Department of Ahuachapán	Liens with Mortgage and pledge, Alert	Property Liens with First Mortgage Opened to Sociedad Cooperativa de Cafetaleros de San José La Majada de R.L .; Amount: $ 57,143.00; Term: 240 months; Start of liens: 29-06-2001. Property Liens with Pledge in favor of Banco Salvadoreño, S.A .; Amount: $ 533,196.24. Start of liens: October 17, 2002.Alert from FECAFE, Producer owes $ 13,256.50. For which it has domain transfer restriction.	04-30-1987		
20		102	R01	257	A	**63-1**	ALEIDA CAMILA VALDIVIESO MARTINEZ AND GONZALO HERNANDO VALDIVIESO MARTINEZ	15077529-00000	223,541.00	223,541.00	Hijuela B, place la Cumbre, Canton El Saitillal, denominated Montecasino, Jurisdiction of Apaneca, Department of Ahuachapán	Presentations pending registration, free of liens	Presentations pending to register for segregation by sale and Donation observed 200401003406 and 200401004852.	04-25-2001		
21		102	R03	13	A	**64-1**	AIDA DEL ROCIO BOLAÑOS MILLA; MARIA AIDA MILLA DE BOLAÑOS; AMADA MARGARITA MILLA DE ANGULO AND NOEMY MARGARITA ANGULO DE POMA	15037316-00000 AS. 3 AND 4	79,354.40	79,354.40	El Chilamate,San Ramoncito, Jurisdiction of Apaneca, Department of Ahuachapán.	Liens with mortgage	Property Liens with First Mortgage Opened in favor of Union of Exporters, S.A. Of C.V .; Amount: $ 41,714.29; Term: 240 months; Beginning liens: 06-13-2001	02-18-2009		
22		102	R03	14	A	**65-1**	ANA LIDIA DEL CARMEN PEREZ DE CHACON	NO BACKGROUND				No Background				
23		102	R03	84	A	**66-1**	JULIO CESAR SALDAÑA AVELAR, ALEJANDRO ANTONIO SALDAÑA AVELAR; MARIO ARTURO SALDAÑA AVELAR AND ANA MARIA SALDAÑA AVELAR	15035514-00000	18,408.00	18,408.00	Place Pila de San Andrés, Jurisdiction of Apaneca, Department of Ahuachapán	Presentations pending registration, free of liens	Presentation of Purchase. Observed. 200601010633 and 200401004384	10-12-1987		
24		102	R03	83	A	**66-2**	MARIO ARTURO ZALDAÑA AVELAR	15035995-00000	4,500.00	4,500.00	Place Pila de San Andrés, Jurisdiction of Apaneca, Department of Ahuachapán	Presentations pending registration, free of liens	Presentations pending to register for sale. Both observed. "The antecedent does not confront" both in favor of Julio Cesar Zaldaña Avelar	10-12-1987		
25		102	R03	82	A	**66-3**	PEDRO JOSE ARTERO SALAZAR	NO BACKGROUND				No Background				
26		102	R03	86	A	**68-1**	MAURICIO ALFONSO AREVALO MATA	15035512-00000	21,000.00	21,000.00	Albania, Place Pila de San Andrés, Jurisdiction of Apaneca, Department of Ahuachapán	Liens with pledge	Property Liens with Pledge in favor of the Cooperativa de Cafetaleros de San José de La Majada de R.L .; Amount: $ 5,616.00; Term: 15 months; Interest: 8.50% per annum; Start of liens: 09-08-2015.	11-23-1994		
27		102	R03	447 hoy 845	A	**71-1**	ARIES S.A. DE C.V.	15107622-00000 as. 2	112,062.58	56,031.29	Portion 4, Literal B, part of the Hacienda Monterrey, Jurisdiction of Apaneca, Department of Ahuachapán	Right of Way of Aqueduct and Alert	R / L MARIA JULIA BORJA LAGOS. Segregation of Portion of 56,031.29 M2, identified as parcel of land 844, enrolled to the registry 15144796-00000 in favor of Chalan Inversiones, S.A. Of	03-11-2005		
28		102	R03	844	A	**71-2**	CHALAN INVERSIONES, S.A. DE C.V.	15144796-00000 as. 1	56,031.29	56,031.29	Segregated from Portion 4, Literal B, forms part of the Hacienda Monterrey, Apaneca, Ahuachapán	Alert	R / L MARIA JULIA BORJA LAGOS. Property with restriction of transfer of domain by FECAFE. Amount owed: $ 35,287.00, beginning January 18, 2013.	03-04-2015		
29		102	R03	449	A	**73-1**	DORA ESTELA BORJA NATHAN DE SALAVERRIA	15107620-00000 as. 2	112,417.3897	112,417.3897	Portion 2, Literal B, forms part of the Hacienda Monterrey, Apaneca, Ahuachapán	Liens with mortgage	Liens with First Mortgage in favor of Alba Petroleos of El Salvador, Sociedad por Acciones de Economia Mixta de C.V.; Amount: $ 500,000.00; Square: 12 months; Beginning of Liens: 08/19/2014.	03-11-2005		
30		102	R03	450	A	**70**	TAMALPAIS, S.A.	15107619-00000 AS. 2	109,413.56	109,413.56	Literal B, Portion 1, Quezalapa, Jurisdiction of Apaneca, Department of Ahuachapán.	Liens with mortgage	Property Liens with First Open Mortgage, in favor of the Banco Hipotecario de El Salvador, S.A.; Amount: $ 48,000; 300 months; Beginning of liens: 04-20-2005.	02-01-2005		
31		102	R03	443	A	**72**	ANA MARINA MAGAÑA DE ORTEGA; ERNESTO FEDERICO MAGAÑA GRANADOS; JOSE MARIO MAGAÑA GRANADOS; MARIA ELENA MAGAÑA DE CASTRILLO; ALVARO ALFREDO MAGAÑA GRANADOS; MARIA TERESA MAGAÑA GRANADOS DE GILBERT	15036103-00000 AS. 1	56,000.00	56,000.00	In the place "La Bellota" Portion described in the literal "B", Jurisdiction of Apaneca, Department of Ahuachapán	Alert of FECAFE; Presentations pending registration	FECAFE ALERT. Restriction of Domain Transfer for owing owners to FECAFE. Five presentations pending registration of Credits to Production numbers 201601005084; 201601005091, 201601005092, 201601005093, 201601005094	08-03-1987		
32		102	R06	62	A	**73**	ALBERTO VALDIVIESO BORJA AND COMPAÑIA SUCESORES	15074901-00000 AS. 1	369,565.68 M2	212,311.00	In the denominated places "Quezalapa" and "Cerro Grande", Jurisdiction of Apaneca, Department of Ahuachapán	Liens with mortgage	Liens with First Open Mortgage, in favor of the Sociedad Ingeniero José Antonio Salaverría y Compañía de C.V.; Amount $ 65,000, Term: 300 months; Date of start of liens: 20-09-02. Inscribed to the seat 2. A Portion of 157,254.68 M2 was segregated, in favor of the Sociedad Viveros de Santa Ana, S.A de C.V., enrolled to the registry 15037090-00000; On which 2 Mortgages fall, also has Alert.	12-12-1991		
33		102	R06	40	A	**74**	SOCIEDAD VIVEROS SANTA CLARA, S.A. DE C.V.	15037090-00000 AS. 1	157,254.68	157,254.68	In the denominated places "Quezalapa and "Cerro Grande", Jurisdiction of Apaneca, Department of Ahuachapán	Liens with mortgage	Property Liens with Mortgages in favor of the Banco Internacional de Costa Rica, S.A. (Panama): a) First Open Mortgage; Amount: $ 718,857.14; Term: 540 months; Beginning of Liens: 11-26-1993. And b) Second Open Mortgage; Amount: $ 6,937,463.29; Term: 108 months; Start of Liens: 01-28-2011. Modified as to the term extending 7 years more, will expire on January 28, 2027.	12-12-1991		

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No. Correlative	GENERAL DATA ON PROPERTY AFFECTED								IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.							
	CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			SYMBOLS OF LEGAL TYPING:	Resolved Cases		Resolution period not exceeding 6 months		Resolution period not exceeding 10 months	Resolution period not exceeding 11 months		Complex legal situation
	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	Enrollment or Registration	Area according to Document M²	Rest Registral M²	Property Location	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
34	APANECA	102	R06	30	A	**75**	JOSE ANTONIO JESUS SALAVERRIA BORJA	15037454-00000 as 1	119,000.00	119,000.00	In the denominated place El Cerrón, Jurisdiction of Apaneca, Department of Ahuachapán	Liens with mortgage	1) Mortgage in favor of the Banco Internacional de Costa Rica S.A. In the amount of $ 125,714.29; Term of 540 months. Beginning of Lien: 31/1/11 2) Mortgage in favor of Banco Internacional de Costa Rica S.A. In the amount of $ 6, 937,463.29; Term of 192 months. Start of Liens: 1/28/11	12-22-1972		
35		102	R06	3	A	**77**	SILVIA MARINA SALAZAR TOBAR AND VIDA ELIZABETH SALAZAR TOBAR	15037711-00000 as. 1	119,000.00	119,000.00	Place called Siguacta, Jurisdiction of Apaneca, Department of Ahuachapán.	Liens with Mortgage; Alert of FICAFE	Property Liens with First Mortgage Open to theSociedad Ingeniero José Antonio Salaverría y Compañía de C.V. Amount: $ 46,000.00; Term: 300 months; Beginning of liens: 25-07-2002. Registration Alert: The Right of the Co-Owners have Restriction of Domain Transfer, for debiting an amount of $ 10,728.50, to the Fondo de Emergencia del Café.	10-30-1990		
36	SAN PEDRO PUXTLA	110	R01	279	A	**82-C**	IRISH COFFEE S.A DE C.V.	15116859-00000 AS. 6	31,519.39	31,519.39	Denominated El Coco, Finca Miramar and San Rafael, Canton La Concepción; Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Liens with mortgage	Property Liens with First Mortgage Open to the DBanco de Desarrollo de El Salvador, amount: $ 200,000.00; Term: 180 months; Beginning of liens: 7/2/2014.	06-22-2007		
37		110	R01	278	A	**82-D**	IRISH COFFEE S.A DE C.V.	15116860-00000 AS. 6	184,888.19	184,888.19	Denominated El CuiLot, Finca Miramar and San Rafael, Canton La Concepción, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Liens with mortgage	Property Liens with First Mortgage Open to the DBanco de Desarrollo de El Salvador, amount: $ 200,000.00; Term: 180 months; Beginning of liens: 7/2/2014.	06-22-2007		
38		110 110	R02 R01	149 27	A	**92**	ROBERTO ANTONIO INOCENTE SALAVERRIA SALGUERO	15067176-00000 as. 12	560,000.00	560,000.00	Denominated El Retiro, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Liens with mortgage	Property Liens with First Mortgage Opened to the Banco de Desarrollo de El Salvador, amount: $ 300,000.00; Term: 180 months; Beginning of liens: 12/16/2014.	12-16-2013		
39		110	R02	238	A	**93**	ROBERTO ANTONIO INOCENTE SALAVERRIA SALGUERO	15067180-00000 as. 8	130,800.00	130,800.00	El Retiro, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Liens with mortgage	Property Liens with First Mortgage Opened to the Banco de Desarrollo de El Salvador, amount: $ 300,000.00; Term: 180 months; Beginning of liens: 12/16/2014. Inscribed to Seat 9.	12-16-2013		
40		110	R02	125	B	**94**	PEDRO JOSE ARTERO SALAZAR AND MARIA DE JESUS CONTRERAS	15068785-00000 AS. 1	96,800.00	96,800.00	Canton Guachipilín, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Liens with Mortgage, Presentations pending registration	Property Liens with First Open Mortgage, in favor of Banco Agrícola Comercial de El Salvador, S.A.; Amount: $ 114,285.71; Term 120 months; Beginning of Liens: 02-16-1996. Modification regarding the term extending 5 years more expiring on 16-02-2011. Presentations Observed: 1) Production Credit. Observed 04-03-2001. 2) Modification of Mortgage, observed on 11-01-2001. And 3) Production Credit, observed from 11-01-2001.	16-02-1996 23-03-1925	Domain Purchase Requisition	Mr. Pedro José Artero Salazar stated that he is in the process of rectifying the registration of 25% of property that by mistake the CNR registered in favor of María de Jesús Contreras, since she died 50 years ago and does not own property on her property.
41		110	R02	99	B	**98**	ANDRES ENRIQUE SIGUENZA JIMENEZ	15067372-00000 AS. 1	5,600.00	5,600.00	Canton Guachipilín, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Free of liens		03-06-1989	Re-measurement procedures	According to research in the field, the property identified by owner corresponds to the catastro identify. Due to the fact that the registration area is smaller than what is in the field, it is necessary to carry out Remedy Proceedings.
42		110	R02	128	B	**100**	ZOILA HAYDEE RUIZ	15067680-00000 AS. 1	2,355.00	2,355.00	Canton Guachipilín, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Free of liens		03-06-1957	Inheritance Acceptance Diligences	Owner deceased, two heirs. One in the USA and one in the country. Mrs. Teresa Méndez will provide contact.
43		110	R02	129	B	**101**	ZOILA HAYDEE RUIZ AGUIRRE DE RODRIGUEZ	15068116-00000 AS. 1	11,000.00	11,000.00	Identified as El Primero, Canton Guachipilín, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Free of liens		10-06-1961	Inheritance Acceptance Diligences	Owner deceased, two heirs. One in the USA and one in the country. Mrs. Teresa Méndez will provide contact.
44		110	R02	130	B	**102**	OLIVIA ANTONIA RUIZ	15067936-00000 AS. 1	7,000.00	7,000.00	Identified as El Segundo, Canton Guachipilín, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Liens with mortgage	Property Liens with First Mortgage in favor of Carlos Schmidt and Company, amounted $ 57.14; Term: 12 months; Interest: 1% monthly; Liens Start Date 05/03/1968	02-17-1959	Inheritance Acceptance Diligences	Owner deceased. Mrs. Teresa is one of the ten heirs, three of them in the USA. She will be the contact with everyone. You were asked for documentation of all to start Inheritance Acceptance Diligences.
45		110	R02	96	B	**103**	GUILLERMO ANTONIO JIMENEZ SIGUENZA	15067121-00000 AS. 9	7,000.00	7,000.00	In the place called El Huachipilín, Identified as Portion Dos of the Portion Sexta, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Liens with mortgage	Property Liens with Open Mortgage, in favor of the Banco de Fomento Agropecuario. Amount: $ 30,000.00; Term: 120 months; Interest: 8.50% per year; Start of liens: 12/07/2011	12-07-2011	Real Estate Meeting	Waiting for offer
46		110	R02	142	B	**106**	RAFAELA CASTRO VIUDA DE RUIZ(Possible Heirs: Carolina Morales and Yanira Morales)	15068122-00000 as. 1	84,000.00	84,000.00	Identified as Segundo, Canton Guachipilín, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán.	Embargo and Liens with Mortgage	Property Liens with First Mortgage inscribed to the number 103 BOOK 360 of Mortgages, in favor of Carlos Elvidio Ayala Campos; Amounting to $ 5,714.29; Term: 6 months; Interest: 3% monthly; Beginning of liens 10/26/86. Relinquish on this property two embargos according to the following detail: a) Juzgado de lo Laboral of Sonsonate, in civil matters; Amounting to 50,000 colones; Inscribed to the number 29 BOOK 32 of Anotaciones Preventivas de Embargo and b) Juzgado de lo Civil of Sonsonate; Inscribed to seat 4; Amounting to 16,500 colones; In both does not specify the reference of the judgment; Both in favor of Carlos Elvidio Ayala Campos. THE PROPERTY IS THE SECOND.	08-19-1959	Inheritance Acceptance Diligences	Pending start Inheritance Acceptance Diligences
47		110	R02	136	B	**107**	SUCCESSION MARIA JOSEFINA LETONA (Possible Heir: Ana Margot Perez de Peters)	15067723-00000 AS. 1	56,000.00	41, 383.00	Place called Cushuata, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Free of liens		10-24-1958	Inheritance Acceptance Diligences	Pending start Inheritance Acceptance Diligences. We had contact with Mr. Guillermo Guillen, who is the lawyer of Señira Margarita de Peters. He will give information to the heirs of Maria Josefina Letona. 7730-4602
48		110	R02	135	B	**107-A**	CLARA LUZ GUTIERREZ GARCIA, JOSE GUILLERMO GUTIERREZ GARCIA, DEYSI LISBETH GUTIERREZ JIMENEZ, PABLO REMBERTO OSORIO GARCIA, BLANCA DEYSI JIMENEZ DE GUTIERREZ, YESSICA TATIANA GUTIERREZ JIMENEZ, SILVIA DEL CARMEN GUTIERREZ GARCIA.	15067003-00000 AS. 3	93,169.00	93,169.00	Canton Guachipilín, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán.	Free of liens	Minor co-owner. Deysi Lisbeth Gutiérrez Jimenez is 13 years old.	02-04-2007	Judicial partition	Mr. Pablo Remberto Osorio García stated that a topographical survey has already been carried out to make a Judicial partition effective. He will provide a copy to prove that he will only be affected along with Jose Guillermo Gutiérrez García, Clara Luz Gutiérrez García and Silvia del Carmen Gutiérrez García.

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GENERAL DATA ON PROPERTY AFFECTED								IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.								
CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			SYMBOLS OF LEGAL TYPING:	Resolved Cases		Resolution period not exceeding 6 months		Resolution period not exceeding 10 months	Resolution period not exceeding 11 months		Complex legal situation	
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	Enrollment or Registration	Area according to Document M²	Rest Registral M²	Property Location	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
49	SAN PEDRO PUXTLA	110	R02	392	B	**107-B**	CLARA LUZ GUTIERREZ GARCIA, JOSE GUILLERMO GUTIERREZ GARCIA, DEYSI LISBETH GUTIERREZ JIMENEZ, PABLO REMBERTO OSORIO GARCIA, BLANCA DEYSI JIMENEZ DE GUTIERREZ, YESSICA TATIANA GUTIERREZ JIMENEZ, SILVIA DEL CARMEN GUTIERREZ GARCIA.	15067529-00000 AS. 3	15,705.00	15,705.00	Canton Texispulco, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán.	Free of liens	Minor co-owner. Deysi Lisbeth Gutiérrez Jimenez is 13 years old.	02-11-2008	Judicial partition	Mr. Pablo Remberto Osorio García stated that a topographical survey has already been carried out to make a Judicial partition effective. He will provide a copy to prove that he will only be affected along with Jose Guillermo Gutiérrez García, Clara Luz Gutiérrez García and Silvia del Carmen Gutiérrez García.
50		110	R02	392	B	**107-C**	CLARA LUZ GUTIERREZ GARCIA, JOSE GUILLERMO GUTIERREZ GARCIA, DEYSI LISBETH GUTIERREZ JIMENEZ, PABLO REMBERTO OSORIO GARCIA, BLANCA DEYSI JIMENEZ DE GUTIERREZ, YESSICA TATIANA GUTIERREZ JIMENEZ, SILVIA DEL CARMEN GUTIERREZ GARCIA.	15067092-00000 AS. 3	15,705.00	15,705.00	Canton Guachipilín, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán.	Free of liens	Minor co-owner. Deysi Lisbeth Gutiérrez Jimenez is 13 years old.	02-11-2008	Judicial partition	Mr. Pablo Remberto Osorio García stated that a topographical survey has already been carried out to make a Judicial partition effective. He will provide a copy to prove that he will only be affected along with Jose Guillermo Gutiérrez García, Clara Luz Gutiérrez García and Silvia del Carmen Gutiérrez García.
51		110	R02	392	B	**107-D**	CLARA LUZ GUTIERREZ GARCIA, JOSE GUILLERMO GUTIERREZ GARCIA, DEYSI LISBETH GUTIERREZ JIMENEZ, PABLO REMBERTO OSORIO GARCIA, BLANCA DEYSI JIMENEZ DE GUTIERREZ, YESSICA TATIANA GUTIERREZ JIMENEZ, SILVIA DEL CARMEN GUTIERREZ GARCIA.	15067357-00000 AS. 3	70,000.00	70,000.00	In the place denominated Tepunagua Grande, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán.	Free of liens	Minor co-owner. Deysi Lisbeth Gutiérrez Jimenez is 13 years old.	02-11-2008	Judicial partition	Mr. Pablo Remberto Osorio García stated that a topographical survey has already been carried out to make a Judicial partition effective. He will provide a copy to prove that he will only be affected along with Jose Guillermo Gutiérrez García, Clara Luz Gutiérrez García and Silvia del Carmen Gutiérrez García.
52		110	R02	392	B	**107-E**	MARÍA MERCEDES GARCÍA PÉREZ	15068402-00000 AS. 1	18,073	18,073	parcel of land 251/1, Canton Texispulco, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Family property	Restriction by Family property ends 06/21/17	12-17-1987	Inheritance Acceptance Diligences	Pending start Inheritance Acceptance Diligences
53		110	R03	348	B	**122**	SUCCESSION JORGE GARCIA (Possible Heir: José Mauro Hernández)	15068151-00000 a. 1	9,043.00	9,043.00	parcel of land 252/9, Canton Texispulco, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Family property	Family property started 06/07/1989 ends: 01/01/2019	06-07-1989	Inheritance Acceptance Diligences (Declaration of Reclining Heritage and Posthumous Recognition of Paternity)	Pending initiation of Inheritance Acceptance Diligences, a possible heir was discussed, Mr. Mauro Hernández, who said that there are five brothers, three of them dead. He states that he will initiate the Diligencias in his favor.
54		110	R03	342	B	**123**	SUCCESSION LINO TORRES (Possible Heir: Marío Martínez Torrez)	15068232-00000 a. 1	7,675.00	7,675.00	parcel of land 252/14, Canton Texispulco, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Family property	Family property started 05-22-1989 Ends: 12-16-2018	05-22-1989	Inheritance Acceptance Diligences	Pending start Inheritance Acceptance Diligences. Certifications of birth, death and marriage certificates have been requested.
55		110	R03	320	B	**124-A**	GUILLERMO RUIZ PEÑATE	15068226-00000 as. 1	88,203.00	88,203.00	Canton Texispulco, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Free of liens		06-06-1989	Inheritance Acceptance Diligences	02/11/2016. We visited Mrs. Santa Gloria Ruiz, who is the daughter of the deceased, who states that until the 2nd week of March she returns from the United States. The spouse of the deceased Mrs. Aminta Portillo, to express her willingness to initiate Inheritance Acceptance Diligences and subsequently carry out segregation by sale in favor of Mr. Cristino Jacobo. According to research in the field, there has been contact with Mr. Cristino Jacobo who claims to be the owner of the property.
56		110	R03	281	B	**131**	JOSEFINA JIMENEZ	15068740-00000 AS. 1	3,920.00	3,920.00	Canton Texispulco, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Free of liens		04-09-1969	Inheritance Acceptance Diligences	Possessor Mr. Nazario Martínez (deceased), daughter Andrea Martínez, in favor of her will be the Transfer of Domain.
57		110	R03	277	B	**134**	SUCCESSION ANTONIO MEJIA (Possible Heir: Ana Mejía de Ruíz, Evangelina Hernández)	15068350-0000 AS.1	4,218.00	4,218.00	Canton Texispulco, parcel of land 254/18, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Family property	Family property. Start: 10-1-86 end: 04-26-2016	10-01-1986	Inheritance Acceptance Diligences	Pending start Inheritance Acceptance Diligences. Certifications of birth, death and marriage certificates obtained. Requesting personal documents from the alleged heirs, Mrs. Ana Mejía has obtained DUI of two brothers, in the process of getting the rest.
58		110	R03	450	B	**139**	ANA MARIANA CORTEZ	15067545-00000 AS. 1	14,000.00	921.00	Canton Texispulco, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Free of liens		01-07-1977	Power of attorney special	Property for sale, owner does not agree with the project.
59		110	R03	292	B	**140**	SUCCESSION ROBERTO HERRERA (Possibles Heirs: Tomasa del Milgaro Martínez de Herrera, Omar Oseas Herrera Martínez, Mauda Elizabeth Martínez de García, Erikc Adilson Herrera Martínez, Marlón Vladimir Herrera Martínez)	15067083-00000 AS. 1	7,700.00	7,700.00	Canton Texispulco, Jurisdiction of San Pedro Puxtla, Department of Ahuachapán	Free of liens		05-25-1992	Inheritance Acceptance Diligences	Pending the start of Inheritance Acceptance Diligences, he spoke with the wife of the deceased Mrs. Concepcion de Herrera, who stated that they are heirs: she and her four children. Stating that will transfer his hereditary right for their children.
60		314	R01		B	**143**	PABLO ANTONIO SANTOS MACHADO	10016646-00000 AS. 1	48,070.00	48,070.00	Canton El Carrizal, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Liens with Mortgage, Pledge and Right of Way	Mortgage: A / F of Banco de Fomento Agropecuario for an amount of $ 24,300, with a term of 120 months. Start of liens 4/22/2004 Pledge: A / F of Banco de Fomento Agropecuario for an amount of $ 14,600, with a term of 60 months. Start of liens 8/31/2007. Right of Way: The first two meters wide a / f of theConferencia Evangélica de las Asambleas de Dios and the second of four meters wide established to the north course a / f of FINATA, sidewalk is accessible until arriving at the national road that El Carrizal leads to Santo Domingo de Guzmán.	05-09-1994		It was visited. See registration observation.

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GENERAL DATA ON PROPERTY AFFECTED								IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.							
CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			SYMBOLS OF LEGAL TYPING:	Resolved Cases		Resolution period not exceeding 6 months		Resolution period not exceeding 10 months	Resolution period not exceeding 11 months		Complex legal situation
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	Enrollment or Registration	Area according to Document M²	Rest Registral M²	Property Location	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
61	SANTO DOMINGO DE GUZMAN	314	R01	568 (hoy 685)	B	**144**	JOSE ADANILSON OSORIO PINEDA AND DAVID OSORIO CASTRO	10001955-00000	110,978.00	110,978.00	In the place denominated El CamaLot, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Liens with Mortgage and pledge	Mortgage: a / f of the Banco de Fomento Agropecuario for an amount of $ 21,690.00; With a term of 120 months. Start of liens 13/07/1998 Pledge: a / f of the Banco de Fomento Agropecuario for an amount of $ 7,000, with a term of 48 months. Start of liens 17/10/2007	03-10-1997		It was visited. See registration observation.
62		314	R01	569	B	**146**	JOSE ADANILSON OSORIO PINEDA	10157288-00000 as. 1	118,969.12	118,969.12	Canton El Carrizal, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Liens with pledge	A pledge was created, inscribed in seat 2, in favor of the Banco de Fomento Agropecuario; Amounted to $ 7,000; Term: 48 months; Interest: 11% per year; Start of liens: 10/17/07	04-14-2006		It was visited. See registration observation.
63		314	R02	504	B	**162-1**	FRANCISCO ERSIDES VASQUEZ	10078128-00000 AS. 2	24,937.85	24,937.85	Identified as the first, Canton El CauLot, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Free of liens		12-04-2000	Power of attorney special	Owner in USA Contact was made with the brother: Mr. Joel Ramírez.
64		314	R02	505	B	**164-1**	SIMONA MARTINEZ DE RAMIREZ	10121012-00000 AS. 1	70.00	70.00	Canton El CauLot, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Free of liens		01-14-2002	Meeting and Re-measurement Diligence	
65		314	R02	503	B	**165-1**	SIMONA MARTINEZ DE RAMIREZ	10121011-00000 AS. 1	350.00	350.00	Segregated from identified as the first, Canton El CauLot, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Free of liens		01-14-2002	Meeting and Re-measurement Diligence	
66		314	R02	507	B	**167-1**	JESUS RAMIREZ	NO BACKGROUND				No Background			Proceedings of Supplementary Title	Owner showed deed of sale without background inscribed.
67		314	R02	322	B	**179-1**	MARIA ROSA PEREZ GARCIA	10087006-00000 AS. 1	12,480.0071	12,480.0071	In the place called Sesecapa, Canton El CauLot, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Liens with Mortgage	First Mortgage, in favor of Luis Alonso Barillas Orellana. Amount: $ 1,257.14. Term 6 months, interest 4% monthly; Start 12-03-1998. Inscribed in the 5th book 807 of mortgages.	10-09-1996	Power of attorney special	Owner residing in Italy, had a telephone contact with the brother of owner, Mr. José María Pérez García who asked to be visited in San Salvador for a better explanation of the project.
68		314	R02	324	B	**181**	MARIA VERONICA ALFARO DE SENSENTE, TERESA ELIZABETH DELGADO DE SENSENTE, ISMAEL SENSENTE SANTIAGO, NESTOR ALFONSO SENSENTE JIMENEZ, RINA RAMIREZ DE GUTIERREZ, OSBERTO CANDEL OSORIO, JAIRO ELY MAGAÑA GUTIERREZ, ALICIA CANDEL GUTIERREZ AND ROSA YEILIN PEREZ DE GALICIA	10006769-00000	73,500.00	73,500.00	In the point called Sesecapa, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Free of liens		07-14-2009	Dismemberment in the Head of its owner	
69		314	R02	301	B	**186**	OSCAR ARMANDO GUTIERREZ AREVALO; EDUARDO ARMANDO GUTIERREZ RAUDA AND MARIA JULIA AREVALO VIUDA DE GUTIERREZ	10067226-00000 AS. 1	142,863.50	139, 190.00	The thrid portion, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Liens with Mortgage and Presentations pending registration	Proindividual rights: the last two correspond to 50% c / u of the Right of Usufruct, and the First 100% of the Right of the Nude Property. Property Recorded with First Mortgage in favor of Banco de Fomento Agropecuario, amount: $ 2,285.71; Term: 60 months; Interest: 17% per annum; Beginning of liens: 13/08/1987. Inscribed to No. 110 of Mortgage Book 448. Presentation of Cancellation of Usufruct Law, observed from 02-16-2016, authorization from the Creditor Bank is requested.	10-01-1986	RESOLVED Power of attorney special	06-13-2016. Already made the changes in the folios. Is performing the process of cancellation of mortgage. They are making changes of pages. 02-11-2016. It obtained Power of Oscar and Maria Julia, Dui and Nit of Both. Telephone contact was made with Mr. Herberth Cruz, and Power of attorney special format was given, because he resides a co-owner abroad, and is currently in the country, and will be managed to obtain it.
70		314	R02	481	B	**189**	CARLOS PINEDA	10067587-00000 As. 10	168,650.00	168,650.00	In the place denominated El Arco, PRIMERA PORTION, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate.	Free of liens		05-17-2014	Power of attorney special	Propietario en EE.UU.
71		314	R03	253	B	**191**	RENE MARTINEZ LOPEZ AND MARIA IMELDA MARTINEZ DE AREVALO	10057320-00000 As. 2 AND 3	31,500.00	31,500.000	Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Free of liens	In seat two was acquired the nude property of the property, in seat three, was consolidated the Right of Usufruct and Nuda Property	10-23-2008	Inheritance Acceptance Diligences	Pending start Inheritance Acceptance Diligences Mr. René Martínez deceased, according to Mrs. Ana Gloria de Martínez, wife of the deceased this property is located in this parcel of land.
72		314	R03	254	B	**192**	SUCCESSION JOSE DOMINGO MARTINEZ (Possibles Heirs: YURIN MARTINEZ DE VASQUEZ; ELWING MARTINEZ LOPEZ AND IVAN MARTINEZ LOPEZ)	10035721-00000 As. 1	5,645.6432	5,645.6432	Identified as Portion One, in El Canton El Zope, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate.	Free of liens		05-03-1999	Inheritance Acceptance Diligences	Pending start Inheritance Acceptance Diligences. According to Mrs. Ana Gloria de Martínez the property was bought by word by Edgardo Martínez. On the field visit no relatives of the deceased were found to corroborate what had been said.
73		314	R03	255	B	**193**	ELWING MARTINEZ LOPEZ	10035725-00000 As. 1	5,645.4875	5,645.5875	Identified as Portion Second in El Canton El Zope, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate.	Free of liens		05-03-1999	Domain Transfer	Elwin Martínez López will transfer the domain in favor of Edgardo Martínez, according to information provided by Mrs. Ana Gloria de Martínez. The resolution of this transfer is lengthened by the fact that both parties reside in the United States.
74		314	R03	256	B	**194**	SUCCESSION RENE MARTINEZ LOPEZ (Possibles Heirs: ANA GLORIA DE MARTINEZ, ANGELICA MARIA MARTINEZ, EDGARDO MARTINEZ)	10035727-00000 As. 1	5,645.2505	5,645.2505	Identified as Portion Third, in El Canton El Zope, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate.	Free of liens		05-03-1999	Inheritance Acceptance Diligences	Owner deceased. The wife of the owner, Mrs. Ana Gloria de Martínez, says she has started Inheritance Acceptance Diligences. In process of obtaining contact number of the lawyer.
75		314	R03	257	B	**195**	IVAN MARTINEZ LOPEZ	10035728-00000 As. 1	5,645.10	5,645.10	Identified as Portion Fourth, in El Canton El Zope, Jurisdiction of Santo Domingo de Guzmán, Department of Sonsonate	Free of liens		05-03-1999	Power of attorney special	Owner lives in the USA.

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: ¨GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA¨

GENERAL DATA ON PROPERTY AFFECTED								IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.							
CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			SYMBOLS OF LEGAL TYPING:	Resolved Cases		Resolution period not exceeding 6 months		Resolution period not exceeding 10 months	Resolution period not exceeding 11 months		Complex legal situation
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	Enrollment or Registration	Area according to Document M²	Rest Registral M²	Property Location	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
76	SONSONATE	315	R25	70	B	**201**	INDALECIO ALVAREZ	10023744-00000 As. 1	7,018.81	7,018.81	parcel of land 76/14, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Free of liens	It enjoys Transit Right of Way of 4 meters wide on parcel of land 76/15, 76/16, 76/19, 76/6, 76/5, 76/4.	09-27-1983	Domain Transfer	Registered owner, who states that although he has not granted deeds of property to his daughters ladies Filomena, Isabel Reyna, Mercedes, Marta, Adilia Carolina all of Alvarez last name. He has physically determined their share of the property. All potential owners have expressed disagreement with the project.
77		315	R25	523 (hoy 756)	B	**202**	INDALECIO ALVAREZ	10023665-00000 As. 1	20,483.73	14,418.17	parcel of land 77/1 , denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Free of liens	It enjoys Transit Right of Way of 4 meters wide on the parcel of land 77/2, 77/3 and property of Manuel de Jesus Jiménez. Segregation by the south - east course, of 3,496 M2, registered with the registration number 10124781 - 00000, identified as parcel of land 514. Segregation parcel of land 755.	10-12-1999	Domain Transfer	Registered owner, who states that although he has not granted deeds of property to his daughters ladies Filomena, Isabel Reyna, Mercedes, Marta, Adilia Carolina all of Alvarez last name. He has physically determined their share of the property. All potential owners have expressed disagreement with the project.
78		315	R25	80	B	**205-1**	BENJAMIN AREVALO OSORIO	10037175-00000 AS. 3	3,513.16	3,513.16	parcel of land 77/27, Canton Las Tablas, Jurisdiction of Sonsonate, Department of Sonsonate	Liens with Traffic Right of Way	Liens with Transit Right of Way of 4 meters of width.	04-25-2000	RESOLVED Domain Transfer	07-07-2016. Closed negotiation. 05-12-2016. parcel of land 215, of Mr. Hidelfonso was eliminated, and the situation is lack of collaboration on the part of the possible heirs. This prevents the Domain Transfer from completing the Inheritance Acceptance Diligences.
79		315	R25	69	B	**209**	MARIA DELFINA OSORIO DE AREVALO	10023738-00000 AS.6	6,787.47	6,787.47	Canton Las Tablas, Jurisdiction and Department of Sonsonate	Free of liens		01-10-2014	Power of attorney special	Owner resides in USA. Mr. Carlos Osorio told us that the possible attorney will be Benjamín Osorio
80		315	R25	90	B	**217**	ALBA JANETH ELENA DE PEREZ	10023576-00000 AS. 9	13,298.87	13,298.87	parcel of land 79/13, denominated Hacienda Santa Clara, Canton Las Tablas, Jurisdiction and Department of Sonsonate	Free of liens		05-04-2011	Power of attorney special	Owner lives in the USA.
81		315	R25	568	B	**219**	PEDRO ANTONIO CASTILLO RIVAS	10139686-000000 AS.3	163,479.5772	163,479.5772	Canton Las Tablas, Jurisdiction and Department of Sonsonate	Free of liens		01-08-2004	Power of attorney special	07-07-2016. It will not have power, it will come in September. Owner in USA
82		315	R25	569	B	**220**	ELSA GUADALUPE ESTRADA, VICTOR MANUEL ESTRADA AND JOSE ALFREDO ESTRADA	10093414-00000 AS. 1 AND 3	308,000.00	308,000.00	Segregated from lots numbers eighteen B, nineteen, twenty and twenty-one, from the Rio San Pedro Section, Jurisdiction and Department of Sonsonate	Free of liens		10-06-1998 18-07-2007	Power of attorney special	Owners do not agree with project, unless it is monthly payment in the time that the right of way lasts.
83		315	R24	60	B	**221**	ELSA GUADALUPE ESTRADA, VICTOR MANUEL ESTRADA AND JOSE ALFREDO ESTRADA	10004683-00000 AS. 1	110,950.00	110,950.00	Located in Hacienda Santa Clara, marked with the number 55, Section Montaña Verde, Jurisdiction and Department of Sonsonate.	Liens with Mortgage	Property Liens with second mortgage in favor of Claudio Bautista, amount: $ 5,000.00; Term: 6 months, interest: 3% monthly; Beginning of liens: 04-26-2006	06-10-1998	Power of attorney special	Owners do not agree with project, unless it is monthly payment in the time that the right of way lasts.
84		315	R24	189	B	**223**	TRINIDAD SEGOVIA DIAZ	10119932-00000 AS. 1	21,000.00	21,000.00	Lot 54-A, Sección Montaña Verde, Hacienda Santa Clara, Jurisdiction and Department of Sonsonate	Free of liens		04-02-1969	Power of attorney special	Owner resides in USA. Possible attorney Ramón Segovia Ocotán.
85		315	R24	35 (Hoy 235)	B	**226**	SUCCESSION JOSE LUIS ARCIA GARCIA (Possible Heirs: MARIA LUPA NAVARRETE DE ARCIA)	10079094-00000 AS.3	34,625.36	34,229.82	Canton Santa Emilia, Was part of Lot Number Four, Section El Cafetal, Hacienda Santa Clara - Santa Emilia, Jurisdiction and Department of Sonsonate	Free of liens		11-11-2003	Inheritance Acceptance Diligences	Causing died 5 years ago in Sonsonate. The spouse has not started Inheritance Acceptance Diligences. Called to happen: spouse, mother of the deceased, three children of legal age and a minor child. The spouse of Causante María Navarrete, telephone, provided the telephone. 7710-5512.
86		301	R14	200	B	**235-1**	MILTON BENITEZ Y BENITEZ	10064377-00000 AS. 1	288, 245.07	288, 245.07	Hacienda Jordania, Lot N° 2, Jurisdiction of Acajutla, Department of Sonsonate.	Free of liens. Presentations pending registration.	Presentation 200203002376, sale in favor of Carmen Elena Sosa de Benítez. Observed because the property had lien. Since 03-19-02.	10-02-1981		Pending registration for sale in favor of Carmen Elena Sosa de Benítez. Seller: Milton Benítez y Benítez (deceased)
87	ACAJUTLA	301	R13	40	B	**236**	ROSARIO DEL CARMEN RIVERA FUNES	10093109-00000 AS 1	142, 363.55	142, 363.55	Lot ONE B, Hacienda Jordania, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Traffic Right of Way		05-20-1998		Legal problem free
88		301	R13	99	B	**237**	ROSARIO DEL CARMEN RIVERA FUNES	10064378-00000 AS. 8	104, 836.45	104, 836.45	Lot ONE A, Hacienda Jordania, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Traffic Right of Way and aqueduct	Right of Way of Aqueduct in favor of Tomás Palomo from 07-10-1943.	04-01-2016		Legal problem free
89		301	R13	233	B	**239**	JOSE MANUEL RIVERA FUNES	10202438-00000	201,156.46	127,656.46	Lot ONE A, Hacienda El Coyol, Jurisdiction of Acajutla, Department of Sonsonate	Liens with aqueduct Right of Way	Segregation to the North Route of 70,000, which was later divided into 2 one of 25 areas (10091024-0000) and the rest 10072440. Another segregation 3,500.00	07-10-1981		Legal problem free
90		301	R13	105	B	**240**	INVERSIONES AGROPECUARIAS DE OCCIDENTE, S.A. DE C.V.	10068706-00000 AS. 8	349,208.17	349,208.17	Lot Number two, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Mortgage and Right of Way of Aqueduct and Transit	Property Lien with First Mortgage, in favor of María Magdalena Cárcamo Rodríguez amount with modification: $ 375,000.00; Term: 36 months; Interest: 12% per annum, beginning of lien: 04-11-2013.	04-11-2013		Partial lien deduction
91		301	R13	43 (hoy 2536)	B	**241-A**	INVERSIONES AGROPECUARIAS DE OCCIDENTE, S.A. DE C.V.	10189780-00000 AS. 1	28,262.30	28,262.30	Canton El Coyol, Portion number two, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Mortgage	New parcel of land segregated from the 43. Property lien with First Mortgage, in favor of María Magdalena Cárcamo Rodríguez amount with modification: $ 375,000.00; Term: 36 months; Interest: 12% per annum, beginning of Lien: 11-04-2013.	04-11-2013		Partial lien deduction
92		301	R13	43 (hoy 2537)	B	**241-B**	INVERSIONES DK, S.A. DE C.V.	10065047-00000 as. 7	47,832.31	47,832.33	It formed part of the marking in its antecedent like LOT NUMBER THREE, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Aqueduct and Transit	According to registration information the property is Free of liens. But the document details that it is lien with Right of Way of Aqueduct and Transit.	12-20-2013		For notification
93		301	R13	39	B	**242**	ELBA GLADIS IRAHETA DE ESCOBAR	10062674-00000 as. 1	174,604.085	174,604.085	Lot numer one, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Aqueduct and Transit	2 Right of Way of Aqueduct: 1) in favor of Tomás Palomo from 10-07-1943 and 2) in favor of Soc. Eduardo Shonemberg y Compañía from 07-04-1972. Traffic Right of Way: 1) It falls on Hacienda Santa Clara and Santa Emilia from 04-01-1946 and 2) 9 meters wide in favor of Hacienda Santa Clara from 03-07-1973	05-29-1981		For notification
94		301	R13	37	B	**243**	HECTOR ALFREDO DUEÑAS AND DEYSI NERIZ TURCIOS DE DUEÑAS	10068756-00000	174,604.085	174,604.085	Lot number two, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Aqueduct and Transit	2 Right of Way of Aqueduct: 1) in favor of Tomás Palomo from 10-07-1943 and 2) in favor of Soc. Eduardo Shonemberg y Compañía from 07-04-1972. Traffic Right of Way: 1) It falls on Hacienda Santa Clara and Santa Emilia from 04-01-1946 and 2) 9 meters wide in favor of Hacienda Santa Clara from 03-07-1973	09-30-1986		For notification
95		301	R13	32	B	**244**	OSCAR MANUEL GUTIERREZ ROSALES	10024348-00000	533,114.07	533,114.07	Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Transit	In a belt 12 meters wide by 300 meters long, located on the last section of the west course.	05-31-1983		For notification

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: ¨GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA¨

GENERAL DATA ON PROPERTY AFFECTED								IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.							
CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			SYMBOLS OF LEGAL TYPING:	Resolved Cases		Resolution period not exceeding 6 months		Resolution period not exceeding 10 months	Resolution period not exceeding 11 months		Complex legal situation
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	Enrollment or Registration	Area according to Document M²	Rest Registral M²	Property Location	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
96	ACAJUTLA	301	R12	1267	B	**246**	PETRONA QUINTANILLA DE RIVAS	10035323-00000 AS. 9	572.00	572.00	Lot number four, polygon number 13, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Mortgage	Property Lien with First Mortgage, in favor of the Caja de Crédito de Acajutla, Sociedad Cooperativa de R.L. de Capital Variable; Amount: $ 16,000.00; Term: 240 months; Interest: 15% per year on balance; Beginning of liens: 12-02-2015.	12-02-2015	Power of attorney special	Owner lives in Canada. Mr. Wuilfin was handed power format, because he will be processed in Canada until July. But if it is necessary before the management will be done according to a possible proxy.
97		301	R12	1325 y 1326 hoy 4232	C	**247**	SIMON PEDRO VARELA TABLAS	10191843-00000 AS. 2	245,336.19	245,336.19	Caserío la Nueva, Canton San Julián, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL. Before parcel of land: 1325 and 1326	11-14-2013		
98		301	R12	1335	C	**248**	SIMON PEDRO VARELA TABLAS	10137883-00000 AS. 3	361,576.89	361,576.89	PORTION 4, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	11-17-2014		
99		301	R12	1334	C	**250**	LUZ DE MARIA VARELA DE SUVILLAGA	10137882-00000 AS. 3	180,788.45	180,788.45	PORTION 3, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	11-19-2014		
100		301	R12	1333	C	**251**	SIMON PEDRO VARELA TABLAS	10137881-00000 AS. 6	180,788.45	180,788.45	PORTION 2, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	02-13-2015		
101		301	R12	3972 hoy 1332	C	**252**	ANA SILVIA LACAYO DE VARELA	10137880-00000 AS.6	180,742.76	179,773.68	PORTION 1, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Electroduct	Property liens with right of way of electricity conduit in favor of CEL. The First Usufructuary and the second Nude Owner each of 100% of the right.	02-22-2016		
102		301	R12	4732	C	**255**	VICTOR MANUEL ESCOBAR MENDEZ	10145303-00000 AS. 5	16,834.97	8,262.64	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 14, lot 11, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Free of liens		01-19-2015	Domain Transfer	The name of the new owner will be consulted with neighbors
103		301	R12	4018	C	**256**	MOISES HERNANDEZ ESTRADA	10145214-00000 AS. 5	7,169.93	7,169.93	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 1, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Liens with Mortgage	Property liens with First Mortgage in favor of Archimedes Hamilton Pineda Urías and Ofilia Urías Sánchez; Amount: $ 9,500.00; Term: 24 months; Beginning of Lien: 04/23/2015	01-19-2015		Visited, Legal problem free
104		301	R12	4027	C	**265**	OSCAR ARMANDO JIMENEZ	10145223-00000 AS.5	7,152.09	7,152.09	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 10, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Free of liens		02-21-2013	Power of attorney special	Owner in USA Responsible for the land Mr. José Arturo Flores, said that he has power, which will be provided in the course of the project.
105		301	R12	4028	C	**266**	OSCAR ARMANDO JIMENEZ	10145224-00000 AS.5	7,137.29	7,137.29	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 11, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Free of liens		02-21-2013	Power of attorney special	Owner in USA Responsible for the land Mr. José Arturo Flores, said that he has power, which will be provided in the course of the project.
106		301	R12	4029	C	**267**	OSCAR ARMANDO JIMENEZ AND LUCIA ESTELA PAZ DE JIMENEZ	10145225-00000 AS.5	7,154.15	7,154.15	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 12, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Free of liens		08-19-2010	Power of attorney special	Both owners reside in EE. UU. Power must be obtained from the Mrs. Jiménez. In charge of the land Mr. José Arturo Flores, he said that he has Mr. Jiménez's power, which will be provided to us during the project.
107		301	R12	4122	C	**268**	OSCAR ARMANDO JIMENEZ AND LUCIA ESTELA PAZ DE JIMENEZ	10145226-00000 AS.5	7,116.28	7,116.28	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 11, lot 13, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Free of liens		08-19-2010	Power of attorney special	Both owners reside in EE. UU. Power must be obtained from the Mrs. Jiménez. In charge of the land Mr. José Arturo Flores, he said that he has Mr. Jiménez's power, which will be provided to us during the project.
108		301	R11	222	C	**271**	MARIA CONCEPCION MENJIVAR ORELLANA	10110559-00000 AS.15	22,039.37	22,039.37	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 6, lot 5, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	08-27-2011	Power of attorney special	Owner in USA. José Adán Menjívar who is the brother of the owner was not found on the property. Information was left with the head of the Hacienda. Dangerous zone by criminal groups.
109		301	R11	223	C	**272**	JOSE MARIA CHAVEZ	10110558-00000 AS. 6	22,180.02	22,180.02	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 6, lot 4, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	02-11-2002		Owner was not found, already visited by another affected parcel of land in previous design proposal. It will be visited on December 30 to discuss the new parcel of land affected. It was re-visited on the 30th and granted permission for new parcel of land affected. No legal problem.
110		301	R11	224	C	**273**	JOSE MARIA CHAVEZ	10110557-00000 as.4	22,233.94	22,233.94	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 6, lot 3, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	01-24-2001		Owner was not found, already visited by another affected parcel of land in previous design proposal. It will be visited on December 30 to discuss the new parcel of land affected. It was re-visited on the 30th and granted permission for new parcel of land affected. No legal problem.
111		301	R11	834	C	**277**	BLANCA LIZZETTE UMAÑA	10182941-00000 AS. 7	21,223.06	21,223.06	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 12, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Liens with Mortgage	Lien with First Mortgage Opened to Banco Procredit, S.A.; Amount: $ 28,000.00; Term: 240 months; Start date: 02/29/2016; Inscribed to seat 8.	02-29-2016		New owner. Owner lives in the USA. The land manager, Mr. Victor Manuel Cruz, stated that he did not have a contact number, and she is the one who communicates with Mr. Víctor.
112		301	R11	778	C	**279**	ISTA	10182932-00000 AS. 1	26,768.16	26,768.16	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 4, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Free of liens		03-31-2011	Domain Transfer	The Domain Transfer is limited according to articles 233 and 234, of the Constitution of the Republic
113		301	R11	784	C	**280**	EDGAR EFRAIN SANCHEZ AND JUANA FRANCISCA SANCHEZ CAMPOS	10182939-00000 AS. 2	31,907.70	31,907.70	Lot Numer Ten, Polygon "Dos", of the Proyecto Lotification Agrícola San Jorge Kilo Cinco - First Portion, Portion two Jurisdiction of Acajutla, Department of Sonsonate.	Family property	Start on 02-16-2012 and expires on 02-16-2032	02-16-2012		Edgar Efraín Sánchez sold his right in favor of Mrs. Nicolasa Campos Vda. De Gutiérrez
114		301	R11	783	C	**281**	ERMELINDA OSORIO DE GOMEZ, SAMUEL ELOP GOMEZ OSORIO	10182938-00000 AS. 2	30,719.52	30,719.52	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 9, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Family property	Start on 01/19/2012 and beats on 01-19-2032	01-19-2012	Domain Transfer	In the field was found Mr. Rogelio Hernandez Diaz, who claimed to be the owner of the property. You should contact a lawyer who has done the paperwork.
115		301	R11	782	C	**282**	PEDRO ISRAEL HERNANDEZ TREJO	10182937-00000 AS. 2	30,238.77	30,238.77	Hacienda San Jorge, Kilo 5, Portion El Casco, Lotification Agrícola, Pol. 2, Lot 8, San Julián, Jurisdiction of Acajutla, Department of Sonsonate.	Free of liens		12-14-2011	Power of attorney special	Owner is a sailor, is in the highlands, works in Plataformas Petroleras, the father Mr. Rogelio Hernández states that owner will come in February.

GENERAL MATRIX OF RIGHT OF WAY MANAGEMENT OF THE PROYECT: ¨GENERATION OF ELECTRICITY OF 355 MW BASED ON NATURAL GAS, WITH A GENERATION PLANT TO BE BUILT IN ACAJUTLA¨

GENERAL DATA ON PROPERTY AFFECTED								IDENTIFICATION OF PROPERTIES AND OWNERS,REGISTRATION AND CADASTRAL, TYPING PROBLEMS AND LEGAL MANAGEMENT.								
CATASTRAL IDENTIFICATION OF PROPERTY				IDENTIFICATION OF THE PROPERTY BY PROJECT			SYMBOLS OF LEGAL TYPING:	Resolved Cases		Resolution period not exceeding 6 months		Resolution period not exceeding 10 months	Resolution period not exceeding 11 months		Complex legal situation	
No. Correlative	Municipality	Código Municipio	Sector	Parcel of land	Section	No. parcel of land s/ Project	Owner / Possessor	Enrollment or Registration	Area according to Document M²	Rest Registral M²	Property Location	Registration Legal Status	Observations Registration Legal Status	Acquisition date	Legal Problems	Observations Legal Problems
116	ACAJUTLA	301	R11	291	C	**284**	ISTA	10010075-00000 as. 1	539,688	64,564	HACIENDA SAN JORGE KILO 5, SECOND PORTION, CANTON SAN JULIAN, ACAJUTLA, SONSONATE	Free of liens		10-22-1998	Domain Transfer	The Domain Transfer is limited according to articles 233 and 234, of the Constitution of the Republic. In this parcel of land is a dam that is born from the river El Venado. Mr Víctor Cardoña said that Portion was left as a green zone for ISTA.
117		301	R11	367	C	**286**	JOSE LUIS FRANCO JIMENEZ	10125643-00000 AS.3	960.47	960.47	HACIENDA SAN JORGE KILO 5, ASIENTO COMUNITARIO, POLYGON D, SOLAR #6, PORTION OF THE PORTION 3	Free of liens		03-20-2004	Power of attorney special	Owner in USA. In charge Santos Leticia de León, will pass information to the owner.
118		301	R11	366	C	**286-A**	RAFAEL EVARCISTO AGUILAR	10125644-00000 AS.9	1,443.03	1,443.03	HACIENDA SAN JORGE KILO 5, ASIENTO COMUNITARIO, POLYGON D, SOLAR #7, PORTION OF THE PORTION 3	Free of liens		03-16-2005	Power of attorney special	Owner in USA. In charge Rafael Guerrido (brother-in-law), will pass information to owner.
119		301	R11	308	C	**286-E**	CRUZ FLORES BATRES	10136229-00000 AS.3	27,438.05	27,438.05	Lot# 4 , POLYGON 3, HACIENDA SAN JORGE KILO 5	Liens with pledge	Property Liens with Pledge in favor of Banco de Fomento Agropecuario, for an amount of $ 22,000; For the term of 96 months. Beginning lien 3/30/08	07-14-2005		Not found, will visit again. He visited again and said he did not agree with the project, says he will not give consent for any procedure.
120		301	R11	309	C	**286-F**	CRUZ FLORES BATRES	10136230-00000 as.3	28,206.28	28,206.28	HACIENDA SAN JORGE KILO 5, LOTIFICATION AGRICOLA, POLYGON 3, Lot 5, PORTION SAN JOAQUIN	Liens with Mortgage	Mortgaged in favor of Banco Procredit S.A. For an amount of $30,000 and with a term of 240 months. Start of lien 2/21/16	10-03-2011		Not found, will visit again. He visited again and said he did not agree with the project, says he will not give consent for any procedure.
121		301	R10	431	C	**290**	EVER ALEXANDER OVANDO MEDRANO	10114708-00000 AS. 3	584,029.71	584,029.71	Canton San Julián, was part of the denominated Hacienda El Zope, Portion One, Punta Remedios, Puntas Remedio, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Mortgage	Property liens with First Mortgage Open in favor of Caja de Crédito de Acajutla, Sociedad Cooperativa de R.L. $ 175,000.00; Term: 180 months; Interest: 12% per annum; Start of liens: 09-11-2015.	04-18-2009		
122		301	U10	232	C	**292**	SOCIEDAD EL MILAGRO 80, S.A. DE C.V.	10036534-00000 as. 1	115,536.14	115,536.14	Canton San Julián, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	11-20-1981		
123		301	U10	93	C	**294**	AGAVE, S.A.	10028512-00000	48,927.00	48,927.0037	Segregated of the Lot Number Two, Canton San Julián, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	11-08-1978		
124		301	U10	163	C	**295**	COMANDARI JIMENEZ	10023078-00000 AS. 4	101,664.65	101,664.65	Lot One, Canton San Julián, Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of Way of Electroduct	Property Lien with Right of Way of conduit in favor of CEL.	10-18-2015		
125		301	U10	714	C	**296**	DUKE ENERGY INTERNACIONAL EL SALVADOR, SOCIEDAD EN COMANDITA POR ACCIONES DE C. V.	10017812-00000 AS.1	127,970.29	127,970.29	Jurisdiction of Acajutla, Department of Sonsonate .	Presentation pending registration	Presentation of Assignment of Right of Right of Way of Aqueduct, in favor of Generadora Acajutla, S.A. Of C.V. Observed since 07-27-2013	05-27-1999		
126		301	U10	743	C	**297**	COMISION EJECUTIVA PORTUARIA AUTONOMA-CEPA	10148075-00000 AS. 1	1,043,040.01	1,043,040.01	Jurisdiction of Acajutla, Department of Sonsonate	Liens with Right of way Pipeline	Property Liens with 3 Righ of Way of Gas Pipeline: a) in favor of Texaco Caribbean Inc., Beginning of liens 12-22-1993. B) in favor of Almacenadora del Pacífico S.A. de C.V. Beginning of liens 06-12-1992. And c) in favor of Refinería Petrolera Acajutla Limitada S.A de C.V. Start of liens 12-23-2010.	07-21-2005		

Appendix H - Socioeconomic Data Sheet
Menéndez-Ramírez Family

GRIS, S.A. DE C.V. Energía del Pacífico, S.A. de C.V.

SOCIOECONOMIC CENSUS FOR IDENTIFIED BENEFICIARIES / UNDER THE PROJECT TRACE: "GENERATION OF 380 MW BASED ON NATURAL GAS WITH A GENERATION PLANT IN ACAJUTLA, SONSONATE"

Explanatory note: ***The information collected in this document is confidential and will be used exclusively by Energía del Pacífico S.A de C.V. For compensatory benefit actions.***

1_ PARCEL NUMBER _____ 2_LATERAL_____ 3_ PARKING _____ 4_ DATE OF REALIZATION ____/__/____

5_DEPARTAMENT: Sonsonate			
6_MUNICIPALITY: Acajutla			
7_ RURAL AREA		URBAN AREA	
8_ NEIGHBORHOOD / COLONY / LOTIFICATION: Santa Emilia			
9_ PASSAGE - HOUSE:			
10_CANTON:			
11_ CASERIO / COMMUNITY:			
12_ TELEPHONE CONTACT: 7454 - 8720			

CHARACTERISTICS OF INFORMANT (HOUSEHOLDER)						
13_ LIVES IN THE PARCEL	YES	X	NO			
14_NAME	Julio Alberto Menendez Ramirez					
15_DUI	00944990 - 0					
16_ RESIDENCE ADDRESS	Carretera a Acajutla, Santa Emilia Sonsonate					
17_AGE	61	18_SEX	F		M	X

19_ WHAT IS THE TYPE OF PROPERTY OWNERSHIP: *Mark with an "X"*	*Own*	*Rented*	*Holder*	*Occupant*	*Lessor*	***20_ A name of who is the deed :***	
						Petrana Quintanilla de Rivas	
21_ USE OF PROPERTY: *Mark with an "X"*	*Housing*	*Business*	*Housing and business*		*Cellar*	*Agricultural*	*Housing and agricultural*	*Vacant lands*
			X					
22_ FORM OF ACQUISITION OF THE PROPERTY:	*Sales contract*	*Inheritance*	*Succession*	*Other*	*None*	*Time to have the parcel*	
						9 años	
23_ THE PROPERTY HAS ACCOUNT OF THE FOLLOWING SERVICES : *Mark with an "X"*	*23_ Drinking water*	*23.1_ Electric power*	*23.2_ Landline*	*23.3_ Cable TV*	*23.4_ Internet*	*23.5_ Connection to Black Waters*	*23.6_ Sanitary service type*
	no	yes	no	yes	no	no	Washable

PART 1, INDICATIONS: Fill the information in the chart identifying the householder initially and then the family spouse. Then establish kinship based on the household head, not on the respondent's basis (unless these roles match the same person). Fill in the table respecting the codes of the categories of each column, described in the bottom of the table.

1 SOCIO DEMOGRAPHIC DATA

24_N° correlative	25_ Name and Last Name of each household member (Two names and two surnames, if any)	26_ Relationship to the householder	27_Age	28_Sex		Knows		31_ Education level	32_ Primary Occupation (Occupational category)	33_ Monthly income	34_ Disease *	35_ Disability	36_ Type of disability
				1 F	2 M	29_Read	30_Write						
1	Julio Alberto Menendez Ramirez	householder	61		X	Yes	Yes	3	3	$ 300	8	No	
2	Guadalupe Castro de Menendez	Spouse	47	X		Yes	Yes	3	6		9	2	
3	Ricardo Alberto Menendez Castro	Son	20		X	Yes	Yes	6	10		8	No	
4	Jose Andres Menendez Diaz	Grandson	21		X	Yes	Yes	6	10		1	No	
5	Douglas Alexander Menendez Diaz	Grandson	19		X	Yes	Yes	11	4	$ 100	8	No	
6	Kevin Estanley Menendez Diaz	Grandson	18		X	Yes	Yes	6	10		8	No	
7	Nahomy Sarai Menendez Castro	Granddaughter	11	X		Yes	Yes	3	10		8	No	
8													
9													
10													
11													
12													
*Does any member of your household have any of the following conditions?									Total				

Education level:		Primary Occupation		Disease		Type of disability
0) No formal education	6) University student	1) Employer	8) Paid family worker	1) Respiratory	6) Diabetes	1) Physics
1) Nursery school	7) Technical	2) Small Producer	9) Domestic Employee	2) Gastrointestinal	7) Renal	2) Cognitive
2) 1st to 3rd grade	8) Master	3) Self employed	10) Student	3) Cutaneous	8) None	3) Sensorial
3) 4th to 6th grade	9) Professional	4) Permanent Employee	11) Unemployed	4) Cardiac	9) Other	4) Intellectual
4) 7th to 9th grade	10) Under-age	5) Temporary employee	11) Retired	5) Metabolic Syndrome		5) Other
5) Some high school degree	11) Other (please specify):	6) Housework	12) Pensioner	(Hypertension)		
		7) Unpaid family worker	13) Other 99) Does not apply			

Observations: Mrs. Guadalupe states that she suffers from menopause and blurred vision.

PART 2, INDICATIONS: In the first column write down the correlative number of the family group member assigned in the table in part 1. Write down the places of work or study accordingly, and then put the time and expense to mobilize. Note the common form of the transfer (walking or in vehicle).

2 MOBILE DATA - DISPLACEMENT

37_ Correlative of the member of the family group	38_ Place of travel	39_ Address of the place to which it is directed (Caserio, Canton, Header or City) the person	40_How far is the place in minutes? (One way only)	41		41.1	42_How much money do you spend on moving to that place? (Round trip)
				Walks	Collective transport	Private transportatio	
1	3	Santa Emilia – Sonsonate	45		x		$ 10.00
2	3	Santa Emilia – Sonsonate	45		x		$ 1.40
3	2	Santa Emilia – San Salvador UES	150		x		$ 2.80
4	2	Santa Emilia – San Salvador UES	150		x		$ 2.80
5	1	Santa Emilia – K5 Acajutla	20			3	$ 0.00
6	2	Santa Emilia – San Salvador	150		x		$ 2.80
7	2	Santa Emilia – C.E. Santa Marta (Acajutla)	15	x			$ 0.00

Place displacement: 1) Work 2) Study 3) Supply 4) Health **Own transport:** 1) Automobile (car, pick-up, truck), 2) Motorcycle, 3) Bicycle

3 EXISTING SOCIAL EQUIPMENT IN THE AREA

43_ Health service assists	Hospital	Health Unit	Health house	Other	44_Distance (Km)
	x	x			Hospital 16km Health Unit 5km
45_ Educational center assisting	School center	Educational complex	School	Technical	46_Distance (Km)
	x				200 mt

PART 4, INDICATIONS: The following chart must be completed as long as there is some construction in the building (a house, garage, ranch, business, etc.). If the building does not have any construction go to section 5.

4 HOUSING CONSTRUCTION MATERIALS

ARE THERE CONSTRUCTIONS IN THE PROPERTY? YES__ NO__

47_ Prevailing roof material	Straw / Palm / Plastic	Metal sheet	Clay or cement roof tile	Asbestos sheet or special tile	Does not have
48_ Prevailing wall material	Plastic / cardboard	Metal sheet / wood	Adobe / Bahareque	Clay brick or concrete block / Prefabricated	Does not have
49_ Prevailing floor material	Land	Cement floor	Cement brick	Ceramics	Other

50_ IS YOUR FAMILY GROUP DEDICATED TO PRODUCTIVE WORK OR ACTIVITY OR BUSINESS WITHIN THE PARCEL?
YES ___ NO _____ *(If the household does not have any business within the parcel, skip to section 6)*

5 BUSINESS IN THE PROPERTY

What type is your business?

PRODUCTIVE BRANCH	*Mark with an "X"*	52_ Specify the productive branch	A WEEK, HOW MUCH	
			53_... Invests in the purchase of inputs	*54_... generates profit your business*
51_MANUFACTURE: *Produces or transforms goods, example: makes tortillas, food, soft drinks, handicrafts, carpentry, saddlery, pottery, etc.*			$	$
55_ COMMERCE: *Buy and sell goods, example a shop, a bazaar, hardware, agro service, fruits, meats, cereals, etc.*			57_$	58_$
59_SERVICES: *It has a mill, washing and ironing services, works in domestic service, has a car repair shop, electrical workshop, cyber café, teaches English in your home, plumbing, etc*	X	Welding Shop	61_$ 150.00	62_$ 75.00

If you have to leave your home in search of supplies for your business ...

63_ Where are you going to buy them? City or town:	64_How long does it take to get there? (One way)	65_ How much does the return trip cost?
Sonsonate	*Minutes:* 45	$ 10.00

66_ Do you have employees in your productive activities or business? YES ___ No X
66.1 How many?___ 66.2 F___ 66.3 M____

67._ Is your family group engaged in agricultural work on the parcel?1) Yes ____ 2) No X

(If the household is NOT engaged in agricultural work, go to section 7)

6 AGRICULTURAL ACTIVITIES

67_ What products do you grow?

68_Products	69_ Cultivated Área (In apples)	70_ Production is destined to:			71_ Income from trade in goods
		Family consumption	*Commerce*	*Both of them (Trade and family consumption)*	
Corn					$
Beans					$
Coffee					$
Fruit trees					$
Other:					$

72_ In your last crop of total cultivated products, what proportion did you destined to trade?

Production destined for trade. Mark with an "X" one option	*0%*	*10%*	*20%*	*30%*	*40%*	*50%*	*60%*	*70%*	*80%*	*90%*	*100%*

73_ In which city or town do you market your agricultural products?

_____

74_ Normally, who in your family group are those who cultivate the land?

1) Only men _____

2) Mainly men _____

3) Men and women alike _____

4) Mainly women _____

5) Only women _____

Area to be occupied and types of crops in the right of way zone

75_ Total land area (Apples)	76_ Affected area (Apples)	77_ Number of harvests per year	78_ Cultivation start month	79_ Harvest Month

80_ The affected area is:	*Agricultural*	*Livestock*	*Forest*	*Commerce*	*Housing*	*Housing-Agricultural*	*Agricultural-Livestock*	*Housing - Commerce*
								X

Mention if in the last 3 years you have worked with your neighbors in the following types of agricultural production

81_ STRATEGIES OF COLLECTIVE PRODUCTION	Mark with an "X"	
	YES	NO
To produce "go to 50:50" with a friend, relative, or acquaintance. One person puts the ground and the other the work or the inputs, and then the production is divided between the two.		
In order to do the agricultural tasks, he meets with a group of people from his community and collectively they carry out the agricultural tasks in each one of the lands of the members of the group (do not spend on day laborers).		
Do you have access to land owned collectively, whether from the community, the town hall, etc. where you can sow?		
A family member, friend or acquaintance lends him the land (he pays nothing).		
Rent the land you grow.		
The land you grow is owned or owned by it.		
Do you have access to nearby rivers or uncultivated lands where you can collect firewood, some fruits or other?		

I will mention a series of animals and you tell me if you have them and if you perceive any permanent income with them

LIVESTOCK ACTIVITIES	Mark with an "X"			Do you see income?		
	YES	NO	How many	YES	NO	How much / month ($)
82_ Cows / oxen						
83_ Chickens						
84_ Goats						
85_ Pigs						
86_ Horses						
87_ Other:						

What is the product that you fish?

	How much fishing per day (pound or tens))			82.1 Do you see income?		
	YES	NO	88.1 How many	NO, Only for consumption	YES	How much / month ($)
88. Fish						
89. Shrimp						
90. Shells						
91. Other:						

92. From the activity you do, what is your contribution to the family budget?Mark with an "X" one option

1) I contribute 100% of household expenses ____
2) I contribute a share to household spending ____
3) I do not contribute to household spending ____
4) Economically dependent on:_____

7 SOCIAL INCLUSION / EXCLUSION

93. Has any member of your family group (your household) been in need of moving from the country or to another place in the last twelve months?

1) Yes__ 2) No X How many? Enter the total number and amount by sex of the migrant:

Number_____ F _____ M_____

94. Do you or any member of your family group participate in any community grouping, eg Church Group, Sports Team, ADESCO, Board, Water Board, Civil Protection Commission?

1) Yes_____ 2) No X How many? Enter the total number and amount by sex of the people involved:

Number _____ F _____ M_____

95. Next to your home or in front of it has neighbors who are his relatives? 1) Yes_____ 2) No _____

INDICATIONS: The following table compiles information about the interviewee's perception of their community environment. Read to the interviewee the statements presented in the first column and then the possible answers for each one. In each statement you read to the respondent, always repeat the response options: Too much, Frequently, More or less, Almost Nothing or Nothing.

PERCEPTIONS OF THE ENVIRONMENT. CONSIDERS THAT:		*Mark with an "X"* la respuesta que considere conveniente				
		A lot	Frequently	More or less	Almost nothing	Nothing
96.	The community where you live is safe	X				
97.	Your neighbors are people you can trust fully				X	
98.	Consider that in your community there are collective meetings or groupings in which you can express freely					X
99.	He meets to talk with his neighbors, and they support each other when they have problems					X
100.	There are problems in the community that make them want to live elsewhere (delinquency, problematic neighbors, poor water services, light, etc.)			X		

101. Consider that in your colony or community there are spaces where your children or relatives can recreate and have fun (sports court, swings, a river, etc.)

1) Yes_____ 2) No X 102. Specify _____

103. If he was forced to leave the area, where he would go:

1) Where the family outside the area _____
2) Where the family within the zone _____
3) Other land I own in the area _____
4) Other land owned outside the area _____
5) Rent a home _____
6) None X

103. 1 What would be an option in the area where it would be convenient to reside:

In the zone

PART 8, INDICATIONS: Ask the interviewee first for the advantages that the project will bring, and then for the disadvantages. It is not necessary for you to mention the response options, but wait for the respondent to answer them and then place them in one of the suggested categories

8 ADVANTAGES AND DISADVANTAGES OF THE PROJECT

What advantages or disadvantages do you think the project will bring?

104. ADVANTAGES	*Mark with an "X"*	105. DISADVANTAGES	*Mark with an "X"*
1. Contribution to the social and economic development of the municipality.		1. Loss of parcel of land, property and / or constructions.	
2. Creation of temporary and permanent jobs.		2. Loss of business, sales.	
3. Introduction of a less polluting source to the environment.		3. Move to another zone.	
4. Increase in the availability of national energy.		4. Damage to the environment.	
Other: None		***Other:*** That remove them from the place of housing.	

WRITE THE RELEVANT OBSERVATIONS WHICH YOU CONSIDER SUPPORT INFORMATION FROM THE SECTIONS

1 DEMOGRAPHIC PARTNER DATA

No. 4 the yang person suffers from allergy. No. 5 the educational level is technical computing and english.

2 MOBILITY AND DISPLACEMENT DATA

Mr. Menendez rents proven transportation cancelling $10.00 to supply materials (oxygen tank, iron, etc.)

3 EXISTING SOCIAL EQUIPMENT IN THE AREA

4 HOUSING CONSTRUCTION MATERIALS

It doesnot have black wate, discharge to the draught.

5 BUSINESS IN THE PROPERTY

6 AGRICULTURAL AND FISHERY ACTIVITIES

7 SOCIAL INCLUSION / EXCLUSION

8 ADVANTAGES AND DISADVANTAGES OF THE

Appendix I - Model of Contract with Owners

NUMBER _____. BOOK _____. PROMISE OF CONSTITUTION OF RIGHT OF WAY. In the city of Sonzacate, At _____ hours of the day ____ July of the two thousand sixteen. Before me, _____, Notary, of the address of San Salvador, department of San Salvador, the Mr. _____**,** _____ years of age, _____, of the address of _____, Department of _____, whom I now know and identify through your Identity Document Number _____, with Tax Identification Number _____; And, who in the course of this instruments will be called **"The Promising"**; On the other hand, ALEJANDRO GUSTAVO ALLE, who is fifty-five years old, Engineer, from the domicile of Santa Tecla, department of La Libertad, Argentine nationality, who I know the bearer of his Residence Card: CA-FOUR number FOUR ONE THREE ZERO FOUR issued on day two September of two thousand thirteen by the Directorate General for Migration and Immigration, with expiration date September 6, two thousand and seventeen, acting as Special Attorney of **"ENERGÍA DEL PACÍFICO, LIMITADA DE CAPITAL VARIABLE"**, which can be shortened **"ENERGÍA DEL PACÍFICO, LTDA. DE C.V."** and **"EDP, LTDA. DE C.V."**, of Salvadoran nationality, of the domicile of San Salvador, with Tax Identification Number zero five hundred one-hundred and twenty-one thousand two hundred and thirteen-one hundred and one-six, whose legal identity I attest to being legitimate and sufficient for having had in view the Testimony of the Public Deed of Special Power granted by Mr. Eduardo Antonio Zablah Hasbún, known by Eduardo Antonio Zablah Touché Hasbún, acting as General Manager and Legal Representative of the society "ENERGÍA DEL PACÍFICO, LIMITADA DE CAPITAL VARIABLE", which can be shortened "ENERGÍA DEL PACÍFICO, LTDA. DE C.V." and "EDP, LTDA. DE C.V.", In the city of San Salvador, at sixteen hours on the thirteenth day of May, two thousand sixteen, before the offices of the Notary Mario Eduardo Ayala Claros, and enrolled in the Trade Register on the seventeenth day of May, two thousand sixteen, FORTY-THREE of the Book ONE THOUSAND SEVEN HUNDRED AND FIFTY-EIGHT of the Registry of Other Commercial Contracts of the Registry of Commerce, which states that Mr. ALEJANDRO GUSTAVO ALLE, is empowered to act on behalf of and in representation of ENERGIA DEL PACIFICO, LTDA. DE C.V. to sign this Contract of PROMISE OF CONSTITUTION OF RIGHT OF WAY; in the aforementioned power, the authorizing Notary testified to the legal status of the Legal Representative of the Company and the legal existence of the same; To whom it will indiscriminately be called the **"Company" or the "Beneficiary"**; and each one of the previous ones appearing, **THEY TELL ME:** That by this act they celebrate a **CONTRACT OF PROMISE OF CONSTITUTION OF RIGHT OF WAY OF ELECTRODUCT**, which shall

be governed by the following provisions: **I) STATEMENT OF DOMAIN AND STATE OF THE PROPERTY:** The Promising is currently the owner and possessor of a rustic property situated in the jurisdiction of _____, Department of _____, of an area of _____ **SQUARE METER**, registered in their favor under the number plate _____ **- ZERO ZERO ZERO ZERO ZERO** of the Root and Mortgage Registry of the _____ West Section, Department of _____. The Promising also declares that it is its intention to grant a Right of Way contract on the previous property in favor of the Company, however, to this day the Promising can not constitute said Right of Way because there is in the property a legal problem that precludes The constitution of the right of way, which consists of _____.**II) PROMISE OF CONSTITUTION OF RIGHT OF WAY:** Subject to the terms and conditions set forth in this Agreement, the Promising irrevocably promises to constitute right of way right of way for busway in favor of the Company, on a strip of land located within the property described in the previous clause, which is of a surface extension of _____**SQUARE METER** and is located in the _____ direction of the general building (the "Right of Way") and will be used for the development of an electric power transmission line (the "Transmission Line");**III) PRICE OF THE PROMISE OF RIGHT OF WAY:** The parties agree that the total price that the Company will pay in favor of the Promising as consideration for the granting of the Right of Way will be the amount of _____ **DOLLARS OF THE UNITED STATES OF AMERICA WITH** _____ **CENTS OF DOLLAR OF THE UNITED STATES OF AMERICA** more taxation; **IV) TERM:** The term for the formalization of the Right of Way will be sixteen months from this date, as long as the property is registered with one hundred percent of property right in its favor and is inscribable the right of way of In favor of the Company in the corresponding Property Registry. The Promising undertakes to provide, during the period indicated above, any documentation that facilitates the preparation and registration of the Public Deed of Constitution of the Right of Way. The term indicated in this clause may be extended by mutual agreement by means of cross-letters, for equal or partial periods when the condition indicated in clause I of this instrument has not been resolved. **V) PAYMENT METHOD**: In this act, the Company delivers the amount of _____ **DOLLARS OF THE UNITED STATES OF AMERICA WITH** _____ **CENTS OF DOLLAR OF THE UNITED STATES OF AMERICA,** in concept of "advance" by the constitution of the Right of Way, amount that the Promising declares to receive to its entire satisfaction. The parties expressly agree that this amount will be deducted from the total amount indicated in clause III of this instrument, so that only the amount of _____

DOLLARS OF THE UNITED STATES OF AMERICA WITH _____ CENTS OF DOLLAR OF THE UNITED STATES OF AMERICA, in the event that the Right of Way is pledged by this agreement, which will be canceled by the Company in favor of the Promissant through a single payment that will be made at the time of signing the Public Deed of Constitution of the Right of Way, within the period determined in clause IV of this instrument. **VI) OBLIGATIONS OF THE PROMISING**: The Promising obliges to: i) To sign with the Company the respective Public Deed of Right of Way, free of any encumbrance, in order to be registered in the corresponding Land Registry, also obliging to make delivery and tradition of the right of way and other rights That corresponds to him on the strip that will be taxed with the Right of Way in favor of the Society; and ii) Keep up-to-date payments of all taxes, fees, contributions and / or taxes affecting the property in general, so that it is solvent and does not hinder the process of registration of the Right of Way for not being up to date with the payment of such taxes. **VII) OBLIGATIONS OF THE COMPANY:** The Company agrees to: i) Pay the outstanding part of the price in the event of formalization of the Right of Way; And ii) Pay the fees and expenses caused by this contract, as well as those arising from the right of way of the corresponding busway. **VIII) TERMINATION OF THE CONTRACT OF PROMISE OF CONSTITUTION OF RIGHT OF WAY OF ELECTRODUCT.** This contract will end in the following cases: a) Due to the expiration of the term or its extensions indicated in clause IV of this instrument; B) Due to the impossibility for the Promising to deliver the accessory documents for the execution of the constitution of right of way of busway; And c) Unilateral withdrawal of the Company with respect to formalizing the Right of Way contract, for which it will be sufficient for the Company to notify the Promiser of its intention not to formalize the Right of Way. If for reasons a) and b), the Right of Way was not formalized, the Promising undertakes to return to the Company the amount received in this act as an "advance". Likewise, in the event that the Right of Way is not constituted for breaching the Promising its obligation to deliver documents or for the simple refusal of the Right of Way to formalize the Right of Way, it is obligated to pay the Company as a deadline and in addition Repayment of the "advance", the amount of _____ **DOLLARS OF THE UNITED STATES OF AMERICA WITH _____ CENTS OF DOLLAR OF THE UNITED STATES OF AMERICA**, **i**n terms of penalty; Being therefore obliged to deliver immediately to the Company the total amount of _____ **DOLLARS OF THE UNITED STATES OF AMERICA WITH _____ CENTS OF DOLLAR OF THE UNITED STATES OF AMERICA. IX) EXECUTIVE STRENGTH:** For the corresponding judicial effects, the parties declare and

acknowledge that this contract will be enforceable pursuant to article four hundred and fifty-seven, ordinal first, of the Code of Civil and Commercial Procedure. **X) OBTAINING PROJECT PERMITS.** Regardless of whether the Right of Way is formalized or not, Promising authorizes the Company to request any permits, authorizations and licenses necessary for the development of the Line of Transmission in the Property and in the area to be affected by the Right of Way to any competent authority, including, without limitation, state and municipal authorities, the General Superintendence of Electricity and Telecommunications (SIGET), the Ministry of Environment and Natural Resources (MARN), among others. The parties agree that it is the sole responsibility of the Company to obtain all permits, authorizations and licenses previously related to the Transmission Line. **XI) MODIFICATIONS.** The parties may by mutual agreement modify, amend or change this Agreement of PROMISE OF RIGHT OF WAY and other documents that comprise it, having to document it to have legal effects by means of instruments duly authorized and subscribed by both parties. Modifications, amendments or changes adopted by the parties in accordance with what is agreed in this clause shall form an integral part of the PROMISE OF RIGHT OF WAY Contract and shall therefore be strictly enforceable. **XII) SPECIAL ADDRESS AND APPLICABLE LEGISLATION:** This agreement will be subject and interpreted according to the laws of the Republic of El Salvador. In case of dispute, both parties indicate as their special domicile the one of the city of San Salvador, to whose courts they submit. This was how those who appeared to explain the legal effects of this deed were expressed; And read that it was for me all written in its entirety, in a single act without interruption, ratify its content for being drafted to their entire will, and sign with me. **ATTEST.**

NUMBER------. BOOK _____. In the city of Sonzacate, Department of Sonsonate, at ---------- hours of the day ---------- July of the year two thousand and sixteen. **IN FRONT OF ME, _____,** Notary, of the domicile of the City and Department of San Salvador, appear: i) On the one hand, Mr. _____, _____ years of age, _____, of the address of Sonsonate, Department of Sonsonate, person whom I do not know but I identify by means of its Unique Identity Document Number _____, and with Tax Identification Number _____ Which is hereinafter referred to as "The Owner", and ii) On the other hand, **ALEJANDRO GUSTAVO ALLE**, who is fifty-five years old, Engineer, from the domicile of Santa Tecla, department of La Libertad, Argentine nationality, who I know the bearer of his Residence Card: CA-FOUR number FOUR ONE THREE ZERO FOUR issued on day two September of two thousand thirteen by the Directorate General for Migration and Immigration, with expiration date September 6, two thousand and seventeen, acting as Special Attorney of **"ENERGÍA DEL PACÍFICO, LIMITADA DE CAPITAL VARIABLE",** which can be shortened **"ENERGÍA DEL PACÍFICO, LTDA. DE C.V." and "EDP, LTDA. DE C.V.",** of Salvadoran nationality, of the domicile of San Salvador, with Tax Identification Number zero five hundred one-hundred and twenty-one thousand two hundred and thirteen-one hundred and one-six, Whose legal identity I attest to being legitimate and sufficient for having had in view the Testimony of the Public Deed of Special Power granted by Mr. Eduardo Antonio Zablah Hasbún, known by Eduardo Antonio Zablah Touché Hasbún, acting as General Manager and Legal Representative of the society **"ENERGÍA DEL PACÍFICO, LIMITADA DE CAPITAL VARIABLE"**, which can be shortened **"ENERGÍA DEL PACÍFICO, LTDA. DE C.V." and "EDP, LTDA. DE C.V."**, In the city of San Salvador, at sixteen hours on the thirteenth day of May, two thousand sixteen, before the offices of the Notary Mario Eduardo Ayala Claros, and enrolled in the Trade Register on the seventeenth day of May, two thousand sixteen, FORTY-THREE of the Book ONE THOUSAND SEVEN HUNDRED AND FIFTY-EIGHT of the Registry of Other Commercial Contracts of the Registry of Commerce, which states that Mr. ALEJANDRO GUSTAVO ALLE, is empowered to act on behalf of and in representation of **EDP, LTDA. DE C.V.,** to sign this Contract of Constitution of Righ of Way of Electroduct; In the aforementioned power, the authorizing Notary testified to the legal status of the Legal Representative of the Company and the legal existence of the same; and **THEY TELL ME:** which hereby grant a contract for the constitution of RIGHT OF WAY OF ELECTRODUCT, which shall be governed by the following clauses**: I) DOMAIN STATEMENT**: The owner declares that he is the owner and current holder of a property inscribed in his favor under the number _____ of the Book _____, of Property now transferred in the Real Folio System Automated in the number plate _____, **b**efore the Registry of Real Estate and Mortgages of the Third Section of the West, which corresponds to the Department of Sonsonate, which is of a rustic nature and is located in _____, Jurisdiction of Acajutla, Departament of Sonsonate, identified as _____, with an original surface extension of _____ **SQUARE METER**, but that by previous dismemberments the real estate has been reduced to a registry rest of _____ **SQUARE METER.** That the rest of the property previously related according to its antecedent is taxed with right of ways inscribed in the

Registry of the Real Property of Sonsonate thus: a) of aqueduct according to inscription number thirty-nine of Volume three hundred and six; b) of aqueduct and transit, inscription number one hundred twenty-eight Volume one hundred and nine; c) of transit, inscription number twenty-eight of Volume one hundred and nine; ch) of transit, inscription number one hundred twenty-eight Volume one hundred and nine; d) transit, inscription number one hundred and ninety-two of Volume one hundred and thirty and the stipulations in the writing authorized in the offices of Notary Doctor Roberto Antonio Zavaleta, eleven of July of one thousand nine hundred and seventy-two inscribed to the number twenty-seven and twenty-eight of Volume three hundred sixteen. The right of ways that are related in the antecedent are not affected by the constitution of the right of way of bus that later on is constituted. **II) CONSTITUTION OF RIGHT OF WAY REAL RIGHT OF ELECTRODUCT:** By this means, the owner constitutes on the land of his previously related Property, **RIGHT OF WAY OF ELECTRODUCT,** for an indefinite period in favor of society **EDP, LTDA. DE C. V.**, To install cables for the transmission and / or distribution of electrical energy, fiber optics and their associated support and installation structures and, if necessary, their reconversion. The strip of land on which the right of way of electric conduit falls that in this act is constituted and that according to the plans of **EDP, LTDA. DE C. V.**, is identified as a parcel of land _____, is located, measured and adjoined as detailed below: Located on the projected axis of the transmission line of two hundred and thirty kilovolts that starts at the plant generating electric energy based on natural gas in the municipality of Acajutla and ends at the Electric Substation of ETESAL, S.A. de C.V. Located in the municipality of Ahuachapán, of a superficial extension of _____ SQUARE METER, equivalent to _____ SQUARE STICKS and whose technical description is the following one: starting from the point one that is identified with the geodesic coordinates: length _____ and latitude _____. NORTH SIDE: _____. SOUTH SIDE: _____. WEST SIDE _____. Consequently, the owner hereby makes the right-of-way to **EDP, LTDA. DE C.V.,** Being forced to the sanitation of Law if necessary. Likewise, the representative of **EDP, LTDA. DE C.V.,** accepts the tradition of the right of way constituted by means of this instrument. **III) PRICE AND DEADLINE**. The right of way and its related annexed rights in Clause II, constitute the owner in favor of **EDP, LTDA. DE C.V.,** For an indefinite period. Likewise, the owner declares that it constitutes the right of way and rights attached for the total amount of _____ DOLLARS OF THE UNITED STATES OF AMERICA WITH _____ CENTS OF THE DOLLAR OF THE UNITED STATES OF AMERICA, as compensation for the constitution of the previous real right, compensation that includes damages and losses derived from: i) the limitations to which the property is subject with the right of way that is constituted and the property attached to it because of the constitution of the right of way; (Ii) Activities necessary for the conservation of lines; iii) The incorporation of any type of structure in the encumbered property; And iv) Any other limitation that could be suffered by the property because of the tax made. The amount previously established will be paid in two installments as follows: i) In this act **EDP, LTDA. DE C.V.,** makes delivery of _____ DOLLARS OF THE UNITED STATES OF AMERICA WITH _____ CENTS OF DOLLAR OF THE UNITED STATES OF AMERICA, amount that the owner declares to receive to his satisfaction. **EDP, LTDA. DE C.V.,** is authorized to enter the land subject of the easement to make the inspections and studies necessary for the development of its activities. **IV) POWERS AND LIMITATIONS DERIVED FROM THE RIGHT OF WAY:** In accordance with the owner's will and the

payment for compensation made by **EDP, LTDA. DE C.V.,** in this act the property on which the right of way has been constituted is subject to the following limitations and conditions that if unobserved by the owner, is exempted to **EDP, LTDA. DE C.V.,** of any civil and criminal liability that may arise: **a)** Employees of **EDP, LTDA. DE C.V.,** will be able to transit on the right of way now constituted, either by foot, in motor vehicles or in machinery necessary for the accomplishment of the works object of this right of way, among others for the construction, custodia, maintenance and repair of lines of transmission And / or distribution; **b)** The constituted right of way authorizes **EDP, LTDA. DE C.V.,** or its contractors, to carry out in the portion of the encumbered building any structure facility (towers or poles), and necessary construction, once the full payment of the price of this contract has been made; **c)** Authorizes to remove any obstacles within the respective path, including trees that approach the wires dangerously, in order to maintain a minimum distance of five meters, as long as this is necessary for the construction and optimal maintenance of the lines Transmission and / or distribution, being the responsibility of **EDP, LTDA. DE C.V.,** the repair or compensation if for any reason caused damages with these actions; **d)** The transmission lines shall maintain a minimum vertical height of eight meters on agricultural land, on public and private roads, the minimum height shall be nine meters; **e)** Within the strip of the right of way is restricted to the owner or owner of the property to excavate within fifteen meters of the support structures, Constructing buildings for any purpose or use, storing flammable or explosive materials, accumulating materials or other objects, planting or permanence of waterlogged crops or vegetation that in their final development are close to five meters of cables, mining open sky or blades, Remote tunnel mining less than fifteen meters from the base of the supporting structures of the conductors, installation of irrigation canals, drainage or the like. Excavations that are carried out farther than the prohibited and the use of agricultural or construction machinery that guarantee a minimum distance of five meters with the cables, will require the express approval of **EDP, LTDA. DE C.V., f)** Burnings are not allowed regardless of their nature or motive, not even being controlled; **g)** The parties declare their agreement so that once registered right of way constituted by means of the present document, this tax can be ceded in property or in guarantee on the part of **EDP, LTDA. DE C.V.,** In favor of any public or private institution, Salvadoran or foreign, without further processing than the respective notification, being accepted by the owner in this act; and **h)** The location and area to be occupied by the right-of-way strip described in this instrument may be modified at the request of EDP, LTDA. DE C.V. if it is necessary to make adjustments to the design of the transmission line due to strictly technical aspects or lack of permits of the competent institutions. In this case, the parties are obliged to maintain the terms and conditions agreed upon in this contract and to authorize the strip according to the technical or permissive needs. In case the new area to be occupied was greater than that recorded in this contract, **EDP, LTDA. DE C.V.** agrees to pay the difference and in proportion to the amount canceled in this act. Otherwise, if the area is smaller, **EDP, LTDA. DE C.V.** no refund will be required from the owner. **V) SPECIAL ADDRESS:** For all legal effects of this document, both parties indicate as domicile special the one of the City of San Salvador**.** The notary undersigned states: 1) That I explained to the grantor the legal effects of this deed of constitution of right of way; 2) That prior to the granting of this deed, I advised the grantor of the obligation to be solvent of the corresponding taxes for the inscription of the testimony of this deed in the

corresponding Real Estate and Mortgage Registry. This was expressed by those who appeared to those who explained the legal effects of this instrument, and read that they had all written in a single uninterrupted act, ratify its content and signed.- **ATTEST.**

NUMBER------. BOOK _____. In the city of Sonzacate, Department of Sonsonate, at ---------- hours of the day ---------- July of the year two thousand and sixteen. **IN FRONT OF ME, _____,** Notary, of the domicile of the City and Department of San Salvador, appear: i) On the one hand, Mr. _____, _____ years of age, _____, of the address of Sonsonate, Department of Sonsonate, person whom I do not know but I identify by means of its Unique Identity Document Number _____, and with Tax Identification Number _____ Which is hereinafter referred to as "The Owner", and ii) On the other hand, **ALEJANDRO GUSTAVO ALLE**, who is fifty-five years old, Engineer, from the domicile of Santa Tecla, department of La Libertad, Argentine nationality, who I know the bearer of his Residence Card: CA-FOUR number FOUR ONE THREE ZERO FOUR issued on day two September of two thousand thirteen by the Directorate General for Migration and Immigration, with expiration date September 6, two thousand and seventeen, acting as Special Attorney of **"ENERGÍA DEL PACÍFICO, LIMITADA DE CAPITAL VARIABLE",** which can be shortened **"ENERGÍA DEL PACÍFICO, LTDA. DE C.V." and "EDP, LTDA. DE C.V.",** of Salvadoran nationality, of the domicile of San Salvador, with Tax Identification Number zero five hundred one-hundred and twenty-one thousand two hundred and thirteen-one hundred and one-six, Whose legal identity I attest to being legitimate and sufficient for having had in view the Testimony of the Public Deed of Special Power granted by Mr. Eduardo Antonio Zablah Hasbún, known by Eduardo Antonio Zablah Touché Hasbún, acting as General Manager and Legal Representative of the society **"ENERGÍA DEL PACÍFICO, LIMITADA DE CAPITAL VARIABLE"**, which can be shortened **"ENERGÍA DEL PACÍFICO, LTDA. DE C.V." and "EDP, LTDA. DE C.V."**, In the city of San Salvador, at sixteen hours on the thirteenth day of May, two thousand sixteen, before the offices of the Notary Mario Eduardo Ayala Claros, and enrolled in the Trade Register on the seventeenth day of May, two thousand sixteen, FORTY-THREE of the Book ONE THOUSAND SEVEN HUNDRED AND FIFTY-EIGHT of the Registry of Other Commercial Contracts of the Registry of Commerce, which states that Mr. ALEJANDRO GUSTAVO ALLE, is empowered to act on behalf of and in representation of **EDP, LTDA. DE C.V.,** to sign this Contract of Constitution of Righ of Way of Electroduct; In the aforementioned power, the authorizing Notary testified to the legal status of the Legal Representative of the Company and the legal existence of the same; and **THEY TELL ME:** which hereby grant a contract for the constitution of RIGHT OF WAY OF ELECTRODUCT, which shall be governed by the following clauses**: I) DOMAIN STATEMENT**: The owner declares that he is the owner and current holder of a property inscribed in his favor under the number _____ of the Book _____, of Property now transferred in the Real Folio System Automated in the number plate _____, before the Registry of Real Estate and Mortgages of the Third Section of the West, which corresponds to the Department of Sonsonate, which is of a rustic nature and is located in _____, Jurisdiction of Acajutla, Departament of Sonsonate, identified as _____, with an original surface extension of _____ **SQUARE METER**, but that by previous dismemberments the real estate has been reduced to a registry rest of _____ **SQUARE METER.** That the rest of the property previously related according to its antecedent is taxed with right of ways inscribed in the Registry of the Real Property of Sonsonate thus: a) of aqueduct according to inscription number thirty-nine of Volume three hundred and six; b) of aqueduct and transit, inscription number one hundred twenty-eight Volume one hundred and nine; c) of

transit, inscription number twenty-eight of Volume one hundred and nine; ch) of transit, inscription number one hundred twenty-eight Volume one hundred and nine; d) transit, inscription number one hundred and ninety-two of Volume one hundred and thirty and the stipulations in the writing authorized in the offices of Notary Doctor Roberto Antonio Zavaleta, eleven of July of one thousand nine hundred and seventy-two inscribed to the number twenty-seven and twenty-eight of Volume three hundred sixteen. The right of ways that are related in the antecedent are not affected by the constitution of the right of way of bus that later on is constituted. **II) CONSTITUTION OF RIGHT OF WAY REAL RIGHT OF ELECTRODUCT:** By this means, the owner constitutes on the land of his previously related Property, **RIGHT OF WAY OF ELECTRODUCT,** for an indefinite period in favor of society **EDP, LTDA. DE C. V.**, To install cables for the transmission and / or distribution of electrical energy, fiber optics and their associated support and installation structures and, if necessary, their reconversion. The strip of land on which the right of way of electric conduit falls that in this act is constituted and that according to the plans of **EDP, LTDA. DE C. V.**, is identified as a parcel of land _____, is located, measured and adjoined as detailed below: Located on the projected axis of the transmission line of two hundred and thirty kilovolts that starts at the plant generating electric energy based on natural gas in the municipality of Acajutla and ends at the Electric Substation of ETESAL, S.A. de C.V. Located in the municipality of Ahuachapán, of a superficial extension of _____ SQUARE METER, equivalent to _____ SQUARE STICKS and whose technical description is the following one: starting from the point one that is identified with the geodesic coordinates: length _____ and latitude _____. NORTH SIDE: _____. SOUTH SIDE: _____. WEST SIDE _____. Consequently, the owner hereby makes the right-of-way to **EDP, LTDA. DE C.V.,** Being forced to the sanitation of Law if necessary. Likewise, the representative of **EDP, LTDA. DE C.V.,** accepts the tradition of the right of way constituted by means of this instrument. **III) PRICE AND DEADLINE**. The right of way and its related annexed rights in Clause II, constitute the owner in favor of **EDP, LTDA. DE C.V.,** For an indefinite period. Likewise, the owner declares that it constitutes the right of way and rights attached for the total amount of _____ DOLLARS OF THE UNITED STATES OF AMERICA WITH _____ CENTS OF THE DOLLAR OF THE UNITED STATES OF AMERICA, plus taxes, as compensation for the constitution of the previous real right, compensation that includes damages and losses derived from: i) the limitations to which the property is subject with the right of way that is constituted and the property attached to it because of the constitution of the right of way; (Ii) Activities necessary for the conservation of lines; iii) The incorporation of any type of structure in the encumbered property; and iv) Any other limitation that could be suffered by the property because of the tax made. The amount previously established will be paid in two installments as follows: i) In this act **EDP, LTDA. DE C.V.,** makes delivery of _____ DOLLARS OF THE UNITED STATES OF AMERICA WITH _____ CENTS OF DOLLAR OF THE UNITED STATES OF AMERICA, amount that the owner declares to receive to his satisfaction; and **ii)** The second installment, which amounts to _____ DOLLARS OF THE UNITED STATES OF AMERICA WITH _____ CENTS OF THE DOLLAR OF THE UNITED STATES OF AMERICA, shall be paid on the thirtieth day of October in the year two thousand and seventeen. The parties expressly agree that **EDP, LTDA. DE C.V.** will not make any installation of equipment, cables, towers, among others, until has paid the full price. Without prejudice of the previous, **EDP, LTDA. DE C.V.,** is entitled to

enter the land subject to the right of way to make the inspections and studies necessary for the development of its activities. **IV) POWERS AND LIMITATIONS DERIVED FROM THE RIGHT OF WAY:** In accordance with the owner's will and the payment for compensation made by **EDP, LTDA. DE C.V.,** in this act the property on which the right of way has been constituted is subject to the following limitations and conditions that if unobserved by the owner, is exempted to **EDP, LTDA. DE C.V.,** of any civil and criminal liability that may arise: **a)** Employees of **EDP, LTDA. DE C.V.,** will be able to transit on the right of way now constituted, either by foot, in motor vehicles or in machinery necessary for the accomplishment of the works object of this right of way, among others for the construction, custodia, maintenance and repair of lines of transmission And / or distribution; **b)** The constituted right of way authorizes **EDP, LTDA. DE C.V.,** or its contractors, to carry out in the portion of the encumbered building any structure facility (towers or poles), and necessary construction, once the full payment of the price of this contract has been made; **c)** Authorizes to remove any obstacles within the respective path, including trees that approach the wires dangerously, in order to maintain a minimum distance of five meters, as long as this is necessary for the construction and optimal maintenance of the lines Transmission and / or distribution, being the responsibility of **EDP, LTDA. DE C.V.,** the repair or compensation if for any reason caused damages with these actions; **d)** The transmission lines shall maintain a minimum vertical height of eight meters on agricultural land, on public and private roads, the minimum height shall be nine meters; **e)** Within the strip of the right of way is restricted to the owner or owner of the property to excavate within fifteen meters of the support structures, Constructing buildings for any purpose or use, storing flammable or explosive materials, accumulating materials or other objects, planting or permanence of waterlogged crops or vegetation that in their final development are close to five meters of cables, mining open sky or blades, Remote tunnel mining less than fifteen meters from the base of the supporting structures of the conductors, installation of irrigation canals, drainage or the like. Excavations that are carried out farther than the prohibited and the use of agricultural or construction machinery that guarantee a minimum distance of five meters with the cables, will require the express approval of **EDP, LTDA. DE C.V., f)** Burnings are not allowed regardless of their nature or motive, not even being controlled; **g)** The parties declare their agreement so that once registered right of way constituted by means of the present document, this tax can be ceded in property or in guarantee on the part of **EDP, LTDA. DE C.V.,** In favor of any public or private institution, Salvadoran or foreign, without further processing than the respective notification, being accepted by the owner in this act; and **h)** The location and area to be occupied by the right-of-way strip described in this instrument may be modified at the request of EDP, LTDA. DE C.V. if it is necessary to make adjustments to the design of the transmission line due to strictly technical aspects or lack of permits of the competent institutions. In this case, the parties are obliged to maintain the terms and conditions agreed upon in this contract and to authorize the strip according to the technical or permissive needs. In case the new area to be occupied was greater than that recorded in this contract, **EDP, LTDA. DE C.V.** agrees to pay the difference and in proportion to the amount canceled in this act. Otherwise, if the area is smaller, **EDP, LTDA. DE C.V.** no refund will be required from the owner. **V) SPECIAL ADDRESS:** For all legal effects of this document, both parties indicate as domicile special the one of the City of San Salvador**.** The notary undersigned states: 1) That I explained to the grantor the legal effects of this deed of constitution of right of way; 2) That prior to the granting of this deed, I advised the grantor of the obligation to be solvent of the corresponding taxes for the inscription of the testimony of this deed in the

corresponding Real Estate and Mortgage Registry. This was expressed by those who appeared to those who explained the legal effects of this instrument, and read that they had all written in a single uninterrupted act, ratify its content and signed.- **ATTEST.**

Appendix J - Previously Documented Cultural Heritage Resources

Cultural Heritage Resources previously documented.

Detail record by municipality (according to Atlas of archaeological sites SECULTURA)

Municipality	Department	Site name	Site Type
Acajutla	Sonsonate	Puerto Viejo de Acajutla	Colonial archaeological site
		Ruinas de la Fortaleza	Colonial archaeological site
		Atalaya	Archaeological site of second order
		Hacienda El Zope	Archaeological site of second order
		Bocana del Sunzanat	Archaeological site of second order
Santo Domingo de Guzmán	Sonsonate	Monte Rico	Archaeological site of second order
		Morro Grande	Archaeological site of second order
		El Letrero	Cave archaeological site
		Cueva del Tigre	Archaeological site of second order
		El Cortéz	Archaeological site of second order
		El Platanillo	Archaeological site of second order
		Cuyapa Arriba	Colonial archaeological site
		Santa Elena	Archaeological site of second order
Apaneca	Ahuachapán	Tizapa	Archaeological site of second order
		Santa Leticia	Private archaeological park and first-class site
		Apaneca	Archaeological site of second order
		Los Tablones	Archaeological site of second order
		Ataco	Archaeological site of second order
		Salutiupán	Archaeological site of second order
		El Triunfo	Archaeological site of second order
		Suntecumat	Archaeological site of second order
		Argentina	Archaeological site of second order
Ahuachapán	Ahuachapán	La Labor	Archaeological site of second order
		Los Cerritos	Archaeological site of second order
		Santa Rita	Archaeological site of second order
		Las Lajas	Archaeological site of second order
		Ashapuco	Archaeological site of second order
		El Chayal	Archaeological site of second order
		Atiquizaya	Archaeological site of second order
		San Venancio	Archaeological site of second order

Appendix K - Cultural Heritage Resources Identified in Prospecting Baseline

Cultural Heritage Resources Identified in Baseline Prospecting.
Detail and clasification

	Codification*	Registration date	# Section	Municipality	Nearest parking	Coordinates	Registration area	Type of finding	Sensitivity	Comments	PHASE II
1	Without code	02/17/2016	T3	San Pedro Puxtla	17+320	N 13° 46' 14.0'' W 89° 47' 36.1''	Wooded 609 m.s.n.m.	Isolated resource	Replicable	Fragmented ceramics and obsidian in low density and very dispersed. Not relevant	
2	T3 Sector 1	02/17/2016	T3	San Pedro Puxtla	17+860 TP61	N 13° 46' 07.5'' W 89° 47' 36.6''	Lowland 574 m.s.n.m.	Isolated resource	Replicable	Medium to high density cultural material on the side of a hill. It is probably the result of the destruction of a mound at the top due to the opening of a street above. The presence of an archaeologist is required at the time of drilling for the placement of TP 61.	
3	Without code	02/17/2016	T3	San Pedro Puxtla	18+454.3 TP63	N 13° 45' 48.5'' W 89° 47' 38.3''	Lowland 553 m.s.n.m.	Cultural Heritage Site	Replicable	Cultural materials in low to medium density on the side of a hill, a small rise (mound?) is observed. It requires the presence of an archaeologist at the time of drilling for the placement of TP 63.	
4	Without code	02/17/2016	T3	San Pedro Puxtla	18+960 between TP65 y TP67	N 13° 45' 33.9'' W 89° 47' 43.1''	Lowland 490 m.s.n.m.	Cultural Heritage Site	Replicable	Cultural materials in low to medium density on the side of a hill, an elevation (mound?) is observed. It requires the presence of an archaeologist at the time of drilling for the placement of the TP 65, TP 66 and TP 67.	
5	Without code	04/12/2016	T8	Limit Sto Domingo de Guzmán/San Pedro Puxtla	21+030 between TP74 y TP75	N 13° 44' 524'' W 89° 47' 500''	Lowland 365 m.s.n.m.	Isolated resource	Replicable	Fragmented ceramics and obsidian in low density and very dispersed. Not relevant	
6	T9 Sector 1	04/13/2016	T9	San Pedro Puxtla	19+988.08 TP71	N 13° 44' 965'' W 89° 47' 75''	Lowland 421 m.s.n.m.	Cultural Heritage Site	Possibly replicable	Cultural material in medium - high density in an area that has been terraced for the construction of a court and on the slope of the hill. Small elevations are possible, possibly natural, but due to the concentration of material and to be located to 100 m of a possible prehispanic mound requires archaeological excavation of at least 3 wells to rule out possible pre-Hispanic settlement.	√
7	T9 Sector 2	04/13/2016	T8	San Pedro Puxtla	19+886.43 TP69	N 13° 45' 068'' W 89° 47' 758''	Lowland 427 m.s.n.m.	Cultural Heritage Site	Possibly replicable	Cultural material in high density on the side of a hill, at the top of it is observed two mounds, only one of them is part of the easement of the trace and is located precisely 15 m to the east of the TP69. Archaeological excavation of at least 3 wells is required at the foot of the mound closest to the proposed tower to know the nature of the same.	√
8	Without code	04/13/2016	T10	San Pedro Puxtla	17+733.09 TP59	N 13° 46' 174'' W 89° 47' 607''	Lowland 574 m.s.n.m.	Isolated resource	Possibly replicable	Cultural material of low to medium density in a papaya and guava plantation, in order not to damage crops, excavation is not recommended, however, the presence of an archaeologist at the time of drilling is required for the placement of TPs 58 and 59.	

9	Without code	07/01/2016	T14	Acajutla	34+000	N 13° 37' 39.2'' W 89° 47' 30.2''	Lowland 92 m.s.n.m.	Isolated resource	Replicable	Cultural material of low to medium density in a field dedicated to the cultivation of cane, at this moment is without crops. The scattered archaeological material seems to be the result of the constant removal of earth, as well as by drag action by runoff. Because mounds are not observed in the surroundings, only the presence of an archaeologist at the time of drilling is required for the placement of TP 124 and TP 123.	
10	Without code	07/01/2016	T15	Ahuachapán	0+280	N 13° 55' 13.0'' W 89° 49' 09.6''	Wooded 787 m.s.n.m.	Cultural Heritage Site	Replicable	There are at least 3 concentrations of semi-collapsed rock (possible pre-Hispanic structures), there are also holes that appear to be looting, however, no surface cultural material is observed. A joint visit with Licda. Margarita Morán, monitor of the project by SECULTURA, who ruled that it should be moved to phase II to corroborate or discard the origin of the same. It was suggested to excavate at least 4 wells, one in each of the accumulations of rocks that will remain in the easement of the line and especially in the concentrations close to where the TP 2 will be installed.	√
11	T16 sector 1	07/02/2016	T16	Ahuachapán	1+658.57	N 13° 54' 31.5'' W 89° 49' 21.2''	Wooded 859 m.s.n.m.	Cultural Heritage Site	Replicable	Cultural material from medium to high density on the surface, two mounds are observed. A joint visit with Licda. Margarita Morán, suggested the excavation of at least 4 wells, 3 of them will be located in the mound on which the TP 9 will be placed.	√
12	Without code	09/22/2016	T 21	Acajutla	38+740	N 13° 36' 09.6'' W 89° 47' 51.7''	Lowland 74 m.s.n.m.	Cultural Heritage Site	Replicable	There are at least 4 concentrations of semi-collapsed rock (possible pre-Hispanic structures), there are also holes that appear to be looting, however, no surface cultural material is observed. Due to the fact that in this section there were no signposted the placement of towers, it is not known if at this point a tower will be located or will be only part of the easement, just as Phase II is required.	√
13	Without code	09/22/2016	T 25	Apaneca	9+709.20	N 13° 50' 45.5'' O 89° 48' 56.6"	Upland 1405 m.s.n.m.	Cultural Heritage Site	Replicable	It is observed the presence of fragmented ceramic in medium density, it was not possible to observe mounds due to the coffee plantations, however, since in this zone the TP 30 will be located, the presence of archaeologist is required at the moment of performing alterations ground.	

* Only sites where cultural material was collected were coded

IMMEDIATE INSPECTION REPORT TRIPARTITE – PHASE I	
DATE OF ISSUE: October 12, 2016	N ° OF FILE: TR-SO-001-2016
PROJECT NAME: Energía del Pacífico Transmission Line	
LOCATION: from the municipality of Ahuachapán in the homonymous department, to Acajutla in the department of Sonsonate, crossing the municipalities of Ahuachapán, Apaneca, San Pedro Puxtla, Santo Domingo de Guzmán and Acajutla.	
BOUNDS: can not be specified yet	
PROPERTY COORDINATES: Start at Acajutla Plant N 13 ° 35'03 ".18 W 89 ° 49'44" .14; Final at the Los Ausoles plant in Ahuachapán N 13 ° 55'19 ".17 w 89 ° 49'05" .80	
OWNER: Energía del Pacífico, S.A. de C.V.	
LEGAL REPRESENTATIVE:Alejandro Gustavo Alle	
RESPONSIBLE PROFESSIONAL: Ing. Roberto Alfonso Escalante Caceros	
TOTAL AREA OF PROPERTY: 1,600,000 M2	AREA TO BE DEVELOPED: 40 km long X 40 m wide

DESCRIPTION INSPECTION VISIT:

Fieldwork was carried out between February 15 and September 30, 2016, however, the tour was done intermittently, due to various changes that occurred in some sections of the line. The municipalities of Acajutla, Santo Domingo de Guzmán, San Pedro Puxtla, Ahuachapán and Apaneca, covered the 40 m of width of the easement along the 40 km of the trajectory. The displacement was realized in diverse classes of topographies, between which they were covered flat zones, mountainous, channels of rivers and ravines; In addition, urban, rural, arid, wooded and wild areas were transported, despite the fact that the soil visibility was quite optimum in most cases, allowing the location of fragmented and obsidian ceramics, as well as traits, Apparently, archaeological in the areas described below, and that should pass to Phase II to discard or confirm if they are of archaeological interest:

Zone 1: In San Pedro Puxtla (N 13 ° 44 '965' 'W 89 ° 47' 75 ''), cultural material in medium-high density, presence of small elevations; 100 m from a possible pre-Hispanic mound.

Zone 2: In San Pedro Puxtla (N 13 ° 45 '068' 'W 89 ° 47' 758 ''), cultural material in high density, presence of two possibly pre-Hispanic mounds; The tower TP-69 is intended to be located 15 m from one of the elevations.

Zone 3: In Ahuachapán (N 13 ° 55 '13.0' 'W 89 ° 49' 09.6 ''), absence of cultural material but there are accumulations of rock, possibly collapsed mounds, existence of apparent looting wells; The tower TP-2 is intended to locate about 5 m of a pair of mounds.

Zone 4: In Ahuachapán (N 13 ° 54 '31.5' 'W 89 ° 49' 21.2 ''), cultural material in medium-high density, presence of two possibly pre-Hispanic mounds; The TP-9 tower is intended to be located on the largest mound.

Zone 5: In Acajutla (N 13 ° 36 '09.6' 'W 89 ° 47' 51.7 ''), cultural material in very low density, presence of several clusters of stone and possible pillage pits; It is not known if the area is intended to locate a tower, however, the mounds are just inside the easement.

In addition to the Zones that pass to Phase II, areas with a concentration of cultural material were detected in medium to high density, although without obvious archaeological features in the surroundings, however, because in these areas it is intended to locate towers which implies Removal

of soils in an area of 10 mx 10 m per tower requires the presence of a professional in archeology at the time of altering the surface. These sectors are as follows:

Sector 1: in San Pedro Puxtla (N 13 ° 46 '07.5' 'W 89 ° 47' 36.6 ''), concentration of cultural material in medium-high density; Is intended to locate the tower TP-61.

Sector 2: in San Pedro Puxtla (N 13 ° 45 '48.5' 'W 89 ° 47' 38.3 ''), concentration of cultural material in low-medium density; Is intended to locate the tower TP-63.

Sector 3: in San Pedro Puxtla (N 13 ° 45 '33.9' 'W 89 ° 47' 43.1 ''), cultural material in low-medium density along a large area; It is intended to locate TP-65, TP-66 and TP-67 towers.

Sector 4: in Acajutla (N 13 ° 37 '39.2' 'W 89 ° 47' 30.2 '), concentration of cultural material in low-medium density; It is intended to locate TP-123 and TP-124 towers.

Sector 5: in Apaneca (it was not possible to obtain coordinates; however, it is located in Finca Los Nogales, and has the tower parking 9 + 709.20), concentration of cultural material in medium density; Is intended to locate the tower TP-30.

TECHNICAL REQUIREMENTS

Due to the archaeological findings that occurred during the tour and, since it is a project in which soil alterations that could irreparably damage the cultural heritage, a more exhaustive archaeological study in the areas denominated as Zones 1, 2, 3, 4 and 5, by an archaeologist-consultant authorized by the Ministry of Culture of the Presidency of El Salvador, which contemplates the development of survey excavations in order to determine whether the materials and traits identified are related to (Or constitute) cultural assets with archaeological potential that merit rescue, conservation or delimitation of areas for their preservation.

Likewise, it is required that at the moment of making any alteration of the soil in the so-called Sector 1, 2, 3, 4 and 5, described above, the presence of an archaeologist-consultant authorized by the Ministry of Culture of the Presidency of El Salvador to verify the existence or not of cultural assets that merit rescue, conservation or delimitation of areas for their preservation in the subsoil.

Finally, for the rest of the trace, it is requested that at the moment of carrying out any alteration of soils and a fortuitous finding of possible archaeological material, the activities are stopped and immediate notice is given to the National Directorate of Cultural and Natural Patrimony As established in articles 67 and 68 of the Regulations of the Special Law for the Protection of Cultural Heritage of El Salvador.

CONCLUSIONS

Based on the result of the survey carried out along the trace, it is considered **that it is not feasible to continue with the process of the "Energia del Pacifico Transmission Line"**, If we do not have a deeper archaeological study that helps to discard or confirm the presence of elements of archaeological interest in the sectors described above.

Massiel Ramos Iglesias
Archaeologist
Consultant

SEE ATTACHMENTS



Photograph 1. Aerial view with the overlapping of the trace, it starts at the Acajutla Plant (point A) and ends at the La Geo Plant, in Ahuachapán (point B).



Photographs 2 y 3. Concentration of cultural material in Zone 1 of San Pedro Puxtla and Zone 4 of Ahuachapán, respectively.



Photographs 4 y 5. Mounds of possible archaeological interest in Zone 4 of Ahuachapán, and Acajutla, respectively.

Analysis of cultural material of superficial collection

For the labeling and identification of the cultural material recovered in this study, the following codes were created: Transmission Line, Section 3, Zone 1, San Pedro Puxtla, 2016 (LTT3Z1SP16); And Transmission Line, Section 16, Zone 4, Ahuachapán, 2016 (LTT16Z4A16)

The analysis of the archaeological material collected on the surface is as follows:

Origin	Ceramic type	Quantity	Description	Lytic/Obsidian
Section 3, Zone 1 San Pedro Puxtla	Unidentified	1 handle	Fragment of handle flattened without decoration, is of medium paste orange with inclusions of small pumice in high density.	
	Unidentified	2 bases	Flat-bottomed fragments without decoration, are medium-colored orange paste with inclusions of pumice and medium-density coffee pebbles.	
	Unidentified	4 Borders	**1** border slightly everted, with rounded lip, without decoration, possibly of small vessel of divergent straight walls; Is of medium brown color with inclusions of pumice and small quartz in high density. 2 Borders reversed, with rounded lip, without decoration, possibly of small vessels with straight divergent walls; Are of fine brown paste with inclusions of very fine pumice in high density. 1 inverted border of rounded lip, without decoration, possibly of small vessel of straight converging walls; It is of fine brown color paste, it does not observe degreasing.	
	Unidentified	7 Bodies	Bodies without decoration, all of them are of fine paste to half brown color, they have inclusions of pumice and very fine quartz in medium density.	
	Unidentified	1 support	1 slightly conical support, without decoration, is of fine brown paste, with inclusions of white particles very fine in very low density.	
	Unidentified	1 figurine	A fragment of a zoomorph figurine, representing the neck, head, eyes and crest of a Unidentified animal, it is modeled in dark brown clay with no apparent inclusions.	
	Splinters	5		Splinters between 6 and 3 cm long and from 2mm a 1.5 cm

				thick. They are of obsidian gray color, opaque, veined and with much disturbance.
	Wreck	7		Wreck of Obsidian, oscillate between 2 cm and 1 cm in length and 2 mm to 1.5 cm in thickness. 3 are of Obsidian coffee, lustrous and translucent; 4 are obsidian gray, opaque, veined and cloudy.
	Nuclei worked	2		Obsidian core fragments that have been worked on and probably not yet exhausted. The largest is 5.5 cm long and 4.5 wide. The other is 5 cm long by 2.5 cm wide.
	Razorblade knife	2		Medial fragments of irregular razor, are obsidian gray, opaque, veined and cloudy.
	Prismatic pocket knife	3		2 medial fragments and 1 proximal fragment of prismatic razor, are Obsidian coffee, lustrous and translucent.
Section 16, Zone 4				
	Unidentified	2	Fragments of tubular handle, without decoration; Of medium paste orange, with inclusions of fine pumice in high density.	

	Unidentified	3 Bodies	Bodies without decoration, from medium to fine light orange paste with very fine pumice inclusions in low density.	
	Unidentified	9 Borders	Borders without decoration: 1 reversed border with bevelled inside; Of possible small vessel of divergent straight walls. 1 rounded lip with rounded, very open vessel (possibly dish). 1 straight lip reversed border, very open vessel (possibly dish). 1 reversed border, with lip slightly reinforced to the interior, of possible small vessel with divergent straight walls. 1 reversed border, with rounded lip, of possible small vessel with divergent straight walls. 1 lip flattened lip, possibly of large vessel with divergent straight walls. 1 reversed border, rounded lip, of medium vessel with divergent straight walls. 2 inverted Borders, with rounded lip, vessels of converging curved walls and restricted mouth. All of them have medium brown coffee paste with inclusions of pumice and small quartz in medium density.	
	Unidentified	1 border	Inverted border, with rounded lip, presents an incision line immediately surrounding the lip in the outer wall. It is of medium vessel of globular body and restricted mouth. It is dark brown in color, it is not observed desgrhandlente.	
	Possible Lolotique Red (dated by Sharer (1978) for 750 and 400 BC)	1 border	Border reverted, with rounded lip, shows remains of dark red slip on the outer wall. Possibly large vessel with divergent curved walls. It is friable and medium, orange color with inclusions of small pumice in medium density.	
	Possible Lolotique Red (dated by Sharer (1978) for 750 and 400 BC)	1 border	Inverted border, with rounded lip, presents / displays remains of dark red slip in the external wall. Of fitomorphic vessel (ayote) of globular body and restricted mouth (tecomate aided). It is medium-colored brick orange, with inclusions of very fine unidentified whitish particles in low density.	
	Navaja irregular	4		1 proximal fragment of irregular gray Obsidian razor,

				opaque, marbled and cloudy. 3 medial fragments of irregular razor of Obsidian coffee, lustrous and translucent.
	Navaja prismática	3		**1** Proximal fragment of obsidian irregular razor-sharp, translucent razor. 2 medial fragments of obsidian gray, opaque, veined and cloudy.
	Wreck	3		Obsidian wreck, glossy and translucent.

Table 1. Analysis of cultural material recovered according to types

Fragment Type	Quantity
Handle	3
Base	2
Border	16
Body	10
Support	1
Figurine	1
Obsidian	29

Table 2. Consolidated cultural material recovered on surface





Photographs 6 y 7. Fragments of Obsidian nuclei





Photographs 8 y 9. Border, possibly of the type Lolotique Red, from the Middle Preclassic period





Photographs 10 y 11. Fragment of phytomorphic tecomate, possibly of the type Lolotique Red





Photographs 12 y 13. Borders of globular vessels and restricted mouth, characteristic of the Preclassic period.

Appendix L - Participatory Rural Diagnostic Workshops

PARTICIPATORY RURAL DIAGNOSTIC WORKSHOPS

1.0 INTRODUCTION

The project is an initiative of the company Energía del Pacífico (EDP) to deliver electric power to the Ahuachapán Substation which is interconnected with the Central American Electricity Interconnection System (SIEPAC) at 230 kilovolts (kV).

In the framework of the realization of the Environmental Impact Study (EIA) of the Project, the Participatory Rural Diagnostic (PRD) workshops are carried out. The general objective of the PRD was to obtain primary information in the community, with a representative group of members of the community, until arriving at a self-diagnosis of its current situation. Through this exercise, we sought to obtain firsthand information on the socio-economic and ecological situation of the communities through their active participation. In addition, it was intended with this activity to identify development opportunities in the communities, so that the Project could begin to define its social investment program.

From June 21 to June 23, 2016, three PRD workshops were held. The first one was developed in the Centro Agape, located in the town of Sonsonate, in the municipality of the same name. In this workshop invited people from the municipalities of Sonsonate and Santo Domingo de Guzmán congregated. The second workshop was held in the same place mentioned above and invited guests from the municipality of Acajutla. The third workshop was held in El Jardín de Celeste, located on the Ruta de las Flores, between the towns of Apaneca and Ataco in the municipality of Ahuachapán. This workshop was attended by invited guests from the municipalities of Apaneca and Ahuachapán.

In addition, on June 23, a focus group was held in the Municipality of San Pedro Puxtla, where a presentation of the Project was carried out and the PRD methodology was executed in an abbreviated way, being able to collect data from the municipality to inform the baseline studies of the Project.

Evidence from the workshops includes photographs and videos.

The table below presents a summary of the PRD workshops carried out:

Table 1.0. Implementation of the Participatory Rural Diagnostic Workshops

Date	Municipalities Served	Place of Realization	Place of Origin of the Participants	Number of Participants	Total number of participants
Tuesday 21 June 2016	Workshop 1: Santo Domingo de Guzmán Sonsonate	Agape Km. 63 Road Sonsonate San Salvador El Salvador	Sonsonate	8	29
			Santo Domingo de Guzmán (Including Cantón Caulote)	8	
			El Cafetal	3	
			El Cellice	1	
			Hacienda La Pradera	1	
			Las Tables	2	
			Santa Emilia	2	
			Santa Clara	1	
			Other	2	
			Without answer	1	
	Workshop 2: Acajutla		ADESCO Linda Vista	2	38
			Municipality Acajutla	10	
			AMA	2	
			School / Education Center	3	
			C.E.B. El Campamento	1	
			Kilo 2	2	
			Kilo 5	2	
			Línea Férrea	4	
			Lt. El Puerto	2	
			Obelisco	1	
			U.A.M.	1	
			UMM- NA Acajutla	2	
			Other	4	
			Without answer	2	
Wednesday 22 June 2016	Workshop 3: Ahuachapán and Apaneca	Jardín de Celeste Km. 94 Ruta de las Flores El Salvador	Municipality Ahuachapán	4	14
			Municipality Apaneca	4	
			Policía Nacional Civil (PNC)	3	
			Casa de la Cultura Ahuachapán	1	
			School Center	1	
			MINSDL	1	

Date	Municipalities Served	Place of Realization	Place of Origin of the Participants	Number of Participants	Total number of participants
Thursday 23 June 2016	Focus Group: San Pedro de Puxtla	Municipality of San Pedro de Puxtla	Cantón Guachipilín	1	3
			Cantón Texispulco	1	
			El Durazno	1	
Total					84

Source: ERM 2016

2.0 RESULTS OF THE WORKSHOPS

The Workshops had a great attendance, since 81 participants were counted in the 5 municipalities congregated for the PRD and 3 participants in the case of the focal group realized in San Pedro de Puxtla. The Workshop with the highest number of attendees was the second, where people from the municipality of Acajutla attended, counting on a total of 38 participants.

Taking into account that the Workshops were carried out during daytime and weekday, the high degree of assistance and participation of the population in the activity is positively valued. In the same way, the participation in the development of the Workshops was broad in the expression of opinions and questions, mainly around the potential benefits of the Project as well as questions related to the potential impacts that could cause. All this indicates the degree of interest generated in the participants.
Below are presented, in general terms, a summary of what was collected in each of the Workshops. It is made the precision that the information has been kept as it was shared in the Workshops, that is, as direct quotes from the conversations held.

2.1 Workshop 1 – Santo Domingo de Guzmán and Sonsonate

The workshop started at approximately 8:55 am, closing at 1:30 pm. It was attended by 29 people from the municipalities of Santo Domingo de Guzmán and Sonsonate. After a brief introduction by the consultant team, which indicated the purpose of the Workshop and the importance of the participation of all present in order to make an accurate characterization of the baseline in the communities of the area of influence, EDP began its explanation in detail about the Project. Alejandro Alle de Energía del Pacifico (EDP) welcomed the participants and gave a brief presentation of EDP to give context and place the Project. At 9:10 am Cesar Galdámez took the floor, providing the description of the Project and the key characteristics of the Project, including information about the route that is being defined and which would pass the transmission line.

The main activities carried out during the Workshop included mapping resources and services and opportunities; The development of trend lines (which included an exercise on the use of resources in the past, present and future); And a dialogue on the main social problems in the municipalities influenced by the Project and the solutions to these problems. It was attended by technicians and representatives of the company to provide answers to the questions of the participants, if there were.

A participant from Santo Domingo de Guzman expressed his disagreement with the issues presented in relation to the problem of the area expressing that "it was not good to talk about the problems if you could not provide concrete answers to them." She and another assistant retired before the meeting ended.

Figure 2-1: Santo Domingo de Guzmán and Sonsonate



2.1.1 ***Resource Map***

The first activity developed was the map of the resources that included locating major roads, rivers, streams or other important bodies of water (i.e. falls), forests and cultivated areas. To do this, the group was divided into subgroups and assigned a facilitator. Each subgroup had 20 minutes to draw their community and locate it, and then report to the plenary. Through the development of this map the facilitators asked questions in order to better understand the context of the area.

2.1.1.1 *Municipality Santo Domingo de Guzmán*

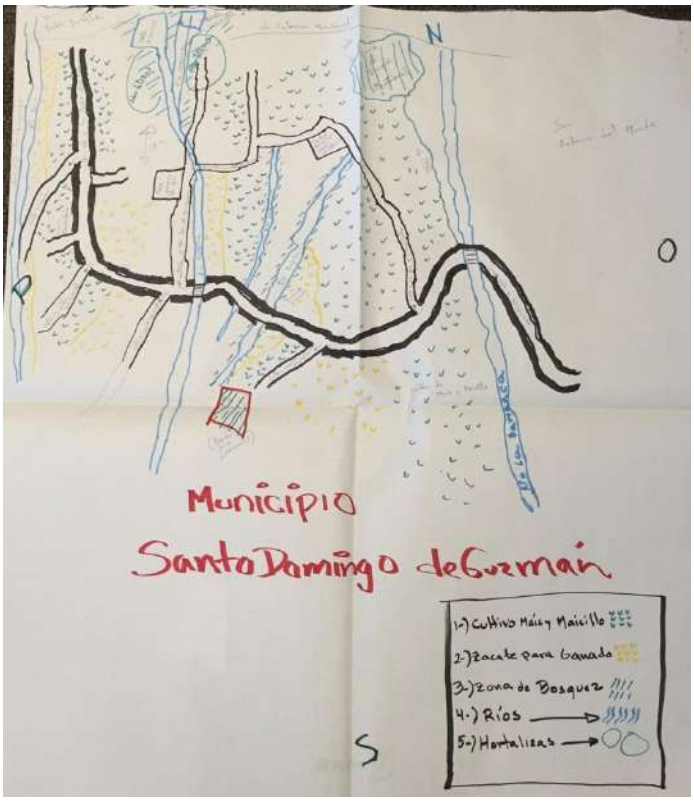
Some highlights on the resource map include:

- Rivers / Falls:
  - La Barranca; Tepechapa, Fall Escuco
- Agriculture
  - Maize crops (April-May); Maicillo (September-October); Grass (cattle pasture) (April - October); Soazo; peppers, tomatoes, beans.
- Water:
  - There are pipelines for the Water, and the irrigation of the crops is done by channel
- Forests:
  - They pull wood from wooded areas
- Economic activities
  - Clay crafts are made, such as clay pots used to cook beans
  - Handicrafts are marketed on the market, at fairs

- They can carry about 1,000 pieces to markets to sell. These are sold from $ 1 to $ 3 approximately, depending on the size

- Livestock:
  - As cattle in the area there are cows, a part of the products is for self-consumption, another part is for marketing .

Figure 2-2: Municipality of Santo Domingo de Guzmán

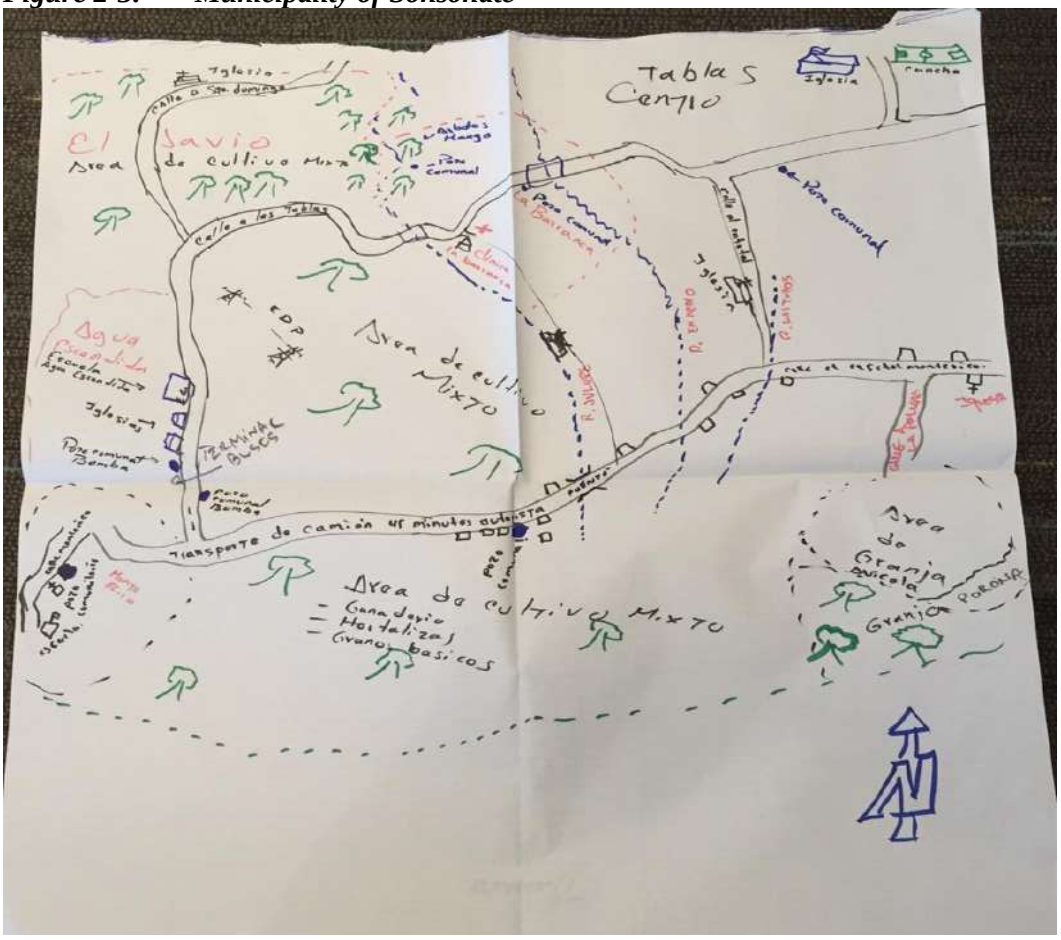


2.1.1.2 *Municipality of Sonsonate*

Some highlights highlighted in the resource map include:

- Rivers/Falls:
  - River Cuyuapa
  - River Quebradona
  - River Sensunapán
  - River Julupe
  - River En Medio
  - River Los Tubos
- Agriculture
  - There are mixed cropping areas including Livestock, vegetables and basic grains
  - Areas of sugarcane - Santa Emilia
  - An area of a poultry farm (Granja Poriosa)
- Water:
  - The parcel of land uses irrigation or gravity system
  - Communal laundry in the area of El Cafetal street and Hacienda el Saite
  - Communal wells for the population
- Forests:
  - Zones of trees by the Javio (including mango trees), Granja Poroisa and between Street to the Tables, Street el Cafetal Monterrico .
- Economic activities
  - Areas of livestock and crops (cane).

Figure 2-3: Municipality of Sonsonate



2.1.2 **Map of Goods and Opportunities**

In this activity the groups made a map where they located times / distances of displacement within the Municipality.

Figure 2-4: Santo Domingo de Guzmán

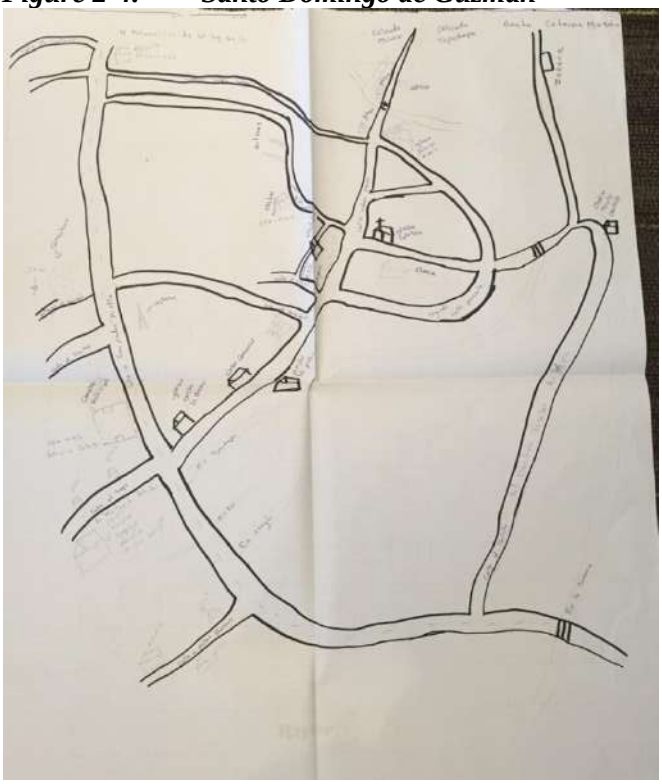
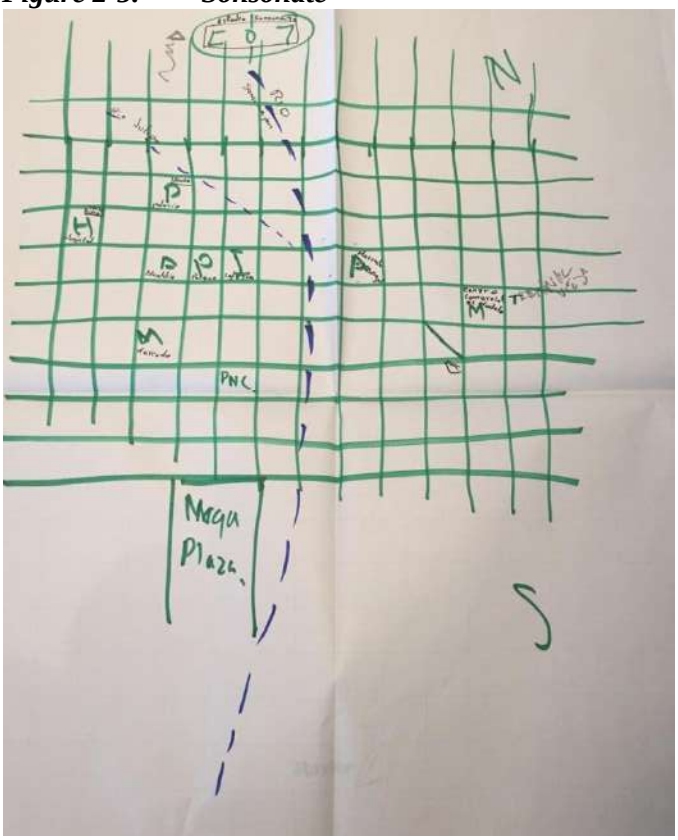


Figure 2-5: Sonsonate



Both the Figure above and Figure 2-3 indicate important infrastructure within the Municipality as well as travel times.

2.1.3 ***Trend Lines***

This section of the Workshop was conducted as a single group in which facilitators asked questions about changes in different natural assets such as Water, Forests, air quality, sun, soil and / or crops, etc. The information collected is presented below as direct quotations of the participants in the Workshops.

2.1.3.1 *Water*

How has water changed since before (20 years ago)?

- *Sonsonate*: We can not consider it because the population has grown since then. Quality and quantity vary, now there is another consumption. [Before] in the colony Santa Julia, there was water all day, the Lomas de San Antonio area did not exist, now only the water comes from 8 am until 9 am, until the following day.]. That cut of water also extends to other colonies. In the rural area of Sonsonate - 20 years ago, the rivers were not as polluted as now [not only] because there is more population, but now there are also more chemicals that get in. There are kidney deficiencies for this. Before they made wells and the water was good, now not so much.
- *Santo Domingo*: We do not have the quality nor the quantity, the rivers have gone down because the birth comes from the higher areas, the rivers that are below are drying. With pollution in the urban area are pouring chemicals in the rural areas as well. It is a problem for people who live downstream.

Now how is the quality of the water?

- In Las Tablas, the water comes tubed and in artesian wells. It is for general use, drinking water. There are surface wells (8 to 10 meters deep) and deep wells (50 to 60 meters). The artesian wells are up to 30 meters deep, cleaned every year, every three months, when required.
- Depending on the geography, Sonsonate has water resources [however] is not water for human consumption because it is contaminated by pesticides, and there are also people in the area who do not use latrine, which also causes pollution of water sources.
- When it rains a lot the well floods. Approximately 50% of the population consumes water from the creek.
- The artesian wells have dried. In La Barranca there were people who did not want the water pump, before a well is given is analyzed, they give sanitary seal to the well.
- Three years ago, superficial wells were made. The method of incorporation of waste, the waste is thrown to rivers, livestock etc. No regulations, no regulations.

2.1.3.2 *Forests*

Now how are the Forests?

- There are small isolated parts (10 apples, and there is no forest in Sonsonate). The use of the forest is mixed - it is commercialized, it is used for crops.
- Agricultural sector - the cane sector is the one that has violated the most, the timber sector has already fallen. Deforestation, contribute to the removal of animals
- They use burning to renew the soil, and a lot of chemistry is used, the farmer no longer wants to work hard.
- There is a law that prohibits the use of chemicals (in the last 4 year) as the chemicals reach the aquifer.

Before how were the Forests?

- The tree for furniture etc., are no longer known, before they existed, but it is the first thing that goes.
- Electricity companies have cut down trees, have not taken into account reforestation programs.
- We have not had a law that supports the common law, with national spaces. There is no protection for the national good. You can see a person raping an area of the state and the police do nothing. The institutionality of logging is not regulated.

2.1.3.3 *Air*

Now how's the air?

- Completely contaminated by chemicals, burning.
- Respiratory diseases, children, flu, bronchitis, do not take advantage of the wind like mills etc.
- Kidney deficiency - those who are working on cane.
- We have an epidemic of influenza by the climate, we create ourselves an unhealthy environment, for example the walls in the houses are of sheets and they become an oven. There is a climate change, companies have much to do, and the same farmers too, there should be more awareness

Has there been any change in the air compared to before (20 years ago)?

- If there has been a shift towards the air of less quality.

How do you think air quality could be in the future?

- They could be less years of life [for the population]. In the future, it will get worse, the lungs of the earth are forests, they shoot chemicals with small planes. It makes us more vulnerable. Those who suffer most are children and the elderly, we are affected by the fruit. Cane growers are only interested in profits (to kill the weeds they use the chemicals and then burn them at harvest.

2.1.3.4 *Sun*

What do they use the sun for?

- Drying clothes, there is solar energy, for us it is [a resource] important for crops etc.

2.1.3.5 *Soil and / or Crops*

How is the situation of the soils / property?

- Illegal settlement. It seems normal that many people use the banks of the river to live, in marginal areas.
- We have a society used and also leadership exploited, people living on the banks were taken to live there. They accustomed our people. They are the first to receive and need help when there is a natural disaster, in larger places. No one now owns settlers.

2.1.3.6 *Livestock*

How is livestock in the area?

- It's for meat and for milk. Very few incipient livestock.

How was the livestock before?

- There were more livestock than today.

2.1.3.7 *Goods and Services*

What kind of services are there in the community and how are they?

- Hunting is illegal - sometimes they find rabbits, not many species.
- Tourism - In the town of Sonsonate is implementing the tourist area, we are trying to exploit it, we have a historical park, culture ... we want to show the improvement that has been and promote cultural tourism focused.
- In Santo Domingo, there are crafts.
- They exploit the natural resource for tourism - the falls (the falls) of Santo Domingo .

2.1.3.8 *Health*

How is health / what are the diseases here?

- In nutrition, there are health problems kidney failure.
- The chikungunya - leaves him injured from diseases.
- Kidney failure.
- Zika- is likely [to exist] but we do not differentiate [between zika and another disease]. Always diagnose dengue fever.
- The medical attention is deplorable. To get to the health unit takes you from 6 am to 7 pm. In San Salvador [for example] a man died waiting to be attended. I went into an operation at 6 am and was attended the next day at 6 am [24 hours later].

How was the medical attention before?

- Many protested before but never lacked medicine. We passed the doctor but there is no medicine. We are worse. Before they were hospitals now they are traces.

How will the state of health / disease in the future?

- We run to extremes. We have social security, we complain. We do not have social security, we complain.
- In reality, there have been good health programs, such as the ECOS (Community Health and Family Specialized Teams) (health program towards the cantons).

2.1.4 ***Problems and Solutions***

What are the main problems in the community?

- There is a lot of individual negligence, although the organizations are orienting, the people always do what they want. They do not care. It depends on one striving to make things better.

- Rebellion.
- If our communities were better educated it would be better, as long as the human being is ignorant better for the government. So [with education] they can improve their health.

- Seven years ago, there was a 2021 plan [National Education Plan 2021]. There are problems with education, is concerned with giving the stationery to the director so that they do not put it missing, is focusing on planning and not practice.
- Pino law - before the teachers could be sios or bad with the child. You can not push me, education risk is more complicated, now a teacher can not punish a student.

What, in your opinion, would be the solutions to them?

- Community organization.
- Involve the different sectors the sense of working on the issues.
- That the government gives them information etc., so that the problem can be solved.
- Education and health.
- Parents do not take responsibility for the chores of children, everything is put on the teacher.
- Gangs - they will go to school if they are no longer in the gang.

2.2 Workshop 2 – Acajutla

The workshop started at approximately 3:00 pm, closing at 5:30 pm. The Municipality participated. Like the workshop of the morning, the technical team / consultant of the Project EDP, ERM and Capital Natural made the presentations. It started by explaining the objectives of the workshop and followed up with the respective presentations.

The activities and methodology used are the same as in the previous workshop. Since all the participants were from the Municipality of Acajutla, they were divided in two groups for each group to be able to realize the map of resources and the map of goods and services respectively.

The main questions that emerged during the course of the workshop were:

- The potential impacts of the Project (it was explained that the impacts would be dealt with in a subsequent workshop, that the impact assessment activity has not yet been carried out).

- Understanding how compensation was for affected families (GRIS, the consultant in charge of negotiating and buying the land, intervened and explained that the process of identifying families located close to the line of transmission was being carried out)

- Some clarifications on the technical specifications of the towers to be installed

Figure 2-6: Workshop Acajutla



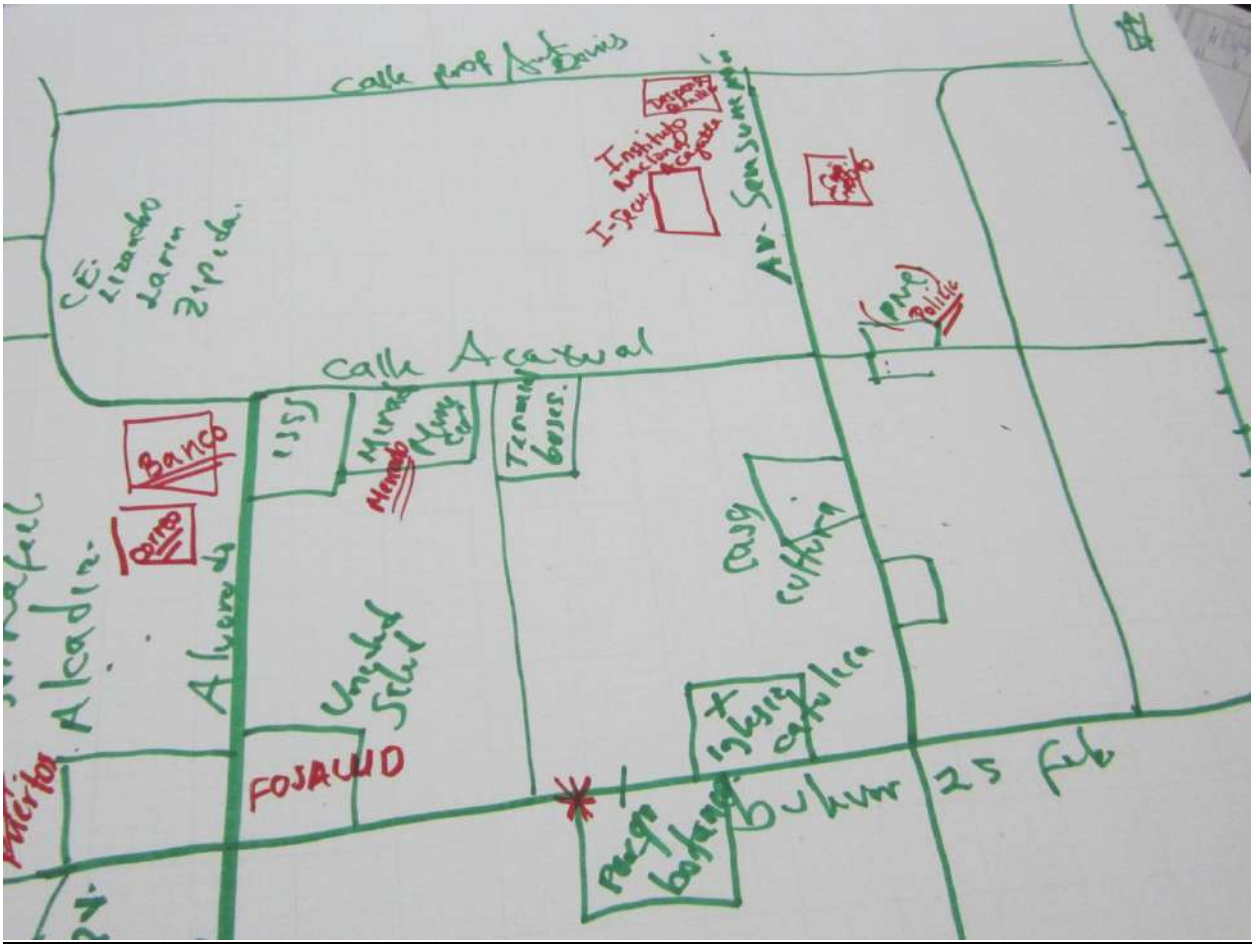
2.2.1 *Map of Resources*

Some main points on the map include:

- School N. Acajutla from first to sixth grade, an approximate of 250 students in the school.
- Churches:
  - Assembly of God (Asamblea de Dios)
  - Holy Family (Sagrada Familia)
- FOSALUD – Works 24 hours all kinds of emergencies, is the health unit
- Association of Entrepreneurial Women of Acajutla (Asociación de Mujeres Emprendedoras de Acajutla) (ADEDMEA)
- Acajutla Development Association (Asociación de Desarrollo de Acajutla)
- Tourism Desk (Mesa de Turismo)
- ISSS Clinic - Social Security
- Artisanal Dock
- San Rafael Winery - Cultural Heritage
- San Roque Winery - Cultural Heritage

- Pier vestiges at sea - cultural heritage
- Union Offices
- Commerce
- Gastronomy (gastronomic sector)
- Commercial Fishing -
- Forest area - to the north (Kilo 5)

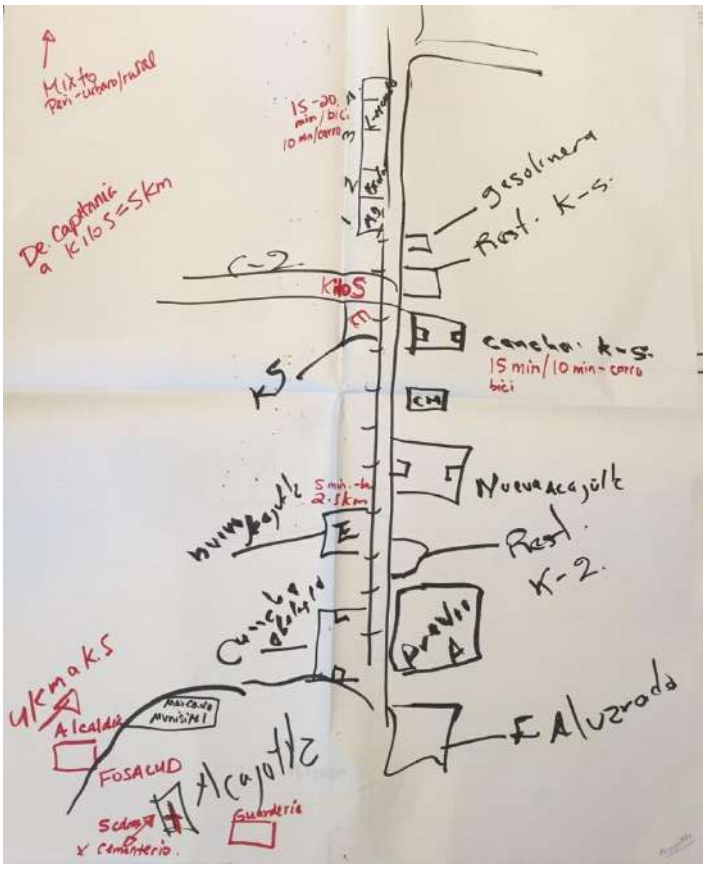
Figure 2-7: Acajutla – Town centre



2.2.2 **Map of Goods and Opportunities**

In this activity the groups made a map where they located times / distances of displacement to main infrastructure within the Municipality.

Figure 2-8: Main Infrastructure and Distances - Acajutla (Zone outside the Town Center)



2.2.3 ***Trend Lines***

2.2.3.1 *Water*

How has water changed since before (20 years ago)?

- In the rural area "Agua Viva" project, there is more access to the water.
- Access through water per well has improved.

Now how is the quality of the water?

- Water tubed
- Well water
- Water of river
- Water birth
- Cantareras: public cry (it has base to put pitcher)
- The participants state that the water (of public network) is not fit for human consumption, however, health representative says that the water is fit for human consumption and that the health unit does the monitoring
- For the black waters
- Low water level but is minimal, in the lower part of Acajutla the change is minimal
- From Santa Rosa up all the water is from well
- There is no quality control - the water is drunk directly from the river

2.2.3.2 *Forests*

Now how are the Forests?

- To make sugar cane
- The Santa Rosa area, there is an agreement for cutting and sowing
- Ministry of Environment
- Santa Rosa del Coyol is a Forests / pasture zone
- Sugar cane, maize, is produced by companies
- Production of rice, macillo (sip), sugar cane

2.2.3.3 *Aire*

Now how's the air?

- You can smell the smell of Duke Energy, you can smell the processing plant to compost, you can feel the molasses.
- # 1 respiratory illnesses - flu-like flus.
- For 15 years, the contamination, let's hope this plant does not contaminate as much as the others.
- Increased kidney deficiency because they fumigated without using any kind of personal protection.

How was the air before?

- The Municipality has been deforested by the development of the industry, housing construction.

2.2.3.4 *Sun*

What do they use the sun for?

- To dry the clothes
- The sowing of corn
- Maicillo (sorghum)
- Not much solar panel installation
- In "La 70" they installed solar panels in 18 houses by the company ECOS

2.2.3.5 *Soil and / or Crops*

How is the situation of the soils / property?

- Land tenure is particular, most are not owners, but those who live there are settlers.
  Ladrillera: in San pedro Belén, there is clay to make cements -Metapán (company Holcim)

2.2.3.6 *Livestock*

How is livestock in the area?

- Livestock area, graze on the boulevard, mainly for meat, dairy
- People buy from the "coyote" who buys milk from cattle ranchers

2.2.3.7 *Goods and Services*

What kind of services are there in the community and how are they?

- Restaurant sector
- Acajutla Municipality- tourism is mainly natural historical
- Protected Area Los Cobanos - coral reef
- Bodega San Rafael
- Vestiges of the Dock
- Gastronomic offer

- Bone Designs - Seafood
- Coconut crafts
- Beaches

Has there been any change in tourism since before?

- Yes, there has been change, in the 80's the main beach of Acajutla was flourishing, now no longer so much.
- Restaurants are located in the gastronomic sector. It had decayed and then went up [again]

2.2.3.8 *Health*

How is health / what are the diseases here?

- Now the approach is preventive, education we want to reduce maternal and child mortality, has been reduced. There are health promoters, in places where they did not arrive before. Now they arrive.

How was the medical attention before?

- Before it was curative [rather than preventive].

2.2.4 ***Problems and Solutions***

What are the main problems in the community?

- Education - there is enough desertion, there are families that have to move, there is no university., When they finish, the young people go to Sonsonate or San Salvador.
- Beyond secondary / high school there.
- As municipality, there are like 40 schools.
- There is disinterest on the part of young people who do not want to excel.
- There are no jobs. Lack of employment / lack of economic opportunities - young people are cutting grass on the haciendas.
- There are no technicians.
- Remittances sometimes cause problems. People no longer want to work because they expect remittances.

2.2.4.1 *Early pregnancy*

- There are laws that sanction, but the laws do not apply. The problem is governmental.
- Family breakup
- Legal framework is not met
- Corruption exists
- An elder impregnates a 12-year-old girl, and no one denounces, then one does not get justice,
- There is no culture of reporting - or [babies born of early pregnancy are gang members, girls are threatened by relatives of gang members.

What, in your opinion, would be the solutions to them?

- Education, start the education in the home.
- Sex education in schools.
- Older gentlemen who want to have their babies in cases of risky pregnancies
- National laws - Acajutla is built poorly, there was no master plan there is no planning.
- We need a local comprehensive master plan.
- Master plan that integrates, woman, education, economic, right now Acajutla has no direction.

2.3 Workshop 3 – Apaneca and Ahuachapán

The workshop started at approximately 10:30 am, closing at approximately 2:30 p.m. Representatives and population of the municipalities of Apaneca and Ahuachapán, including the PNE, the municipalitys and others were counted on the participation. The technical team / consultant of the Project, made the presentations of the case and then began with the planned activities of the workshop.

Key activities during the workshop included mapping resources and services and opportunities; The development of Trend Lines (including the use of key resources of the area in the past, present and future) or the problems and solutions that the community identifies in its municipalitys. During the course of the workshops participants were encouraged to participate and technicians and representatives of the company were present in order to provide answers to participants' questions.
The participants were divided into two groups (Apaneca and Ahuachapán, respectively) to work in parallel with the programmed activities.

Figure 2-9: Apaneca Group Developing Resource Map and Goods and Services



2.3.1 *Map of Resources*

Some key points that emerged during the development of the Map of Resources and goods and opportunities included:

2.3.1.1 *Ahuachapán*

- Ahuachapán – Ciudad de los Ausoles
- Ruta de las flores and Los Ausoles
- Tilapia / mojarra hatchery (approximately 3 km from the center of Ahuachapán)
  - Tilapia project was promoted by the municipality, started about 6 years ago (c. 2010)
  - Tilapia sells for $ 1.50 / lb
  - Every year this pond is cleaned
- Water for irrigation
- Place of cultural importance = Arco Duran, following the model of the arc of triumph in Paris.
- There is a lot of Agriculture in the area

- Coffee zone is private
- From February to November is the production of coffee.
- Products grown are sugar cane, maize and beans, rice
- Use of water resources in the area: The clothes are washed in the river, sometimes we fish in the river too.
- La Cabor (has two cantons)
- Los Encuentros / River del Pezo - basic grains are sown.
- There is coconut production.
- They use mills (old Spanish colonial hacienda to process the cane).
- The nearest health center is 15 km (on foot).
- Biosphere Reserve (Apaneca Llamatepec): Tacubita, La Nonal, Zuntecumat
    - Fish / Forests trees
    - Felling is prohibited
    - When the Municipality finds out that there is felling, they put into practice the municipal ordinances
    - Animals that exist within the reserve include (boar-armadillo), rabbit, deer.
    - Hunting exists, but it is not a major activity. Varies between for consumption / marketing, although participants point out that marketing is prohibited
- Crafts are done / coffee seeds are used in handicrafts
    - There are places where the products are sold
    - Most handicrafts are made by women
- Production of vegetables
- El Corredor Seco - corn, beans, sorghum, tomato is planted
- El Espino
- There is a lot of malnutrition in the Corredor Seco, there was a fungus that affected the coffee crops, and finally had an effect on the children
- There are nutritional surveillance projects
- Problems
    - No job
    - There was drought
    - There is delinquency, but it is minimal
- There is a lot of migration from other areas. People come to have a safe place to live (Lourdes, Colon).
- The Municipality is among the 27th most secure Municipalitys to live. There are also people coming from Guatemala.
- Overall the Municipality has improved in the last 20 years.
- The Livestock takes place; Is for self-consumption and the surplus is marketed.

- There are associations of communal development, the function of these is to manage the projects that are going to be developed in the community
    - There are two associations of women "Gardenias", "Mujeres Campesinas", there is also the "Asociación Amiga " and another one that does not remember the name with more with 35 members
    - At the departmental level, there is the Cafetaleros Association (Asociación Cafetaleros)
    - FUNDESYRAM - have environmental orientation with issues of sustainability, and programs so that people can be self-sustaining
    - Feed the Children / IMEN

Figure 2-10: Map of Ahuachapán

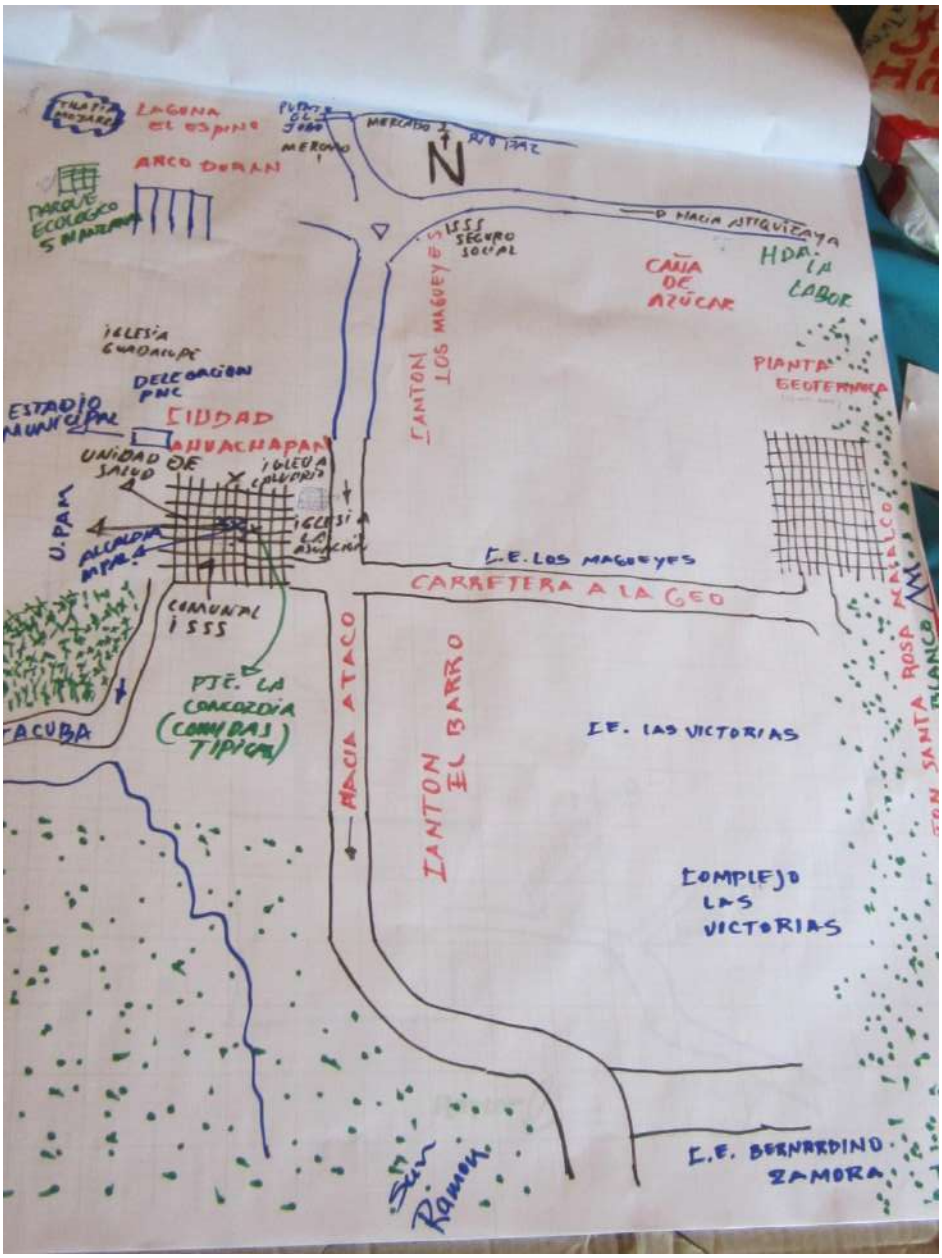
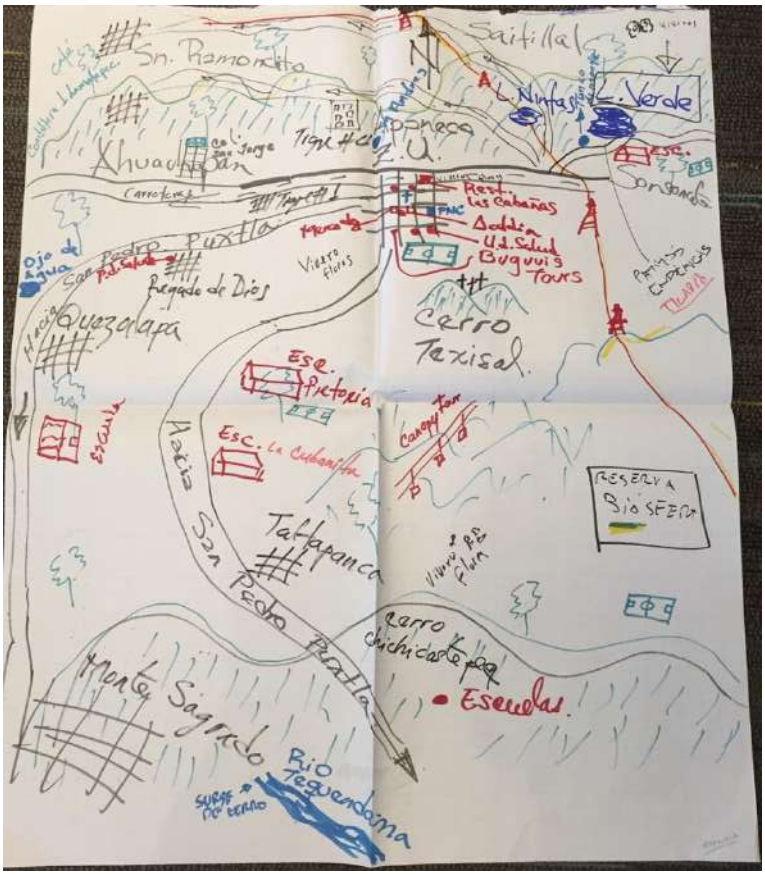


Figure 2-11: Map of Apaneca



2.3.2 **Map of Goods and Opportunities**

The participants included in their maps the relevant resources, the main infrastructure within the Municipalities as well as times of displacement in the Municipality of Ahuachapán in the same map of resources, as seen in the previous figures.

2.3.3 ***Trend Lines***

2.3.3.1 *Water*

Now how is the quality of the water?

Apaneca

- The water comes from a sector of Ataco, cistern 100% of the Town Center of the hill Echecopec, in rural area (Laguna Verde) is the Laguna Verde the main source. The water of the birth La Gloria is great - good quality. 1,200 m³ is controlled by ANDA (National Association of Aqueducts and Sewers). Water eyes, also of good quality, depends on how the community cares for them.
- In the high zone, there is not much pollution the water that is born of the mountains, of the Lagoons Las Ninfas. Mineral water charge, all water has to go through pump.

- In the municipality, there are water boards (ADESCO) are testing the water every 2-3 months is sent to ANDA. You see how much chlorine has etc. There is no shortage of water. Last year in a community [the population] stated that the water was drying up.
- In November, December water springs again in some declaring communities is declining. Sometimes the flow drops. The Laguna de las Ninfas - supposed to supply some places. Not so much anymore. There is greater water consumption, there is population growth. The lagoon is in a dangerous position, tends to overflow. The Laguna Verde is in today, the Ninfas, it has more sedimentary load, it has dam, that lagoon supplied all Apaneca.

Ahuachapán

- The quality is good, but there is a process of chlorination and sensitization in the rural area. El Espino Lagoon - super contaminated according to the last studies, an increase in the contamination due to compost, bleach.
- There are around 19 communities. It is a risk to the health of people, if they do not have water in their house they take the lagoon. It gives them diarrhea, intestinal parasites, preventing with deworming campaigns.
- There is a risk of flooding.
- Water discharges are being worked with water joints. They are areas of water recharge, there are many wells that need to be exploited due to lack of resources.
- Near La Geo, in Colonia Carmen, administered by water boards, are being dried up by deforestation. There are communities that do not yet have access to water.
- The municipal pipes have to send every two days. There are parasites such as intestinal amoebae.
- The water tank in San Rafael, ANDA does not clean it, animals go out etc., when the water comes back in rainy season, the water is full of mud, ANDA is neglected in that aspect.
- They have been cleared around, due to the deforestation in 10 years have disappeared 10 colonies (1200 people per colony) is generated dirt, the water that consumes in Ahuachapán is contaminated.

How do you see the quality of water in the future (20 years)??

Apaneca

- More afforestation is needed, it is the same trend, but amplified. There are 29 cantons and water is not enough for everyone. In the Corredor Seco [where there was drought], there are several communities without water. The municipality is working on the studies, working with the water boards, training the boards.
- If the water law comes in El Salvador, Ahuachapán has a lot of diversity.
- There is growth by migration plus security people want to live there, and also population growth. Some come to work others to see that there is. It is in the commercial line of Guatemala.
- Deforestation is a serious problem. The water is rationed. In the area of the hacienda the labor, by deforestation the flow of the water source, has diminished increased to the climatic change.
- In the week, water falls 2 or 3 days nothing else.
- In urban areas falls almost every day, in communities feel more.
- Black Waters? - In the Town Center of Apaneca the hull there is a treatment system, but it is not enough. The black waters go in tubing and there is treatment plant, waters sometimes served in the streets.

Ahuachapán

- The waters go to the Mill by the natural drainage. Rural people have wells

2.3.3.2 *Forests*

Now how are the Forests?

- *Apaneca*- There are areas in the mountain range where there is much forest, there are always families who like of live on wood. Here there are cypress, pine (varied), gravilea - big tree gives enough wood, redwood, Forests are maintained.
- Shade trees (like coffee) are few.
- They are working on reforestation projects (5,000) trees.
- The construction of cabins - built in the forest or in the lagoon, have felled trees ... are cutting 50 apples of forest on a hill, trees that are very old.
- The Environment is the one that deals with the permits.

How will Forests be in the future (20 years)?

- How will Forests be in the future (20 years)?
- Deforestation is dangerous for Apaneca.
- The area of the Laguna Verde (is protected area).
- The environmental unit - the big problem is that people have permits from the government, but not from the municipality, therefore, they go from the municipality to check and have permits (they can not do much).
- At the nation level, there is regulation (of felling). There used to be rural police.
- The problems of the permissions are due to there is no coordination between entities.
- The municipalities do not have an ordinance for felling. They do not want to exercise.
- Ministry of Environment gives trees, but also grants permits.
- Someone of repute arrives and they already have permission.
- On June 5, they donated more than 10,000 trees in Ahuachapán to plant.
- If the municipalities had the power for each tree cut down, 10 deforestation would decrease.
- The law prohibits the felling of certain species.
- The felling for firewood is the permission of the Municipality, they give you the paper and nobody supervises. Office at national level is called OPAMSS. We have someone to regulate, but not who supervises.

2.3.3.3 *Aire*

Now how's the air?

- *Apaneca* – Has not changed much, we do not have factories that pollute.

- *Ahuachapán* – Before the air was cleaner, deforestation, fuelwood consumption, producing has increased fuelwood consumption by 80-90%. The air suffers from the need of people in precarious areas.
- Vehicular fuel flow that is used has a lot of lead. There is a law that regulates, but there is no way to regulate. The problem of the markets, brick factories around; Around Ahuachapán is that they take the wood out of areas where there is forest.
- Air pollution causes throat problems, bronchial asthma.

2.3.3.4 *Sun*

What do they use the sun for?

- *Ahuachapán* – Farmers take advantage of rainwater and the sun to make production necessary .
- Where they grow vegetables.
- To dry the clothes.
- Solar panels are being used, not to the amount they should, but they are used.
- School center by Tacuba, computer center, the only source of supply, solar clock, the only part where I've seen that.
- PRESANCA (Regional Food and Nutrition Security Program), Mi Casita initiative promotes different themes of maternal and child, we talk about eco technologies, organic fertilizers, eco-fires (to reduce the use of firewood) to educate people the benefits of solar panels.

  Students are taught how to make solar cookers. If the use of solar panels was promoted at the national level, it would be nice.

What will the use of the sun look like in the future?

- It would be a boom to use solar energy for tourism, there are only three small villages that have no light.
- One of the schools in Monte Sagrado has large solar panel for the computer center is the only one that exists, people no longer have the ability to give you maintenance.
- Solar energy projects have to go hand in hand with the educational approach.

2.3.3.5 *Soil and / or Crops*

How is the situation of the soils? How was it before?

- *Ahuachapán* –Different types of sugar cane, coffee, are made for studies to determine which type of crop is the best. The Association of farmers, they are taken their produce to other places, as agricultural practices do the burning of the grass etc., which affects the soil, affects the production. The municipality is promoting new practices to protect soils such as organic agriculture.
- Coffee crops have declined by 50%, due to the value of coffee, the descendants of the coffee growers have migrated, the cocoa is being planted, production is stopped when they no longer receive the support.
- *Apaneca* – The practices are no longer as before, the agronomist engineers say what it is like and it is done, the farms have disappeared.

2.3.3.6 *Goods and Services*

What kind of services are there in the community and how are they?

- Honey production - Taltapanca and San Ramón
- The cottages they have built are only used on weekends
- Ruta de las Flores is from Tacuba to Sonsonate
- *Apaneca* - Is identified by its hotels, restaurants. Ahuachapán for its culture, tourism is at the route level.
- *Ahuachapán* - There is more culture, they have sites like the central park La Concordia, its historical origin, the Menéndez Park, the Duran Arch, the Espino Arch and the thermal Waters (Santa Teresa). People from France arrive [for the thermal Waters].

How do you see future tourism (20 years)?

- They see it as something that is going to thrive.
- The second largest economy in the country is tourism.
- The interesting thing is that it is people from other places that brings the tourism.

2.3.3.7 *Health*

How is health / what are the diseases here?

Apaneca

- Hypertension problems
- Children and youth - diarrheal, respiratory,
- Elderly - hypertension, sedentary lifestyle
- Malnutrition, population in general. What is attributed? To poverty.

Ahuachapán

- We received several NGOs, they came to Apaneca, they had the chick, they ate it and we are used to receiving help [NGO, who came by donating chickens and instead of raising more chickens, most people ate chicken]. People take out sells their products, cucumber etc. Sell it and do not buy healthy food, sell the eggs do not eat them, receive help, but then do nothing with what they receive. Within a project always has to go the educational component.

- Boys and girls - suffer from respiratory problems, acute, intestinal parasitism, malnutrition, guyatepe, there are children with low weight in the biosphere.
- Women - Regional Food Security Program - suffer from obesity, diabetes, cholesterol, triglycerides
- Men- high blood pressure, prostate.

How were health / diseases before?

- Before there were people 150-170 cm (size) are now smaller.

- High incidence of pregnancy in adolescents

2.3.4 *Problems and Solutions*

What are the main problems in the community?

- Overpopulation, there are women who only think about getting pregnant.
- Child prostitution is taking place - from 11 or 12 years I am comprised of a 9 year old. They start to want to dress better, it is sneaky, it is not seen, but it happens - it is due to lack of education
- Unemployment - in Apaneca there are no job opportunities, many young ladies go to work in homes, looking for the easiest.
- Although if there is work there are people who do not like to work, it is hard to find people who are hardworking
- How do they survive if they do not want to work? Policies of the state, before there was a matter in moral values and family planning, no longer.
- Before people get used to consuming what was in the thing, children no longer want to eat beans, blackberry is very bitter.
- Something that has affected in Apaneca, coffee break, October, November, since the coffee fell besides the tourism (that arose later) then only worked in October and November.
- Something more that has altered the way of life, are the remittances, they have become accustomed in Ahuachapán, they work in the time of coffee cutting, and in the time of no cut, they live of the remittances; Receive between $ 60- $ 100 a week in remittances. They give them transportation, food and even do not want to go and cut coffee.

What, in your opinion, would be the solutions to them?

- The education.
- New jobs, the generation of dynamic jobs, that encourage people to work the collaboration of all actors, NGOs, government, communities, we would help poverty and increase the educational level. In every municipalitys it would be wonderful. Training, new jobs, but also training, restaurants, hortales, hotels, the training part would greatly help that men do not get into trouble, gangs.
- Inciding, echoing our rulers, give a lot of money to young people who do not work: give me the ability, do not give me the money.
- There were bakeries workshops etc. They no longer exist.
- There were workshops in Santa Ana where young people came to learn different trades, now they are ninis (neither work, nor study).
- Now the children give them everything.
- The program My First Job (Mi Primer Empleo) - sometimes asks for experience, but you have to be more flexible with young people
- INSAFORP [Salvadoran Institute for Personal Training] - to prepare young people in different jobs

2.4 Focus Group – San Pedro Puxtla

On June 23, 2016 at approximately 4:00 pm the ERM team carried out a focus group in the municipality of San Pedro Puxtla, which consisted of a brief introduction to the Project and in turn to achieve a better understanding of the environment, And social and cultural aspects in the Municipality to complement the project's baseline.

The questions that arose during the presentation of the Project were related to the resettlement of families located near the transmission line, as well as the potential benefits to the community. Regarding the first question, the ERM team informed the participants that an agreement would have to be reached with the owners, however, that this issue was timely out of the scope of the work that was being carried out by ERM and that there was a company , GRIS, which was dedicated to seeing cases of resettlement. Likewise, it was explained that the benefits of the Project could only be established in a more specific way at a later stage. Notwithstanding the foregoing, usually in this type of projects the most frequent benefits are given in the construction phase of the Project, and could include temporary work opportunities, such as the contracting of local services if necessary.

The participants demonstrated great interest and participation in the focus group, understanding that the information provided by them would be incorporated into the Project's Environmental Impact Study. Likewise, they showed great interest in attending the Impact Workshop where they would be specifically discussing the potential impacts of the Project, and could ask more specific questions.

The activity was developed using the scheme (in an abbreviated way) established for the Participatory Rural Diagnosis Workshop. We proceeded with the development of a community map where the main areas of resource utilization, main roads and important communities were located within the Municipality of San Pedro Puxtla.

2.4.1 *Map of Resources*

Some clarifications provided during the development of the Map of Resources / services and opportunities included:

- In the Second Zone (see map), there is no tourism / no handicrafts;
- In San Pedro Puxtla there are no places where people go for walks / weekends so many people go to Apaneca or Acajutla to walk;
- There is no trace (market) in San Pedro Puxtla. The nearest trail (market) is in Sonsonate at about 45 min / 17 km approximately, depending on vehicular traffic. There is also the nearest place to buy fuel; and,
- There is no cultural heritage.

2.4.1.1 *Water*

- The water in the area in general is good, especially on the high side.
- From San Pedro to below, the quality of the water is low (as you progress down river, the quality of the water is diminished).
- Before the water was not so polluted.
- Texiculpo (see map) has water pipe
- From birth (see map) is the water source
- No mitigation measures

- General cleaning of the river was made.
- They add poison to the river, insecticides, chemicals too.
- There is debris on the river.
- People throw things on the river.

2.4.1.2 *Sun*

- There are no solar panels
- The sun is for crops and for drying clothes

2.4.1.3 *Forest*

- In the coffee-growing area, people do not need permission to harvest firewood, the law generally does not apply in places where permission to firewood is required
- The wealthy are not subject to the same restrictions. Twenty years ago, yes. [The general sentiment expressed by the participants was that if someone comes with money they can do what they want and nobody tells them anything].
- The water is maintained by the forests.

2.4.1.4 *Soils*

- Basic grains, vegetables, coffee and orange groves are planted by Rosario (see map).

2.4.1.5 *Education*

- There is less work now compared to before.
- Young people can study until high school, there is no university or technical school .

2.4.1.6 *Health/ Diseases*

Major diseases and / or problems include:

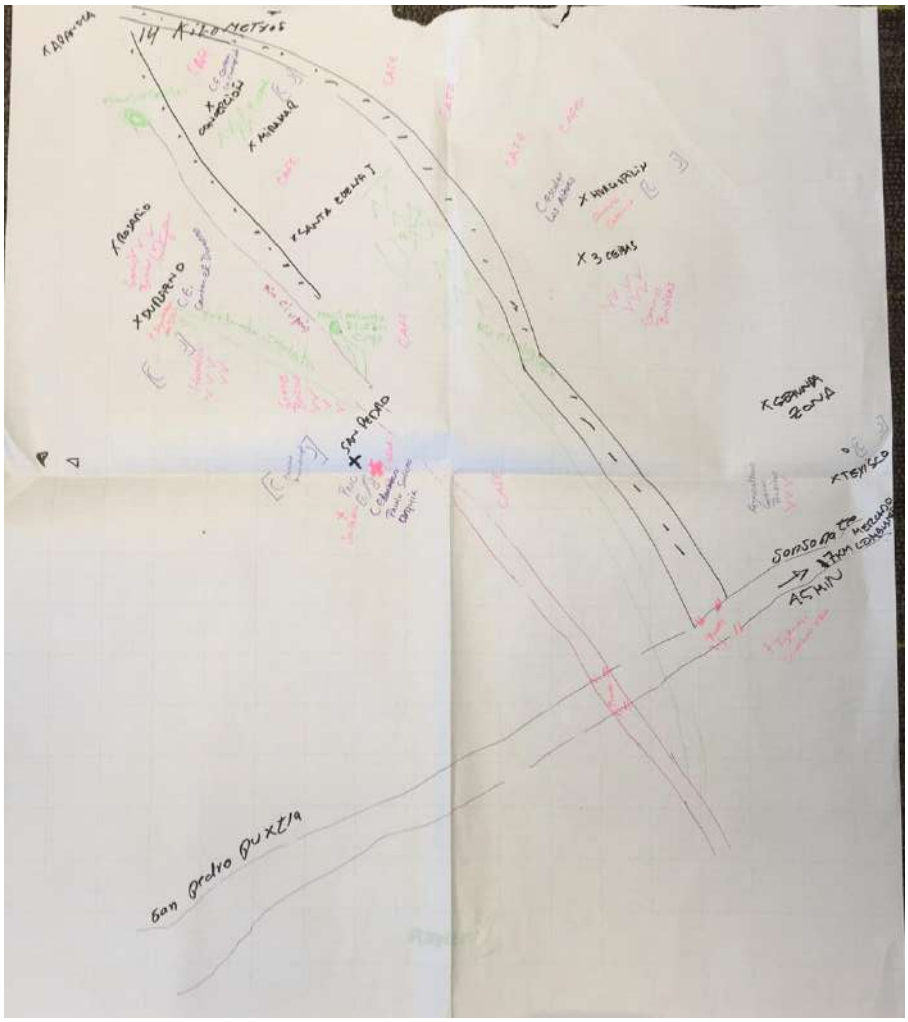
- Chinkunguya
- Dengue
- An anthrax[2] report was given (cattle disease)
- Diarrhea.
- Children suffer from bronchi.
- There is malnutrition / most malnutrition is in the rural part (Huachipilín, El Durazno)

On the other hand, as reported by the participants, the Municipality of San Pedro Puxtla is making efforts to combat these problems.

[2] Anthrax in cattle is a highly contagious infectious disease.

http://www.elsalvador.com/articulo/comunidades/mag-sospecha-que-muerte-ganado-union-seria-antrax-82163

Figure 2-8: San Pedro Puxtla



2.4.2 *Problems and Solutions*

- FUNDESYRAM – NGOs that supported a lot in home gardens, but have already withdrawn from the area
- They need to be given concrete support so that the family can be sustained and improved
- Pochero farms
- Main issues: employment
- We do not receive support
- Young people do not continue their studies
- Some of the young people migrate to San Salvador
- There are about 20-30 families who have come from San Salvador and other Municipalities to San Pedro Puxtla since life is more peaceful.

Appendix M - Evidence of Participative Rural Diagnosis

Methodology
Participatory Rural Diagnostic Workshops
Transmission Line Project

Presented to:
Energía del Pacífico

By:
Environmental Resources Management

www.erm.com

May, 2016

Project No. 0327367

ERM

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1 INTRODUCTION

The Transmission Line Project is an initiative of the company Energía del Pacifico to deliver electrical power to the Ahuachapán Substation (SE) which is interconnected with the Central American Electricity Interconnection System (SIEPAC) 230 kilovolts (kV) .

Within the framework of the Project's Environmental Impact Study (EIA), the Rural Participatory Assessment (DRP) workshops are held with the objective of establishing a baseline on the situation of the populations in the affected area of the Project. This is done in relation to the use of space and natural resources, as well as to identify potential and constraints for the development of activities oriented to conservation and sustainable development in the area.

2 OBJECTIVES

2.1 GENERAL

2.2 The general objective of the DRP is the direct obtaining of primary information, of "field", in the municipalities and with a representative group of members of them, until arriving at a self-diagnosis. This exercise seeks to obtain inputs for the elaboration of the Baseline of the Communities that are within the area of influence of the Project**.**

2.3 SPECIFIC

2.2.1 Obtain firsthand information on the socio-economic and ecological situation of the area of influence of the Project through the active participation of the population. It is intended that the population itself diagnose and provide information about their communities.

2.2.2 Identification of development opportunities of the communities in which the Project is based.

3 PARTICIPANTS

Participants in the realization of the Participatory Rural Diagnosis are :

- The members of the community who participate as experts on living conditions in the area of study. Usually they know their reality better than anyone else. The workshop will be attended by leaders and leaders of the communities in the direct area of influence of the Transmission Line. Their presence will be guaranteed, providing safe transportation, and inviting them a week in advance, so that they can have time to plan their presence at that event.
- The team of technicians who direct the DRP; Its role is to facilitate the use of participatory tools and discussion with all participants. Their technical knowledge is complementary to local knowledge.
- Other professionals, extensionists and technicians who work in the area on the part of the Project and who can also contribute to the exercise.

It is expected that the team of technicians facilitated by the DRP will be made up of ERM-Capital Natural professionals and supported by EDP personnel. These will be identified at the beginning of the workshop and will briefly describe their professional experience. The following is the team that will participate in DRPs:

ERM-Capital Natural:

- Manuel Román,
- Isolina Sánchez, Sociologist / Social Coordinator.
- Carlos Reyes, Sociologist, Community Participation / Logistics Specialist
- Jose Gerardo Rivas Marroquin, Facilitator / Technical / Community Participation / Logistics

ENERGÍA DEL PACÍFICO

- César Galdámez.
- Felipe Mazzini
- Brenda Lovato, Specialist in Community Participation

The team of technicians or facilitators should, to the extent possible, encourage the participation of men and women. Even where cultural barriers to interaction between women and men are not very strong, women often resort to technicians or extensionists of the same sex. This increases participation and results is more complete and close to reality. Also the multidisciplinary nature of the team is important, so a team composed of both environmental and social specialists is convenient.

4 METHODOLOGY

There are two moments in the realization of the workshops with different tasks :

a) Stage prior to DRP

- Preparation of the DRP methodological proposal;
- Socialization of the proposal within the Project Technical Team; and
- Training of the Project Team in the management of the methodological tools to be used in DRPs.

b) In the DRP

- Motivation of the participants;
- Explanation of DRP objectives;
- Brief presentation of the DRP content;
- Formation of working groups for the use of methodological tools;
- Working groups, having as facilitators the members of the Project Technical Team;
- Presentation of the work of groups in a plenary session;
- Commitment to return information through a document that would constitute a management tool; and
- Identification of potential resources for ecotourism.

The information you want to obtain mainly refers to general data such as:

- History of the sector;
- Mapping the sector;
- Evaluation of natural resources;
- Productive activities;
- Commercialization;
- Social organization of the sector;
- Basic services;
- Migration;
- Presence of institutions; and
- Gender.

In a collateral manner and to complement the data of the Socioeconomic Diagnosis, information will also be collected on the social, economic, access to health services, infrastructure and security in the communities. Below is a brief description of the activities that are intended to be carried out and the purpose of the activities:

Activity	Topic	Purpose
1. Knowing the Transmission Line Project	Questions and answers on the main questions that arise about the Project	Clarify the doubts and questions people have regarding the Project

Activity	Topic	Purpose
2. Ethnographic Map	Very complete map in which you can locate the main infrastructure of the community, housing, productive areas and natural resources among others.	Create a shared conception about the current situation of the community in terms of its potential and limitations with respect to the development of the Project.
3. Trend Lines	Gather information on trends in recent years or in three categories: "before, today, after."	Identify what perspectives women and men have of the community for the future, in various aspects of their development.
4. Institutional Diagram	Diagram / graph of relationships in the community. Identify internal and external actors in the area.	Identify activities within the community of different groups and internal and external bodies.

4.1 KNOWING THE PROJECT OF THE TRANSMISSION LINE

At this moment, it is intended to present and verify the perceptions of the community about the Project. Among others, the following questions will be asked:
What information does the project community have? Do you have questions or doubts about it?
Do you know similar projects? Do you understand the need for power transmission?
How does the community see the arrival of the Project??

4.2 MAP OF USE OF RESOURCES:

The maps can show the community as a whole or a specific topic that requires more attention, ie a forest, orchard, forest plantation or agricultural plots. The maps show where resources are located, the activities of men, women and both, problems and opportunities. The following describes some of the aspects that are intended to be located in these maps*:*

- **Water:** Sources of supply for human consumption and for others (eg, animal); Condition of water (if it is drinkable, if they believe it is contaminated, if they buy water for drinking, etc.); Distribution (hose, shafts); Availability of water by season (summer and winter), use of the same and amount of the resource they use approximately.
- **Forest**: Type of forest (i.e. broadleaf, pine); Existence of protected areas, reserves, areas of special interest to them; Exploitation of the forest by the community, use of the resource by agents external to the community, level of deforestation, agricultural burning practices and pastoral.
- **Sun**: Use of the sun (i.e. for the generation of energy, drying of agricultural products such as coffee, basic grains).

- **Soil**: Agricultural use (ie, soil conservation techniques in agricultural production, main crops), building materials (adobe, ballast, colors to paint houses), land tenure (eg own, rented, crops).
- **Environmental Goods and Services**: Find out details on possible hunting, fishing, fruit and seed collection, medicinal plants, food plants, mini-hydro.

4.3 TREND LINES

- The study of trends in demography, diseases, schooling and natural resources will enable the DRP:
- Identify what perspectives women and men have of the community for the future, in various aspects of their development;
- Show that the development of the community is a process and not a static photograph of the moment;
- Integrate key changes into a community profile;
- To facilitate the identification of problems intrinsic to the community;
- Initiate the prioritization of opportunities that the community should consider; and
- It allows to focus the attention of the community towards changes over time, positive or negative, in terms of the use of resources and traditional management practices and try to discern the possibilities of overcoming current difficulties.

Type of information collected

The team will collect trend information in recent years or in three categories: "before, today, after". The processes that the DRP community and team consider important vary from place to place, but certain trends are always important, such as changes in water availability, soil loss and fertility, deforestation and plantations, grazing and Availability of land, employment rates, food production and population changes.

Resource	**Before**	**Now**	**After**	**Future**
Forest				
Water				
Crops				
Etc.				

4.4 INSTITUTIONAL DIAGRAM

There are various local and external institutions and "actors" involved in the life of each community: government agencies, citizen participation groups, committees, women's groups, churches, clubs, schools, cooperatives, among others.
The institutional diagram helps:

- Identify activities within the community of different internal and external groups and agencies and how they contribute to community development;

- Know how men and women perceive these institutions and participate in decision making;
- Identify the relationships between institutions, creating a diagram of institutional importance and their interactions; and
- Identify the need for the presence or support of new institutions; Not yet present

5 ORGANIZATION AND CALL

The DRP requires good programming and preparation to ensure greater participation of community members. In this sense has taken into account the seasons of much work and agricultural cycles. In order to have an effective participation of both men and women, the call has adapted to its schedule, consulting with the participants nine days in advance.

The criterion that has been used for the location of the meeting place is its physical and social accessibility. That is, a space where communities can reach without investing more than an hour in the displacement and that socially it is cozy and pleasant. For this reason they have chosen places located in the own community.
The selection of materials and documents is also an important aspect in the preparation of the DRP. This will ensure that the results are well documented and accessible to both the DRP team and stakeholders in the community. Considering that electric energy will be available, the Data Show and the flip chart will be used as techniques for the development of the workshop.

6 GENERATING QUESTIONS

For the techniques to be used during the DRP (map, trend lines, institutional diagram) different questions will be asked to start the discussion. It is intended to obtain the inputs required to complement the baseline of the Environmental Impact Study. In addition, it seeks to identify potential community development opportunities.

TOPIC / AREA	**QUESTIONS**
1. Social	Existing CSOs? NGOs working and what projects do they develop? State Programs Do you consider that the school is very retired from your home? Why? What churches are there in the communities? What benefits does the church bring to the community?
2. Economic	How much income do you have in your household? Agricultural (subsistence, sale), other activities? Remittances? Do they sell their products? Mediator? Transformation (maize: donuts, fruits: preserves, etc.) Are there places that sell products in your community? Where do they go when there is no product in their community?
3. Infrastructure	Is the road available easily accessible in winter and summer? Can you always get your production out? Where do you travel the most? How much? Who provides the service? How are the schools? Are there latrines? If there are batteries to wash your hands? Space for fun? Do they have school gardens? Are there any close risks for the girls? How far away is the health center from your home? Who gives the attention? Is there a soccer field? Who uses them? Is there a cellular telephone signal? Company? Another form of communication (messaging, parcels).
4. Health	Indicate the main diseases in your community by groups: children, youth, adults. Do they receive care for these diseases? Endemic diseases?
5. Security	What are the main and most frequent crimes? How do they solve it? Is there a security committee? Is there a police presence at times?
6. Use of resources	Water: Where do you get water for consumption in the community? Is it good water to drink? Do you know if it is contaminated? Water for other uses (irrigation, livestock, etc.) where do you get it? Is there a shortage in summer? How do they do it?

TOPIC / AREA	QUESTIONS
	Forest: What kind of trees do they have in their forests? Do they exploit the forest? How? What do they get? Is there any regulation? Who oversees? Do you think their forests are deforested? Level? Do they burn for sowing or for grazing? How do they control those fires? Air: Do you consider that air is contaminated here? Why? Do they take the wind for other activities? Which? How? Sun: Do you take advantage of the sun for other activities? Which? How? Soil: The majority of land use in your community is for crops, livestock or forest In your plots do you practice soil conservation? Which? Do they use the earth to make building materials? other materials? Which? Are the lands they have in their community owned or rented? Most of the lands in your community are national, Environmental goods and services: do they practice hunting and fishing? What do they hunt or catch? Level? Do you collect medicinal plants or seeds and fruits? Level? Do you have a mini-hydro in a water fountain? What do they use energy in?
7. Perception of the Project	How does the project view the community?
8. Identifying Community Development Opportunities	What are the main problems in the community? What, in your opinion, would be the solutions to them?

7 MATERIAL AND AUDIOVISUAL RESOURCES

An audiovisual resource will be used to make the workshop more interesting for the participants. It will have a data show and in communities that do not have electricity, will take an investor.
For the execution of the workshop in its different moments, will have flipchart, markers, paper for drawing ethnographic map.
A recorder will be kept and the participants will be asked for their permission to record the meeting, with a hearing record of the meeting.

8 AGENDA

It is proposed to hold a daily workshop in the morning, starting at 8:30 am and ending at 12 am. It is considered a time for questions and clarification of doubts of about 45 minutes.

Daily team evaluation meetings were planned to analyze the results obtained during the day, to see possible gaps, to rectify methodology and to correct the development of the sessions, if necessary.

RAPID PARTICIPATORY DIAGNOSTIC WORKSHOP AGENDA

MORNING JOURNEY 8:30 a.m. to 12:00 p.m.

DATE: June 14, 2016

HOUR	ACTIVITY	RESPONSABLE
8:30 -8:45	Participant Registration	Carlos Reyes, Jose Gerardo Rivas Marroquin
8:45- 9: 20	Welcome to Participants and Project Presentation	Cesar Galdámez and Felipe Mazzini Roberto Escalante, Capital Natural
9:20- 9:30	Workshop Introduction and Methodology	Manuel Roman
9:30- 11:00	Workshop development	Paloma Pareja ,Brenda Lovato, Manuel Roman, Jose Gerardo Rivas Marroquin
11:00-11:45	Questions and answers	Technical team
11:45- 12:00	Final thank you and lunch to participants	Technical team

9 ITINERARY

The following itinerary is then proposed for the execution of DRP workshops .

DATE	MUNICIPALITIES	PLACE OF TRAINING
DAY 1 TUESDAY 6-14-16	Ahuachapan and Apaneca	JARDIN DE CELESTE Km. 94 Ruta de las Flores TEL. 24330277- 24330281 cel 75058100 www.eljardindeceleste.com eljardindeceleste@gmail.com
DAY 2 WEDNESDAY 06-15-16	San Pedro Puxtla, Sto Domingo de Guzman, Acajutla and Sonsonate	AGAPE Km. 63 Road Sonsonate San Salvador Telephone 2429-8771 y TE ELEFAX 2429-8771

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Eligio Ruperto Ramirez

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

The event will take place on Tuesday, June 21, 2016 from 8:30 a.m. to 12: 00m. In Agape Association of El Salvador. Km. 63 Carretera Sonsonate, Telephone 2429-8771

Your participation is very important so we encourage you to attend.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Sto Domingo L Cuscatlan

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Francisca Vásquez García Tel 7864-1216

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Sto Domingo de Guzman

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: _____

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Your participation is very important so we encourage you to attend.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Nora H. Arevalo
Secretaria
24/2010 02

Sto Domingo de Guzman

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Glendi Isabel Vásquez Guerra

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

R/20/06/16

ALCALDIA MUNICIPAL SANTO DOMINGO DE GUZMAN
SECRETARIA
Depto. Sonsonate

Sto Domingo de Guzman

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: María Olivia Pérez Jiménez - Santo Domingo de Guzmán.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Recibido
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ALCALDÍA MUNICIPAL DE SANTO DOMINGO DE GUZMÁN
CATASTRO
DEPTO. DE SONSONATE

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lucas Cortez - Santo Domingo de Guzmán

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Recibido
20/06/2016
09:48 Am
7254-3647

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Manuel Antonio Vásquez - Santo Domingo de Guzmán

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

The event will take place on Tuesday, June 21, 2016 from 8:30 a.m. to 12: 00m. In Agape Association of El Salvador. Km. 63 Carretera Sonsonate, Telephone 2429-8771

Your participation is very important so we encourage you to attend.

Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Fecha: 20/06/2016
Hora: 9:53

ALCALDIA MUNICIPAL SANTO DOMINGO DE GUZMAN DEPTO. SONSONATE, EL SALVADOR RECEPCION

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Nelson Darío Magaña Gutierrez Tel. 7856 - 8498

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Recibido: 09:55 h. NOTA: asistira.
Fecha: 20/Junio/16 Lic. Nelson Dario Magaña Gutiérrez

Sto Domingo de Guzman

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Sra. Concepción Chevez

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Recibí
Agte. Ramos Morales
10-06-16

PNC Sto. Domingo de Guzmán
Tel : 2483-7005

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Edwin Alfonso Olivas, tel. 2486-6800 ext-104

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

Siempre puntual

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Manuel Salomon López. tel 2486-6800 ext. 104

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

San Pedro Puxtla

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: José Gregorio Jiménez Hernández
Tel. 7 7741-9179

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

ENERGIA DEL PACIFICO, S.A. de C.V.

Engineer César Galdámez
Project manager

San Pedro Puxtla

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Carlos Giovanni Hernández

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistiré

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Licda. Jaqueline E. Pastore

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

14 Jun 2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Noé Genovés

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Si asistira

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: José Ernesto León

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Jose Ernesto Leon
si asistire

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Moisés Eduardo Castellón

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistire.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Victor Catalino Arce

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si acistire.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Estela Maritza

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistere

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Boris Miron

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

BORIS MIRON
SI ASISTIRE

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Daniel Hernández

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Emelinda Campos de Crespín
Recibió su esposa
Confirmar al cell: 71328813

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Bladimir Stanley Rivas

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si Presente.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Manuel Anibal Ferufino

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

R/ 15/ Junio /2016

Tel. 74394170

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Marcos Aguilar

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Asistire.

Tel: 7176-4427

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Manuel de Jesús

Dear Mr. / Mrs.:

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Attentively,

Si asistire.

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Ernesto Omar Santiago

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Ernesto
Siasistive 61653030

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Victor Manuel Cumi

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido
15-06-2016
Hora: 8:30am
confirmo Asistencia.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lucas Landaverde

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

R. 15.06.2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Francisco Alexander Sibrian

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido
15-06-2016
Hora: 8:31am
No Asistire.....

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Ing. Juan Manuel Guerra

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Confirma asistencia
Recib: 14-06-16
4:18 p.m.

ALCALDIA MUNICIPAL JEFATURA DEL DISTRITO SONSONATE MANTENIMIENTO

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Reina del Carmen Calderón

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

15-06-2016.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Alejandro Ernesto Rivera

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistiré

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Gerónima Galdámez

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Edlenz
asistirá
cel: 77483455

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Cristina García

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Casting Cozeur
Junio 2016

ALCALDIA MUNICIPAL DE SONSONATE

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Marta Álvarez

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Asistira

ATT. Oficina Turismo Municipal.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Moisés Castro

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

The event will take place on Tuesday, June 21, 2016 from 8:30 a.m. to 12: 00m. In Agape Association of El Salvador. Km. 63 Carretera Sonsonate, Telephone 2429-8771

Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido

15-06-2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Ely Jaqueline Aguilar

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistire

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. José Roberto Jovel

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

ALCALDIA MUNICIPAL
SONSONATE
GERENCIA ADMINISTRATIVA
EL SALVADOR, C.A.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. Joaquín Cerna

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

No asistira por incapacidad medica

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: ANÍBAL OTONIEL FLORES ESCOBAR
SUB INSPECTOR DISTRITO POLICIAL DE APANECA

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

The event will take place on Wednesday, June 22, 2016. from 8:30 a.m. to 12:00 p.m. In Jardin de Celeste Restaurant / CA-8 Km. 94, Ruta de las Flores / Tels .: 2433-0277 / 81.

Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

POLICIA NACIONAL CIVIL DE EL SALVADOR DELEGACION AHUACHAPAN PUESTO APANECA

Tel. 2433-0347

Martinez de Garcia.
16:00 horas
14-06-2016.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: JUAN FRANCISCO VIDES
DIRECTOR INSTITUTO NACIONAL LICENCIADO JOSE DANIEL
Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Director
14-06-16

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: GLADIS MARGARITA ASCENCIO DE SIGUENZA
DIRECTORA DE CASA DE CULTURA DE ATAQUECA

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 2433-0163

SONIA GOMEZ
Recibido
14-06-2016
POR GLADIS M. ASCENCIO.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: DR. JAIME ERNESTO ROLOCHO GOMEZ
DIRECTOR UNIDAD COMUNITARIA DE SALUD FAMILIAR DE

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 2433-0006

MINISTERIO DE SALUD
REGION OCCIDENTAL
UCSF-I
APANECA

14-06-16

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: SALVADOR EDGARDO PUENTE
DIRECTOR CENTRO ESCOLAR CATÓLICO SAN ANDRÉS

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

MINISTERIO DE EDUCACION
CENTRO ESCOLAR CATOLICO SAN ANDRES APOSTOL
DIRECCION
COD. 88004
AHUACHAPAN, EL SALVADOR, C.A.

tel. 2433-0092

14.06.16

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: OSCAR ALBERTO CUELLAR
DIRECTOR - CENTRO ESCOLAR GENERAL FRANCISCO MENENDEZ AHUACHAPAN

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

MINISTERIO DE EDUCACIÓN · CENTRO ESCOLAR "GENERAL FRANCISCO MENÉNDEZ" · DIRECCIÓN · COD. 10061 · AHUACHAPÁN, EL SALVADOR, C.A.

ENERGIA DEL PACIFICO, LTDA. DE C.V.

cel. 7841-8707
2433-0672

14-06-16

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs:) RODRIGO ALFONSO NERIO HERNANDEZ
SUB DIRECTOR CENTRO ESCOLAR GENERAL

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

MINISTERIO DE EDUCACIÓN
CENTRO ESCOLAR GENERAL FRANCISCO MENENDEZ
DIRECCIÓN
COD. 10061
APANECA, AHUACHAPÁN, EL SALVADOR, C.A.

14-06-16

Cel. 7094-9536
Tel. 2433-0672

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: OSMIN ANTONIO GUZMAN
ALCALDE APANECA

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. directo : 7485-9091

ALCALDIA MUNICIPAL CIUDAD DE APANECA DEPTO. DE AHUACHAPAN EL SALVADOR ALCALDE

Yanett Siguenza

Recibido 14-06-16

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: RUBEN OSWALDO HÁJERA
TEPE PROYECCIÓN SOCIAL APANECA

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 7697-2105

ALCALDIA MUNICIPAL DE APANECA PROYECCION SOCIAL DEPTO. AHUACHAPAN

Oswaldo Nájera

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: WALTER FRANCISCO CARDONA
PROMOTOR SOCIAL APANECA

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 2396-2698

ALCALDIA MUNICIPAL DE APANECA
PROYECCIÓN SOCIAL
DEPTO. AHUACHAPÁN

Recibí
14-06-2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: INSPECTOR OBDULIO LÓPEZ REYES

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

POLICIA NACIONAL CIVIL DE EL SALVADOR
UNIDAD DE ENERGÍA 911
COMANDANCIA DE GUARDIA

Recibe
[illegible]
1210 hrs.
14/06/16.

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs.: SARGENTO PEDRO ARMANDO SILVA
SUB JEFE DELEGACIÓN TRÁNSITO AHUACHAPÁN

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 7073-5186

POLICIA NACIONAL CIVIL DE EL SALVADOR DELEGACION TRANSITO AHUACHAPAN

14-06-2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Dr. Luis Ernesto Muñoz
Director Unidad Medica del ISSS Ahuachapán

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 2590-0147

UNIDAD MEDICA AHUACHAPAN ISSS

14 JUN 2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs.: DRA. CECILIA HERRERA
DIRECTORA UNIDAD DE SALUD AHUACHAPAN

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 2438-0235

Recibido
14/6/16
11:00 a.m.

UNIDAD DE SALUD DE AHUACHAPAN
SECRETARIA
AHUACHAPAN, EL SALVADOR, C.A.
MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Sub Teniente WALTER OSMAEL MENDOZA MENDOZA

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs.: Lic. JONATAN MENDEZ
TERCERA UNIDAD DE TURISMO AHUACHAPÁN

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Conmutador 2487-4800
(Srd. Militar.)
Turismo tel. 2187-4860
Directo Lic. J. Mend. 2413-0144
AHUACHAPAN

Recibido 14-6-16
Por. Lic. Méndez

Edificio Avarte, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: CARLOS ALVAREZ (M.J.) (misionero josefino)

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 2433-0068
AHUACHAPÁN

PARROQUIA LA ASUNCION
PADRES JOSEFINOS
DIOCESIS DE SANTA ANA
AHUACHAPAN, EL SALVADOR, C.A.

Carlos Alvarez, M.J.

14 JUN 2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Ing. Luis Alfonso Castillo
COORDINADOR. DE MEDIO AMBIENTE Y SEGURIDAD

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Tel. 2487-4855
AHUACHAPAN

ALCALDIA MUNICIPAL DE AHUACHAPAN
AMBIENTAL
REPUBLICA DE EL SALVADOR, C.A.

Por Ing Castillo

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Licda. ROXANA ACOSTA DE REGINOS
COORDINADORA DEL COMITE DE PREVENCIÓN CHAPAN

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Cel. 7220-4995
AHUACHAPAN

COMITE MUNICIPAL DE PREVENCION Y SEGURIDAD CIUDADANA
MUNICIPIO AHUACHAPÁN
EL SALVADOR, C.A.

14-Junio-2016
9:30 am

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: LUIS EDUARDO MENENDEZ
ENCARGADO DE OBSERVATORIO MUNICIPAL, AHUACHAPAN

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

The event will take place on Wednesday, June 22, 2016. from 8:30 a.m. to 12:00 p.m. In Jardin de Celeste Restaurant / CA-8 Km. 94, Ruta de las Flores / Tels .: 2433-0277 / 81.

Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

tel. 2487-4846
AHUACHAPAN

ALCALDIA MUNICIPAL DE AHUACHAPAN
OBSERVATORIO DE LA VIOLENCIA Y DELINCUENCIA
EL SALVADOR, C.A.

14/06/2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: LIC. CLAUDIA AZUCENA LÓPEZ ZALDAÑA
(ENCARGADA DE PROMOCIÓN SOCIAL)

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Tel. 7786-2867
AHUACHAPAN

PROMOCIÓN SOCIAL
ALCALDÍA MUNICIPAL
AHUACHAPÁN

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Saul Hernandez. (Concejal – Municipalidad Acajutla)

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

The event will take place on Tuesday, June 21, 2016 from 8:30 a.m. to 12: 00m. In Agape Association of El Salvador. Km. 63 Carretera Sonsonate, Telephone 2429-8771

Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

ALCALDIA ACAJUTLA
RECIBIDO
FECHA: 10/06/16
HORA: 2:00 pm
FIRMA:

7747-9395
Saul Hernandez

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Hugo Antonio Calderon Arola (Alcalde)

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

ALCALDIA ACAJUTLA
RECIBIDO
FECHA: 10-06-16
HORA: 2:20 pm
FIRMA:
2429-7327

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: María Eugenia Mezquivar - Gestora de Turismo

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Carlos Antonio Tobar 27446498
Sandra Elizabeth Abarca 24297329
Walter Josué Ramos 79655703

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. Carlos Antonio Tobar

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

70993050 Olman Portillo Zepeda
24297329 Mariz Eugenia Trabajo
24297325 Yolanda del Carmen Corleto

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Vilma Noemy Santos - Encargada de Unidad de la Mujer.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

UNIDAD DE LA MUJER Y GENERO ALCALDIA MUNICIPAL DE ACAJUTLA UMM

Confirmamos Asistencia
10/06/2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. Silvia Martinez - Psicologa Unidad de la Mujer

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

por

10/06/2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Angelica Lopez de Dimas - Colaboradora Unidad de la Mujer.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

POT

10/06/2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. Karena Rosales - Encargada de Bolsa de trabajo Municipal

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

✓ Asistencia Confirmada.

Lic. Ernesto Ramírez.
10 - Junio - 2016.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Amelia Cruz-Promotora Social zona 4 Acajutla

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Amelia E Cruz 10/06/2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Hnna. Yaquelin Villalta - Liceo de Acajutla.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

F. Recibido.

ENERGIA DEL PACIFICO, LTDA. DE C.V.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Reinaldo Colocho - Adesco Comunidad San Emilio 1.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

76314942
Reynaldo
Colocho

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Francisco Cerón - Adesco Comunidad Colima.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Santos Cruz Cortez

Francisco Cerón

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Julio Pateño - Adesco Comunidad Zona Industrial

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Julio Alberto Patiño Pateño
76829497

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Joan Carlos Megivar - Adesco Comunidad Kelo-2.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

76121341 Joan Carlos Luis Mendoza papá

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Carlos Manzano - Adesco Comunidad Lot. El Puerto.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Darsi Elizabeth
Pacto de Violante
Dpacto
24524418

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Carlos Eduardo Henriquez - Adesco Comunidad Linda Vista

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

24523064
Irma Elena de Constanza

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Maura Guevara - Adesco Comunidad Obelisco.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Maura Guevara
06308604-0

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Juan Cruz Cartagena Alvarado

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

7143-6135

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Dr. Juan Carlos Pérez / Director en funciones Unidad de Salud.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido Carolina Gómez
5/6/16 11:55am

MINISTERIO DE SALUD
REGIÓN OCCIDENTAL
UCSFI
ACAJUTLA

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Julio Cesar Bolaños - Director Centro Escolar Lisandro Larin Zepeda.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

MINISTERIO DE EDUCACION - CENTRO ESCOLAR "LISANDRO LARIN ZEPEDA" - ACAJUTLA - DIRECCION COD. 10569 - SONSONATE, EL SALVADOR

Recibido.
15-06-16
Consuelo Hernández
Sr. Julio B76677854

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Bonerges Almendarez - Adesco Comunidad Alvarado.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido : Lorena Flores
15/6/16
5:00 p.m.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Maura Castro - Comunidad Kilo 5 Napoles 2000 -

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

7299-6525
María Maura Castro Mejía

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Maura Castro - Comunidad Kilo 5 Napoles 2000 -

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

7299-6525
María Maura Castro Mejía

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. Moises Bonilla (Jefe de Proyección Social)

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Asistencia Confirmada
1 Persona

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Fray. Napoleón Barclay - Parroco - Iglesia San Francisco de Asis.

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

PARROQUIA SAN FRANCISCO DE ASIS DIOCESIS DE SONSONATE. Recibió: Silvia Acevedo

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. Walter Montoya

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

UNIDAD DE MEDIO AMBIENTE
ALCALDIA DE ACAJUTLA

Rec. 15-06-16
Hora: 3:35 p.m.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Ing. Jesus Romero

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

The event will take place on Tuesday, June 21, 2016 from 8:30 a.m. to 12: 00m. In Agape Association of El Salvador. Km. 63 Carretera Sonsonate, Telephone 2429-8771

Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

77490583

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Dr. Walter Wilfredo Martinez

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

UNIDAD MEDICA ACAJUTLA-ISSS
DIRECCION
RECIBIDO
Fecha: 15-6-2016
Hora: 3:40
Firma:
2830 3007

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Tomás Adelso Salmeron (Director INA)

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

15/06/2016
Recibido:
Lic Tomás A. Salmerón C.
2452-3109

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Carlos Giovanni Hernández

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistiré

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Licda. Jaqueline E. Pastore

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

14 Jun 2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Noé Genovés

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Si asistira

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: José Ernesto León

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Jose Ernesto Leon
si asistire

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Moisés Eduardo Castellón

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistire.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Victor Catalino Arce

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si acistire.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Estela Maritza

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistire

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Boris Miron

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

BORIS MIRON
SI ASISTIRE

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Daniel Hernández

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Emelinda Campos de Crespín
Recibió su esposa
Confirmar al cell: 71328813

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Bladimir Stanley Rivas

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si Presente.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Manuel Anibal Ferufino

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

R/ 15/ Junio /2016

Tel. 74394170

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Marcos Aguilar

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Asistire.

Tel: 7176-4427

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Manuel de Jesús

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Si asistire.

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Ernesto Omar Santiago

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Ernesto Siasistive 61653030

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Victor Manuel Cumi

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido
15-06-2016
Hora: 8:30am
confirmo Asistencia.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lucas Landaverde

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

R. 15.06.2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Francisco Alexander Sibrian

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido
15-06-2016
Hora: 8:31am
No Asistire.....

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Ing. Juan Manuel Guerra

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Confirma asistencia
Recib: 14-06-16
4:18 p.m.

ALCALDIA MUNICIPAL JEFATURA DEL DISTRITO SONSONATE MANTENIMIENTO

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Reina del Carmen Calderón

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

15-06-2016.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Alejandro Ernesto Rivera

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistiré

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Gerónima Galdámez

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Cristina García

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Cristina García 10 JUNIO 2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Marta Álvarez

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Asistira

ATT. Oficina Turismo Municipal.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Moisés Castro

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido

15-06-2016

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Ely Jaqueline Aguilar

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Si asistire

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. José Roberto Jovel

Dear Mr. / Mrs.:

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido
ALCALDIA MUNICIPAL SONSONATE
GERENCIA ADMINISTRATIVA
EL SALVADOR, C.A.

INVITATION

SOCIALIZATION AND PARTICIPATORY SOCIAL DIAGNOSIS WORKSHOP

Of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, June 10, 2016

Mr./Mrs: Lic. Joaquín Cerna

Dear Mr. / Mrs.:

The company ENERGIA DEL PACIFICO, Ltda. De CV. Is developing the studies and respective efforts to carry out the construction of a high voltage electric transmission line that goes from Acajutla to Ahuachapan, so we cordially invite you to attend the presentation of this project and to know your impressions .

The event will take place on Tuesday, June 21, 2016 from 8:30 a.m. to 12: 00m. In Agape Association of El Salvador. Km. 63 Carretera Sonsonate, Telephone 2429-8771

Your participation is very important so we encourage you to attend.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

No asistira por incapacidad medica

The study is composed of the following elements:

- Air quality studies.
- Noise studies.
- Analysis of water quality, on land and at sea.
- Biological studies: trees, shrubs. Herbs and fauna present on the grounds.
- Socio-economic studies of the city of Acajutla and citizen consultation activities.
- Consultation and meetings with institutions: MARN. ANDA. Ministry of Economy, among others.



Community support

EdP is committed to the economic and social development of the municipality of Acajutla. In this sense, this project represents an important investment and a promoter of economic recovery for El Salvador and especially for the municipality of Acajutla.

EdP plans to generate temporary and permanent jobs during the construction phase and operations of the Electric Power Generation Plant, respectively. At the same time, it will become a promoter of social and economic development for the municipality of Acajutla since among the commitments derived from the project, an annual amount of US $ 532,000 will be allocated for the execution of development works in the area.

To this end, work has begun on coordination with the Municipality of Acajutla and the Social Investment Fund for Local Development (FISDL), which has already produced the first results. EdP has visualized some of the projects to be implemented that will be linked to the diseco and construction of works of passage, support to basic services and reinforcement to recreation areas for the community, among others.

For more information:

Information Office of
Energía del Pacífico, S.A. de C.V.
Col. RASA 1, Calle Circunvalación,
house # 44, Acajutla, Sonsonate.
Phone: 2452-6313
Email: info@edp.com.sv
www.energiadelpacifico.com

Electricity Generation Project

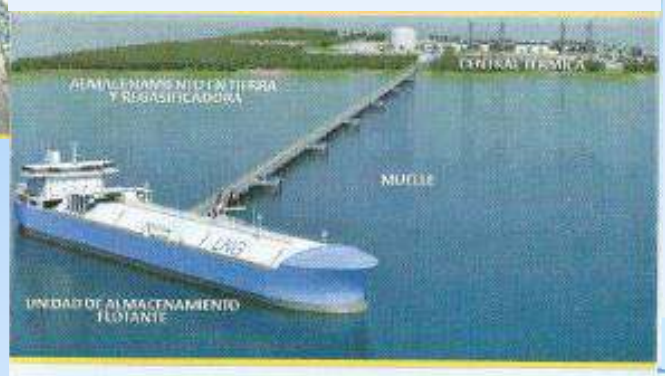


Energía del Pacífico, S.A. de C.V. (EdP) is the company in charge of developing and operating a project of generation of electric energy from natural gas in the city of Acajutla, department of Sonsonate, which will generate 355 megawatts of power and associated energy for a period of 20 years.

"A new energy for El Salvador"



The construction of this infrastructure will take about 3 years, during which it is estimated an investment between US $ 850 and 1,000 million, which includes a contribution to social and economic development in the municipality of Acajutla.



Project

The EDP project will be located within the existing industrial zone in the Port of Acajutla, department of Sonsonate.

This project will consist of:

- Power Generating Plant of 380 MW of installed capacity (the project is for the supply of 355 MW of power and associated energy);
- Liquefied Natural Gas (LNG) Regasification Plant;
- Dock to be located in the Port of Acajutla; and
- Transmission Line to inject energy into the national transmission system.



Benefits

This is a project of local and national interest that will have benefits throughout the country. These benefits relate, among others, to:

Introduction of new sources of electricity generation for El Salvador.

Increased energy availability.

Use of a fuel (Natural Gas) that offers greater performance, reduces the environmental impact and is safer and easier to transport.

Creation of more than 1,000 temporary jobs during the construction of the plant and 60 technical and administrative jobs in its operational phase.

Contribution to the social and economic development of Acajutla municipality.

Natural Gas and Environment

Natural gas has become a cheaper fuel for the generation of electricity, offering better economic, performance and, above all, environmental impact reduction opportunities.

It consumes 35% less fossil fuel than conventional power generation plants, thereby reducing emissions of sulfur dioxide and carbon dioxide, versus coal or fuel.

It uses less water in the process of generating energy.

Environmental Impact Study

During 2014, the Environmental Impact Study requested by the Environmental and Natural Resources Law of El Salvador was developed for this type of project. This study was presented in December of the same year to the Ministry of Environment and Natural Resources of El Salvador.





Workshop Quick Participatory Diagnosis

Sonsonate, June 21, 2016

Presentations

- Capital Natural
- Energía del Pacífico
- Facilitator team ERM y EDP
- GRIS

Agenda

Hour	Content	Responsable
8:30 – 9:00	Registration of participants	
9:00 – 9:15	Introduction	EDP and Roberto Escalante
9:15 – 9:45	Project knowledge by participants	Cesar Galdámez
9:45 -10:00	Development of the map of Community resources	Manuel Román + Facilitator team
10:00- 10:15	Use of Resources	Manuel Román+ Paloma Pareja
	Break	
10:30- 12:00	Identification of community problems and alternative solutions	Manuel Román+Brenda Lovato
12:00	Farewell	Roberto Escalante and EDP

Objectives

- Present the project
- Understand the context in which the project is located,
- Obtain the perceptions and opinions that have on the project
- Integrate this information in the study of impact environmental and Social



Resources Map

- Locate road
- Locate river the ravine
- Locate the forest
- Locate the growing area

Group Report



Map of services and opportunities

- Specify distances and travel times
  - Locate school
  - Locate churches
  - Set up recreational areas
  - Locate health center
  - Locate markets
  - Locate other meaningful constructions

Group Report

Characterizing the environment

- Trend Lines
- Organizations and Institutions
- Problematic

Trends Lines



Indicate changes in the population, disease, education and resources, such as availability of water, soil and fertility loss, deforestation and plantation, grazing and availability of land, employment rates, food production and population variations.



WATER

Where do you get water for consumption in the community?
Is it good water to drink?
Do you know if it is contaminated?
Is there shortage in summer?

Water

Before (50 years)	Now	Future (20 years)



Forest

What kind of trees do they have in their forests?
How do they exploit the forest?
What do they get?
Is there any regulation? Who oversees?
Do they burn for sowing or for grazing?
How do they control those fires?

Forest

Before (50 years)	Now	Future (20 years)



AIR

Do you consider that the air is contaminated here?
Do they take advantage of the wind for some activity?

Air

Before (50 years)	Now	Future (20 years)



Sol

Do they take advantage of the sun to do some activity?

Sun

Before (50 years)	Now	Future (20 years)



Soil and / or Crops

Most land use in your community is for farming, cattle or forest?
Do they use the soil to make building materials? other materials? Which?
Are the lands they have in their community owned or rented? Is it common for the presence of settlers?

Soil and / or Crops

Before (50 years)	Now	Future (20 years)



Cattle raising

Do they have playground animals? what type?
Are there livestock in the area? What kind, milk or meat?
Where is the cattle kept? that eats?

Cattle raising

Before (50 years)	Now	Future (20 years)



Environmental Goods and Services

Do they practice hunting and fishing?
Aquaculture
Do you collect medicinal plants or seeds and fruits? Level?
Is there tourism in this area? what type?
They make honey?
Are there handicrafts made with nature products? Ex. Vegetable fibers, mud, etc.
Where are you going to spend the day to rest, celebrate, etc?

Goods and Services

Before (50 years)	Now	Future (20 years)



Health

Indicate the main diseases in your community by groups: children, youth, adults.
Do they receive care for these diseases?
Endemic diseases?

Health / Diseases

Before (50 years)	Now	Future (20 years)

Problems and Solutions

It is the identification of its main problems of the community and its alternatives of solution

What are the main problems in the community?

What would be your view, the solutions to them?



Thank you for your participation

Sonsonate, June 21, 2016

LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
DATE: June 21, 2016.

Municipios: Santo Domingo de Guzmán, Santos Las Tablas.
Departamento: Sonsonate

Nº	Name	Sex	Name of the institution of which comes	Telephone contact	Signature
1	Manuel de Jesús Hidalgo Ramirez	M	C.E. Caserío El Cafetal	79679339	
2	BORIS MIZON.	M	Las Tablas		
3	Jose Ernesto Leon	M	las Tablas	78586869	
4	Jose Jimenez Humberto				
5	Nelson Dario Magaña Gutierrez	M	Juz. de Paz sto. Dgo. de Guzmán	7856-8498	
6	Reina del Carmen Calderón	F	Alcaldía Municipal de S.	7855-2589	
7	Martha Alvarez	F	Alcaldía Municipal	63067596	
8	Victor Manuel Cumi	M	Alcaldía Sonsonate	7207-0138	
9	Mojsés Castro Castro	M	alcaldia Sonsonate	7688-3609	
10	Noé de Jesús Benavez	M	Iglesia de Dios	7607-6018	
11	Bladimir Stanley Rivas	M	Hda. La Pradera	70067189	
12	Oscar Alfonso Campos Zaya	M	Alcaldía de Sonsonate	2451-2458	
13	Lucas Landaverde portillo	M	Alcaldía de Sonsonate	24693142	
14	Cristina Garcia	F	Consejo Municipal	78630516	
15	Marco Tulio Aguilar	M	A cafetal	7176-4427	

LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
DATE: June 21, 2016.

Nº	Name	Sex	Name of the institution of which comes	Telephone contact	Signature
16	Moisas Eduardo Castellon	M	Santa Emilia	7055-7660	[illegible]
17	Eligio Ruperto Ramírez	M	Sr Domingo Cardon Cangulube	75[illegible]626	[illegible]
18	Victor Tesorero Arce.	M.	sta clara.	6145 1166.	[illegible]
19	Medardo lopez		Santo Domingo de Gozman	72773555	[illegible]
20	Lucas cortes	M	el cal dia s.t.	72543647	[illegible]
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22					
23					
24					
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30					

LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
DATE: June 21, 2016.

N°	Name	Sex	Name of the institution of which comes	Telephone contact	Signature
31	Manuel de J. Ferrufino	M	Sol. Earth.	74394170	
32	Estela Maritza Zelidon	F	Lid. Comunal El Cafetal	71285137	
33	Nicomedes García de Ramírez	f	Sto. Domingo Guzman	75302397	
34	Carlos Jeovany Hernández	M	Alcaldía Jansonate	7011-5986	
35	Sonia Marlene Gonzalez	F	alcaldía de Santo Domingo	72602033	
36	Armando Geovany Ramirez	M	Alcaldía Sto. Dgo. de Guzman	75056391	
37	Fausto Cordez García	M	ADESCOMAJ	7596-8074	
38	Francisca Vásquez García	f	Alcaldía Sto. Dgo. de G.	7864-1216	
39	Renato Geronimo García	M	Alcaldía M. Sto. D.	72688430	
40					

LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
MUNICIPALITIES: APANECA AND AHUACHAPAN

Nº	Name	Sex	Name of the institution of which comes	Telephone contact	Signature
1	Salvador Gonzales	M.	PNC Ito. AH.	70437373	[signature]
2	Rodrigo A. Neris, H	M	C. Enc. Gral Jos Mdez	70949536	[signature]
3	Luis Eduardo Alamandez	M	Alcaldía Ahuachapán	2487-4846	[signature]
4	Aníbal Otoniel Flores	M	PNC Apaneca.	2433 0347	[signature]
5	Elmer Alexander Pichinte	M	PNC Apaneca	2433-0347	[signature]
6	Gladys de Anjeriza	F	Casa de la cultura Apaneca	24330143	[signature]
7.	Rigoberto Edgardo Peres	M.	Alcaldía M. Apaneca	74972379.	[signature]
8	Rubén Oswaldo Najera	M	" "	76972105	[signature]
9	Walter Francisco Cardona	M	Alcaldía Apaneca	73962698	[signature]
10	Roxana Linares	F.	Alcaldía Ahuachapan	78503933	[signature]
11	Jensy Jeoneth Aguirre	F	Alcaldía Ahuachapan	6303-2941	[signature]
12	Jaime Ernesto Colorho	M.	MINSDL.	2433-0006	[signature]

LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
MUNICIPALITIES: APANECA AND AHUACHAPAN

N°	Name	Sex	Name of the institution of which comes	Telephone contact	Signature
1	Salvador Mauricio Hernández	M	Alcaldía Ahuachapan	7924-7867	
2	Francisco Alberto Santos Jimenez	M	Alcaldía Apaneca.	7968 74 97	

LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
MUNICIPALITIES: APANECA AND AHUACHAPAN

N°	Name	Sex	Name of the institution of which comes	Telephone contact	Signature

LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
DATE: June 21, 2016.

Municipio: Acajutla

N°	Name	Sex	Name of the institution of which comes	Telephone contact	Signature
1	Rene Mauricio Chavez	M	Centro Escolar Lisandro [illegible]	24523543	
2	Elsa Amaya Gutierrez	f	Parroquia San Francisco	76288638	
3	Angelica Lopez	f	Alcaldia Acajutla	7177-7377	
4	Heidi Elena Nuñez	f	Centro Escolar Lisandro	2453-4121	
5	Vilma Noemy Santos	f	UMAL-NA Acajutla	77464776	
6	Carla Jose Amaya	M	C.E. Lisandro	76897534	
7	Julio Cesar Diaz Garay	M	C.E. B= El Carpintero	78625620	
8	Oscar A Martinez	M	Kilo 2	76121341	
9	Juan C. Menjivar	M	Kilo 2	76121341	
10	Jennifer Abigail Cuesta Miranda	F	Linea ferrea	76891563	
11	Alfonso Blanco	M	Linea ferrea		AG
12	Santos Mendez	F	Linea ferrea		SM
13	Nataly Lopez	F	Linea Ferrea		
14	Maria Mayra Castro	F	Kilo 5	72996525	
15	Moises David Bonilla	M	Alcaldia	77491920	

LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
DATE: June 21, 2016.

Municipios Acayutla

Nº	Name	Sex	Name of the institution of which comes	Telephone contact	Signature
16	Silvia del Carmen Martínez	F	UMM-NA Acayutla	7058-2856	[illegible]
17	Alexander Mauricio Gonzalez	M	Kilo 2	21549710	[illegible]
18	CARLOS EDUARDO HENRIQUEZ	M	ADESCO LINDA VISTA	73499171	[illegible]
19	IRMA E.T. de CONSTANZA	F	Adesco Linda Vista	73196312	[illegible]
20	Francisco Ochoa Ecron				[illegible]
21	Francisco Zelidon				[illegible]
22	Daysi Elizabeth Mecto		Lt. El puerto	24524418	[illegible]
23	Irma Mercedes Torres		Lt. El puerto	24524421	[illegible]
24	Amelia E. Cruz	F	P. Social	76036162	[illegible]
25	Saul Hernandez	M	AMA		[illegible]
26	José David Cruz Aguirre	M	AMA / Acayutla	7744-9038	[illegible]
27	Luis Ivette Carolina Godoy	F	CSFI Acayutla	77466539	[illegible]
28	Walter Montoya Castro	M	U.A.M.	73765723	[illegible]
29	Maura		Obelisco.		[illegible]
30					

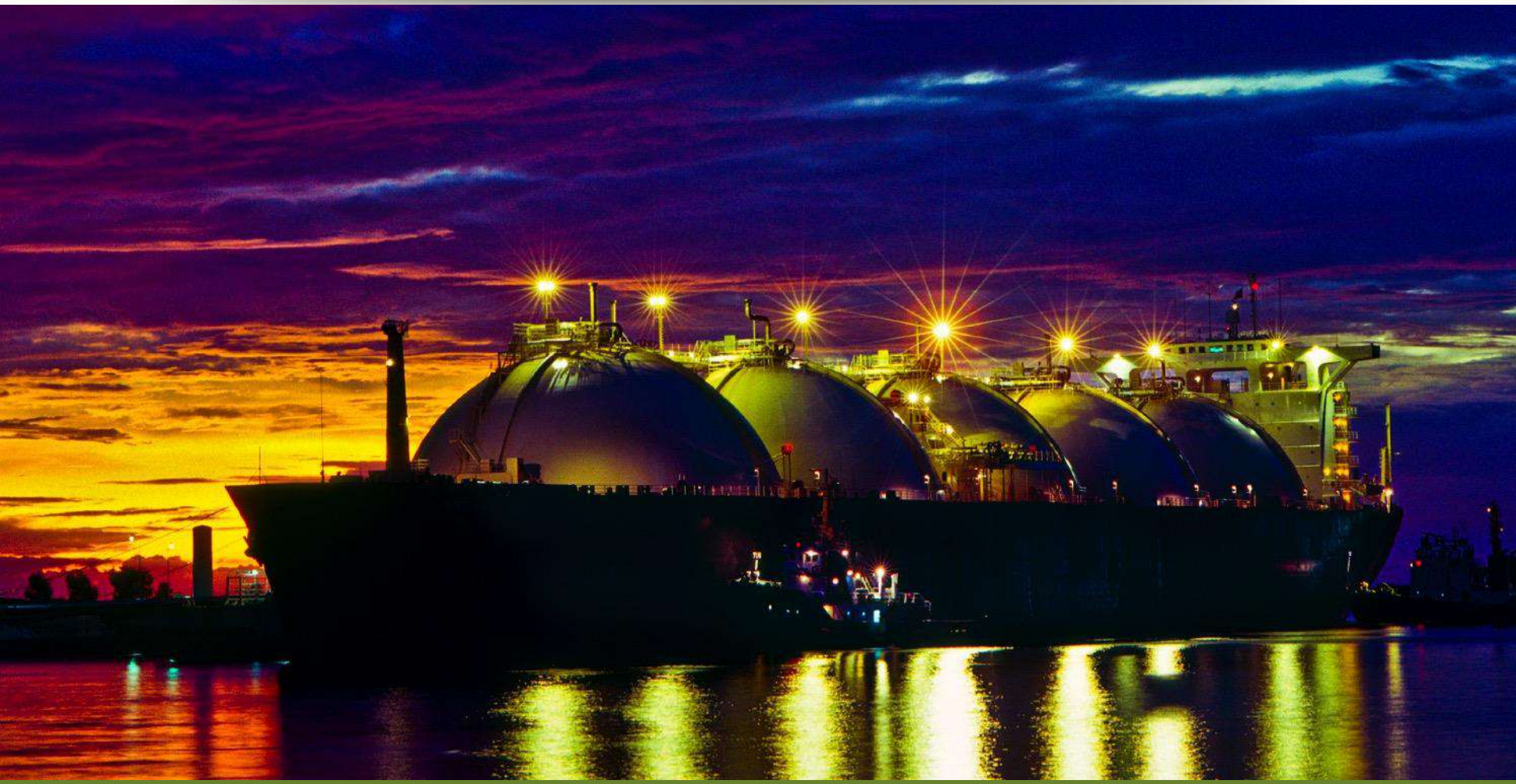
LIST OF ASSISTANCE
PARTICIPATORY RURAL DIAGNOSTIC WORKSHOP
DATE: June 21, 2016.

Municipio: Acajutla.

N°	Name	Sex	Name of the institution of which comes	Telephone contact	Signature
31	Karen Rosales	F	Alcaldía Acajutla	7003-3996	
32	Ernesto Ramirez	M.	Alcaldía Acajutla	7053 9739	
33	Yolanda del Carmen Cardoza	F.	Alcaldía Acajutla	7048-5377	
34	Sandra Elizabeth Abarca	F.	Alcaldía Acajutla	7611-1241	
35	Olman Portillo	M.	Alcaldía Acajutla	7148-9534	
36	Walter J Ovel	M.	Alcaldía Acajutla	7965-5703	
37	Carlos Antonio Tobar	M.	Alcaldía Acajutla	77446498	
38	Maria Ignacia Acevedo	F.	" "	77414475	
39	Maribel de Urrutia	F.	Cadetur	78510322	
40	Ma				

Appendix N - Socialization evidence EsIA

Energía del Pacífico

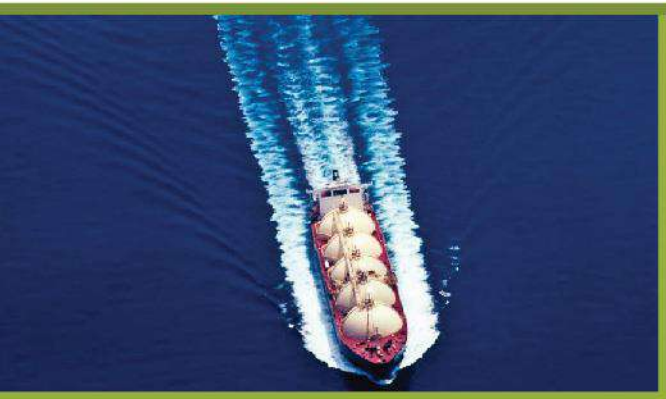


Clean Energy for our future
September 7, 2016

Energía del Pacífico



Clean energy for our future







BACKGROUND

355 MW Tender Highlights

- The Government of El Salvador has called for a tender for the long-term supply of 355 MW of new power and associated energy.
- The tender specified that the offers should propose the generation of energy with natural gas or coal.
- The purpose of the tender was to supply energy and its associated power to seven private distribution companies in El Salvador.
- Power Purchase Agreement (PPA) would be for 20 years.

355 MW Tender Highlights

- In November 2013, the General Superintendence of Electricity and Telecommunications (SIGET) officially declared the award of the project to Quantum-GLU Association, which for that purpose was the company Energía del Pacífico Ltda. de C.V. (EDP) for the construction of the new power generation plant in El Salvador.
- The natural gas power generation plant will be located in the Port of Acajutla, department of Sonsonate.


Belize
Guatemala
Honduras
El Salvador
Nicaragua
Acajutla
Tegucigalpa
Managua


LNG



ABOUT US

About us

- Energía del Pacífico Ltda. De C.V. (EDP) is the company that will build and operate the new power generation plant in El Salvador.
- The electricity generation plant by means of natural gas will be located in the Port of Acajutla, Department of Sonsonate.
- EDP has managed to get natural gas supply through Shell and the technology of the plant will be from Wärstilä.
- EDP has contracts with the distributors for 20 years.
- **The Project will be financed by the International Finance Corporation (IFC), which has strict international regulations that must be complied with before granting the credit for the development of the Project.**







PROJECT OVERVIEW

The Energía del Pacífico project will consist of:

- Thermal Generation Plant of 380 MW of installed capacity (the bidding of the Government of El Salvador requested the supply of 355 MW of power and associated energy)
- Regasification maritime terminal.
- Subsea pipeline of natural gas from the regasification plant to the generating plant
- **Transmission line to inject the energy to the national transmission system.**

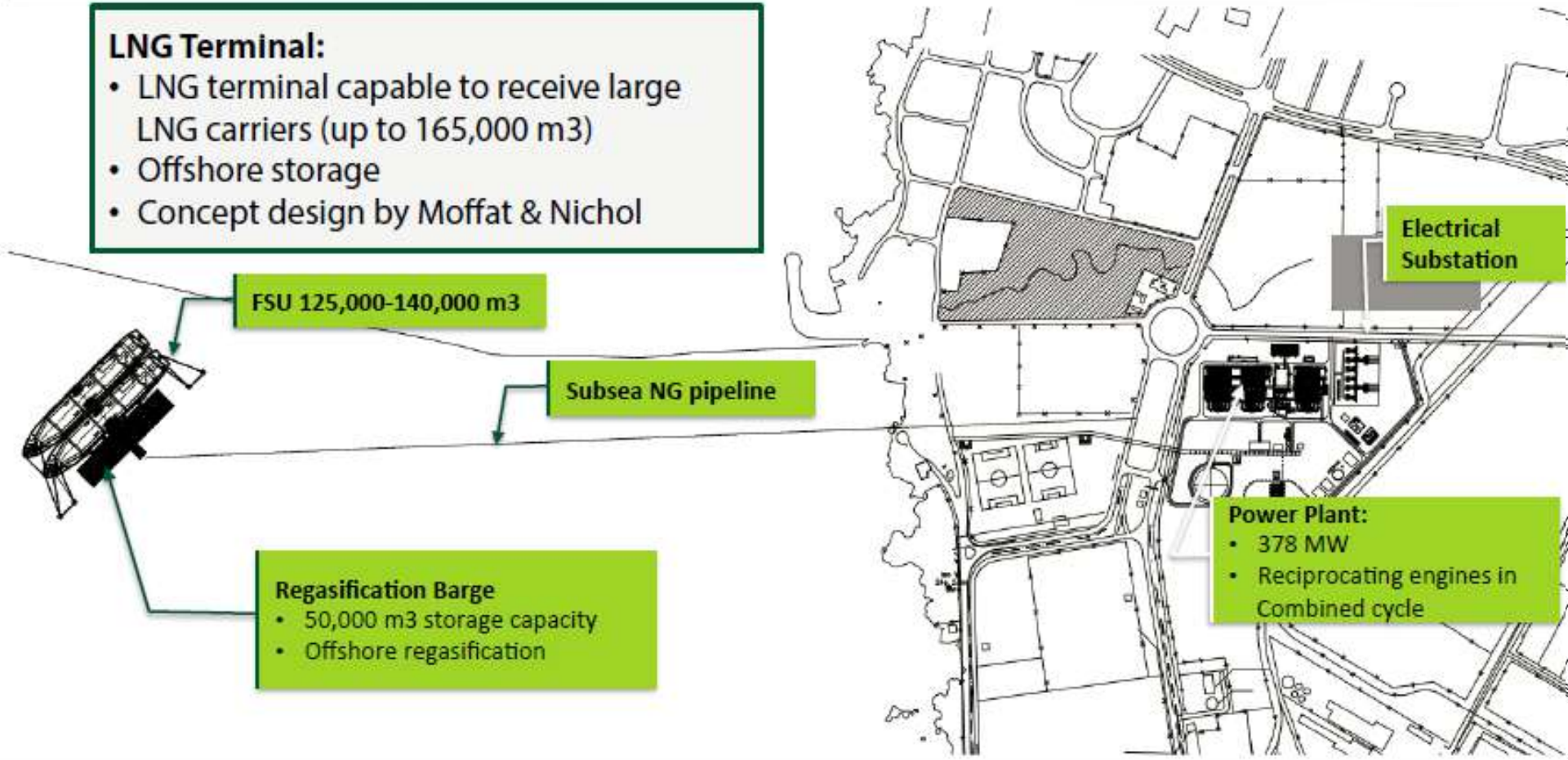
Project Site: Port of Acajutla, El Salvador

The Project Site is located within the property of CEPA in the Port of Acajutla (the main port of El Salvador).



LNG Terminal and Power Plant Conceptual Design

LNG Terminal:
- LNG terminal capable to receive large LNG carriers (up to 165,000 m3)
- Offshore storage
- Concept design by Moffat & Nichol



Power Plant Specifications

- 19 natural gas Wärstilä engines 50SG in combined cycle mode
  - Simple cycle mode: 348 MW
  - Steam turbine: 30 MW

- Net Output: 378 MW
- Heat Rate : 7800 BTU/kWh (HHV)



430MW Wartsila Flexicycle in Dominican Republic

Marine Terminal for Regasification



The terminal will consist of a regasification barge composed of a perimeter breakwater structure, located 1.2 km from the coast.

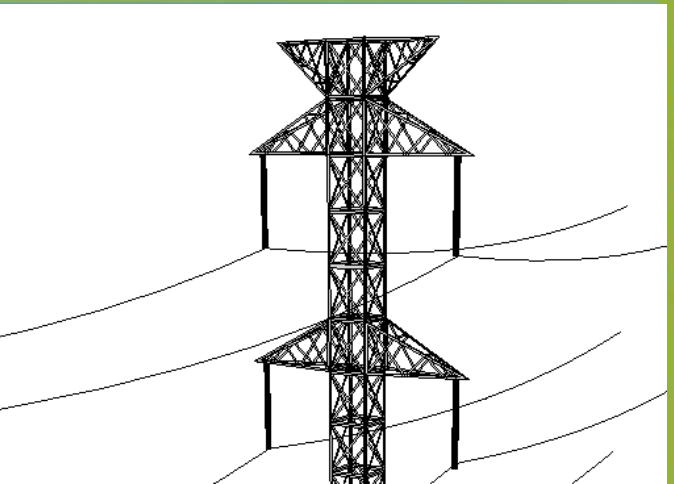
The process begins with the docking of a liquefied natural gas (LNG) freighter.

There will also be a floating storage vessel (FSU) that will be semi-permanently docked at the terminal.

The discharge process will consist of the transfer of LNG from vessel to vessel.







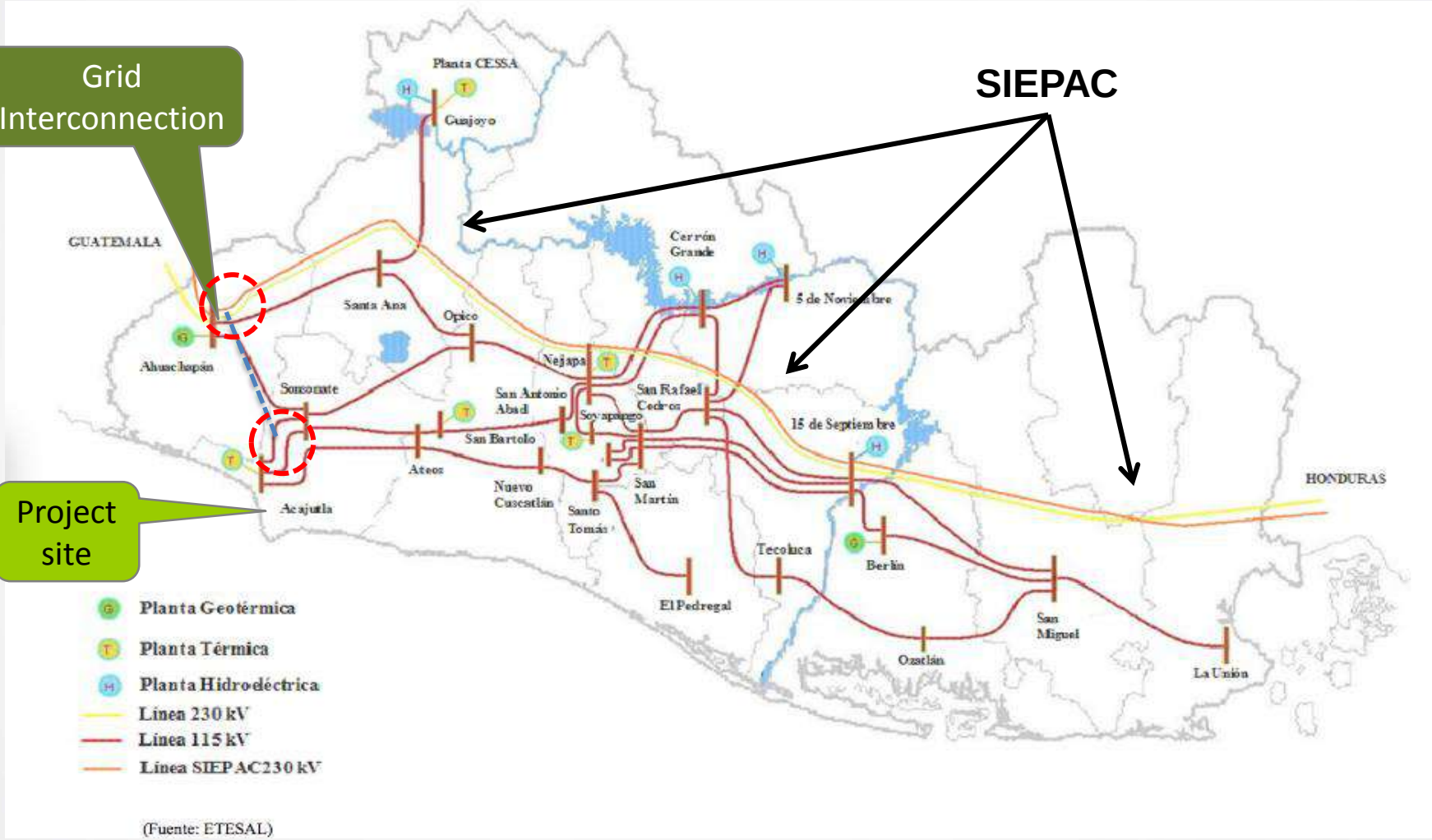
TRANSMISSION LINE

Transmission Line

Energía del Pacífico

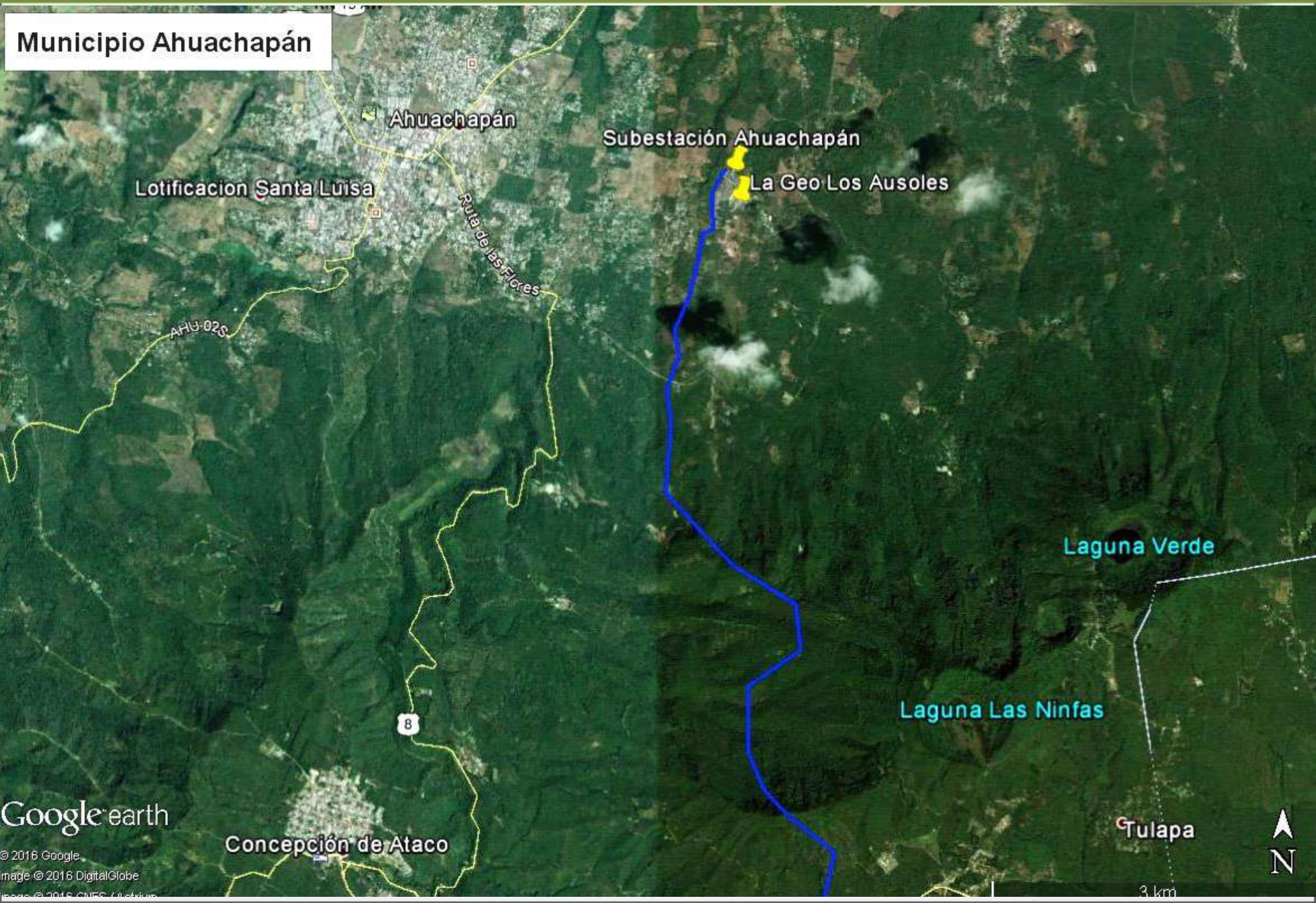


Electrical Interconnection Project



Municipalities through which the transmission line crosses

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Ahuachapán
Subestación Ahuachapán
La Geo Los Ausoles
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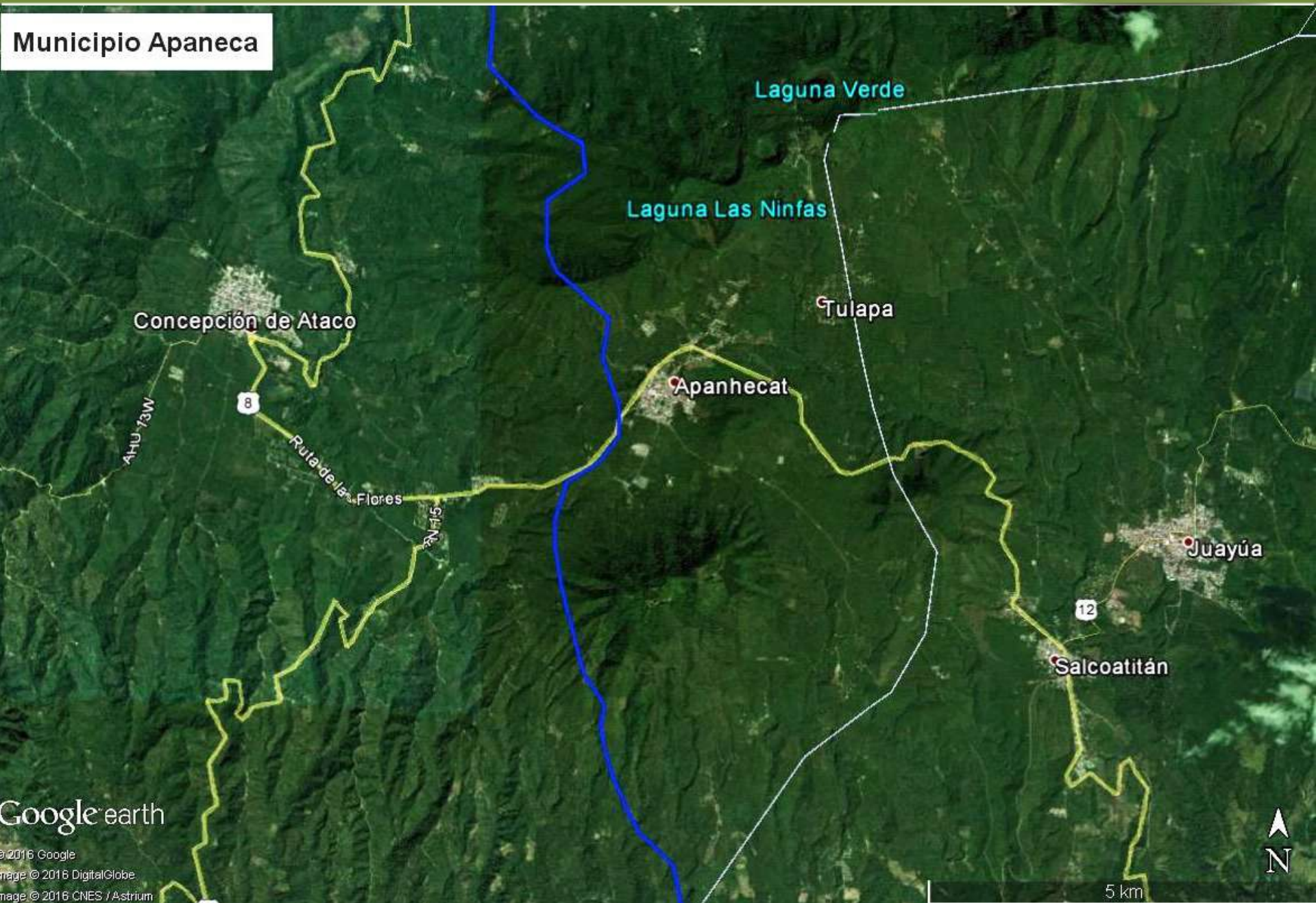
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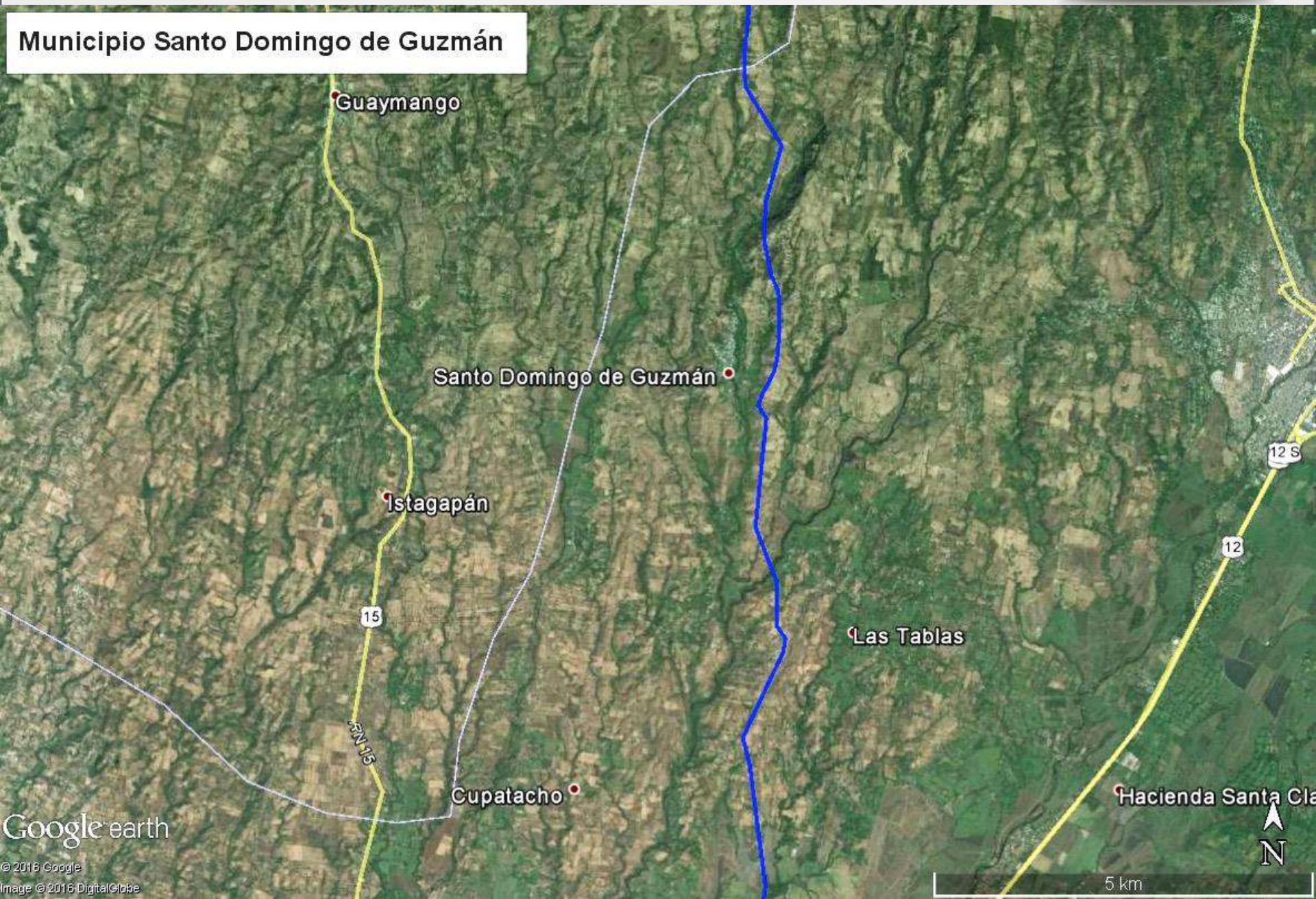
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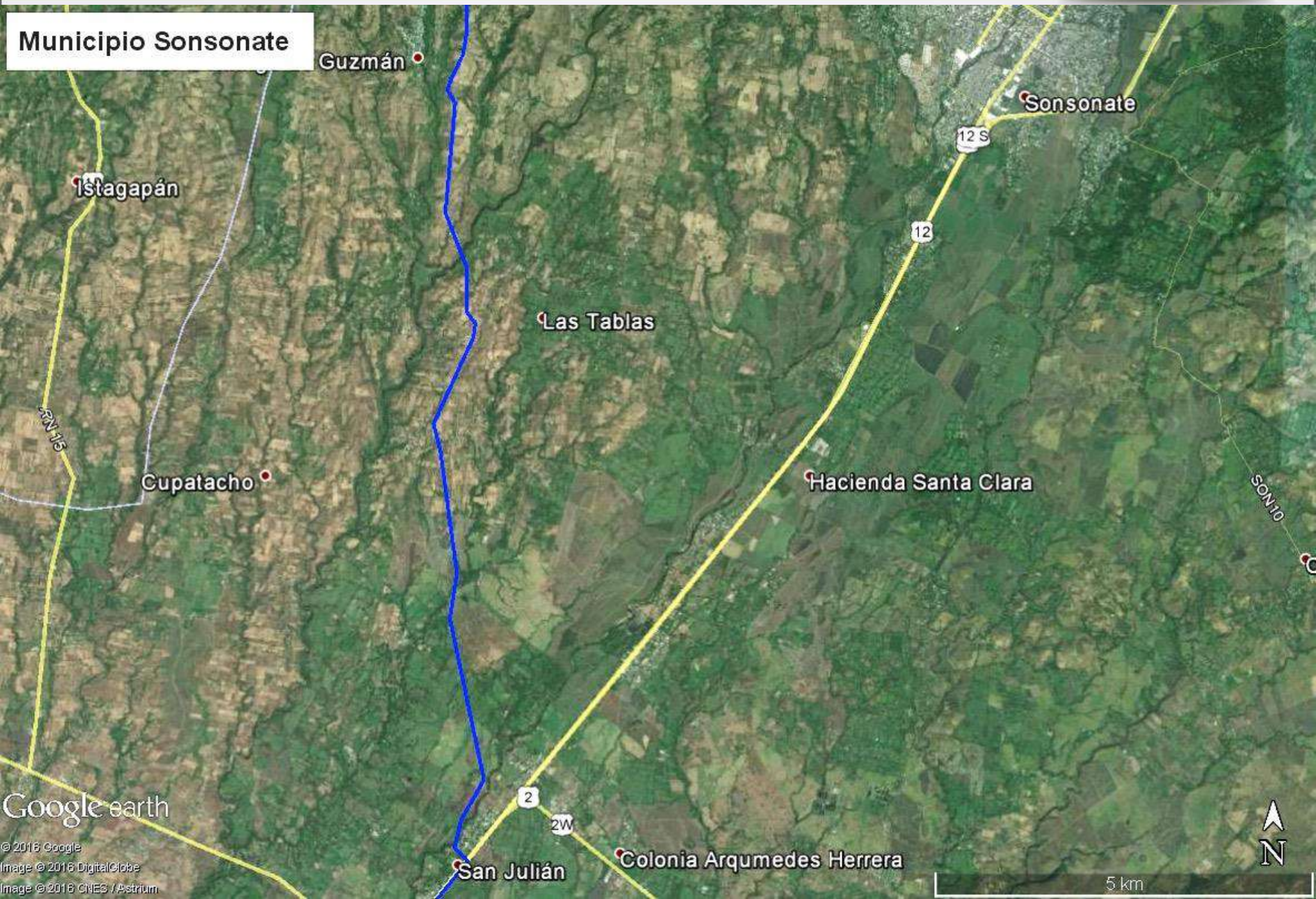
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Cupatacho
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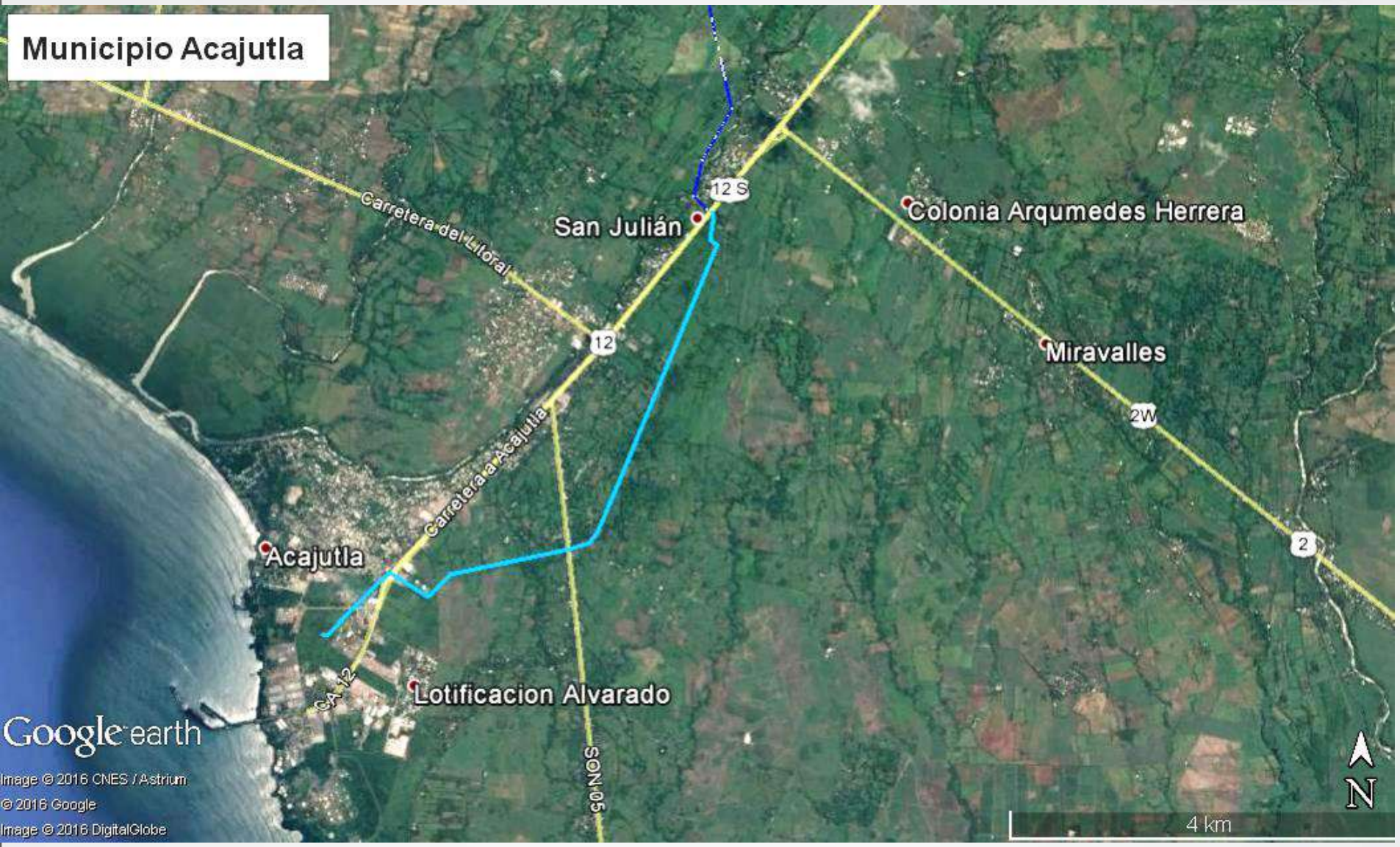
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Colonia Arqumedes Herrera
Miravalles
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Acajutla
CA-12
Lotificacion Alvarado
SON-05
Google earth
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Image © 2016 DigitalGlobe
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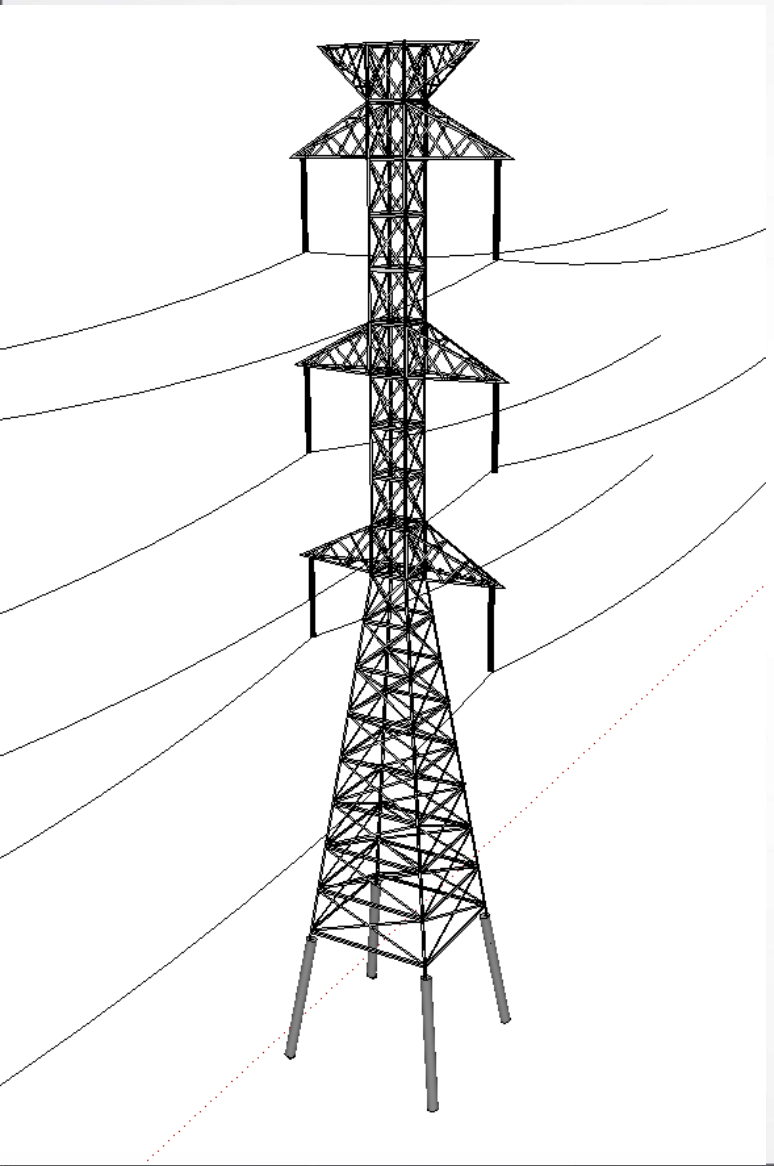
4 km

Description of transmission towers



- Tower height: Between 32 and 45 meters high.
- Width of tower at floor level: Between 5 and 8 meters wide.
- Dimensions of foundations: Between 6 and 10 meters wide.
- The height of the cable closest to the floor shall be at least 9 meters.

The towers are designed to withstand tension, bending, wind forces and earthquake forces.

Economic and Social Development of the Municipality of Acajutla

- EDP is committed to bring economic and social development to the Municipality of Acajutla, through works prioritized and approved by the Municipality in conjunction with the FISDL.
- EDP has contracted the Strengthening and Social Action Program (FORTAS) to execute these works.
- The works approved by the Municipality-FISDL to be executed in the period July 2015-June 2016, are:
  - Improvement Benigno Carrera Street, located in Ciudadela CEPA (407 meters long)
  - Improvement of RASA Street, located in CEPA Citadel (205 meters long)



Improvement Benigno Carrera Street:

This work began on January 18, 2016 and the population that will benefit 1,470 people.

95% advance.

Construction:








Construction :









Improvement of RASA Street:

This work began on February 15, 2016 and the population that will benefit is 735 people.

There is currently a 75% advance.

Construction :








Construction :







THANK YOU VERY MUCH FOR YOUR ATTENTION





Workshop of presentation of impacts

Sonsonate, September 7, 2016

Presentations

- Capital Natural
- Energía del Pacífico
- Facilitator team ERM y EDP
- GRIS

Agenda - Morning

Hour	Content	Responsable
8:30 – 9:00	Registration of participants	
9:00 – 9:15	Introduction	EDP and Roberto Escalante
9:15 – 9:35	Project knowledge by participants	Cesar Galdámez
9:35 -10:25	Impacts to the Physical and Biological Environment	Odessa Bowen (ERM)
10:25- 10:40	Break	
10:40- 11:35	Impacts on the Socioeconomic Environment	Isolina Sánchez (ERM)
11:35- 12:00	Management Plans	ERM
12:00	Farewell	Roberto Escalante and EDP

Agenda - Afternoon

Hour	Content	Responsable
1:30 – 2:00	Registration of participants	
2:00 – 2:15	Introduction	EDP and Roberto Escalante
2:15 – 2:35	Project knowledge by participants	Cesar Galdámez
2:35 -3:25	Impacts to the Physical and Biological Environment	Odessa Bowen (ERM)
3:25- 3:40	Break	
3:40- 4:35	Impacts on the Socioeconomic Environment	Isolina Sánchez (ERM)
4:35- 5:00	Management Plans	ERM
5:00	Farewell	Roberto Escalante and EDP

Objetivos

- Present the main potential impacts of the Project
- Present measures to avoid, minimize and restore negative impacts and enhance the positive impacts of the Project
- Establish verifiable indicators and a plan to monitor the success of actions
- Obtain perceptions / feedback from the public about impacts and mitigation measures

Impact Assessment Methodology

Analyzes of each specific impact include the phases of the Construction and Operation Project, as well as the potential impacts during the stages of the unplanned events, and those that may occur due to Project uncertainties

Impact Assessment Methodology (cont.)

Impact assessment is carried out as follows:

- Characterization of the baseline - the conditions existing before the Project is developed and the effects occur.
- Identification of the sources of impacts and impacts (as such) that are produced by any aspect of the Project.
- Classification of impacts before applying any mitigation measure.
- Suggest mitigation measures to address the impact.
- Classification of impacts after mitigation in order to produce a "residual" impact classification.

Classification of Significance of Impact

		Sensibilidad / Vulnerabilidad / Importancia del Recurso/Receptor		
		Baja	**Media**	**Alta**
Magnitud del Impacto	**Insignificante**	Insignificante	Insignificante	Insignificante
	Pequeña	Insignificante	Menor	Moderada
	Media	Menor	Moderada	Mayor
	Grande	Moderada	Mayor	Mayor

Impacts to the Physical Environment



Physical environment

Aspects of the physical environment to be evaluated include the following:

- Soil
- Water resources
- Air quality
- Noise and Vibration

Soil

Potential impacts may include:

- Erosion
- Compaction
- Pollution of soils
- Sedimentation

Soil (cont.)

Activities that may promote these impacts include:

- Felling and pruning fringe right of way or easement
- Construction of access roads to the construction zone
- Land leveling, filling and compaction
- Disposal and Disposal of Excavated Material
- Assembly of structures
- Correction and cleaning gaps
- Demolition and dismantling of previous structures (only where necessary)

Soil - Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• Implementation of measures to control soil erosion, storm water runoff and sedimentation • Use of sediment ditches and regulation dams for the control of runoff • Use of appropriate management practices during deforestation activities (to the maximum extent reasonably practicable • Clear demarcation of areas to be affected in order to avoid impacts on additional areas
Operation	• Implementation of measures to control soil erosion, storm water runoff and sedimentation • Maintenance of equipment in good mechanical condition • Adequacy of a specific area, with waterproofing protection, to carry out minor maintenance activities • Implementation of the Contingency Plan in case of spills

Water resources

Potential impacts may include:

- Change in runoff
- Alterations to water quality

Water Resources (cont.)

Activities that may promote these impacts include:

- Construction of accesses and infrastructure associated with the towers
- Construction of temporary facilities (storage of tools, equipment and dressing rooms for workers)
- Formulation and curing (construction machinery, concrete processing, various mixtures, compaction of earthworks)

Water Resources - Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• Channeling rainwater on roads through ditches, sewers, sediment barriers and settlers, among other devices so as to reduce the entrainment of solids to rivers and / or streams • Remove material generated by excavation work and deposit at a safe distance to avoid material falling into nearby rivers and / or streams • Design and implement a water quality control program
Operation	• Avoid the use of machinery in the vicinity of water courses • Maintenance of equipment in good mechanical condition • Implementation of the Contingency Plan in case of spills

Calidad del Aire

Potential impacts may include mainly:

- Emissions of gases and particles from equipment, machinery and vehicles (mobile sources) that use hydrocarbons as a source of fuel.
- Release of gases by on-site painting of the armory

Calidad de Aire (cont.)

Activities that may promote these impacts include :

- Transit of vehicles through the different accesses to the construction zones for the transportation of the construction material and the equipment that compose the Project
- Removal of waste material from the construction area
- Earth movements for the preparation of the site where it is proposed to locate the facilities of the towers

Calidad de Aire – Medidas de Mitigación

Phase	Activity / Mitigation Measure
Construction	• Irrigation of roads and access to the easement and within the right of way to mitigate dust • The use of any machinery, equipment or vehicles that have fuel leaks, ruptures in the combustion and exhaust systems, or problems in the catalyst systems • Monitoring of atmospheric pollutants • The box of vehicles transporting debris, earth or construction material must have a tarpaulin adjusted to prevent the dust from escaping during its journey
Operation	• Any vehicle, whether for transportation, forklift or maneuvering equipment, shall be driven into the designated tracks, gaps and roads previously opened • Maintenance of equipment in good mechanical condition • Set speed limits for vehicles traveling in populated areas (maximum speed of 25 km / h)

Ruidos y Vibraciones

Potential impacts may include mainly:

- Increase in short-term and temporary environmental noise levels
- Increases in vibration transmission conditions

Ruidos y Vibraciones (cont.)

Activities that may promote these impacts include :

- Use of heavy machinery and trucks
- Increase in human activity in the area
- Ground Preparation Activities
- Lifting and installation of transmission lines

Ruidos y Vibraciones – Medidas de Mitigación

Phase	Activity / Mitigation Measure
Construction	• Maintain maximum permitted noise levels within the values indicated by Salvadoran authorities or threshold levels of noise established by IFC • Indicate all sites where they emit noises above 85 dBA, to avoid exposure of persons without properly certified hearing protection equipment. • Set speed limits for vehicles traveling in populated areas (maximum speed of 25 km / h) • Clear demarcation of areas to be affected in order to avoid impacts on additional areas
Operation	• Train all workers on techniques for the use and maintenance of hearing protection equipment (occupational safety) that must be required at all times during the exposure period • Design and implement a contingency plan and corrective measures to meet eventualities

Noise and Vibrations - Note

It should be noted that the same mitigation measures apply for both construction and operation phases

Impacts to the Biological Environment



Biological Environment

Aspects of the biological environment to be evaluated include the following:

- Flora
- Fauna
- Protected Natural Areas and Fragile Areas

Biological Environment

Potential impacts can occur mainly in the following areas:

- Loss of Forest Cover and Individuals Threatened and Endangered Species
- Pollution and Degradation of Aquatic Habitats
- Loss of Habitat and Individuals of the Black-eyed Frog
- Bird Collisions with Cables
- Impacts to the Apaneca-Ilamatepec Biosphere Reserve

Loss of Forest Cover and Individuals Threatened and Endangered Species

Potential impacts may include :

- Reduction of plant cover
- Protection of ecosystems and protected species
- Change or degradation of the floristic landscape
- Affectation of protected areas

Loss of Forest Cover and Individuals Threatened and Endangered Species

Activities that may promote these impacts include :

- Pruning of tall trees that interfere with the safety space of the lines
- Accesses within easements
- Use of heavy machinery and trucks
- Ground Preparation Activities
- Lifting and installation of transmission lines

Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• Opportunities will be sought to minimize the construction of new accesses by using manual labor and loading animals to transport material • Implementation of a Reforestation Plan
Operation	• Access routes and service routes that are not necessary for the project operation stage will be closed and restored to their original or better conditions

Pollution and Degradation of Aquatic Habitats

Potential impacts may include :

- Soil Erosion
- Introduction of sediments and organic material in bodies of water
- Introduction of pollutants by the crossing of ravines by vehicles and machinery

Pollution and Degradation of Aquatic Habitats

Activities that may promote these impacts include :

- Construction of accesses and infrastructure associated with the towers
- Construction of temporary buildings
- Use of heavy machinery and trucks
- Ground Preparation Activities
- Lifting and installation of transmission lines

Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• Channeling rainwater on roads through ditches, sewers, sediment barriers and settlers, among other devices so as to reduce the entrainment of solids to rivers and / or streams • Remove material generated by excavation work and deposit at a safe distance to avoid material falling into nearby rivers and / or streams • Design and implement a water quality control program
Operation	• Avoid the use of machinery in the vicinity of water courses • Maintenance of equipment in good mechanical condition • Implementation of the Contingency Plan in case of spills

Loss of Habitat and Individuals of the Black-eyed Frog

Potential impacts may include :

- Loss of habitats and mortality of individuals of low mobility fauna species

Loss of Habitat and Individuals of the Black-eyed Frog

Activities that may promote these impacts include :

- Transit of vehicles through the different accesses to the construction zones for the transportation of the construction material and the equipment that compose the Project
- Earth movements for the preparation of the site where it is proposed to locate the facilities of the towers

Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• Carry out nocturnal campaigns for the capture and relocation of these frogs to reduce the negative impact to the local population of the species • Avoiding impacts to water bodies and catchment cells that can serve as breeding sites • Construction of water collection cells with enough light in places where the black-eyed frog (Santa Rita and Tequendama farms) • Carry out educational conservation campaigns for owners and inhabitants of the area • Encourage owners to move to an organic coffee crop without agrochemicals in the Project's area of influence where the largest populations of this amphibian were found
Operation	• Avoiding impacts to water bodies and catchment cells that can serve as breeding sites

Bird Collisions with Cables

Potential impacts may include mainly:

- Cable collisions for large birds such as raptors and waterfowl because they are of smaller diameter and less visibility

Bird Collisions with Cables

Activities that may promote these impacts include :

- Lifting and installation of transmission lines

Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• Installation of flight deterrents of spiral type birds in the openings on crossings of rivers, streams and streams and on the tops of the Apaneca mountain range, in the guard cables, with a maximum separation of 15.0 m and in alternating form
Operation	• Monitoring and maintenance of flight deterrents

Impacts to the Apaneca-Ilamatepec Biosphere Reserve

Potential impacts may include mainly:

- Species affectation or reduction
- Displacement and reduction of species by project activities (noise and dust)
- Reduction of fauna due to loss of plant cover
- Loss of breeding area (amphibians and reptiles)

Impacts to the Apaneca-Ilamatepec Biosphere Reserve

Activities that may promote these impacts include :

- Transit of vehicles through the different accesses to the construction zones for the transportation of the construction material and the equipment that compose the Project
- Removal of waste material from the construction area
- Earth movements for the preparation of the site where it is proposed to locate the facilities of the towers

Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• Establishment of a communication and consultation mechanism between EDP and administrators of the Biosphere Reserve • Development of a forest nursery and a local seed collection program for seedling production

Operation	• Maintenance plan for a minimum of three years to ensure the establishment of plants.
	• Maintenance measures should include:
	  • Weed control
	  • Fertilization
	  • Resiembra
	  • Pruning of lower branches
	  • Enlightenment of surplus trees
	  • Irrigation during dry periods

Environmental Management Plans

Environmental Management Plans

The Environmental Management Plans aim to define a framework for the implementation of the mitigation measures and the controls described in the Environmental and Social Impact Study (EIAS), as well as for the corresponding actions

EROSION AND SEDIMENTATION CONTROL PLAN

The objectives of this Plan include:

- Comply with relevant Salvadoran regulatory requirements;
- Avoid and control soil erosion and contamination;
- Follow the guidelines of international best practices;
- Define procedures, integrated controls and mitigation measures to be used in the construction and operation phase activities that have the potential to affect soils;
- Define the functions and responsibilities of the implementation of this Plan; and
- Define procedures for monitoring the efficiency of mitigation measures, reporting and intervention and adaptation of the Plan.

BIODIVERSITY

The Biodiversity Action Plan contains four key components, each of which addresses specific elements of the management process. These components are:

- Application of the Mitigation Hierarchy - this component refers to the process by which the concerns and problems of stakeholders will be presented to the Project for its solution;
- Fauna program - this component focuses on the control and management of impacts on communities. Specifically, it refers to the impacts derived from traffic, the use of security forces and the influx of workers
- Reforestation Program - this component includes a set of requirements and expectations for the entire Project workforce (direct and subcontracted employees) regarding interactions with the community.
- Monitoring and Evaluation Plan

Break – 15 minutes

Impacts on the Socioeconomic Environment



Benefits / Positive Aspects

The Project will generate positive impacts that are the following:

- Generation of temporary and permanent jobs
- Regional Economic Stimulus
- Increased Power Supply

Potential Impacts

In addition, **potential** impacts that could be given are the following :

- Risk of Traffic Accidents on Public Roads
- Right-of-Way Purchase
- Land Use within Right of Way
- Alteration of quality and visual fragility
- Changes in the land use pattern
- Occupational Accident Risk

- Risk of Traffic Accidents on Public Roads

Activities that may promote these impacts include :

- Use of heavy machinery and trucks
- Increase in human activity in the area
- Transport of materials and personnel to the work fronts

Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• The Unpaved Road Improvement Project and associated infrastructure to minimize the risks of increased traffic during construction • The speed will be restricted in all vehicles of the Project to a maximum of 25 km per hour to avoid traffic accidents. • In order to minimize interference with road users, the works will be programmed so as to always maintain the main communication channels enabled. • The necessary precautions shall be taken to avoid accidents, maintaining at all times adequate signage, both day and night, according to the rules of the competent authority complying with current regulations • All Project staff and Project vehicles (including the contractor, subcontractor and vehicles) will give the right of passage to all local people (eg, residents of communities who are moving on foot). • Project related to driving vehicles will undergo training course for defensive driving (Smith System)
Operation	• At the end of the works to improve the roads, the cleaning and cleaning work will be carried out.

- Purchase Right of way and Land use within Right of Way
  - Private negotiation with owners on the basis of mutual agreement
  - When it has not been possible, these properties have been avoided

Mitigation Measures

Phase	Activity / Mitigation Measure

Construction	• Owners since September 2015 that has among its functions:
	  • Attention to property owners located under the trace or any other person interested in obtaining project information.
	  • Receipt of personal identification documents and property ownership.
	  • Receipt of complaints and complaints, not only by real estate owners, but also of all persons living in the area of influence of the trace, and who are directly involved that they consider that they have had damage in their property by the equipment of Work in the field. This establishes a mechanism of complaints to file appeals and aims to resolve disputes in an impartial manner.

Operation	• Implementation of a grievance mechanism for communities

- Alteration of quality and visual fragility

The layout of the line and the design of the easement corridor have been optimized to ensure the minimum impact and guarantee the visual quality of the natural environment

Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• The layout of the line has tried to avoid, as far as possible, the passage through populated areas, in order to reduce the surrounding populations during the construction period and reduce the visual impact • The elements of the natural environment (points of tourist interest or natural observation, churches or buildings with historical and patrimonial value, peaks or mountains, etc.) will be taken into account to avoid intersection with them

- Occupational Accident Risk

Activities that may promote these impacts include :

- Use of heavy machinery and trucks
- Grooving and reinforcement of support towers
- Construction of concrete bases for towers
- Dress of the towers
- Stretched and tensioned aerial netting

Mitigation Measures

Phase	Activity / Mitigation Measure
Construction	• Implementation of a grievance mechanism for workers • The promoter will ensure that the working conditions in the Project are the best in terms of legal compliance with occupational health regulations and the work of El Salvador. • The personnel must be qualified to carry out the activities of the Project. • All employees will receive training in Occupational Health and Safety • The contracting company will provide personal protection equipment and tools in good condition to all workers according to the activities they perform. • Personnel shall wear appropriate personal protective equipment at all times and work at heights shall be carried out with appropriate safety measures (harness, gloves and insulation clothing), in accordance with the applicable legal requirements in this area. • The staff will have adequate and sufficient means to ensure a proper hydration and at least one hour of rest during the day. • If torrential rains occur during the laying of the line, the work must be done with extreme caution or even suspended, while the rain lasts to avoid soil trapping and runoff. • All access points to the Project sites will be clearly marked and will have security personnel.

Social Management Plans

SOCIAL MANAGEMENT PLAN

All employees of the project and its contractors will undergo a training course that will include:

- The objectives of the Project's Social Management Plan and the role they play as security personnel in creating and maintaining positive relationships with communities;
- The Project will have a team in charge of social management and communication with communities
- The Code of Conduct, including the behavioral standards and corrective actions required of all Project employees, contractors and subcontractors;
- Information on the Performance Standards of the International Finance Corporation and the Equator Principles, with emphasis on respect for the surrounding communities; And
- MQ procedures and complaint handling. Project personnel, including security; And
- Procedures in case of fortuitous archaeological finds
- Security forces will be recruited from registered security companies and staff will receive training on international standards for the protection of Human Rights.



Thank you for your participation

Sonsonate, September 7, 2016

Dear Sirs and Ladies, the Project:

"GENERATION OF 355 MW BASED ON NATURAL GAS WITH A GENERATION PLANT IN ACAJUTLA, SONSONATE"

By means of this means, we are initiating a consultation and information stage for all the people who own / own property under the project line that ENERGIA DEL PACIFICO, LTDA. DE C.V. Will be carrying out, in order to fulfill the commitment to promote the economic and social development of our country; For the above, we will be visiting your community with properly identified personnel, to explain the project and form a register of owners / possessors, for which we request us to collaborate by providing copies of the following documents:

- Single Document of Identity (DUI)
- Tax Identification Number (NIT)
- Public deed of the land and / or any other document that protects the property and possession of the property.

Your collaboration is a valuable contribution to the development of the country.

For more information we are at your disposal in our offices located in:

Kilometer 63 1/2, Las Palmeras Boulevard # 3, Sonzacate Municipality, Department of Sonsonate, adjacent to Hotel Las Palmeras.

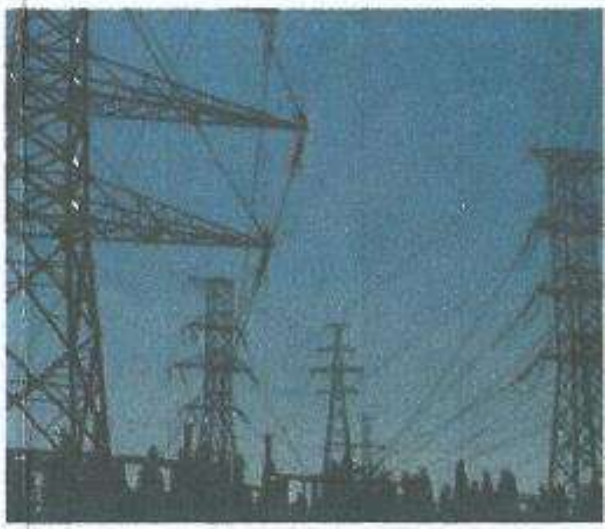
Contact us:

Tel. 2429-1384
Cel. 7787-3012

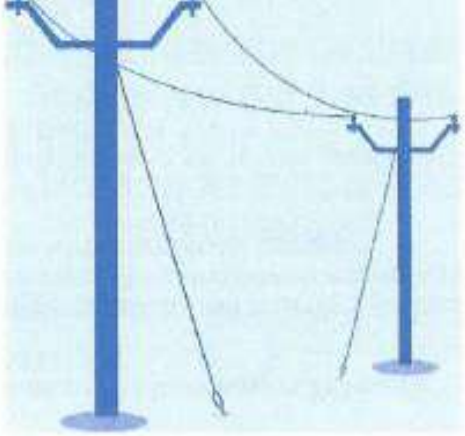
Email:
info.servidumbre@energiadelpacifico.com

PROJECT "GENERATION OF 355 MW BASED ON NATURAL GAS WITH A GENERATION PLANT IN ACAJUTLA, SONSONATE"

ENERGÍA DEL PACÍFICO, LTDA. DE C.V.



"A new energy for El Salvador"



The EDP project will be located within the existing industrial zone in the Port of Acajutla, department of Sonsonate.

This project will consist of:

- Power Generating Plant of 380 MW of installed capacity (the project is for the supply of 355 MW of power and associated energy);
- Liquefied Natural Gas (LNG) Regasification Plant;
- Dock to be located in the Port of Acajutla; and
- Transmission Line to inject energy into the national transmission system.

Transmission line:

The transmission line will consist of approximately 45 kilometers, starting from the Generating Plant located in Acajutla, Sonsonate until arriving at the ETESAL substation Los Ausoles in Ahuachapán, touring the municipalities of:





Benefits

- Increased availability of energy in the country.
- Promotes gasification of El Salvador at the regional level
- Liquefied Natural Gas allows higher yields compared to other fuels
- Reducing environmental impact
- Generating energy with a safer and easier to transport fuel
- Creation of more than 1,000 temporary jobs during the construction of the plant and 60 technical and administrative jobs in its operational phase.

It is one of the most important private investments in the history of El Salvador.

3° Negotiation and acceptance of value

It is the process of notification of value of the area to be used and amount to cancel to owners, in concept of payment for the constitution of the right of way of electric conduit for the construction of the line of transmission.



4° signature of deed and payment

Negotiated and accepted the form of payment of the strip to locate is proceeded to the signing of writing of constitution of easement. Payments will be made in a parallel and transparent manner according to the agreement between the parties.

Dear owners:

Their collaboration is a valuable contribution to this development project for the country, which will generate electricity supply to the places where it is required. The commitment of Energía del Pacifico LTDA de C.V. Is to fulfill this purpose, so our activities are aimed at informing, consulting and you generate your position.

For more information we are at your disposal in our offices located in:



Kilometer 63 1/2, Las Palmeras Boulevard # 3, Sonzacate Municipality, Department of Sonsonate, adjacent to Hotel Las Palmeras.

Contact us by phone contact:

2429- 1384 y 7787-3012

Our email:

info.servidumbre@energiadelpacifico.com

PROJECT "GENERATION OF 355 MW BASED ON NATURAL GAS WITH A GENERATION PLANT IN ACAJUTLA, SONSONATE"

ENERGÍA DEL PACÍFICO, LTDA. DE C.V.



"A new energy for El Salvador"



The project consists of building in the Port of Acajutla an electric power generation plant based on natural gas, with which through a transmission line will inject the energy into the national grid.

The line begins in the substation of La Geo, Los Ausoles to the Plant, passing through the municipalities of Ahuachapán, Apaneca and San Pedro Puxtla of the department of Ahuachapán, and the municipalities of Santo Domingo ele Guzmán, Sonsonate and Acajutia in the department of Sonsonate .

For the installation of the transmission line, it is required to obtain a right of way of electricity in the building, this is a special permit for the passage and construction of the transmission lines, by air, for an indefinite time, and for which owners of The properties will be properly compensated. For this process the following activities will be carried out:

1° Identification, location, visits domiciled and study in the buildings

- Request for documents: (DUI, NIT, Writing)
- Measurement Permit. Authorization of the owner to enter the property and make.

Topographical survey. Measurement of the land of the area to be acquired and of existing buildings under the transmission line.





2° Valuation

- Survey of field information and development of valuation of the land and constructions if any that are in the property to be used by the right of way.

- Land values will be determined at market price by appraisers duly certified by the Superintendency from the Financial System and Salvadoran Chamber of Valuation..



INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

Mr. / Mrs. GLENDI ISABEL VASQUEZ GUERRA
ALCALDIA OF SANTO DOMINGO DE GUZMAN
PRESENT

Dear Mr. / Mrs. Vásquez,:

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

On this occasion we cordially invite you to attend the SECOND participatory social workshop where we will be discussing the social and environmental IMPACTS of the Project based on the information gathered in the first workshop, and based on the studies carried out by the designer, Knowing your impressions will be of vital importance to the viability of the Project.

The event will take place on Wednesday, September 7, 2016, from 8:30 am to 12:00 pm, in Agape Association of El Salvador. Km. 63 Road Sonsonate, Tel. 2429-8771

Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

ALCALDIA MUNICIPAL SANTO DOMINGO DE GUZMAN DEPTO. SONSONATE, EL SALVADOR C.A. SECRETARIA

R/29/08

2420-6003

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) LUCAS CORTEZ
ALCALDIA DE SANTO DOMINGO DE GUZMAN
Estimado Sr. Cortez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido
24/08/2016

ALCALDIA MUNICIPAL SANTO DOMINGO DE GUZMAN RECEPCION SONSONATE, EL SALVADOR C.A.

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ARMANDO GEOVANNY RAMIREZ
ALCALDIA DE SANTO DOMINGO DE GUZMAN
Estimado Sr. Ramírez,

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Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

ALCALDIA MUNICIPAL SANTO DOMINGO DE GUZMAN DEPTO. SONSONATE, EL SALVADOR C.A. RECEPCION

7505-6391

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MARIA OLIVIA PEREZ JIMENEZ
ALCALDIA DE SANTO DOMINGO DE GUZMAN
PRESENTE

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

ALCALDIA MUNICIPAL * DEPTO. SONSONATE * SANTO DOMINGO DE GUZMAN * RECEPCION

Recibido
29-08-2016
15:10 hrs.

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) RENATO SERMEÑO GARCIA
ALCALDIA DE SANTO DOMINGO
Estimado Sr. Sermeño,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido 29/08/2016

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SONIA MARLENE GONZALEZ
ALCALDIA DE SANTO DOMINGO DE GUZMAN
Estimada Sra. González,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido 29/08/2016

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MANUEL ANTONIO VASQUEZ
ALCALDIA DE SANTO DOMINGO DE GUZMAN
Estimado Sr. Vásquez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido 29/08/2016

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) NELSON DARIO MAGAÑA GUTIERREZ
JUZGADO DE PAZ DE SANTO DOMINGO DE GUZMAN
Estimado Sr. Magaña,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido: 15:48 h.
Fecha: 29/08/2016

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SARA CONCEPCION CHAVEZ
PNC DE SANTO DOMINGO DE GUZMAN
Estimada Sra. Chávez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibí.
Nate. Ramos Morales

29-08-16
15:50 hrs

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) **NICOMEDES GARCIA DE RAMIREZ**
SANTO DOMINGO DE GUZMAN
Estimada Sra. De Ramírez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Solo Nuella

7530-2397

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR ELIGIO RUPERTO RAMIREZ
ALCALDIA DE SANTO DOMINGO DE GUZMAN
PRESENTE

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

6201-8894

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CARLOS ARMANDO JOMA CABRERA
ALCALDIA DE SAN PEDRO PUXTLA
PRESENTE

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Por recibido
13:35 pm
31/08/16

Engineer César Galdámez
Project manager

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

ALCALDE

2486-6604/00

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) BERTA PINEDA
ADESCO LAS PILITAS- SAN PEDRO PUXTLA
Estimada Sra. Pineda,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Por recibido
13:39 pm
31/08/16

Engineer César Galdámez
Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) EDGAR BENJAMIN PEREZ
ADESCO CANTON GUACHIPILIN- SAN PEDRO PUXTLA
Estimado Sr. Pérez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

por recibido
13:39 pm
31/08/16

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) **RINA VASQUEZ DE H.**
ADESCO- SADRO PUXTLA
Estimada Sra. Vásquez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Por recibido
13:39 pm
31/08/16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JOSE DOMINGUEZ ALVAREZ
PRESIDENTE ADESCO - SAN PEDRO PUXTLA
Estimado Sr. Alvarez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Por recibido
13:40 pm
31/08/16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) **ROSALINA HERNANDEZ**
VICEPRESIDENTE ADESCO NUEVA ESPERANZA SAN PEDRO PUXTLA
Estimada Sra. Hernández,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Por recibido
13:40
31/08/16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CARLOS ALFONSO VASQUEZ
Estimado Sr. Vásquez,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Por recibido
13:41 pm
31/08/16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) GABRIEL PEREZ
PROYECCION SOCIAL- SAN PEDRO PUXTLA
Estimado Sr. Pérez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

por recibido
13:42 pm
31/08/16

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) LUCIA GUADALUPE MOLINA
UNIDAD COMUNITARIA DE SALUD DE SAN PEDRO PUXTLA
PRESENTE

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ERICK GABRIEL HERNANDEZ GUERRA
CASA DE LA CULTURA DE SAN PEDRO PUXTLA
PRESENTE

Estimada Sra. Hernández,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido.
Erick Hernández
2420-1188

SECRETARIA DE CULTURA DE LA PRESIDENCIA
DIRECCION NACIONAL DE ESPACIOS DE DESARROLLO CULTURAL

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JOSE GREGORIO LIMA HERNANDEZ
PNC SAN PEDRO PUXTLA
PRESENTE

Estimado Sr. Lima,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

POLICIA NACIONAL CIVIL DE EL SALVADOR PUESTO SAN PEDRO PUXTLA

Firma Total
Fecha 31-08-16
Hora 13:50

Engineer César Galdámez
Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JOSE ERNESTO LEON
CANTON LAS TABLAS
Estimado Sr. León,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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The event will take place on Wednesday, September 7, 2016, from 8:30 am to 12:00 pm, in Agape Association of El Salvador. Km. 63 Road Sonsonate, Tel. 2429-8771

Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Jose Ernesto Leon

7858-6869

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MOISES EDUARDO CASTELLON
SANTA EMILIA
Estimado Sr. Castellón,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

30-08-16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MANUEL AMILCAR FERRUFINO
SOL. EMILIA
Estimado Sr. Ferrufino,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

7439 - 4170

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) VICTOR CATALINO ARCE
SANTA CLARA
Estimado Sr. Catalino,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

30-08-16

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ELY JAQUELINE AGUILAR
SONSONATE - Santa Clara
Estimada Sra. Aguilar,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

30-08-16

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) DANIEL HERNANDEZ
SONSONATE Las Tablas - Agua Escondida
Estimado Sr. Hernández,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

7132-8813

N/D se encontro

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) **GERONIMA GALDAMEZ**
SONSONATE Canton Las Tablas, Caserio La Barranca
Estimada Sra. Galdámez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Edilberto 2

7748-3455

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ERNESTO OMAR SANTIAGO García
SONSONATE Las Tablas, Caserío La Barranca (El Jaio)
Estimado Sr. Santiago,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Wendy Nancy Santiago Osorio

6165-3050

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) BORIS MIRON
CANTON LAS TABLAS - Cacaho Montecristo
Estimado Sr. Mirón,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

30-08-16

6110-7384

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) NOE DE JESUS GENOVEZ
IGLESIA DE DIOS – EL CAFETAL
Estimado Sr. Genovés,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

30-08-16

7607-6018

Energía del Pacífico

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ESTELA MARITZA ZELIDON
EL CAFETAL
Estimada Sra. Zelidon,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Engineer César Galdámez
Project manager

30-08-16
71288137

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MANUEL DE JESUS HIDALGO RAMIREZ
SONSONATE Director C.E. ELCAFETAL
Estimado Sr. Hidalgo,

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Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

30-08-16 79678339

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MARCO JULIO AGUILAR
EL CAFETAL
Estimado Sr. Aguilar,

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Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

30-08-16

7176-4427

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) BLADIMIR STANLEY RIVAS
HACIENDA LA PRADERA
Estimado Sr. RIVAS,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

30-08-16
Promotor Social

7

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) OSMIN ANTONIO GUZMAN
ALCALDE MUNICIPAL DE APANECA
Estimado Sr. Guzmán,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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The event will take place on Thursday, September 08, 2016, from 8:30 pm to 12:00 pm, at Jardín Celeste Restaurant / CA8 Km 94 Ruta de las Flores, Tel. 2433-277 / 81

Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido
31/08/2016
2486-3100

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) RIGOBERTO EDUARDO PEREZ
ALCALDIA DE AHUACHAPAN – Apaneca Casa de la Juventud
Estimado Sr. Pérez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

31-08-16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) RUBEN OSWALDO NAJERA
PROYECCION SOCIAL DE APANECA
Estimado Sr. Nájera,

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31-08-16

Engineer César Galdámez
Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) WALTER FRANCISCO CARDONA
PROMOTOR SOCIAL APANECA
Estimado Sr. Cardona,

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31-08-16

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Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) FRANCISCO ALBERTO SANTOS JIMENEZ
ALCALDIA DE APANECA
Estimado Sr. Santos,

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Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

31-08-16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) GLADIS MARGARITA ASCENCIO DE SIGUENZA
CASA DE LA CULTURA APANECA
Estimada Sra. Ascencio,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

2433 0163

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JAIME ERNESTO COLOCHO GOMEZ
UNIDAD COMUNITARIA DE SALUD
Estimado Sr. Colocho,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

MINISTERIO DE SALUD REGION OCCIDENTAL UCSF-I APANECA EL SALVADOR CENTRO AMERICA

31-8-16

Sonia Carolina Acosta Joya
DOCTORADO EN MEDICINA
J.V.P.M. PROVISIONAL No. [illegible]

2433-0006

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) RODRIGO ALFONSO NERIO HERNANDEZ
CENTRO ESCOLAR GENERAL FRANCISCO MENENDEZ
Estimado Sr. Nerio,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

MINISTERIO DE EDUCACION · CENTRO ESCOLAR GENERAL FRANCISCO MENENDEZ · DIRECCION · COD. 10061 · APANECA, AHUACHAPAN, EL SALVADOR

2433-0672

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) OSCAR ALBERTO CUELLAR
CENTRO ESCOLAR GENERAL FRANCISCO MENENDEZ
Estimado Sr. Cuellar,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

MINISTERIO DE EDUCACION · CENTRO ESCOLAR GENERAL FRANCISCO MENENDEZ · DIRECCION · COD. 10061 · AHUACHAPAN, EL SALVADOR, C.A.

7841-8707

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JUAN FRANCISCO VIDES
INSTITUTO NACIONAL JOSE DANIEL CARIAS
Estimado Sr. Vides,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

2433-0565

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SALVADOR EDUARDO PUENTE
CENTRO ESCOLAR CATOLICO SAN ANDRES
Estimado Sr. Puente,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido 31-08-2016

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ANIBAL OTONIEL FLORES ESCOBAR
PNC APANECA
Estimado Sr. Flores,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

2433-0347

Rubio
Agt. Juarez Garcia
31-08-16
15.00 horas

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JONATHAN MENDEZ
UNIDAD DE TURISMO- AHUACHAPAN
Estimado Sr. Méndez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

2413-0144

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CLAUDIA AZUCENA LOPEZ ZALDAÑA
PROMOCION SOCIAL- AHUACHAPAN USAID
Estimada Sra. López,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido
30/08/2016
Hora: 12:30 PM
Tel: 7786-2867

Engineer César Galdámez
Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

Ing.
SEÑOR (A) LUIS ALFONSO CASTILLO
Encargado **UNIDAD MUNICIPAL Y DESARROLLO DE LA SEGURIDAD ALIMENTARIA Y NUTRICIONAL (UNDESAN)**
AHUACHAPAN
Estimado Sr. Castillo,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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personal idóneo.

Attentively,
Atentamente,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager
Gerente de Proyectos

ALCALDIA MUNICIPAL DE AHUACHAPAN
UNDESAN
REPUBLICA DE EL SALVADOR

Recibido 30-8-16
tel- 2487-4855

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JENSY JEANETH AGUIRRE
ALCALDIA DE AHUACHAPAN - UNDESAN
Estimada Sra. Aguirre,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido 30/08/16

ALCALDIA MUNICIPAL DE AHUACHAPAN UMDESAN REPUBLICA DE EL SALVADOR

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ROXANA LINARES de Narcatl
ALCALDIA DE AHUACHAPAN Dr. UNDESAN
Estimada Sra. Linares, Union Municipal

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

C. Galdámez

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

ALCALDIA MUNICIPAL DE AHUACHAPAN
UMDESAN
REPÚBLICA EL SALVADOR

Recibido
30-8-16
tel- 2497-4855

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) LUIS EDUARDO MENENDEZ
OBSERVATORIO MUNICIPAL-AHUACHAPAN
Estimado Sr. Menéndez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

ALCALDIA MUNICIPAL DE AHUACHAPAN
OBSERVATORIO DE LA VIOLENCIA Y DELINCUENCIA
EL SALVADOR, C.A.

30/08/2016
7866-7568
Luis Menendez

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ROXANA ACOSTA DE RECINOS
COMITÉ DE PREVENCION DE LA SEGURIDAD CIUDADANA-AHUACHAPAN
Estimada Sra. Acosta,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

72204995

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SALVADOR MAURICIO HERNANDEZ
ALCALDIA DE AHUACHAPAN
Estimado Sr. Hernández,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Encargado Emplp Juvenil
30/08/2016
7924-7867

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CARLOS ALVAREZ
PARROQUIA NUESTRA SEÑORA DE LA ASUNCION-AHUACHAPAN
Estimado Sr. Álvarez,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

DIOCESIS DE SANTA ANA
AHUACHAPAN, EL SALVADOR, C.A.

2443-0068

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CECILIA HERRERA
DIRECTOR UNIDAD DE SALUD- AHUACHAPAN
PRESENTE

Estimada Sra. Herrera,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido 30/08/16 2443-0235

Unidad Comunitaria de Salud Familiar Especializada, Ahuachapan

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR LUIS ERNESTO MUÑOZ
DIRECTOR UNIDAD MEDICA ISSS AHUACHAPAN
PRESENTE

Estimado Sr. Muñoz,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

UNIDAD MEDICA AHUACHAPAN-ISSS
Recibido por: Karen Leo
Fecha: 30/08/2016
Hora: 2:20 pm

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

2890-0147

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR OBDULIO LOPEZ REYES
PNC DELEGACION AHUACHAPAN 911
PRESENTE
Inspector Sub-Delegación
Estimado Sr. López,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

13:55
30-08-16

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SALVADOR CANIZALEZ
PNC AHUACHAPAN
Estimado Sr. Canizalez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Agente leyva

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR PEDRO ARMANDO SILVA
PNC DELEGACION EL TRANSITO, AHUACHAPAN
PRESENTE

Estimado Sr. Silva,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

On this occasion we cordially invite you to attend the SECOND participatory social workshop where we will be discussing the social and environmental IMPACTS of the Project based on the information gathered in the first workshop, and based on the studies carried out by the designer, Knowing your impressions will be of vital importance to the viability of the Project.

The event will take place on Thursday, September 08, 2016, from 8:30 pm to 12:00 pm, at Jardín Celeste Restaurant / CA8 Km 94 Ruta de las Flores, Tel. 2433-277 / 81

Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR HUGO ANTONIO CALDERON ARRIOLA
ALCALDE DE ACAJUTLA
PRESENTE

Estimado Sr. Calderón,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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The event will take place on Wednesday, September 7, 2016, from 2:00 pm to 5:00 pm, in Agape Association of El Salvador. Km. 63 Road Sonsonate, Tel. 2429-8771

Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido 29/08/16 10:25 a.m.

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

2429-7327

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SAUL HERNANDEZ
CONSEJAL MUNICIPAL DE ACAJUTLA
PRESENTE

Estimado Sr. Hernández,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido 29/08/16 10:25 a.m.

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

2429-7527.

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JOSE DAVID CRUZ AGUIERRE
ALCALDIA DE ACAJUTLA
Estimado Sr. Cruz,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido 29/08/16 10:25 a.m.

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

2429-7327

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) AMELIA CRUZ
PROMOTORA SOCIAL ZONA 4-ACAJUTLA
Estimada Sra. Cruz,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibida 29/08/2016
7603 6162
Amelia E. Cruz

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

Moises David
SEÑOR (A) [redacted] BONILLA
JEFE DE PROYECCION SOCIAL -ACAJUTLA
Estimado Sr. Bonilla,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido 29/08/2016.
Moises David Bonilla
77491926

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ERNESTO RAMIREZ
ALCALDIA DE ACAJUTLA
Estimado Sr. Ramírez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Lic. Ernesto Ramirez
Director CMPV
2452-3541

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) **KARINA ROSALES**
ENCARGADA DE BOLSA DE TRABAJO MUNICIPAL-ACAJUTLA
Estimada Sra. Rosales,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido
29-08-16 / 10:15 a.m.
2452-3541
Unidad de empleo local

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) VILMA NOEMY SANTOS
ENCARGADA UNIDAD DE LA MUJER ACAJUTLA
Estimada Sra. Santos,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

UNIDAD DE LA MUJER Y GENERO ALCALDIA MUNICIPAL DE ACAJUTLA UMM

2452-3541

Energía del Pacífico

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ANGELICA LOPEZ DE DIMAS
COLABORADORA UNIDAD DE LA MUJER ACAJUTLA
Estimada Sra. López,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

29/08/2016
hora 10-11 am.
tele. 2452-3541

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR CARLOS ANTONIO TOBAR
ALCALDIA DE ACAJUTLA
PRESENTE

~~Gestor~~ de Turismo
Encargado

Estimado Sr. Tobar,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Marcela
29-08-16
10:30 a.m.
7837-6709

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) OLMAN PORTILLO ZEPEDA
ALCALDIA DE ACAJUTLA Colaborador, Turismo
Estimado Sr. Portillo,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibida
29-08-16
10:30 a.m.
7148-9534

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SILVIA DEL CARMEN MARTINEZ
~~PSICOLOGA UNIDAD DE LA MUJER ACAJUTLA~~ TURISMO (Asistente)
Estimada Sra. Martínez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido
29-08-16
10:30 a.m.
7058-2856

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MARIA IGNACIA ACEVEDO
ALCALDIA DE ACAJUTLA (TURISMO) Gestora
Estimada Sra. Acevedo,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Hoeda
29-08-16
10:31
7986-1561

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) WALTER JOVEL REINALDO
ALCALDIA DE ACAJUTLA Gestor de Turismo
Estimado Sr. Reinaldo,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Marcela
29-08-16
10:30 a.m.
7965-5703

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SANDRA ELIZABETH ABARCA
ALCALDIA DE ACAJUTLA Gestora de turismo
PRESENTE

Estimada Sra. Abarca,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

C Galdámez

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Nora García
24-08-16
10:30 a.m.
7611-1241

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) EUGENIA ARAUJO
ALCALDIA DE ACAJUTLA Gestora de turismo
Estimada Sra. Araujo,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibida
29-08-16
10:30 a.m.
7625-4334

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) YOLANDA DEL CARMEN CORLETO
ALCALDIA DE ACAJUTLA
Estimada Sra. Corleto,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Marleth
29-08-16
10:30 a.m.
7048-5377

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JESUS ROMERO
JEFE DE PROYECTOS-CAJUTLA
Estimado Sr. Romero,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA DE C.V.

Engineer César Galdámez
Project manager

por: QV proyectos Recibido 27/08/2016

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

Energía del Pacífico

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016
Antiguo Cuscatlán, 24 de agosto de 2016

SEÑOR (A) WALTER MONTOYA
UNIDAD DE MEDIO AMBIENTE-ACAJUTLA
Estimado Sr. Montova.

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,
Atentamente,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

UNIDAD DE MEDIO AMBIENTE
ALCALDIA DE ACAJUTLA
REPUBLICA DE EL SALVADOR EN LA AMERICA CENTRAL

27-08-16
Hora: 11:00 A.M

2429-7328

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) IRIS IVETTE CAROLINA GODOY
UCSFI-ACAJUTLA
Estimada Sra. Godoy,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido: 11:08
Yohanny Godoy
7816-3213

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JULIO CESAR BOLAÑOS
DIRECTOR CENTRO ESCOLAR LISANDRO LARIN ZEPEDA-ACAJUTLA
Estimado Sr. Bolaños,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Julio C. Bolaños
7667-7854

MINISTERIO DE EDUCACION
CENTRO ESCOLAR LISANDRO LARIN ZEPEDA
DIRECCION
COD. 10569
ACAJUTLA SONSONATE EL SALVADOR CA

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CARLOS JOSE AMAYA
CENTRO ESCOLAR LISANDRO-ACAJUTLA
Estimado Sr. Amaya,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Julio C. Bolaños
Director

Engineer César Galdámez
Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) HEIDE ELENA NUÑEZ
CENTRO ESCOLAR LISANDRO-ACAJUTLA
Estimada Sra. Núñez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Julio C. Bolaños
Director

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) RENE MAURICIO CHAVEZ
CENTRO ESCOLAR LISANDRO-ACAJUTLA
Estimado Sr. Chávez,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

MINISTERIO DE EDUCACION CENTRO ESCOLAR LISANDRO LARIN Y PEREZ ACAJUTLA SONSONATE EL SALVADOR C.A. DIRECCION COD. 10569

Julio Bolaños
Director

Energía del Pacífico

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) WALTER WILFREDO MARTINEZ
UNIDAD MEDICA-ACAJUTLA
Estimado Sr. Santos,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

UNIDAD MEDICA ACAJUTLA SECRETARIA DE DIRECCION 1986

29-8-16
11:28
2890-3007

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) TOMAS ADELSO SALMERON
DIRECTOR INA-ACAJUTLA
Estimado Sr. Salmerón,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

2452-3109

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) NAPOLEON GARCIA
PARROCO IGLESIA SAN FRANCISCO DE ASIS-ACAJUTLA
Estimado Sr. García,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

PARROQUIA SAN FRANCISCO DE ASIS ACAJUTLA DIOCESIS DE SONSONATE

Recibió
11:54 am.
Lunes 29 agosto/16
Tel 2452-3060

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ELSA AMAYA GUTIERREZ
PARROQUIA SAN FRANCISCO -ACAJUTLA
Estimada Sra. Gutiérrez,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

29-08-16

Recibido:

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MARIBEL DE URRUTIA
CODE TUR-ACAJUTLA
Estimada Sra. Urrutia,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

William Antonio Hernandez

2452 4365

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) YAQUELIN VILLALTA
LICEO ACAJUTLA
Estimada Sra. Villalta,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido
Nombre: Ana Miriam Chavez
29-08-16
2452-4834

LICEO DE ACAJUTLA
DIRECCION
ACAJUTLA DEPTO DE SONSONATE
EL SALVADOR

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JULIO PATRIÑO
ADESCO COMUNAL ZONA INDUSTRIAL-ACAJUTLA
Estimado Sr. Patriño,

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Engineer César Galdámez
Project manager

31-08-16

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INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JUAN CARLOS MENJIVAR
ADESCO COMUNIDAD KILO 2-ACAJUTLA
Estimado Sr. Menjivar,

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Engineer César Galdámez
Project manager

31-08-16

7612 1341

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) OSCAR MARTINEZ
ADESCO COMUNIDAD KILO 2-ACAJUTLA
Estimado Sr. Martínez,

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31-08-16

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Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) [redacted] Irma Elena Iriguoras de Constancia
ADESCO LINDA VISTA-ACAJUTLA
Estimado Sr. Henríquez,

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Engineer César Galdámez
Project manager

7319631 2

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CARLOS EDUARDO HENRIQUEZ
ADESCO COMUNAL LINDA VISTA-ACAJUTLA
Estimado Sr. Henríquez,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) DAYSI ELIZABETH MOCTO
LOTIFICACION EL PUERTO-ACAJUTLA
Estimada Sra. Elizabeth,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

24524418
Dmato
31-08-16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) IRMA MERCEDES TORRES
LOTIFICACION EL PUERTO-ACAJUTLA
Estimada Sra. Torres,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

31-08-16

Engineer César Galdámez
Project manager

Dmacto

2452-4418

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CARLOS MANZANO
ADESCO COMUNIDAD LOT. EL PUERTO -ACAJUTLA
Estimado Sr. Manzano,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

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IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) FRANCISCO CERON
ADESCO COMUNAL CO LIMA -ACAJUTLA
Estimado Sr. Cerón,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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The event will take place on Wednesday, September 7, 2016, from 2:00 pm to 5:00 pm, in Agape Association of El Salvador. Km. 63 Road Sonsonate, Tel. 2429-8771

Your participation is very important so we encourage you to attend, or failing to assign the right staff.

Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido
31-08-16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) FRANCISCO ZELIDON
ACAJUTLA - Colina
Estimado Sr. Zelidon,

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ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Rosa Idalia Torres Vasquez
31-08-16

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JENNIFER ABIGAIL GARCIA MIRANDA
COMUNIDAD LINEA FERREA-ACAJUTLA
Estimada Sra. García,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

76891553

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) NATALY LOPEZ
COMUNIDAD LINEA FERREA-ACAJUTLA
Estimada Sra. López,

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Engineer César Galdámez
Project manager

7689-1553

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) SANTOS MENDEZ
COMUNIDAD LINEA FERREA-ACAJUTLA
Estimado Sr. Méndez,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

"[illegible]"
7689-1553

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ALFONSO GUERRERO
COMUNIDAD LINEA FERREA-ACAJUTLA
Estimado Sr. Guerrero,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

7689 1553

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) REINALDO COLOCHO
ADESCO COMUNAL SAN EMILIO 1-ACAJUTLA
Estimado Sr. Colocho,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

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INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MARIA MAURA CASTRO MEJIA
COMUNIDAD KILO 5,NAPOLES 2000-ACAJUTLA
Estimado Sr. Castro,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Engineer César Galdámez
Project manager

Recibida 31/08/2016
Maura Castro

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JULIO CESAR DIAZ GARAY
C.E B° EL CAMPAMENTO-ACAJUTLA
Estimado Sr. Díaz,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.
31-08-16

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MAURA GUEVARA
ADESCO COMUNIDAD OBELISCO-ACAJUTLA
Estimada Sra. Guevara

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31-08-16

Engineer César Galdámez
Project manager

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JOAQUIN CERNA
SONSONATE, Alcaldía Auditoria
Estimado Sr. Cerna,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

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Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

2469-3144
R.R. H.H.

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CRISTINA GARCIA
CONSEJAL DE ALCALDIA DE SONSONATE
Estimada Sra. García,

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Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

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IMPACT WORKSHOP

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ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JOSE ROBERTO JOVEL
Alcaldía **SONSONATE** Gerencia
Estimado Sr. Jovel,

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Project manager

INVITATION

IMPACT WORKSHOP

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ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) RICARDO ALFONSO CAMPOS ZAYA
ALCALDIA DE SONSONATE
Estimado Sr. Campos,

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Engineer César Galdámez
Project manager

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of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JUAN MANUEL GUERRA
ALCALDIA DE SONSONATE
Estimado Sr. Guerra,

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Engineer César Galdámez
Project manager

Edificio Avante, Oficina 709, Calle Llama del Bosque,
Antiguo Cuscatlán, La Libertad, El Salvador.
(503) 2133-0700

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) REINA DEL CARMEN CALDERON
ALCALDIA DE SONSONATE
Estimada Sra. Calderon,

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido-
27-08-2016
2:10 pm
2464-3146
Oficina-

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) MOISES CASTRO CASTRO
ALCALDIA DE SONSONATE Proyección Social
Estimado Sr. Castro,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido 3:10 pm 29-08-2016.

Engineer César Galdámez
Project manager

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INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) LUCAS LANDAVERDE PORTILLO
ALCALDIA DE SONSONATE - Proyección Social
Estimado Sr. Portillo,

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Recibido.
29-08-2016
2:10 pm

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) JAQUELINE E. PASTORE
ALCALDIA DE SONSONATE Proyección Social
Estimada Sra. Pastore,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido
24-08-2016
2:10 Pm

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) ALEJANDRO ERNESTO RIVERA
SONSONATE Proyeccion Social
Estimado Sr. Rivera,

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Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

29-08-2016
2:10 pm

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) CARLOS JEOVANNY HERNANDEZ
ALCALDIA DE SONSONATE Propacion Social
Estimado Sr. Hernández,

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Atentamente
Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Ing. Cesar Galdámez
Engineer César Galdámez
Project manager

Promotor
7011-5986

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

SEÑOR (A) FRANCISCO ALEXANDER SIBRIAN
SONSONATE Proyección Social
Estimado Sr. Sibrian,

We greatly appreciate your participation in the first participatory diagnostic workshop held last June, where ENERGIA DEL PACIFICO, LTDA. de C.V. Announced the studies and respective steps necessary to carry out the construction of a high voltage electric transmission line that runs from Acajutla to Ahuachapán. In the workshop we were able to collect social and environmental information from your municipality that has proved very valuable for the preparation of the Environmental and Social Impact Study.

On this occasion we cordially invite you to attend the SECOND participatory social workshop where we will be discussing the social and environmental IMPACTS of the Project based on the information gathered in the first workshop, and based on the studies carried out by the designer, Knowing your impressions will be of vital importance to the viability of the Project.

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Attentively,

Engineer César Galdámez
Project manager

ENERGIA DEL PACIFICO, LTDA. DE C.V.

INVITATION

IMPACT WORKSHOP

of

ACAJUTLA-AHUACHAPÁN TRANSMISSION LINE

Antiguo Cuscatlán, August 24, 2016

Victor Manuel

SEÑOR (A) MANUEL DE JESUS CUMI
ALCALDIA DE SONSONATE
Estimado Sr. Cumi,

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Attentively,

ENERGIA DEL PACIFICO, LTDA. DE C.V.

Engineer César Galdámez
Project manager

Recibido
29/agosto/2016
Hora: 2:17 PM

Alexander Alfaro

To: Brenda Lovato Cc: Roberto Escalante

Yesterday at 12:15 PM

AA

INVITATIONS DELIVERED ON 29, 30 AND 31-08-16

New contact info found in this email: Fredy Alfaro fredy.alfaro5@icloud.com add...

Good morning Brenda Lovato, I am attaching the invitations delivered in the different municipalities, I look forward to your comments.

Attentively,


INVITACIONES ENTREGA...ANECA.pdf


INVITACIONES ENTREGA...HAPAN.pdf


INVITACIONES ENTREGA...UXTLA.pdf


INVITACIONES ENTREGA...ABLAS.pdf


INVITACIONES ENTREGA...UZMAN.pdf


INVITACIONES ENTREGA...ONATE.pdf


INVITACIONES ENTREGA...AJUTLA.pdf

Fredy Alexander Alfaro
Contador
Tel.2263-4990
Cel. 7754-4881
Enviado desde iCloud

LIST OF ASSISTANCE

Type of meeting: Taller de Impactos

Date: Miercoles 7 de Septiembre 2016

N°	Name	Name of the institution of which comes	Email	Telephone contact	Signature
1	Bladimir Stanley Rivas	Hda La Pradera		70067189	[signature]
2	Emedia aida cerai	Hda la pradera		70067189	Emedia ac.
3	Victor Tesorero Arce.	Hda Santa Clara.		6145-1166.	[signature]
4	Manuel A Ferrufino	Hda. Sant Emilia.		74394170	[signature]
5	Rosalina Hernandez vda. de Perez vice presidenta	San Pedro Pux tla Canton Purulapa	ADESCO la nueva esperanza	7402-3992	RHV [signature] Perez
6	Pedro Eguin Hernandez Acevedo	Juzgado de Paz Secretaria	Sto. Dgo. de G	2483 7007	[signature]
7	Cristina garcia	alcaldia unida de mujeres sonsonate		76228672	[signature]
8	Ricardo A. Campos	Alcaldia de Sonsonate	mantenimiento-ams@hotmail.com	2451-2458	[signature]
9	Victor Manuel Cumi	Alcaldia Sonsonate Proyeccion Social		2469-3146	[signature]
10	Maria Olivia Perez Jimenez	alc. Mpal. Sto. Dgo G.	catastro pal.	24206002	[signature]
11	Manuel Antonio Vazquez Cruz	Alc. Mpal. Sto Dgo G. dept. Sonsonate.	P. Social	70023663	[signature]
12	Sonia Marlene Gonzalez Vasquez	Alc. Municipal Sto. Dgo. Gu	promotora	72602033	[signature]
13	Armando Giovanny Ramirez Ramirez	Alc. Municipal de Sto. Dgo. de Gu.	Asist. Catastro.	7505-6391	[signature]
14	Moisés Castro Castro	alcaldia Sonso. Unidad de Juventud	—	7688-3608	[signature]

LIST OF ASSISTANCE

Type of meeting: Taller de Impactos
Date: Miercoles 7 de Septiembre 2016

N°	Name	Name of the institution of which comes	Email	Telephone contact	Signature
15	Estela Maritza Zelidon Hernandez	El Cafetal / Las Tablas		7128 8137	[signature]
16	Elx Jaquelin Aguilar Aguilar	Quebradona / Las T.		7702 8768	[signature]
17	Jeroma Galdame	Los Tablas		7748 3485	[signature]
18	Daniel Craspin Mandaz	Agua Escondida / Las T.		7717-1089	
19	Moisés Eduardo Castallon	Santa Emilia / Las T.		7005-0590	[signature]
20	Manuel de Jesús Hidalgo Ramirez	C.E.Cas. El Cafetal / Las T.		79678339	[signature]
21	Lilian Mercedes Vasquez Jimenez	Alcaldia San Pedro Puxtla / Ahuachapan		7861-8874	[signature]
22	Edgar Benjamin Perez Perez	Presidente ADESCO El Guachipilin San Pedro Puxtla		7250-7772	[signature]
23	Berta Alicia Pineda	Vice presidenta ADESCO Los Pelitos S.S.P.		7666-3705	[signature]
24	Noé de J. Ramirez	I.D.D. el Cafetal / Las T.	jimenez7@hotmail	7607 6918	[signature]
25	Glendi Isabel Vasquez Guerra	Alcaldia Santo Domingo Secret. Mpal	glendi_sss@hotmail.com	7519-3560	[signature]
26	Renato Sermeño Garcia	Alcaldia Snt. Dg. asist. Proyeccion social		72 68 8430	[signature]
27	Ernesto Omar Santiago	El Javi Las Tablas		6165-3050	[signature]

LIST OF ASSISTANCE

Type of meeting: Taller de Impactos- Linea de Transmisión Municipios Acajutla.
Date: Miércoles 7 septiembre 2016

N°	Name	Name of the institution of which comes	Email	Telephone contact	Signature
1	Nelson Elizandro Larín	OCSPI. Acajutla		61006768	
2	Julio Cesar Díaz Garay	C.E. Bº El Campamento	10563elcampamento@gmail.co	78625620	
3	Francisco Antonio Larin cuellar	unidad ambiental de acajutla.		73798923	
4	Jennifer Abigail Garcia Miranda	linea ferrea		76891553	
5	Santos Medrano	linea ferrea		76891553	S.M
6	Daysi Elizabeth mocto	el puerto		24524418	
7	Irma Mercedes Torres	El puerto		24524421	
8	Mara Guevara	El obelisco		63086040	
9	René Orellana Orellana	Alcaldia Acajutla		7744-9129	
10	Amelia E. Cruz.	Alcaldia Acajutla p. Social		76036162	
11	[illegible]	CMPV - Acaj	[illegible]	[illegible]	
12	Alvaro Hodgson	Alcaldia de Acajutla	alvaroivan.250@hotmail.com	77443949	
13	Hugo Alfredo Patiño	C/. Brisas de Acajutla			

LIST OF ASSISTANCE

Type of meeting: Taller de Impactos - Linea de transmisión Municipio de Acajutla
Date: Miercoles 7 septiembre 2016

N°	Name	Name of the institution of which comes	Email	Telephone contact	Signature
14	Dina del Carmen Vasquez	Cton. Sn. Julian Acajutla	-	6375-8464	
15	Francisco Ochoa Ceron	"	-	7018-7755	
16	Francisco Zelidon	" con. Colima	-	7359-7394	
17	Moises David Bonilla	Alcaldia Acajutla	Proyección Social	77491970	
18	Carlos Melgar	Parroquia San Fco. de Asis, Acajutla	carlosmelgar0209@gmail.com	76829725	

LIST OF ASSISTANCE

Type of meeting: Taller de Impactos - Linea de Transmisión Municipio: Acajutla
Date: Miercoles 7 Septiembre 2016

N°	Name	Name of the institution of which comes	Email	Telephone contact	Signature
19	Nataly Esmeralda López	Linea Ferrea		77571395	[illegible]
20	Ernesto Ramirez Hernandez	Alcaldia - CMPV		7053 9739	[illegible]
21	Walter Martinez Rivas	U-M ISSS Acajutla		2890-3004	[illegible]
22	Julio Oliver Patricio Ruiz	Com. I. Industrial Acajutla		76822497	[illegible]

LIST OF ASSISTANCE

Type of meeting: Taller de Presentación de Impactos - Estudio Ambiental Linea T.

Date: Jueves 8 de Septiembre 2010.

Municipios: Apaneca y Ahuachapán.

Nº	Name	Name of the institution of which comes	Email	Telephone contact	Signature
1	José Alfredo Tobar	c. del C. de Apaneca		24330163	
2	Benjamin Alberto Juarez Leon	Inst Nac. Lic. Jose D. Carlos	benjaj leon @gmail.com		
3	Rodrigo A. Nerio H.	C. Esc. Gral. Jco. Mdez	ranh @hotmail.com	24330672	
4	Roxana Linares de Navarrete	UMDESAN Alcaldia Ah.	roxanamabd@gmail.com	78503933	
5	Roxana Acosta.	CMPV Ahuachapán	roxy_barbarazao@hot	72204985	
6	Luis Alfonso Castillo	Alcaldia Ahuachapan		21103208	
7	Jensy Jeanette Aguirre	UMDESAN alcaldia Ah.	jenaguio7@gmail.com	63032941	
8	José Alejandro Ayala	UCSFI Ahuachapán		24430235	
9	José Martinez Sierra	UCSFI Apaneca	martinsierra_19 @hotmail.com	24330006	
10	Jaime Colocho	UCSFI Apaneca	dicolocho@gmail.com	2433-0006	

Workshop 1- Sonsonate

Participated members of the communities of Santo Domingo de Guzmán, Las Tablas, Sonsonate and San Pedro Putxla.

The workshop was held on Wednesday, September 7 at 9:00 am. The workshop began with an introduction by Mr. Roberto Escalante, representative of the company Capital Natural, which presented the agenda to follow and the purpose of the workshop. The following describes the different activities carried out, including details of who were responsible for leading the discussions, and information on the questions presented at the end of the workshop:

- The main potential impacts of the Project were presented.
- Information was presented on the different measures to avoid, minimize and mitigate the possible negative impacts of the Project and to strengthen the possible positive impacts of the Project.
- The attendees were informed of the establishment of the Monitoring Plan to determine the success of the mitigation measures. They are explained that the plan should include verifiable indicators.
- A "Questions and Answers" session was held to obtain perceptions and feedback from the public regarding the possible impacts of the Project and the corresponding mitigation measures.
- They were provided with details of the transmission line design (presentation by César Galdámez of EDP) and a description of the methodology implemented in the evaluation of the impacts of the Project (presentation by Isolina Sánchez of ERM). In addition, potential impacts to the physical environment were presented as a result of the Project including impacts to soil, water resources, air quality, noise and vibrations (presentation by Odessa Bowen of ERM). All information on the possible impacts of the Project included details of the Project activity associated with that impact.

  BREAK – 15 MINUTES

- The impacts to the socio-economic environment were presented, including details of the different project activities associated with these and their respective mitigation measures (presentation by Isolina Sanchez of ERM).

Closing of the workshop. The participants were thanked for their participation and the "Questions and Answers" session was opened..

Questions	Answer
1. When do you talk about how you are going to "divert water to avoid damaging the building" as [they guarantee] that water will get to the other farmers who sow nearby?	Additional gaps would be opened to ensure that water reaches these farmers. However, in this case the impact is "potential" and requires a conversation between the landowner and the builder to determine the specific situation.
2. The development of all mitigation measures is based on construction. I have not yet seen an assessment of a potential long-term impact. I do not know if they have taken into account the value of the properties and the cuts that these are going to take in the long run. What are the property restrictions due to the Project and how will they be remedied?	Isa Ramirez answered this question explaining the process of acquisition of rights of way: "we are in the process of negotiating compensation for the transmission line. It has done a market study, with market values of all these properties and, an agreement has been reached with the owners. The characteristics of each land and property (eg type of land, type of properties) are being considered and the activities within the properties have been avoided. There has been a lot of collaboration with the property owners and there is direct communication with each one of them. The owners have knowledge [of the Project] and are collaborating in a harmonious way. [The Company] has permission to go with the line. If you want more information, we have social management offices and right-of-way procurement management. [This office] is 300 meters from where we are now and 100 meters from Hotel Las Palmeras. "
3. Are they going to open offices for comments and complaints from people living in the area?	Yes, the Project has developed a Social Management Plan that includes a mechanism of complaints and suggestions for communities. This mechanism will be managed from the social office that the Project will install and includes a specific process of how to receive and answer questions.
4. Are the management plans for the construction or for the life of the Project? In another transmission line, there are no schemes for proper pruning, they do not handle maintenance.	No, the plans are for the entire life of the Project. The management plan requires follow-up, [including] periodic monitoring reports and compliance with the actions detailed in the plans.
5. What are the chances that the people where you will pass the Project will be hired?	It will require 200 people for the Project. Qualified staff will be from everywhere. [For unskilled jobs] preference will be given to local labor. During the operation phase the labor force will be [mostly] qualified, but there will still be local staff hired for certain works such as pruning and maintenance, etc.
6. I saw an announcement from the company that called the owners to a meeting and I realized that it was for this Project.	Right. Representatives of the owners - intermediaries - have led this management rather than the owners. Companies should make every effort to communicate directly with the owners to avoid encroachment and to ensure the full participation of property owners. In addition, companies must do everything possible to find landowners, records of mayors, etc.

	[The] right of way width has to do with security, not with the current width of the transmission line. [This is a] Project of public interest that although it is private management, will be administered by the government. Cultivation land will continue to be used for its original uses
7. For how long is the Right of way valuation? 20 years?	The right of way charge is granted indefinitely.
8. We are part of the community, but some of us are not owners, how have you ensured that all owners have been informed?	Review of [the] contracts by personal (owner) attorneys to eliminate uncertainties, complaints or [owners] feel defrauded. [It is recommended that older owners be advised by children or trusted persons to explain contracts. Work placements in offices where resumes are received to identify the sector in which the person lives before the start of construction work.
9. What is the distance between tower and tower?	Distances vary; In plane the distances can be greater and in mountains the distances can be smaller. We have places with 600 meters [between one tower and the other] and other places with 150m [between the towers] as a result of the topography of the Project. The biggest distance we have is 645 meters and the minimum distance is 150 meters.
10. The Project is already won, the plant and the construction line. What possibilities are there for me as representative of the area to take [the] resumes? Do they have to go individually?	Once the plant is built, there will be 30 permanent jobs. During the construction of the plant and the transmission line will require about 1000 people. In general people are hired locally. You can take resumes or go with people, all forms are welcome. The resumes have to carry all the necessary information to be able to contact the interested parties (telephone number, etc.). The construction phase is scheduled for next year.
11. Businesses have opportunities. It seems to me that when we are here, one or another company takes the opportunities and has to guarantee that people will benefit from the Project, either [permanently] or temporarily, but these people deserve it.	The project has the opportunity to give work to many people. When we award the builder we include a clause that ensures employment for the people of the area. That is our idea
12. Why is the assessment indefinite if the Project lasts for 20 years?	The bidding terms demanded 20 years, but in general the Project will last longer, it will not "die". Once the 20 years are over, [the assessment] will expand and you will have to ensure that this type of

	work can be maintained. In contracts and all approaches the process has been explained in a transparent way so as not to create inconvenience to any owner.
13. Where are the resumes given?	Resumes are delivered to the Acajutla office or to the Sonsonate office.

Workshop 3 – Apaneca

Members of the communities of Apaneca and Ahuachapán participated.

The workshop was held on Thursday, September 8 at 9:00 am. The workshop began with an introduction by Mr. Roberto Escalante, representative of the company Capital Natural, which presented the agenda to follow and the purpose of the workshop. The following describes the different activities carried out, including details of who were responsible for leading the discussions, and information on the questions presented at the end of the workshop:

- The main potential impacts of the Project were presented.
- Information was presented on the different measures to avoid, minimize and mitigate the possible negative impacts of the Project and to strengthen the possible positive impacts of the Project.
- The attendees were informed of the establishment of the Monitoring Plan to determine the success of the mitigation measures. They are explained that the plan should include verifiable indicators.
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  BREAK – 15 MINUTES

- The impacts to the socio-economic environment were presented, including details of the different project activities associated with these and their respective mitigation measures (presentation by Isolina Sanchez of ERM).

Closing of the workshop. The participants were thanked for their participation and the "Questions and Answers" session was opened.

Question	Answer
1. I imagine the Project is sustainable; That the life of the Project is great; And that there will be exclusive teams, groups or areas to continue the mitigation measures. If there is going to be someone, or a team, after [the construction of the Project] that does the maintenance?	Yes, management plans identify: mitigation measures; The people responsible for implementing [the measures]; The reports that have to be generated along with their respective times; The [monitoring] indicators and the cost of the measures. When [a company] cuts a tree, a commitment is made that the tree will be planted and given maintenance and development for a certain amount of years. This is determined by law.
2. How are they going to coordinate this monitoring of mitigation measures? Are they going to hire someone?	Yes, the Project will have an environmental and social management team. There will be activities that they implement directly and other activities that will be subcontracted to third parties.
3. When you raise the impact that [the Project] will generate in the space you are going to use, do you determine whether it "could be done" or "should it not be done"? I believe that many "assumptions of impacts" have been made and that, with the dioxide that is going to happen, it will burn fuel [in the same way that Nejapa Power does] and that [it will require] a quantity of water huge. I would like [to know] if this Project is going to generate these impacts and what are the compensations contemplated.	The construction of the transmission line has by its nature impacts less than those of a coal plant. The purpose of the environmental impact study is to identify these impacts. Once the study is delivered to MARN there will be a public consultation process.
4. The presentation spoke of "rainwater runoff". In the area of San Pedro Putxla and Apaneca, the water sources that leave the coast are born in that water. There are a lot of underground sources and at that height (the Guachipilín, etc.) the water is not deeper. I imagine that the tower is going to need a fairly wide depth and I consider that to some extent, they will affect many [water sources] since it is a fairly abundant area in springs. What proposals would you make to minimize this impact?	Geotechnical studies have been carried out to avoid these impacts. If this is not possible, there will be other mitigation measures such as the use of good building practices for projects of this nature. In the 44 kilometers of the track we have drilled approximately 15 meters [to understand] the soil quality, the groundwater levels that will determine the type of foundation design and to analyze the hole size. We have searched for soils where we will not [affect] the groundwater levels. Our towers will go to a depth between 3 and 5 meters, with the idea of not affecting the water tables.
5. A few moments ago you mentioned the felling of trees; "Trees are planted according to the environment where the tower is" and if the tower does not affect the water source, the trees will provide a higher level of humidity. [In the event of] lightning / thunder, the tower or line will have lightning rods?	Yes, the guard wire works as "lightning arrestor" (lightning / thunder protection). In addition, the towers will be isolated on the ground to avoid such situations.

6. Have they done chemical analyzes of water quality?	Yes they have been made as part of the baseline. In addition, water monitoring is part of the management plans.
7. When the GEO was built, a canal was built where the water where the wastewater (dirty) passed through different municipalities until reaching the sea. Are you going to make a canal to bring the wastewater to the sea? I have doubts, because I do not know. Do the engines need fossil fuel or not?	Not in our case this does not apply. During construction, water will only be used for concrete. The process of environmental impact study of a plant is one and that of the transmission line is another. The transmission line is what corresponds to us.
8. Are there people from Acajutla here? What are you going to generate the energy with? What are they going to burn?	Remember that all emissions are controlled by an air purification system and [we will] be audited by the Ministry of Environment, the World Bank, and so on. But that's for the plant. For the transmission line we will not burn anything. One advantage of the plant [in El Salvador] is that according to the unit of transactions the order of dispatch of Projects is: first hydrological and geothermal, then biomass plants and finally thermals (which are the most polluting) . Our fuel is cleaner and [therefore] we take market from other projects.
9. I heard that you (Odessa Bowen) are a marine biologist. We have heard talk about the impact on marine life, but only in relation to what will affect other places. We have also heard about spill prevention at the plant, specifically on the seabed, bearing in mind that there is one of the most important reefs in the Pacific. I am glad that a company dares to consult us.	It was explained to the attendees that EDP has carried out two environmental impact studies (plant and transmission line) and that ERM is not qualified to respond on [the related impacts] to the plant since they did not work in that environmental impact study . However, ERM is able to respond to the environmental impact study of the transmission line. However, we will take note of the question and consult with the people who carried out the environmental impact study of the plant.
10. Really for us the Project is a solo. As a suggestion, for the next workshops, people should be on the line and the plant. Sometimes we leave with the restlessness and we have no answer on the plant. We would like to know more about that.	We take note of the suggestion.
11. We also worry about where the laying comes and where it goes. We are interested in [understanding this].	The results of the workshops were shared and a "public consultation" meeting was held in which the Ministry of the Environment invited people. Calls were made to the workshops and published in the newspaper [for related meetings] to the plant.

	In Acajutla more than 100 people arrived at the [meeting] of the plant. Also in the transmission line is going to make a public consultation. We (EDP) have an information office in Acajutla. We have been for more than two years and we invite you to come and access [related information] to the progress of the Project. It is a very large project and we cover different areas. The engineering department has two departments: 1. the transmission line and 2. the plant. On the website you can consult the environmental impact study of the plant and the results of this. It is important, even though you are withdrawn from the plant, and [we] are interested in being well informed.
12. I [believe] that this Project is developmental, but just as [it] is carried out, we have to be transparent and protect ourselves in order not to have misunderstandings. Let's try to be a bit more complete when it comes to sharing information about the plant and [the transmission line].	Thank you [your attendance] at the workshop and these comments are taken into account for future activities.
13. What are the sources of noise?	Heavy machinery is the main source of noise. This source is temporary and the Project avoids urban areas.
14. You have already analyzed the situation, it is assumed that [the Project] will cause (or is going to cause) impacts on the fauna. Why move the habitat frogs, why move them to another site?	Yes, we are proposing night shifts to catch these frogs and relocate them to another place. To protect the frog is best to move it, we think that is more beneficial than moving the transmission line to another side and possibly cause a greater impact.
15. I do not know where to go for the line. I would really like to [attend the meeting] in Ahuachapán to know what the impacts are. If the tower is going to fall on a mountain or in different places, all that would serve us [to develop] a more accurate opinion. We do not really have [this information].	Yes, that will explain to us when we go to the final presentation. They are also going to explain the process that was carried out for the acquisition of right of way
16. How are the owners paid?	Explanation of ISA.
17. In this area we have a bird, a huge hawk that passes here. How would the impact [to this] be minimized?	Flight dissuasions, in spiral type, that are going to go on the crosses and ravines. The monitoring and maintenance of these "flight deterrents" in the management plan has also been included.
18. I imagine that throughout the planning and layout of the transmission line has been	A forest inventory has been made all along the route (44 kilometers and 38 meters from the right of way).

contemplated the protection of millennial trees that are habitat of many species.	
19. Have you considered having a contingency plan in [in case of] any emergency? Have you seen the need to have a contingency plan?	Yes, it is part of the environmental impact study and is a requirement of the government of El Salvador.
20. You already have all this in mind, according to the [hostess]. It would be worth remembering what kind of birds are gone and can come back.	Your opinion will be taken into account and we will consider how it can be incorporated into the environmental management plans.
21.	Other study teams have identified the different properties and their respective owners. [The Project] has dealt with almost 300 owners for the right of way tranches and [all of these] have been given full knowledge of the payment of compensation for the right of way, the legal requirements, the values established by the studies Market valuation, etc. [This information is part of] a dialogue table that was initiated with the owners to reach an agreement, including owners in areas of high tourist value. The two offices where the [community] and [grievance] inquiries are received have not, to date, reported any mishaps. All the owners, along the route, have contact with EDP, including large coffee producers who required that the agreements be transparent and friendly to the environment.
22. Is there a possibility of employing people in the area?	Resumes will be received for the hiring of local labor during the construction phase.
23. [The] biggest problem in the municipality is unemployment. [The Project] should take advantage of the opportunity to give work, especially the youngest, to prepare them according to the needs of the company. For example, make a small job fair to introduce young people to employees and EDP.	The resumes will be received at the offices, where EDP staff can also be contacted. A "job fair" is a good idea which was also presented during the workshop in Acajutla.
24. How would the speed [of vehicles] be controlled?	The vehicles have internal speed control, if it exceeds the Project will fire the driver.
25. How will people's traffic be controlled?	It is going to coordinate with the traffic authorities in what signaling corresponds. In addition, there will be an approach in the municipalities to give information [related to this] and avoid the displacement of heavy machinery during the peak hours.
26. Have mitigation measures been considered for possible damage to the road network?	The machinery is not so heavy as to damage the road network. Trucks will be like freight trucks that go through the roads normally and mules will be used to move the material wherever possible.
27. When [the transmission line] reaches Ahuachapán will it be connected to the substation to send energy to the GEO?	It will not connect to the GEO. An additional bay is to be built within a given section.

28. Will [the Project] cover the whole country?	Yes.
29. [The Project] is going to lower the cost of energy?	The forecasts say yes.
30. It is expected to be so. Energy has ultimately doubled costs.	N / A
31. How does the cost compare between fossil-generating plants versus gas plants?	In the personal (Cesar) it is considered that the cost low according to the moment of the analysis.
32. Are there social projects?	Yes. [Communities] located around the plant have to benefit. [Projects are determined through] requests for donations. There is flexibility in the requests
33. Could they generate education, health centers, etc.?	Yes.
34. [Are these benefits] only for the municipality where the plant is located or for the communities where the line passes?	[In the communities where the line passes] certain works will be done, but where it is forced to compensate for the impacts is in the municipalities.
35. Will there be [Project] offices in Ahuachapán?	It has not been contemplated to open offices in any other municipality.
36. [Explain] the consortium with ETASAL?	ETESAL is a GEO distributor. They are in charge of distributing the energy.
37. [Does the Project] need permits from municipalities?	Yes.
38. Concern that there are no social works for the municipalities through which the transmission line passes; There is a lot of need for social investment	
39. Are they going to give a better quality of life to the settlers? Have they looked for opportunities to see how it could be done?	In Acajutla there is a commitment [to invest in the community] but this does not exclude other sectors in which it is also being supported in development with, for example, the generation of employment in the area. EDP will sit down and review where the line goes to determine how to benefit those sectors. EDP will do its best to support social projects according to the priorities identified by the municipalities.
40. GEO has collaborated in Apaneca and Ahuachapán, with schools. Schools need cooperation and it could be that EDP helps in that way in the future.	EDP agrees with that idea.
41. Is there a possibility of expanding production or will it be fixed?	The production will be 20 years (on paper) but can be extended. Broadening the generation has not been seen as such, but it has been contemplated to sell natural gas directly to the public.
42. Would the infrastructure have a margin to support expansion (eg wiring)?	The transmission line is designed with three slices and three cables even though the EDP design is two-wire (and one will be empty). The

	Salvadoran government wants to make a "peripheral ring" from north to south.

Workshop 2 - Sonsonate (PM)

Members of the community of Acajutla participated.

The workshop was held on Wednesday, September 7 at 2:30 pm. The workshop began with an introduction by Mr. Roberto Escalante, representative of the company Capital Natural, which presented the agenda to follow and the purpose of the workshop. The following describes the different activities carried out, including details of who was responsible for leading the discussions, and information on the questions presented at the end of the workshop:

- The main potential impacts of the Project were presented.
- Information was presented on the different measures to avoid, minimize and mitigate the possible negative impacts of the Project and to strengthen the possible positive impacts of the Project.
- The attendees were informed of the establishment of the Monitoring Plan to determine the success of the mitigation measures. They are explained that the plan should include verifiable indicators.
- A "Questions and Answers" session was held to obtain perceptions and feedback from the public regarding the possible impacts of the Project and the corresponding mitigation measures.
- They were provided with details of the transmission line design (presentation by César Galdámez of EDP) and a description of the methodology implemented in the evaluation of the impacts of the Project (presentation by Isolina Sánchez of ERM). In addition, potential impacts to the physical environment were presented as a result of the Project including impacts to soil, water resources, air quality, noise and vibrations (presentation by Odessa Bowen of ERM). All information on the possible impacts of the Project included details of the Project activity associated with that impact.

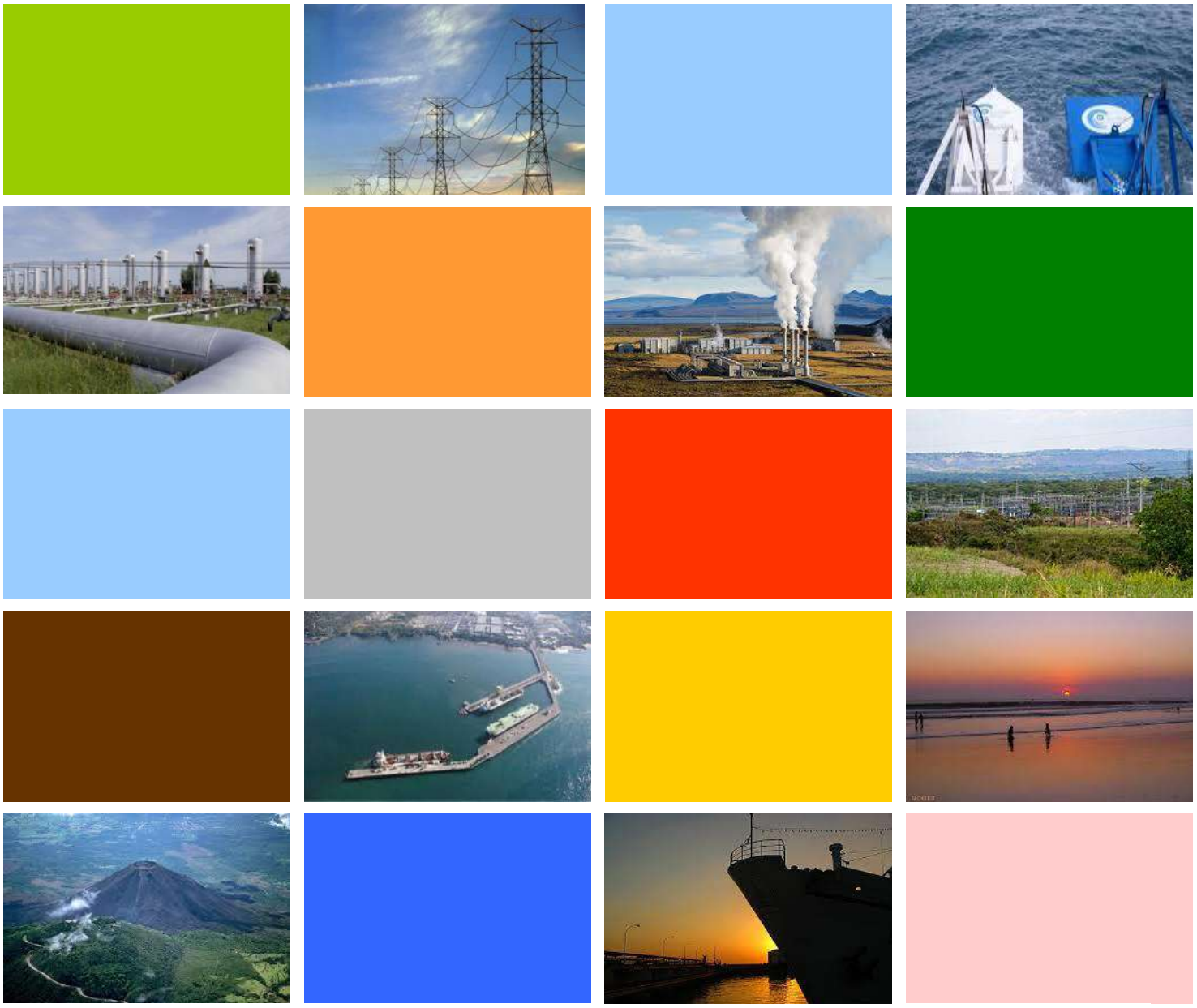
BREAK – 15 MINUTES

- The impacts to the socio-economic environment were presented, including details of the different project activities associated with these and their respective mitigation measures (presentation by Isolina Sanchez of ERM).

Closing of the workshop. The participants were thanked for their participation and the "Questions and Answers" session was opened.

Question	Answer
1. Vibration on the ground: There was a vibration problem in the plant. Do we want to know if there is going to be a problem accumulated by the vibrations of the line?	[The Project] will maintain the maximum levels of Salvadoran legislation. [He will] use methods of hearing protection especially in those places where the noise will be greater than 85Db. [It will also] train workers on the use of auditory methods.
2. What are the mitigation measures to avoid dust?	Especially during the dry season there would be a wetting of access roads through an irrigation truck to minimize dust. Maximum speed limits of 25 km will be established and emission limits will be established along with air monitoring. The waste areas will have a tight canvas to prevent the wind from raising the dust from the debris.
3. Development has to exist at the cost of whatever. Acajutla have [a problem] of air pollution. Where the plant is constructed there are other plants and there is a cumulative effect of contamination. [In addition,] we have an industrial safety problem and a lot of heat.	The environmental impact study is only of the transmission line and the LNG plant has not been taken into account. We agree that cumulative impact analysis is important. (Note: Having explained this aspect, attendees better understand the explanation of the impacts to air quality).
4. Will the towers have restricted access or not?	During the construction phase the entrance to the work will be restricted to the public (people who are not Project workers or contractors). In some towers it may be necessary to establish some type of perimeter protection.
5. Do you already have the line defined and you already know where the transmission line will go?	Yes, it has already been defined and all the owners of the lands through which the line passes have already been contacted.
6. In the mitigation section, there is a section of "unforeseen events". For example, contingency in the event of the fall of a tower. What kind of preventive actions would they take? What are you going to do with company, in matters of prevention? There are always going to be accidents; What's the plan?	All risk prevention plans were explained to them. All [plans] must be endorsed by the national civil prevention commission. The prevention plan also needs to be reviewed locally.
7. A few years ago a high voltage cable broke and fell silent on the street. It was a "mess" [problem] and thank God it was not burned [nothing or nobody]. What is the prevention regarding that? How is [such an incident] prevented? They are rare things but they are given.	The design [of the Project] contemplates the installation of a special device [by means of which, in the event of a rupture], the system will shut down [automatically] and cut all the circuits in a matter of seconds. For transmission we are obliged to have this type of devices; By means of which the current through the cables is stopped. The cable is 13 meters [from the street] and if that cable falls, when it reaches below it will be off.

8. Where do you go out in Acajutla?	By the railway, on the obelisk. We cross there and do not touch any house as we go the other way.
9. What is going to happen under the lines of flora and fauna in the short and long term? These projects always have benefits but there are also certain abnormalities, which often affect the population. For example, fish die, water becomes contaminated, etc.	Attendees are advised of the restrictions on land use in the right of way, where it is mentioned that major disturbances will be during the construction phase and not during the operation. There is also talk of what are the studies of magnetism.
10. Is the 38-meter right of way for the entire line, including urban areas?	Right of way is for the entire line, including non-urban areas.
11. Are they going to give benefits just like they give us in Acajutla with the LNG plant?	The benefits you receive now are for the construction of the plant. For the transmission line, the environmental impact study will detail the compensations that are necessary.
12. [The] power companies leave these areas very "wilted"; Warning for children and adults.	[Areas] will not be affected by sludge. If necessary, protective measures will be implemented.



Appendix O

Environmental and Social Management Plans

January 2016

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1.0 INTRODUCTION

This Appendix includes the management plans to be implemented by EDP and its contractors during the construction and operation stages of the Project to prevent, minimize, mitigate and / or compensate for the negative environmental and social impacts resulting from the Project; and also, to enhance the positive impacts that may result from Project activities. The following plans are presented:

- Air quality control plan
- Noise and vibrations control plan
- Erosion and sedimentation control plan
- Contingency plan
- Biotic management plan
- Social management plan
- Fortuitous findings plan

For each plan, the key impacts that the plan addresses, as well as the control measures, responsible entity, and the monitoring necessary to verify the effectiveness of the measures are summarized.

Annex A of this Plan presents a global tabular summary of the mitigation measures, the monitoring program of the mitigation measures, and the schedule of execution of the proposed measures, for the construction and operation stages of the Project

2.0 AIR QUALITY CONTROL PLAN

2.1 INTRODUCTION AND OBJECTIVES

The Air Quality Management Plan is designed to control and minimize potential sources of air pollution during the construction and operation phases of the Project. Most atmospheric emissions are expected to occur during the construction phase.

This Plan defines the potential sources of atmospheric emissions and establishes how these emissions will be controlled and monitored during the Project. In addition, this Plan includes methods that will guide EDP staff and their contractors to manage, mitigate and / or avoid (as far as possible) the negative impacts produced by sources of air pollution on sensitive receptors (people and wildlife). The Plan meets the following objectives:

- Comply with relevant Salvadorian regulatory requirements;
- Identify the potential sources of pollutants in the atmosphere for the different phases of the Project;
- Follow the guidelines of international best practices;
- Define mitigation procedures and measures to be implemented for construction and operation activities that have the potential to generate emissions into the atmosphere;
- Define the functions and responsibilities for the implementation of this Plan; and
- Define procedures for monitoring the efficiency of mitigation measures, reporting and intervention and adaptation of the Plan.

2.2 KEY IMPACTS

The Project's construction and operation activities could result in the following negative impacts on social and environmental recipients located within the Project's area of influence:

- Increase in the generation of gas emissions and particles from equipment, machinery and vehicles (mobile sources) that use hydrocarbons as a fuel source.
- Increase in the release of gases by on site painting works of the armory.

- Dust emission from areas devoid of vegetation and gaseous emissions from construction equipment, machinery and vehicles transporting materials and/or waste.
- Generation of vehicular emissions and particulate removal during the operation phase, due to the circulation of the rolling equipment involved in maintenance work.

2.3 *NATIONAL AND INTERNATIONAL STANDARDS*

In El Salvador, there are standards for the main air pollutants that guarantee an acceptable air quality for human health, life in particular and for wildlife in general. In addition, El Salvador has several laws that prohibit environmental deterioration and for this Project, international guidelines on Environment, Health and Safety that recommend air quality standards will also be considered. The following describes the national and international air quality standards to be considered for the construction and operation stages of the Project:

- The Law of Irrigation and Drainage (Decree No. 153 of November 11, 1970);
- Salvadoran Standard. Environmental Air Quality, Atmospheric Inmissions (NSO 13.11.01: 01- Official Gazette, San Salvador, August 26, 2003);
- The Environmental Law (Decree No. 233 of March 2, 1998);
- The Special Regulation of Technical Norms of Environmental Quality (Decree No. 39 of May, 2000);
- International Financial Corporation (IFC) Performance Standard 6 - Conservation of Biodiversity and Sustainable Management of Living Natural Resources; and
- The Environmental, Health and Safety (EHS) Guidelines, IFC: Transmission and Distribution of Electricity, April 30, 2007.

2.4 *CONTROL MEASURES*

Table 2.4-1 presents the emission control measures to the atmosphere that will be implemented during the construction and operation of the Project. Table 2.4-1 also includes the entities responsible for implementing and auditing control measures. Contractor companies are required to incorporate the mitigation measures and management controls proposed in this Plan into their own procedures and work plans.

EDP will ensure that the proposed mitigation and control measures are met. This will be achieved through planned periodic inspections, audit results to the Project site, as well as the implementation of monitoring programs.

EDP Project Manager and Environmental Inspectors will be responsible for maintaining records of corrective actions and monitoring the modification to existing environmental conditions. Likewise, the Manager and Inspector will be responsible for supervising social protection procedures and/or training programs to avoid repetition of nonconformities and non-compliance with standards.

Table 2.4-1 Mitigation and Air Quality Control Measures

Factor / aspect	*Phase*	*Control or Mitigation*	*Applicability / Activity*	*Responsible for the Execution*	*Verification Mechanism*	*Responsible for the Audit*
Emissions from combustion engines	Construction / Operation	Integrated	Implementation of measures to control the emission of gases into the atmosphere, such as: • The use of any machinery, equipment or vehicles that leaks fuel, rupture of combustion and exhaust systems, or problems in catalyst systems • Equipment that operates on diesel and gasoline must have preventive maintenance to comply with applicable environmental regulations. • Gasoline equipment will have catalytic converters in good condition. Those that are maneuvering equipment (forklifts, cranes, etc.) will adjust their operation to the guidelines of these measures. Catalytic converters or filters for diesel will be incorporated, as the case may be.	Main contractor company; Construction manager.	Monthly gas monitoring. Inspection of programs of preventive maintenance of equipment and machinery. Complaint mechanism.	EDP environmental inspector. Salvadoran environmental, labor and social security authorities (Ministry of Environment and Natural Resources, Ministry of Labor and Social Security).

Factor / aspect	*Phase*	*Control or Mitigation*	*Applicability / Activity*	*Responsible for the Execution*	*Verification Mechanism*	*Responsible for the Audit*
			• Perform resistance testing of materials, galvanizing impregnation and other tests in the factory and not on site. • Monitor air quality parameters described in Salvadoran and international standards (see Table 4.1-13 of the EIS).			

Factor / aspect	*Phase*	*Control or Mitigation*	*Applicability / Activity*	*Responsible for the Execution*	*Verification Mechanism*	*Responsible for the Audit*
Fugitive dust	Construction	Integrated	Implementation of dust emission control measures, such as: • Irrigation of roads and access to the right of way and within the right of way. Such irrigation will be by means of water pipes. • Minimize the area of removal of the vegetal layer. • The box of vehicles transporting debris, dirt or construction material should be fitted with a tarpaulin to prevent dust from escaping during its journey. In addition, protective tires will be covered during loading and unloading of materials to prevent them from throwing material when spinning. • Any vehicle, whether for transportation, forklift or maneuvering equipment, shall be driven into previously opened roads,	Main contractor company; Construction manager.	Monitoring of particle material. Inspection of roads and verification of compliance with speed limits.	EDP environmental inspector. Salvadoran environmental, labor and social security authorities (Ministry of Environment and Natural Resources, Ministry of Labor and Social Security).

Factor / aspect	*Phase*	*Control or Mitigation*	*Applicability / Activity*	*Responsible for the Execution*	*Verification Mechanism*	*Responsible for the Audit*
			gaps and roads designated for that purpose. • Establish speed limits for vehicles that circulate in populated areas as well as access to the project (maximum speed of 25 km/h).			

2.5 *MONITORING AND CONTROL*

The Project includes smaller stationary sources and construction equipment. EDP will implement monitoring and inspection measures to assess the efficiency of impact mitigation measures as well as the efficiency of integrated controls. Table 2.5-1 summarizes these monitoring measures. In the event that the results of the monitoring detect nonconformities with the standards and guidelines of the Project, investigations and corrections will be made as established by the Environmental Management Program (EMP).

Table 2.5-1 Air Quality Monitoring

Factor / aspect	*Parameter*	*Methods*	*Frequency*	*Location*
Air quality pollutants (SO2, CO, NO2, PM10, PM2.5, hydrocarbons, SF6.	Particle concentrations of less than 10 microns in aerodynamic diameter (PM10), of particles smaller than 2.5 microns aerodynamic diameter (PM2.5), volatile organic compounds, sulfur dioxide (SO2), nitrogen dioxide (NO2) and carbon monoxide (CO). The parameters will be compared with air quality criteria described in Table 4.1-13 of the EIS) Discomfort to people and damage.	The contractor in cooperation with EDP will establish an environmental air quality monitoring program for the construction and operation stages of the Project. The monitoring will be carried out by the project contractor. The contractor will provide the results to EDP prior to the audits, and EDP will evaluate if it performs contrast analysis. The monitoring measurements will be recorded, tabulated and compared to standards described in Section 2.3 of this Plan.	Monthly monitoring during the construction phase and annual during the operation stage. However, it is recommended that the monitoring frequency during the operation stage be reviewed and consulted with the Ministry of Environment and Natural Resources once the first results are obtained, in order to define the reduction in the frequency of the monitoring	Points near the TL footprint.

3.0 NOISE AND VIBRATION CONTROL PLAN

3.1 *INTRODUCTION Y OBJECTIVES*

The Noise and Vibration Management Plan is designed to control and minimize (to the extent possible) sources of noise and vibration during activities associated with the construction and operation stages of the Project. Higher noise and vibration levels are expected to occur during the construction phase.

This Plan defines the potential sources of noise and vibrations and establishes how these sources will be managed and monitored. The Plan includes methods that will guide EDP staff and contractors to manage, mitigate and / or avoid (to the extent possible) the negative impacts of noise and vibration sources on sensitive receptors (people, wildlife, and infrastructure). The following objectives are also part of this Plan:

- Comply with relevant Salvadoran regulatory requirements;
- Identify the potential sources of noise and vibration for the different phases of the Project;
- Define the construction and operation procedures for the management of noise and vibration levels;
- Follow the guidelines of international best practices;
- Define mitigation procedures and measures to be implemented for construction and operation activities that have the potential to generate noise and vibrations;
- Define the functions and responsibilities of the implementation of this Plan; And
- Define procedures for monitoring the efficiency of mitigation measures, reporting and intervention and adaptation of the Plan.

3.2 *KEY IMPACTS*

Project construction and operation activities could result in the following negative impacts on human settlements located within the Project's area of influence:

- Potential increase in noise and vibration levels during construction by vehicle traffic and equipment operation. The noise will come from the use of mobile machinery such as excavators, cranes and mechanical excavation equipment; and the

- Increase of short-term environmental noise and temporary nature by the conventional activities of construction of the Project, such as the movement of materials, machinery and equipment; cleaning and dismantling; transportation, preparation and assembly of towers; and the dynamics among the workers who access the proposed facilities.

3.3 *NATIONAL AND INTERNATIONAL STANDARDS*

El Salvador has several laws that prohibit environmental deterioration. In addition, there are international guidelines of Environment, Health and Safety that recommend threshold levels of noise and vibrations. Likewise, there is an ordinance regulating environmental pollution by the emission of noise at the municipal level. The following are laws, regulations and guidelines to be used to determine the efficiency of noise and vibration mitigation and control measures:

- The Law of Irrigation and Drainage (Decree No. 153 of November 11, 1970);
- Salvadoran Standard. Environmental Air Quality, Atmospheric Inmissions (NSO 13.11.01: 01- Official Gazette, San Salvador, August 26, 2003);
- The Environmental Law (Decree No. 233 of March 2, 1998);
- The Special Regulation of Technical Norms of Environmental Quality (Decree No. 39 of May, 2000);
- International Financial Corporation (IFC) Performance Standard 6 - Conservation of Biodiversity and Sustainable Management of Living Natural Resources; and
- The Environmental, Health and Safety (EHS) Guidelines, IFC: Transmission and Distribution of Electricity, April 30, 2007.

3.4 *CONTROL MEASURES*

Table 3.4-1 presents the noise and vibration control measures to be implemented during the construction and operation of the Project. Table 3.4-1 also includes the entities responsible for implementing and auditing control measures. Contracting companies are obliged to incorporate in their own procedures and work plans the mitigation measures and management controls proposed in this Management Plan.

EDP will ensure that the proposed mitigation and control measures comply with the Project standards described in Section 4.3. This will be

achieved through planned periodic inspections, audit results to the Project site, as well as the implementation of monitoring programs. Implementation of adaptation measures will begin when the guidelines / standards described in section 2.3 are not met between the Project and the performance indicator.

The EDP Project Manager and Environmental Inspector will be responsible for keeping records of corrective actions and monitoring the modification to existing environmental conditions. Likewise, the Manager and Inspector will be responsible for supervising social protection procedures and / or training programs to avoid repetition of nonconformities and non-compliance with standards.

Table 3.4-1 Noise and Vibration Mitigation Measures and Controls

Factor / aspect	*Phase*	*Control or Mitigation*	*Applicability / Activity*	*Responsible for the Execution*	*Verification Mechanism*	*Responsible for the Audit*
Potential increase in noise and vibration levels	Construction	Integrated	Implementation of control measures of noise levels (day and night) and vibrations: • Maintain maximum permitted levels of noise within the values indicated by Salvadoran authorities or threshold levels of noise established by CIF (see Table 4.1-14 of the EIS). • Indicate all sites where they emit noises above 85 dBA, to avoid exposure of persons without properly certified hearing protection equipment. • Train all workers on techniques for the use and maintenance of hearing protection equipment	Main contractor company; Construction manager.	Monthly monitoring (or if there are complaints) of noise levels in the nearest human settlements along the TL.	EDP environmental inspector.

			(occupational safety) that should be required at all times during the exposure period. • Establish speed limits for vehicles traveling in populated areas (maximum speed of 25 km / h). • Design and implement a contingency plan and corrective measures to meet eventualities. • Eliminate or reduce, as far as possible, noises and vibrations that are harmful to the health of workers.			
Factor / aspect	***Phase***	***Control or Mitigation***	***Applicability / Activity***	***Responsible for the Execution***	***Verification Mechanism***	***Responsible for the Audit***

Potential increase in noise and vibration levels	Operation	Integrated	Establish a preventive maintenance program for the vehicle fleet, owned by EDP, duly documented and require contractors to do the same.	Main contractor company; EDP maintenance manager.	Complaint mechanism.	EDP environmental inspector.

3.5 *MONITORING AND CONTROL*

Monitoring activities will be carried out to inspect and evaluate the efficiency of the proposed mitigation measures as well as the efficiency of the integrated controls. Table 3.5-1 summarizes these monitoring measures, as well as the parameters and frequency of the monitoring. In the event that the results of the monitoring detect nonconformities with the standards and guidelines of the Project, investigations and corrections will be made as established by the Environmental Management Program (EMP)

Table 3.5-1 Noise and Vibrations Monitoring Measures

Factor / aspect	*Parameter*	*Methods*	*Frequency*	*Location*
Noise and vibration levels produced by heavy machinery, vehicles and material hauling activities; as well as noise generated from the sites during the construction phase	Intensity of dBA and duration. Compare levels with threshold values established by CFI (see Table 4.1-14 of the EIS) and compared with values measured during the baseline study (see Table 4.1-15 of the EIS). Discomfort to people and damage.	The contractor in cooperation with EDP will establish a program for monitoring noise levels with calibrated sonometers at a height of approximately 1.5 meters. The monitoring measurements will be recorded, tabulated and compared to standards described in Section 3.3 of this Plan.	Monthly monitoring for 24-hour periods.	Population nuclei near the TL proposed (at a distance less than 500 m).
Levels of noise and vibration produced by vehicles used for the maintenance of TL.	Intensity of dBA and duration. Compare levels with threshold values established by CFI (see Table 4.1-14 of the EIS) and compared with values measured during the baseline study (see Table 4.1-15 of the EIS),	The contractor in cooperation with EDP will establish a program for monitoring noise levels with calibrated sonometers at a height of approximately 1.5 meters. The monitoring measurements will be recorded, tabulated and compared to standards described in section 3.3 of this Plan.	Annual monitoring for 24-hour periods	Population nuclei close to the proposed TL. Measurements under TL and on both sides at distances parallel to the line.

4.0 EROSION AND SEDIMENTATION CONTROL PLAN

4.1 *INTRODUCTION AND OBJECTIVES*

The Erosion and Sedimentation Control Plan is intended to ensure the reduction of the potential impacts of the Project on soils and water resources in the area of influence of the Project, as well as to avoid, mitigate and monitor Mitigation measures that will be implemented. The Plan includes methods that will guide EDP staff and their contractors to manage, mitigate and / or avoid (to the extent possible) adverse effects on soils. The objectives of this Plan include:

- Comply with the pertinent Salvadorian regulatory requirements;
- Prevent and control soil erosion and contamination;
- Follow international best practice guidelines;
- Define procedures, integrated controls and mitigation measures to be used in construction and operation phases that have the potential to affect soils;
- Define the roles and responsibilities of implementing this Plan; y
- Define procedures for monitoring the efficiency of mitigation measures, reporting and intervention and adaptation of the Plan.

4.2 *KEY IMPACTS*

The Project's construction and operation activities could result in the following negative impacts on the soils of the Project area:

- Erosion and compaction of soils as a result of felling and pruning of the right of way strip; heavy machinery movement; the construction of access roads; leveling, filling and compassion of the terrain; as well as the formwork and foundation of the towers.
- Contamination of soils by accidental spills of fuel and lubricants from used equipment and machinery.

4.3 *NATIONAL AND INTERNATIONAL STANDARDS*

In El Salvador, there are no specific legal requirements regarding soil management. However, El Salvador has several laws that prohibit environmental deterioration. In addition, there are international guidelines for the management of soils such as:

- The Law of Irrigation and Drainage (Decree No. 153 of November 11, 1970);
- The Environmental Law (Decree No. 233 of March 2, 1998);
- The Special Regulation of Technical Norms of Environmental Quality (Decree No. 39 of May, 2000);
- International Financial Corporation (IFC) Performance Standard 6 - Conservation of Biodiversity and Sustainable Management of Living Natural Resources; and
- The Environmental, Health and Safety (EHS) Guidelines, IFC: Transmission and Distribution of Electricity, April 30, 2007.

4.4 *CONTROL MEASURES*

Table 4.4-1 presents the erosion control measures that will be used as a reference framework for the elaboration of erosion control measures in the final engineering design of the Project, which will be implemented during the construction and operation of the project. Table 4.4-1 also summarizes the mitigation measures and controls that will be implemented to minimize risks and impacts on soils, together with the entities that are responsible for implementing and auditing them. Contracting companies are obliged to incorporate in their own procedures and work plans the mitigation measures and management controls proposed in this Management Plan.

Table 4.4-1 Soils - Mitigation Measures and Proposed Management Controls

Factor / aspect	*Phase*	*Control or Mitigation*	*Applicability / Activity*	*Responsible for the Execution*	*Verification Mechanism*	*Responsible for the Audit*
Potential increase in soil erosion and sedimentation	Construction	Integrated	Implementation of soil erosion, storm water runoff and sedimentation control measures (use of sediment fences, installation of permanent and temporary drainage systems for the control of runoff from construction areas, use of sediment ditches and regulation dams for the control of runoff).	Main contractor company; Construction manager.	Monitoring erosion rates and sediment deposition (visual inspections); inspection of temporary drainage and sedimentation control systems.	EDP environmental inspector.
Potential increase in soil erosion and sedimentation	Construction	Integrated	Use of appropriate management practices during deforestation activities (to the maximum reasonably practicable, scheduling of construction activities for the dry season, especially in areas with steep slopes, limitation of deforestation and disturbance only to approved areas; minimization to the maximum of the bare soil area in the approved work area, and stabilization and progressive reforestation of the affected areas).	Main contractor company; Construction manager.	Inspection of vegetation clearing and stabilization activities, as well as the progress of reforestation activities.	EDP environmental inspector.

Factor / aspect	*Phase*	*Control or Mitigation*	*Applicability / Activity*	*Responsible for the Execution*	*Verification Mechanism*	*Responsible for the Audit*
Potential increase in soil erosion and sedimentation	Construction	Integrated	Clear demarcation of areas to be affected, in order to avoid impacts on additional areas.	Main contractor company; Construction manager.	Inspection of clearing (pruning and cutting) of vegetation and other land preparation activities.	EDP environmental inspector.
Potential increase in soil erosion and sedimentation	Operation	Integrated	Implementation of a long-term plan to control soil erosion, control of storm water runoff and sedimentation.	Main contractor company; Construction manager.	Monitoring erosion and sediment deposition rates; inspection of temporary drainage and sedimentation control systems.	EDP environmental inspector.
Stability of slopes	Construction	Integrated	Develop banks and excavation slopes according to geotechnical stability guidelines.	Main contractor company; Construction manager.	Inspections / Audits	EDP environmental inspector.

Factor / aspect	*Phase*	*Control or Mitigation*	*Applicability / Activity*	*Responsible for the Execution*	*Verification Mechanism*	*Responsible for the Audit*
Contamination of soils by accidental spills of fuel and lubricants of equipment and machinery.	Operation	Integrated	Maintenance of the equipment in good mechanical conditions, to avoid losses of fuel and lubricants that can contaminate the floors and be washed by the rains; Any major maintenance of the equipment should be carried out in specialized workshops and not at the project site; Adequacy of a specific area, with waterproofing protection, to carry out minor maintenance activities; and Implementation of the Contingency Plan in case of spills.	Main contractor company; Construction manager.	Inspections / audits of coastal erosion monitoring.	EDP environmental inspector.

EDP = Energía del Pacífico.

4.5 *MONITORING AND CONTROL*

Monitoring measures regarding the inspection and evaluation of the effectiveness of mitigation measures of impacts is implemented, as well as the efficiency of the integrated controls. These monitoring measures are summarized in Table 4.5-1. In the event that the results of the monitoring detect nonconformities with the standards and guidelines of the Project, investigations and corrections will be made as established by the Environmental Management Program (EMP).

Table 4.5-1 Soils-Monitoring Measures

Factor / aspect	*Parameter*	*Methods*	*Frequency*	*Location*
Erosion of soils and sedimentation	Erosion in grooves and gullies, laminate and riversides (by water); wind erosion	EDP will establish an inspection and audit program that will include: • Periodic audits and inspections of contractors' performance regarding erosion and sedimentation control measures and plans, as well as the installation of erosion control systems. • Inspections (periodic and unannounced) of clearing activities (clearing and pruning) of the right of way strip).	• During the clearing activities. • During excavation, leveling and compacting activities. • Every six months after the installation of erosion control systems.	All areas of construction and disturbance of the terrain.
Steep slopes	Integrity of the slopes	EDP will establish an inspection and audit program that will include periodic inspections of sloping river areas in order to verify their correct stability, integrity of slope drainage systems, erosion as well as safety and protection of equipment and workers.	EDP will make annual monitoring of sloping areas where mitigation measures have been applied, in search of signs of instability.	All sloping areas where mitigation measures have been implemented.

5.0 CONTINGENCY PROGRAM

The Contingency Plan presents prevention and response actions to unplanned events and natural disasters such as earthquakes, volcanic hazards and accidental spills.

5.1 *OBJECTIVES*

The objectives of the Contingency Plan are:

- Prevent and control unplanned events and natural disasters.
- Describe immediate response activities to control events in a timely and efficient manner, minimizing damage to health, environment and property.
- Promote cause research and continuous improvement to avoid, if possible, future emergencies.

5.2 *INSTITUTIONAL ORGANIZATION*

The Contingency Plan shall have the following responsible:

- Project Director, who will provide human and material resources for the implementation of the Plan and will be responsible for the investigation after unplanned events,
- Emergency Brigade specially trained in unplanned events, to lead and ensure the correct implementation of the Contingency Plan measures. Within the Brigade, a Coordinator will be assigned who will lead the other brigadiers.
- Doctor or paramedic dedicated to the Project.
- Occupational Health Officer.
- Department of Surveillance, responsible for the safety of the Project area.

The Project staff should be given talks on the Contingency Plan and the preventive measures to be implemented during and after the events.

5.3 *SEISMS*

Applicable to major seisms and earthquakes, including volcanic seisms, in the Project area.

5.3.1 *Preventive Measures*

- Project staff will receive first aid training to act during an earthquake.
- Safe areas will be established in facilities and work areas, indicated by signs (signboards).
- Earthquake simulations will be carried out on an annual basis so that the personnel are prepared in the event of earthquakes.

5.3.2 *Measures to be taken during the event*

- Staff will meet in pre-established safe areas until the earthquake ends. A reasonable time (approximately one hour) will be expected, in response to the occurrence of aftershocks.
- If the earthquake has been of a slight magnitude, the workers will return to their work evaluating the conditions of the terrain. In the event of an earthquake of great magnitude, the personnel will paralyze the activities and evacuate the pre-established safe areas until the indication of demobilization.
- Potentials affected by the earthquake will be rescued, and the first aid will be provided immediately by the physician or trained personnel. If necessary, evacuate those affected to the nearest medical center in the Project's Ambulance.

5.3.3 *Measures to Run After the Event*

- The event as well as the actions that were executed to minimize its effects will be recorded and documented. The contingency registry will be entered into the unit responsible for the Project.
- The respective assessments of damage and stability of the operations areas and structures will be carried out before restarting the work.
- The respective investigation will be initiated to determine the magnitude of the damages caused to health, the environment and property, in order to implement new prevention measures.

5.4 *VOLCANIC THREAT*

Applicable to volcanic eruptions of Santa Ana volcano and Izalco volcano, the hazards identified for the Project area such as falling pyroclasts, lahars and lava flows.

5.4.1 *Preventive Measures*

- Project staff will receive first aid training.
- Volcanic eruptions will be carried out with an annual frequency so that the personnel are prepared in case of one.
- High risk areas will be established and work fronts will be communicated to the risk level of volcanic hazards.

5.4.2 *Measures to be Taken During the Event*

- The Emergency Brigade will be immediately notified.
- Calmness will be maintained and the pre-established area for evacuation will proceed immediately. Ensure that all Project personnel are present in the evacuation area.
- Potentials affected by the volcanic eruption will be rescued, and the trained physician or trained personnel will immediately provide them with first aid. If necessary, evacuate those affected to the nearest medical center in the Project's Ambulance.

5.4.3 *Measures to be Taken After the Event*

- The event as well as the actions that were executed to minimize its effects will be recorded and documented. The contingency registry will be entered into the unit responsible for the Project.
- The respective assessments of damage and stability of the operations areas and structures will be carried out before restarting the work.
- The respective investigation will be initiated to determine the magnitude of the damages caused to health, the environment and property, in order to implement new prevention measures.

5.5 *LEAKAGE*

Applicable to leakage of fuels, lubricants, hydrocarbons and other chemical substances on soils and water bodies.

5.5.1 *Preventive Measures*

- Project personnel will receive necessary training on spills, causes and risks, and methods of handling and using the emergency kit.
- Chemicals, fuels and hydrocarbons must be properly stored, transported and handled in appropriate containers for each type of substance. Containers should be stored with containment dikes. Likewise, the containers must be labeled for easy identification.

5.5.2 *Measures to be Taken During the Event*

The Emergency Brigade will be immediately notified.

- The spill will be contained by the use of absorbent cloths or paper to contain the substance that has been spilled. Appropriate personnel protection equipment should be used for this activity.
- In necessary cases, the spill will be dammed through the use of dirt barriers or wooden planks for their definitive control.
- In the potential case of contamination of a watercourse:
  - Dirt barriers will be built to limit the spill. A sedimentation pond adjacent to the spill area will be constructed to capture soil and spilled sludge.
  - The stroke will be diverted to stop its contact with the body of water.
  - Closer communities to downstream will be informed to avoid contamination by water use.

5.5.3 *Measures to be Taken After the Event*

- All spilled fluids or solids will be removed and contaminated materials will be disposed of properly.
- The respective investigation will be initiated to determine the causes of the spill occurred and the magnitude of the damage caused to health, the environment and property, in order to implement new prevention measures. The contingency registry will be entered into the unit responsible for the Project.

6.0 BIOTIC MANAGEMENT PLAN

6.1 *INTRODUCTION*

This section describes the Biotic Management Plan (BMP) of the Project's Environmental Management Program (EMP). The Plan contains four key components, each of which addresses specific elements of the management process. These components are:

- General Measures of Environmental Prevention and Control;
- Black Eye Frog Program;
- Program of the Apaneca-Ilamatepec Biosphere Reserve;
- Program of the Important Bird Area "Los Cobanos";
- Reforestation Program; and
- Monitoring and Evaluation Program

6.2 *OBJECTIVES*

The BPM is based on the conclusions and commitments presented in the EIS in order to achieve the following specific objectives:

- Present the applicable legislation, biodiversity priority values and measures to avoid, minimize and restore negative impacts and enhance the positive impacts of the Project on biodiversity; and
- Establish actions to monitor the effectiveness of actions and identify the need to take corrective measures.

6.3 *APPLICABLE LEGISLATION*

6.3.1 *Environmental Law and its Regulation*

The EMP should present the set of measures proposed for the prevention, mitigation and compensation of negative impacts on the environment, as well as the enhancement of the positive ones. This includes the following components: implementation of prevention measures, mitigation and compensation, monitoring, closure of operations, and rehabilitation. This BPM will describe these measures for biodiversity and protected areas values.

6.3.2 *Natural Protected Areas Law*

Article 33 establishes that the MARN may authorize natural or legal persons to carry out activities, works or projects, compatible with the objectives of the Protected Natural Areas, without prejudice to previously comply with the requirements established in the Environmental Law. Although Biosphere Reserves are not explicitly considered as Protected Natural Areas, this implies that the Project must first obtain the Environmental License and then obtain the MARN Authorization to carry out the project within the Biosphere Reserve.

6.3.3 *Ministerial Agreement No. 31 from March 21, 2014*

This MARN Ministerial Agreement establishes that compensation can be carried out directly or through specialized agents, at the impact site, surrounding areas or in areas more conducive to its replacement or recovery. In addition, under this agreement, the compensation actions may be carried out by the Initiative Fund for the Americas (FIAES) and the Environmental Fund of El Salvador (FONAES).

6.3.4 *Environmental Compensation for Environmentally Viable Projects*

The Directorate General for Environmental Assessment and Compliance of MARN has released a methodological guide for calculating environmental compensation for environmentally viable projects (MARN-DGECA, no year). The environmental compensation process comprises three components: i) identification of impacts; ii) quantification of impacts; and iii) compensation in relation to repair, conservation, management and control of impacts.

Impacts requiring compensation include: (i) loss of coverage, (ii) soil impermeability, (iii) damage to water resources, and (iv) damage to landscape and wildlife. These impacts should be considered within the Environmental Management Program of the project.

6.4 *IDENTIFICATION OF PRIORITY BIODIVERSITY VALUES IN THE PROJECT'S AREA OF INFLUENCE*

Although much of the TL route is in a complex of modified habitats, including paddocks and agricultural fields in the lowlands and coffee plantations in the highlands, there are still remnants of natural habitats. In addition, some modified habitats, in particular shade-grown coffee plantations, still guarantee high values of biodiversity.

6.4.1 *Remnants of Natural Forests*

Much of the landscape of the Project area has historically been transformed for purposes of agricultural production and urbanization, which has resulted in the conversion and fragmentation of pre-colonial forest. The remnants of remaining natural forests are of value for the conservation of the native biodiversity of the region. Even shade coffee areas may harbor significant biodiversity and good diversity of native tree species (Méndez et al., 2009) and habitats for endangered species such as the black-eyed frog (this study).

6.4.2 *Aquatic Habitats*

The rivers, ravines and streams in the area of influence of the Project are of hydrobiological importance. However, there is no anticipation of impacts on aquatic habitats and there are no endemic or categories of threatened or endangered species and no consideration of special measures is warranted.

6.4.3 *Tree and Shrub Species Threatened and Endangered*

The results of the baseline study indicate the presence of woody species classified as threatened or endangered by MARN (2015) or by IUCN (2016). The immediate impact of the Project will be the loss of individuals within the cleaned areas inside the right of way strip and other areas as new accesses. The impact will be negative but insignificant at the regional level or at the level of the global population of these species.

Each of the three-species detected in the project influence area and which are on the official MARN protected species list (*Juglans olanchana, Quercus skinneri,* and *Cedrela odorata*, see Table 3 in Appendix A) have a Value Index of Importance (IVI) very low (see Table 4 in Appendix A). Based on their relative abundance, it is estimated that of the 3,599 (estimated) trees to be felled, less than 1% (less than 36 trees) will be individuals of protected species. These numbers will be confirmed in the pre-construction tree inventory.

6.4.4 *The Black Eye Frog*

The black-eyed frog (Agalychnis moreletii) is a species categorized as Critically Endangered according to IUCN (2016) and Threatened according to MARN (2015).

6.4.5 *Apaneca-Ilamatepec Biosphere Reserve*

The Apaneca-Ilamatepec Biosphere Reserve is a national conservation area recognized as a Biosphere Reserve by UNESCO in 2007. It includes three management zones: core areas (protected natural areas), buffer zones and transition zone.

6.4.6 *Important Bird Area "Los Cobanos"*

Important Bird Areas (IBAs) are internationally recognized for their biodiversity values but are not natural areas protected by law in El Salvador. IBA Los Cóbanos is a terrestrial zone other than the "Los Cóbanos Complex" Protected Natural Area that protects coastal and marine habitats. According to Bird Life International (2016), this coastal plain area (7,000 hectares [ha]) contains fragments of winged calabash (Crescentia alata) savannas, secondary dry forest, gallery forest and freshwater marshes scattered in a grazing landscape. The fragments of dry forest contain a typical bird community of the Arid Pacific Rim biome and the gallery forests have colonies of the Mexican cacique or Yellow-winged cacique (Cacicus melanicterus), the only population in all of El Salvador (Birdlife International, 2016), a species distribution in Mexico with the category of Minor Concern according to the IUCN. The transmission line crosses part of the northwest IBA sector between towers TP 12 and TP 19 + 100 meters (m) by a line distance of approximately 2,890 m.

6.5 *IDENTIFICATION OF POTENTIAL IMPACTS TO BIODIVERSITY*

Impacts on biodiversity are assessed in Section 5.3 of this EIS. Impacts requiring specific mitigation measures beyond the controls and good practices of construction and design are as follows:

- Loss of Forest Cover
- Loss of Individuals Threatened and Endangered Species
- Pollution and Degradation of Aquatic Habitats.
- Loss of Habitat and Individuals of the Black-eyed Frog
- Bird Collisions with Cables
- Impacts to the Apaneca-Ilamatepec Biosphere Reserve
- Impacts to the Important Bird Area "Los Cóbanos"

6.6 *GENERAL MEASURES OF ENVIRONMENTAL PREVENTION AND CONTROL*

A good international practice is the application of the "mitigation hierarchy" that seeks to avoid impacts to biodiversity as a first priority, then minimizing and restoring them. In terms of national legislation, these concepts are equivalent to prevention (avoidance), mitigation (minimization) and compensation (restoration and possibly compensation for non-mitigable impacts).

General environmental prevention and mitigation measures for abiotic environmental factors, namely, air, noise, water and soil are incorporated as fundamental elements of the Project design. The specific evaluation of impacts to the abiotic environment is presented in Section 5.3 of this EIS.

Also included are good practice measures for worker behavior, both employees and contractors, of the Project on training and induction on the importance of biodiversity in the region and restrictions and prohibitions on hunting, fishing, gathering, buying and selling of fauna and flora, the actions to be taken in regard to the finding of injured or dead animals and the essential respect for the delimitation of work areas.

6.7 *SPECIFIC MEASURES FOR BIODIVERSITY VALUES*

6.7.1 *Installation of Flight Deterrents*

In the openings on crossings of rivers, ravines and streams and on the tops of the mountain range of Apaneca, spiral-type bird flight deterrents will be installed (eg Swan-Flight diverters) maximum separation of 15.0 m and alternating (separation of 30 m in each cable, see Figure 6.7-1). For example, at a 300 m cross, 20 dissuasors would be installed, 10 on each cable alternately to have a deterrent every 15 m (following APLIC guidelines, the Avian Powerline Interaction Committee, 2012).

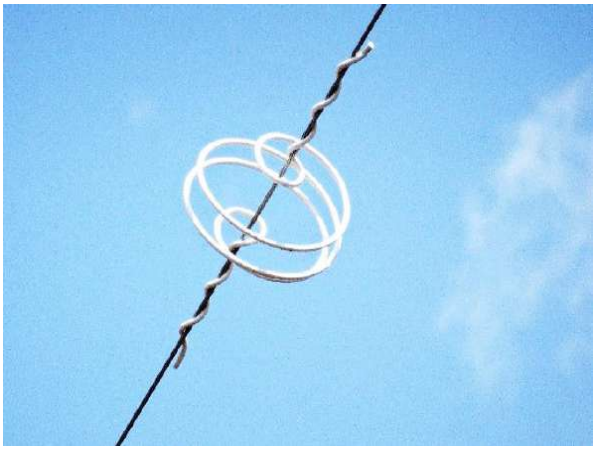

Figure 6.7-1 Spiral Type Bird Flight Deterrent

A total of approximately 460 deterrents will be installed in the sections indicated in Table 6.7-1:

Table 6.7-1 Number of Deterrents

Towers	*Distance (meters)*	*Number of Deterrents*	*Type of Crossing*
TP 136 to TP 145	2,890	192	Important Bird Area
TP 124 to TP 127	395	26	River
TP 95 to TP 96	310	20	River
TP 78 to TP 79	510	34	River/Canon
TP 72 to TP 74	660	44	Valley
TP 45[a] to TP 46	615	41	Stream in forest area
TP 38 to TP 39	460	30	Stream
TP 25 to TP 27	365	24	Summit and strong hillside
TP 14 to TP 17	670	44	Hill and strong hillside

6.7.2 *Black Eye Frog Program*

The black-eyed frog (*Agalychnis moreletii*) is a Critically Endangered species according to the IUCN Red List of Threatened Species. In El Salvador, in 2009 it was considered as a common species in the central western zone of the country in natural forests but also in shade coffee farms (Herrera, 2009) (see Figure 6.7-2).



Figure 6.7-2 Black Eye Frog (Agalychnis moreletii)

Prior to the Project's felling and clearing activities, night-time campaigns will be conducted for the capture and relocation of these frogs to reduce the negative impact on the local population of the species. The relocation of the captured individuals will be carried out within the same population, in order to avoid potential contamination of healthy populations.

Impacts will be avoided to bodies of water and catchment piles that can serve as breeding sites.

Two piles of water will be built in each area where the presence of the frog was documented to increase the availability of habitats for breeding the species (Santa Rita and Tequendama farms). The "piles" are craft structures used by coffee producers in the region to store water. Frogs use these piles as shelters and breeding grounds. It should be installed four piles built according to local custom with the following dimensions and materials: approximate dimensions - 2.5 m long x 1.5 m wide x 1.6 m deep with, corrugated aluminum sheet roof with gutter and down tube; And materials - building bricks, cement, sand, corrugated aluminum sheets, nails and / or screws, with cement refining.

Educational campaigns for conservation will be carried out to owners and inhabitants of the area as well as encouraging owners to move to an organic coffee crop without agrochemicals in the area of influence of the Project where they found the largest populations of this amphibian.

6.7.3 *Apaneca-Ilamatepec Biosphere Reserve Program*

EDP will implement the following control and mitigation measures to minimize impacts on the Apaneca-Ilamatepec Biosphere Reserve:

- Evaluate the feasibility and cost / benefit of positioning towers outside areas of woody vegetation to minimize logging of trees and shrubs.
- Minimization of the opening of new accesses and their rehabilitation and revegetation to finalize the construction of the Project.
- Restoration of forests within the Reserve.
- Training of workers on the importance of the Reserve and its conservation objectives.
- Installation of information signals on public roads on the Reserve and its biodiversity values.

In addition, EDP will establish a communication and consultation mechanism with MARN and the Management Committee of the Apaneca-Ilamatepec Biosphere Reserve, an organization created to manage projects and promote conservation in the region. The new Operational Plan of the Committee seeks to: (i) contribute to the conservation of landscapes, ecosystems, species and genetic variation, (ii) promote socio-cultural and ecologically sustainable economic and human development, (iii) Demonstration, education, environmental training, research and ongoing observation on local, regional, national and sustainable development issues; and (iv) strengthening the territory's capacity to adapt to climate change by minimizing impacts on population, agriculture and biodiversity (MARN, 2016).

6.7.4 *Important Bird Area "Los Cóbanos" Program”*

EDP will implement the following measures of control and mitigation to minimize the impacts on the IBA "Los Cóbanos":

- Installation of bird flight deterrents throughout the length of the transmission line within the IBA.
- Evaluate the feasibility and cost / benefit of positioning towers outside areas of woody vegetation to minimize logging of trees and shrubs.
- Minimization of the opening of new accesses and their rehabilitation and revegetation at the end of the construction of the Project.
- Restoration of arboreal vegetation within IBA.

- Training of workers on the importance of IBA and its conservation objectives.
- Installation of information signs on public roads on the IBA and its biodiversity values.

In addition, EDP will establish a communication and consultation mechanism with the NGO SalvaNATURA, the national partner of BirdLife International, which is the entity responsible for the identification of IBAs.

6.7.5 *Reforestation Program*

The reforestation program will be implemented through an agreement between EDP and the Initiative Fund for the Americas (FIAES), an organization authorized by MARN as the ideal mechanism to comply with environmental compensation measures.

According to the *Methodological Guide for the Calculation of Environmental Compensation for Environmentally Viable Projects* (MARN-DGECA, undated), as environmental compensation for felling trees and shrubs, it is required:

- Plantation of 10 trees per tree cut, with spacing of 4 m x 4 m, resulting in an area of 16 m2 per tree planted or 1.60 ha per 100 trees felled.
- Plantation of a shrub for each shrub cut, with spacing of 3 m x 3 m, resulting in an area of 9 m2 per planted shrub or 0.90 ha per 1000 shrubs felled.

The reference costs of the MARN Guide are on the order of USD $ 76 per logged tree (10 trees sown and maintained for three years).

According to the calculations presented in Section 5.3.1 - Loss of Plant Cover, the Project may result in logging of up to 3,599 trees (and an estimated <36 individuals of protected species), resulting in a compensation cost of $ 273,524 that will be allocated to the reforestation program. Tree estimates are considered conservative and the actual number is likely to be lower since a circular area of 1,924 square meters (m2) is applied for each tower instead of a square area of 1,225 m2. These numbers will be confirmed in the pre-construction tree inventory.

Through a letter to be prepared by MARN, FIAES will be notified of the amount and timing of the reforestation program as compensation for the felling of trees and shrubs. FIAES will agree the conditions of compensation with EDP, including a disbursement plan, the bond and the responsibilities of the parties. EDP and FIAES will elaborate and sign the agreed contract for the fulfillment of the compensation and FIAES will send the agreement to MARN.

The execution of the reforestation and maintenance can be channeled by an NGO or local Association of Community Social Development (ADECO) and supervised by FIAES.

FIAES works in the restoration of ecosystems and landscapes as thematic area and in the Apaneca-Ilamapetec Biosphere Reserve as a priority site of intervention.

6.8 *MONITORING PLAN*

The monitoring of the correct implementation of the measures, their efficiency and effectiveness is fundamental. This section presents the indicators for the specific mitigation measures for biodiversity described above.

6.8.1 *Construction Stage*

During logging works and the right of way strip, an inventory of cut trees and shrubs will be made to ensure fair compensation for the loss of these individuals.

As part of environmental management of the construction, water quality and aquatic habitats will be inspected visually for changes in water turbidity (as an indicator of suspended sediment) and the presence of oil pollution (lubricants and fuels from machinery and vehicles) . In the case of positive results, EDP will take immediate action to eliminate the sources of the pollutants and to restore the pre-construction conditions of the affected habitats.

Prior to the start of the construction, a census of frogs will be performed for three nights in the breeding season to establish a baseline for black-eyed frog population in the localities where it was detected by the EIS baseline study. The reproductive individuals will be counted by searches of three hours, using the acoustic location and visual encounters. In

addition, EDP will verify the correct construction of the artificial piles before the start of the operation of the Project and will take the necessary measures so that the Contractor corrects any deficiencies before the beginning of the operation of the Project.

EDP will verify the correct installation of the flight deterrents prior to the start of the operation of the Project and will take the necessary measures so that the Contractor corrects any deficiencies before the beginning of the operation of the Project.

6.8.2 *Operation Stage*

During the first three years of the Project's operation, EDP will conduct semiannual audits of the implementation of the Reforestation Program to be carried out under an agreement with FIAES. During the next two years, annual inspections of reforested areas will be carried out to ensure their establishment and degree of protection. After the fifth year, the need for future monitoring will be assessed in consultation with MARN and the responsible for the Biosphere Reserve and the Important Bird Area (IBA).

EDP will visually verify the quality of water and aquatic habitats before starting the Project operation and take action for remediation in case of contamination. The need to monitor aquatic habitat conditions during the operation of the Project is not anticipated due to the lack of activities that have an impact on them during this phase.

After the construction of the Project, during the first three years of operation of the Project, EDP (or the Transmitter Company of El Salvador - ETESAL, when the Project will be transferred to ETESAL), will perform annual nightly monitoring for three nights in the reproductive season of the black-eyed frog. The reproductive individuals will be counted by searches of three hours, using the acoustic location and visual encounters. In addition, they will inspect the artificial piles to verify their use as breeding sites. In case of negative results, the potential causes will be studied and opportunities for adaptive management will be sought to achieve the goal of improving the population of the species in the Project area.

As part of its general maintenance program, EDP will verify at least annually the condition of the flight deterrents throughout the life of the Project. In addition, line maintenance staff and the bonding band shall be required to report any findings of dead or injured birds to the Project Environmental Supervisor. In case of evidence of collisions with the lines, EDP will study the options to improve the visibility of the cables in the

area where there are high numbers of collisions and will take the necessary measures to minimize future collisions.

7.0 SOCIAL MANAGEMENT PLAN

7.1 *INTRODUCTION*

This Social Management Plan has been developed based on the social situation and the impact assessment that have been developed as part of the EIS.

The Plan contains four key components, each of which addresses specific elements of the management process. These components are:

- **Participation Plan:** This component describes how the Project will develop and maintain effective relationships with stakeholders,
- **Complaints Mechanism:** This component describes the process by which stakeholders' concerns and problems will be presented to the Project and addressed by the Project for its solution;
- **Community Health and Safety Program:** This component focuses on the control and management of impacts on communities. Specifically, it refers to the impacts of traffic, the use of security forces and the influx of workers; and
- **Code of Conduct for Workers and Contractors:** This component includes a set of requirements and expectations for the entire Project workforce (direct and subcontracted employees) regarding interactions with the community.

These components are described below, including their objectives, enforcement mechanisms, implementation and follow-up. This plan should be understood as a dynamic document, which will be revised and updated as necessary during the project life cycle. Therefore, the guidelines for the review of the methods of implementation and associated performance indicators are included in this document and have been integrated into the monitoring plan.

7.1.1 *Objectives*

The plan is based on the conclusions and commitments presented in the EIS in order to achieve the following specific objectives:

- Provide details on the mitigation measures presented in the EIS;
- Close gaps, where possible, found in initial baseline studies;

- Present the objectives, schedule of activities and responsibilities to manage, limit and mitigate negative impacts and improve the (positive) impacts of the Project; y
- Establish verifiable indicators to evaluate the effectiveness of the plan.

7.1.2 *Applicable Standards*

This plan is designed to maintain the Project's compliance with El Salvador's environmental regulations and legislation, as well as compliance with the mitigation commitments made in the EIS. At the same time, this plan is aligned with the international requirements and standards established by the International Financial Institutions (IFIs).

7.1.3 *Indigenous Towns*

Section 5.0 of the EIS concludes that the Project has a low potential to impact indigenous peoples in the area. Only the municipalities of Ahuachapán, Acajutla and Sonsonate have indigenous populations, with Sonsonate being the largest in the country according to the 2007 census. However, neither the Project staff nor the consultants who carried out the EIS on the ground observed or identified indigenous people or groups during their multiple visits and interactions with communities. Alike during the participatory rural diagnostic workshops or the interviews with the local authorities, no findings were made.

7.1.4 *Roles and Responsibilities*

The final responsibility for the fulfillment of the goals and commitments established in the present plan corresponds to EDP as proponent of the Project. During design, construction, start up and operation, Project staff and contractors will be responsible for the execution of the work in a manner that meets the expectations established in the present plan.

7.1.5 *Training*

The Project will develop a Training Program to meet the training commitments described in this plan prior to the construction phase. This program includes deadlines, responsibilities, and training materials. The following sections also highlight the various training needs.

7.2 *PARTICIPATION PLAN*

To help build positive relationships with stakeholders and communities throughout the Project, EDP, the proponent, has developed this Stakeholder Participation Plan (PP). This plan covers the Project's relationships with community members and other stakeholders who have the potential to be affected by the construction and operation of the Project. The PP has been developed using the basic information collected on the affected communities described in Section 6.0 EIS Citizenship Query and includes the mitigation measures identified in Section 5.0 of the EIS.

7.2.1 *Background*

The main actors in the Project are the communities, the media, and officials of the municipal and governmental institutions in the Departments of Ahuachapán and Sonsonate. As described in Section 4.0 of the EIS, the Project has the potential to affect communities closest to the TL tracing. The EIS did not identify significant community impacts arising from the Project during the operations phase, but there is a potential for impacts during construction due to increased traffic.

The potential for unforeseen impacts requires constant communication with stakeholders throughout the project life cycle. The open communication will allow the Project to become aware of the concerns of the interested parties; and to mitigate the impacts on the interest groups negatively affected by the Project.

7.2.2 *Objectives*

The Project will meet the following objectives:

- Provide information publicly guaranteeing the right to information of local communities;
- Ensure the active participation of stakeholders throughout the life of the Project and;
- Establish a complaint mechanism.

The specific objectives are as follows:

- Identify stakeholders and ensure the availability of mechanisms to share information with them;
- Provide guidelines for a constant consultation during the different stages of the Project contributing to an effective and double-channel communication environment;
- Provide accurate and reliable information about the Project to stakeholders, reducing possible conjectures and rumors about the Project;
- Provide a channel of communication to receive timely feedback from stakeholders on the plans and activities of the Project, allowing the necessary changes to be made in a more effective way;
- Identify the resources and responsibilities for the implementation of the PP, including monitoring activities and;
- Monitor and evaluate actions taken to adapt or modify the PP as needed.

This PP is guided by the principles outlined in the IFC publication "*Stakeholder Commitment: A Handbook of Best Practices for companies operating in emerging markets.*" The document states that the objective of a PP is to ensure the timely provision of relevant and understandable information, to create a process that offers opportunities for stakeholders to express their views and concerns, and to enable the Project to consider and respond to concerns of interested parties. In order to fully implement these recommendations, the proponent of the project must[1]:

- Provide relevant information in a format and language that is easily understandable and tailored to the needs of the target audience;
- Provide information in advance of consultation and decision-making activities;
- Spread the information of form and places that make it easy for the interested parties to access it;
- Respect local traditions, languages, deadlines and decision-making processes;

[1] IFC (2007) Investment Commitment: A Handbook of Best Practices for companies operating in emerging markets

- The use of two channels of dialogue that gives both parties the opportunity to exchange opinions and information, to listen, and to have their complaints heard and addressed;
- Consider the inclusion of different viewpoints, including women, vulnerable groups, and / or minority groups;
- Avoid procedures of intimidation or coercion;
- Provide clear mechanisms to respond to people's concerns, suggestions and complaints; and
- Incorporate feedback into the design of the public or project participation program, while keeping stakeholders informed.

7.2.3 *Public Query and Disclosure*

This section describes plans for stakeholder participation in the future.

The identification of stakeholders is done at the beginning of the Project and is continuously reviewed throughout the project's life cycle. Effective participation also requires sharing of information with stakeholders, facilitating a well-informed consultation process and the contribution of interested citizens to the design and planning of the Project. Therefore, the Project will continue with its process of participation in its life cycle through:

- Exchange of relevant and important information of the company and the Project with the interested parties, including the affected communities;
- Consultation with stakeholders to discuss Project plans and activities including the potential impacts and opportunities associated with them, in a two-way process that allows the incorporation of feedback from stakeholders in the design and planning of the Project; and
- Dissemination of plans, activities and conclusions of the Project with stakeholders to ensure that feedback has been effectively understood and incorporated and to maintain transparency in the participation process.

The Project will include the following considerations for participation activities:

- **Programming:** All forms of participation will be carried out in a timely manner. Invitations to meetings will be in advance of participation activities (invitations will be received at least 1 week before the event), to ensure that stakeholders have the opportunity to participate without interruption in their personal schedules. The scheduling of the participation meetings will be planned taking into account the restrictions of the interested parties and the local holidays, among others. This programming shall be carried out in consultation with the interested parties to ensure their adequacy;
- **Place**: All the participation activities will be carried out in places of easy access, and where the attendants can arrive without greater difficulty, cost or time of travel. Such sites should also be free of political or other associations so that stakeholders can feel free to participate openly in discussions;
- **Transport:** When necessary, and according to circumstances and conditions, the Project will provide transportation to local communities for participation activities;
- **Cultural Adaptation:** All forms of stakeholder participation in the activities will be designed to meet the needs of stakeholders, in order to ensure that everyone has the opportunity to participate in a free and informed manner. In some areas, gender segregation, use of local media (such as religious groups, community organizations, etc.) or specific formats for meetings (such as small discussion groups or community meetings);
- **Language:** In all cases, activities will be conducted in Spanish using simple terminology (non-technical and concise) and effective communication tools (including verbal, image-based or other forms of written format). This ensures that all participants have the opportunity to understand Project information and actively participate in discussions; y
- **Recording and Feedback:** All group participation activities will be recorded on video, with the consent of the participants. This will ensure the transparency of the consultation processes and allow verification of the process's strength.

Recognizing that each stakeholder has different interests and concerns, the Project plans to collaborate with each group in the most appropriate way. Table 7.2-1 establishes a framework for the participation of interested groups and persons, including their identification, methods of participation, information to be shared, responsibilities and the phase of the Project in which these activities are to be carried out.

Table 7.2-1 Stakeholder Work Planning

Stakeholders	*Methods*	*Information to Share*	*Project Phase*
Competent Governmental Organizations	- Presentation of the Regulatory and published Documentation; - Presentation of status reports; - Key stakeholder interviews and meetings; - Regular updates, as needed and required; - Invitations to public and community meetings.	- Possible environmental and social impacts; - Mitigation & Management Plans; - Reports on monitoring activities; - Economic and employment opportunities associated with the Project; - Construction Plan, with status reports; - Community Investment Plan, with updates; - Complaint mechanism, with updates; - Code of Conduct and sanctions.	- Prior to construction and in each new phase of the Project (construction, operations and closure)
Stakeholders of Civil Society	- Distribution of Project information & updating of materials (eg brochures, non-technical reports, summaries, status reports, links to public regulatory documents); - Key stakeholder interviews and meetings		- Prior to construction and in each new phase of the Project (construction, operations and closure)

Stakeholders	*Methods*	*Information to Share*	*Project Phase*
Mass Media	- Distribution of Project information and updating of materials in the form of publishing; - Invitation to the public / community		- Prior to construction and in each new phase of the Project (construction, operations and closure)
Potentially Affected Communities	- Distribution of Project information and updating of materials (eg: Updates published on public sites through local media, brochures, non-technical reports, summaries, status reports, links to public regulation documents); - Community meetings to provide Project updates and answer questions / comments - Group discussions for affected groups		- Prior to construction and in each new phase of the Project (construction, operations and closure)
Employees and Contractors	- Recruitment & recruitment materials (eg, codes of conduct, workforce training); - Internal communication media of the company (such as company newspaper, bulletins, bulletin boards, trade union publications, etc.); - Communication directed at directly-involved labor.		- Prior to construction and in each new phase of the Project (construction, operations and closure)

7.2.3.1 *Documentation of Activities of the Participation Plan*

Interaction with stakeholders in the Project's area of influence will be documented systematically in a formal registry. This includes:

- A database and a physical file in which all written communications with stakeholders will be recorded;
- A book of complaints and a database in which all claims, complaints and questions of the communities are registered; as well as the answers that the Project gives to each one of them; and
- A visual record of all group meetings, as well as minutes collected at each stakeholder meeting.

7.2.3.2 *Formation*

All staff and contractors involved with the community will receive training in the plan. This training is summarized in the training program developed by the Project to complement this document.

7.2.4 ***Responsibilities***

The PP is managed by the Community Relations Office of the Project. They are in charge of implementing, coordinating and supervising social management plans, especially PP. This Community Relations Office reports directly to the Project Director.

The Project Social Supervisor will meet weekly with the contractor's social team to review reports, exchange ideas, and monitor the situation. In addition, it will also meet with the construction team, including the engineers in charge and the construction manager to gather information on the state of construction.

7.2.5 ***Main Performance Indicators***

The effectiveness of management measures has been described above and will be assessed through the following indicators of public participation:

- **PP1:** Annual public consultation events take place and stakeholders attend them;

- **PP2:** Distribution of relevant information on the Project biannually and online information resources are updated annually; and
- **PP3:** Internal quarterly reports and presentation of the same and the progress of the Project to the interested parties.

7.2.6 *Monitoring*

The PP will be monitored on a continuous basis and is designed to facilitate the integration of the lessons learned during its execution. In this way, the Project will be able to respond adequately to situations as soon as they are developed. The PP is considered a "dynamic document" and is designed to be updated and continuously improved.

The objectives of the monitoring program are:

- Verify implementation of specific actions of the PP;
- Continuously evaluate the effectiveness of PP strategies and resolutions, complaint mechanism and adjust, if necessary; and
- Monitor events, incidents and other pertinent information closely to ensure proper and timely management of them.

7.2.7 *Reporting*

To facilitate the satisfaction of the commitments established in this PP, the Project will present a report to the interested parties on the results of the consultations and justify the decisions and actions taken. Oral reports will be delivered to the community on an informal basis. The formal progress reports will be presented to the communities during group consultation and public information events.

7.2.8 *Commitments*

The actions and commitments required for the implementation of the PP are described in Table 7.2-2 below.

Table 7.2-2 Participation Plan Commitments

Potential Impacts / Number	*Mitigation Measures*	*Objective*	*Responsibility*	*Program*	*Resources*	*Monitoring*	*Report*
Consultation with affected parties.	The Project will conduct public consultations at least quarterly with the communities in the direct area of influence.	Maintain open communication and dialogue with stakeholders.	Social Supervisor	On the go	Social Supervisor and all necessary local support staff.	Number of meetings held and attendees.	Quarterly
Provision of information to the public.	The Project will provide information to the public through the office in Acajutla and in Sonzacate will provide information to the owners of the land. This will be done through information leaflets to communities and to relevant government offices, and through local media as necessary.	To keep the general public and the communities in the Project area informed of the progress of the Project.	Social Supervisor	On the go	Social Supervisor and all necessary local support staff.	Number of publications on the Project and their timely distribution.	Quarterly

7.3 *COMPLAINT MECHANISM*

The Complaints Mechanism (CM) is an instrument to ensure transparency and commitment between the Project and the local population. The Project has begun its implementation and in October 2016 it is estimated that it will be fully operational.

7.3.1 *Background*

Currently, the CM is operating informally, without a clear procedure of reception and treatment of the comments of the communities. This is due to the fact that socialization activities have only just begun. However, during the different information activities carried out by the Project, as well as in the workshops held with the communities, there has been a space for expressing the questions and concerns (and complaints) of the communities.

The Project recognizes that unintended impacts can occur and that maintaining an open line of communication with the communities and / or potential affected by the Project is important to maintain a transparent and cordial relationship.

7.3.2 *Objectives*

The purpose of the CM is to provide the population with an accessible and effective process to present claims, complaints and / or concerns that may arise about the activities of the Project. The Project recognizes that a CM has to be responsible and fair. Verbal and written complaints related to communities will be the responsibility of the Community Relations Office in collaboration with the Project Manager in the field and contractors. Verbal and written complaints related to the work of Project staff will be handled by the Department of Human Resources (HR) in collaboration with staff designated by contractors during the construction phase. The Project will take the necessary measures to deal with and respond to all complaints within 30 days of receipt. This process will be faster for specific emergencies.

This section establishes the plans and procedures for the CM to meet the following specific objectives:

- **Proportional:** The CM will take into account proportionally the level of risk and the possible negative impacts in the affected areas.
- **Culturally appropriate:** The CM is designed to take into account the local customs of the area.
- **Accessible:** The CM is designed in a clear and simple way so that it is understandable for all people. There will be no related costs.
- **Anonymous:** The complainant can remain anonymous, as long as it does not interfere with the possible solution to the complaint or problem. Anonymity differs from confidentiality in that it is an anonymous complaint; the personal data (name, address) of the complainant are not recorded.
- **Confidential:** The Project will respect the confidentiality of the complaint. The information and details about a confidential report are shared only internally, and only when it is necessary to inform or coordinate with the authorities.
- **Transparent:** The CM process and functioning is transparent, predictable, and readily available for use by the population. The complaints will be announced on the bulletin board of the Office of Social Management.

7.3.3 *Complaint Management*

The CM is aligned with the other procedures of the plan and has been designed to fit the different policies and standards of the Project. Therefore, all Project staff should be familiar with the CM. The following describes the process for filing, categorizing, and processing complaints. It also specifies training needs.

7.3.3.1 Complaint Procedure

The Project will have an efficient tool for collecting, tracking and reporting complaints. The process will be documented through a complaint log (in a physical file and in a database). The procedure begins with the presentation of the complaint (oral or written) by the complainant. The process ends with closure and compliance in the resolution of both parties (the plaintiff and the Project). The whole procedure is illustrated and described more specifically:

Receive and Record Complaints

Complaints may be submitted orally or writing; the complainant will preferably be directed to the Community Relations Office in Acajutla (Colonia Rasa # 1, Calle Circunvalación Casa # 44, Acajutla-Sonsonate). All complaints filed will be documented by the project social team, which will keep records in this office. For the receipt of complaints, a format will be provided to the complainant, as shown in Figure 7.3-1. In the event that the complainant prefers to use another format, it will be used and then the staff of the Social Management office will transcribe it to this format, attaching the original of the complaint filed.

An email address has also been established to receive all types of complaints and suggestions derived from the management and execution of the Project (quejas@energiadelpacifico.com; quejas@edp.com.sv) which can be accessed through the website of EDP Project: http://energiadelpacifico.com/html/contacto.html; and a mobile telephone line will be enabled, so that it communicates directly with the Social Manager. It is intended that the community can make their complaints even after working hours and during weekends. If the call has not been taken by the Social Manager, the client or interested party can leave a message in the voice mail. Messages in voice mail will be reviewed and processed within no more than 24 hours. It is necessary for the client to provide information about the time and date of the call, his name, place of residence and origin of the complaint.

In the written format, the complainant must identify himself, the person who receives the complaint will check if it has been presented directly by the affected party or on behalf of the affected party with their knowledge and consent. In the event that the complainant requires assistance in writing the complaint, Project staff will assist them (due to the illiteracy rate). If this is the case, once the complaint is written, the Project staff will read it aloud to the complainant in the presence of a witness.

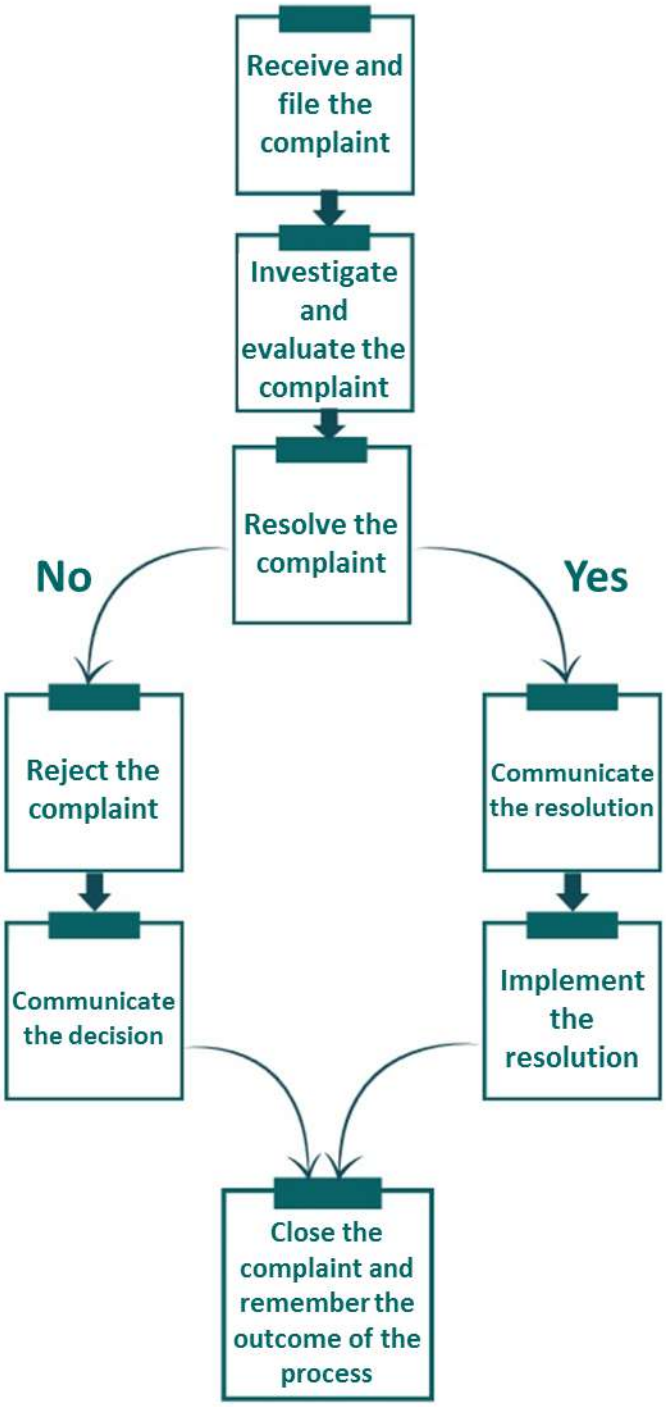

Figure 7.3-1 Complaints Mechanism Flowchart

Within a period not exceeding seven working days, the Project will have to evaluate the documentation submitted by the applicant. Where possible, if additional information is required for the correct evaluation of the complaint, the Project will contact the complainant within a maximum period of ten working days to obtain the necessary information. Once the complaint is completed and revised, Project staff proceeds to record and assign a code to each complaint.

The file must include, together with the complaint, a summary of the same made by the Project and the name of the person who received it and processed it. The registration information will be periodically updated to reflect the current status of the case until the complaint is finally settled.

Examine and Evaluate

In the Community Relations office, complaints are evaluated and transmitted to all those involved in the event. The complaints will be by the Project in four categories:

INADMISSIBLE: Complaints or claims that do not meet one or more of these requirements:

1. Not directly related to the Project, its contractors or subcontractors.
2. Its nature exceeds the scope of the present CM.
3. There is no real cause of action.
4. There are other formal mechanisms and institutions for filing the complaint.
5. Related to labor issues should be directed to the CM of the construction company.

LOW IMPORTANCE: This category corresponds to complaints that do not require resolution, but only require information or clarification to be provided to the complainant. This category includes complaints that have been previously evaluated and received a definitive response from the Project.

MEDIUM IMPORTANCE: Complaints and claims related to health, the environment, construction, transportation, and contractors and subcontractors.

HIGH IMPORTANCE: It includes complaints related to the safety of Project personnel, as well as those related to the health and safety of the persons involved.

The complainant will have to coordinate with the appropriate staff to assess the complaint urgently and determine the course of action to follow. The evaluation of the complaint in these cases can not exceed more than two days from receipt. In the event that additional information is necessary for its adequate evaluation, the Project will contact in a maximum period of five working days to obtain the necessary information.

The Project will inform the complainant and / or his representative in writing that the information requested must be delivered to the Social Management Office in Acajutla within a period of no more than 15 working days from the date of receipt of the communication.

If the complainant does not deliver the requested information within the deadline, it will be informed in writing to those involved that the deadline has not been fulfilled. That does not mean that the complaint is rejected, but only that it has not been able to be evaluated due to lack of documentation. In this case, the complainant may re-file the same complaint; however, it will be treated as a new one and must follow its normal course.

Special Procedure for Highly Important Complaints

- The complaint will enter into an accelerated process of investigation and resolution by the Project Manager and the person in charge of Social Management. If necessary, senior officials will be involved, depending on the severity of the complaint. In the case of complaints relating to allegations of illegal or abusive acts, the Project will immediately initiate the investigation and coordinate with local authorities to deal adequately with the matter.
- Social team staff (two people) will meet with the complainant to gather additional information when necessary. Subsequently, the complaint will be investigated (i.e., meet with members of the security team involved in the complaint when necessary) and develop and implement corrective actions in collaboration with the Safety Manager and the Project Manager.
- If the staff of the social team is men and the author prefers to talk to a woman, the Project will facilitate that work. If additional investigations are deemed necessary, they will be carried out rapidly.

If the complaint does not proceed, then the following will occur:

- **Dismiss the Complaint:** The dismissal will occur if the complaint does not meet the above admission requirements. If the complaint is dismissed, the complainant is informed of this decision and the reasons for rejection. The complainant will have the option to challenge the decision of the Project. To do so, the claimant will have three business days from the date of his notification, indicating the registration code of the application, in order to appeal the response of the Project. Or,
- **Complement, As Corresponds**: Plaintiffs often provide incomplete information. Therefore, where possible, additional information will be required in accordance with the deadlines defined above. Direct contact with the complainant is recommended in all cases to maintain an open channel of dialogue.

If the demand proceeds, then:

- **Define the Approach:** The responsible person must assess and determine the origin of the complaint and define the measures to be taken in response. If necessary, a visit will be made to the area that causes the request (e.g. to a specific community, or area affected by the Project). This will be done jointly with the complainant. The purpose of this visit will be to verify and investigate the situation indicated by the applicant to obtain a technical opinion, to collect information or results, and details on the arguments of the complainant.

On a case-by-case basis, the Project will define the approach to be taken, if:

- The project proposes a solution.
- The plaintiff and the Project develop a solution together.
- The Project uses more traditional and culturally context-friendly practices (eg, consultation with community leaders) to resolve the complaint.

After the response to the complaint has been written, the Community Relations Office will prepare a report justifying the proposed solution or the reasons for rejection. This report will be sent to the Project Manager for evaluation. In total, there will be 14 days to formally notify the complainant.

Communicate Decision

- **Anonymous Claimant:** In the case of anonymous complaints, these will be posted on the bulletin board of the Community Relations Office, together with the Project response; indicating the solution or the updated status of the procedure. This publication will be produced for a period of 30 days from the registration of the complaint.

- **Identified Plaintiff:** When a claim is found to be acceptable, the claimant must be informed of:

    - Category of the classification assigned to the demand;
    - The code register assigned to the demand to allow its tracking;
    - In case the complaint is classified as "Low Importance" and the Project has already responded to the complaint, this will be communicated showing evidence of its satisfactory resolution; and
    - The possible dates for a meeting, with the aim of clarifying or seeking the consensus of the parties involved.

- **Refuse Decision:** In the case that the plaintiff intends to appeal the decision of the Project, the Project may consider the participation of a third party to resolve the dispute.

Figure 7.3-2 shows the format that will be used for the receipt of complaints in the office.

OFFICE OF COMMUNITY RELATIONS ENERGÍA DEL PACÍFICO - ACAJUTLA **COMPLAINT FORM** **COMPLAINT Nº** **PERSONAL INFORMATION**			
*Last Names:		*Address:	
*Names:		*Phone:	
Gender:		Address:	
Age:		Activity dedicated to:	
* It's not mandatory			
REASON FOR COMPLAINT			
Detail: *(indicate when the facts of the complaint occurred, personnel involved, evidence and any other relevant information).*			
Ask for an answer			
Attached and / or delivered documents Attach information: YES □ NO□ Indicate which and attach.			
Signature:			
Responsible:			
We appreciate your feedback; keep a copy for your follow up. Thank you.			

Figure 7.3-2 Complaint Form

7.3.3.2 Execution Approach

Once a complaint is considered valid, the Project will contact to initiate the dialogue:

- If the complaint is admitted, the person responsible for the project will try to reach an agreement directly with the complainant. If an agreement is reached, it will be reviewed by the Legal Department of the Project.
- If agreement cannot be reached, the report should include the reasons for the complainant and the complainant's arguments as well as possible alternative solutions.
- If the complaint is not accepted by the Project, the report should describe the arguments and reasons for determining that the complaint is invalid.

In the case that an agreement is not reached through the CM, the complainant could initiate legal action against the project or a request for arbitration to resolve the dispute. If the agreement is reached, the arguments and conditions under which it is signed will be sent to the legal department of the Project for implementation. Once there is a settlement / complaint solution, either through mutual friendly settlement or through judicial or arbitration, the case will be considered closed only if there is a document that demonstrates satisfaction of the claimant and the project.

7.3.3.3 Follow-up and Documentation

In the event that the Project and the applicant reach an agreement at any stage of the process, the Community Relations Supervisor or Project Director is responsible for preparing a report on the terms of the agreement, which will be sent to the legal department of the Project.

The Community Relations Office is responsible for maintaining an up-to-date database of all documentation and information related to complaints. It is also responsible for following up on the process of handling complaints, in coordination with the areas involved, and facilitating the complainant's participation in the process. A follow-up form will be completed for each case. Once an agreement is reached, the Social Manager is responsible for monitoring to confirm that the corresponding resolution measures are being implemented.

The complaint log shows that all these actions and processes are carried out. In it will be collected:

- Date the complaint was filed;
- Person responsible for the complaint;
- Information on remedial measures proposed / communicated by the complainant (if applicable);
- Date the complaint was closed; and
- Date of the response was sent to the complainant.

7.3.3.4 Deadlines

All complaints must be resolved within 30 days.

7.3.3.5 Formation

All Project staff and contractors will be trained in the procedures of the complaints mechanism. This training will be summarized in the training program of the Project.

7.3.4 *Responsibilities*

The responsibility for this procedure rests with the Project Director. The chain of responsibilities is illustrated in Figure 7.3-1.

The names and contact details of the person responsible for receiving the complaints will be communicated to the general population. The Social Managers will determine, on a case-by-case basis, who and in what area they will investigate and respond (internally) to the complaint.

The contractor shall coordinate with the Project staff to respond to complaints or claims relating to workers in a manner that is satisfactory to all parties. The contractor and the Department of Human Relations will receive workers' complaints.

7.3.5 *Main Performance Indicators*

The effectiveness of the Complaint Management Plan will be assessed through the following complaints mechanism indicators:

- **CM 1:** All complaints received are resolved within 30 days (and more quickly in urgent cases) and there is evidence to demonstrate changes in the project activities that motivated the complaint;

- **CM 2:** High level of satisfaction (more than 85 percent of informers interviewed are satisfied with the outcome of their complaint); and
- **CM 3:** Complaints received and identified as legitimate have resulted in disciplinary action, or a change in Project policies or procedures.

7.3.6 *Monitoring*

In order to meet the objectives of the CM, the Project will inform the communities of its existence in the public participation activities that it carries out. A quarterly report of complaints will be made during the construction phase. The information to be presented will include the number of complaints, the nature of the complaints and their resolution status (in process, pending, resolved or closed).

7.3.7 *Reporting*

In order to comply with the commitments established in the CM, the Project will report annually on the results of its complaints management. It will detail all incidents and issues relating to community concerns, workers' welfare, workers' rights and their safety at work. Additionally, the corrective measures adopted and the Project responses to any complaints.

7.3.8 *Commitments*

The plan commits itself to consider the following factors as transcendental for its execution:

- Security
- Environment
- Community
- Quality of Work

It is vital that members of the community have clear and simple information, so it will always keep information materials of the company and the plan.

Actions and commitments for the effective implementation of the CM are summarized in Table 7.3-1 below.

Table 7.3-1 Commitments of the Complaint Mechanism

Potential Impacts / Number	*Mitigation Measures*	*Objective*	*Responsibility*	*Program*	*Resources*	*Monitoring*	*Report*
Complaints from interested parties	The Project will respond to all complaints in a timely manner (maximum 30 days, faster for high priority complaints). All reasonable efforts will be made to resolve the complaint in such a way that the complainant is satisfied. Whenever possible, changes will be made to corporate policies and codes of conduct to prevent future incidents.	Maintain productive relationships with stakeholders.	Project Director and Community Relations Supervisor	Complaints resolved in 30 days.	Social Manager and all the necessary local support staff.	The Project will keep a record of complaints and track the number of new and closed complaints.	The Social Manager will prepare weekly reports during construction, providing key performance indicators in monthly reports.
Complaints of workers	The Project will work with subcontractors to respond to all worker complaints on time (maximum 30 days). All reasonable efforts will be made to resolve workers' complaints fairly, while continuing to be the budget and schedule.	Respect the rights of workers and maintain good working relationships.	Project Director and Community Relations Supervisor	Complaints resolved in 30 days.	Social Manager and all the necessary local support staff.	The Project will keep a record of complaints and track the number of new and closed complaints.	The Social Manager will prepare weekly reports during construction, providing key performance indicators in monthly reports.

7.4 *COMMUNITY HEALTH AND SAFETY*

The Project could generate a series of impacts on the health and safety of nearby communities. Recognizing that some of these impacts may be negative and should be mitigated, the Project has developed this Community Health and Safety Plan (CHSP) to control and manage impacts on communities.

This CHSP contains guidelines for all personnel employed by the Project and / or its contractors. This section focuses on potential impacts derived from:

- The increase in traffic during the construction phase;
- The use of security forces during the construction phase;
- The behavior of workers; and
- Prevent access to the Project site.

7.4.1 *Background*

Impacts to community safety and health may vary in the different phases of the Project (eg, construction and operation). Most impacts are expected to occur during the construction phase. The construction will last approximately 24 months. During this period, a significant increase in traffic in the area is expected. In addition, there will be an increase in noise and presence of security personnel to protect the construction area. All labor necessary for the construction will be of local character, with the exception of the engineering personnel leading the Project; so there will be no employee camps. In general, at this stage, approximately 200 people will work at peak workloads. The workers must be qualified in techniques of civil construction, erection of towers, wiring, etc. Most of the jobs will be direct, within which there will be qualified personnel, such as engineers, middle technicians, masters of works and positions distributed between construction workers and helpers. The indirect jobs to be generated are 30 places, which will correspond to subcontracts and other services related to the construction, such as transport of materials, sale of meals, water supply, among others.

The labor required during operations is mainly composed of: (i) the person responsible for the maintenance of the equipment and its associated infrastructure (including fences, etc.); (Ii) technicians responsible for monitoring the status of the line and (iii) management personnel.

The purpose of the CHSP is to provide guidance on hiring and training Project staff as well as describing the rules of conduct of workers.

7.4.2 *Objectives*

The CHSP is designed to protect the health, safety and rights of stakeholders and communities in the Project area. Specifically, it intends to:

- Minimize the risks related to the traffic generated by the Project;
- Minimize adverse impacts resulting from the presence of the Project and its staff on local communities and their natural and cultural resources;
- Take all appropriate measures to ensure that the local population is not injured in the construction area of the Project; and
- Maintain positive relationships with communities.

These objectives are expected to be achieved not only through strict implementation of the CHSP and behavioral guidelines, but also through the active commitment of the Project and its staff to maintaining cordial relationships with communities. Therefore, the CHSP will be applied throughout the project life cycle, both during working hours and in off-hours.

The CHSP will be applied in coordination with the CM to receive and resolve community complaints, including those related to employee behavior. In addition, the public consultation will take place on a constant basis with the aim of strengthening communication and open dialogue with nearby communities.

7.5 *TRAFFIC MANAGEMENT*

Increased traffic during construction will potentially impact local communities and create an inherent risk of accidents. The Project recognizes the need to anticipate these risks and impacts in order to establish mitigation measures.

In general, most of the towers have access roads, ballast streets or dirt roads. Some towers do not have existing access; such access shall be adequate, through the surrounding land, for the construction stage. In addition, during the construction phase, some accesses should be improved or extended for the circulation of the trucks. It is estimated that

the traffic flow will be about 10 trucks per day per sector and / or tower. During the maintenance stage, it will be 1 truck per month or 2 months. Figure 7.5-1 indicating the main accesses to the Project and its construction areas

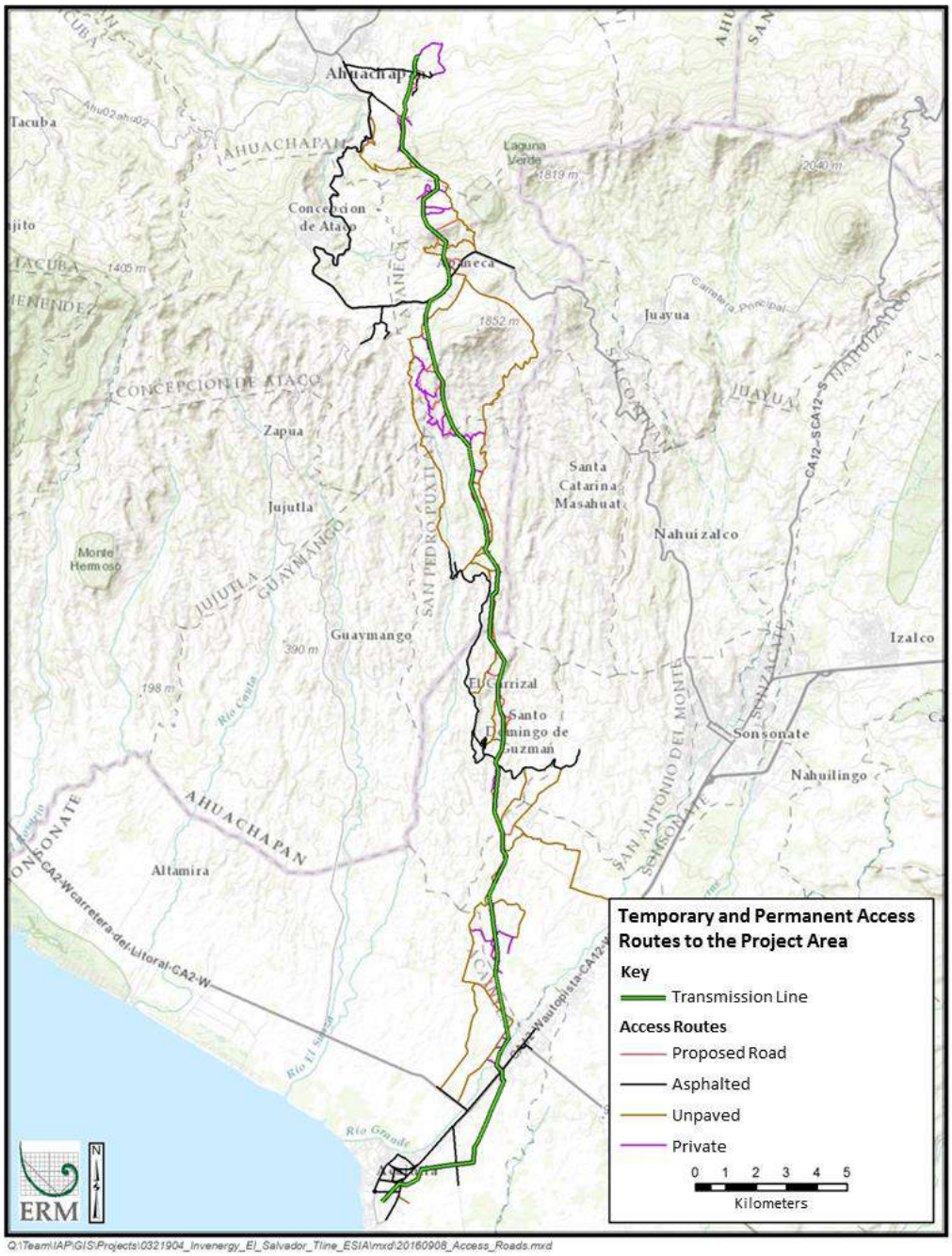

Figure 7.5-1 Temporary and Permanent Access Routes to the Project Area

To increase the security of surrounding communities, the Project is committed to improving signaling and traffic in the area where new access will be built. However, on the paved roads cannot be made repairs or direct signs by the Project as it is the responsibility of the government. In order to increase the security of surrounding communities, the Project has committed to improving signaling and traffic flow during the construction phase, including: areas where new accesses will be opened.

In addition, the risks will be mitigated by enforcing speed limits (25 km / h or strictly enforced in a specific section) and publicizing increased traffic in the area through a public information campaign. All Project staff and Project vehicles (including the contractor, subcontractor and vehicles) will give the right of passage to all local people (eg, residents of communities who are moving on foot). Project employees as well as subcontractors will be responsible for traffic of their vehicles and will have to comply with the measures proposed in this CHSP.

7.5.1 *Formation*

All personnel and Project contractors involved in driving will undergo a Smith System training course. Drivers will be ensured that they have the Smith System Certificate and if they do not have it, they will take the course. Contractor or EPC security plans also apply. This training is summarized in the training program developed by the Project to complement the CHSP.

7.5.2 *Security Management*

The main objective of hiring security personnel is to ensure the safety of the personnel of the Project and its facilities. During the period of operations, security personnel will not be used. During construction, security personnel will be employed to protect the construction area and avoid possible incidents or injuries involving persons and / or children from nearby communities.

The Project recognizes that interactions between security personnel and the local community have the potential to result in conflict. To manage this risk, the Project will have these personnel adhere to the Code of Conduct of the Project in addition to establishing certain mitigation measures. It is required that the project's security personnel not only contribute to the safety of workers and facilities, but also to the

idiosyncrasies of the local population. Therefore, compliance with this CHSP is also mandatory for all security personnel.

Those responsible for security measures will assess potential risks both inside and outside the building area. This staff will be guided in its responses and actions by the principle of proportionality and equity. The code of conduct, training requirements and restrictions on the use of force shall be enforced at all times. The Project will verify that security personnel do not have a history of abuse or violence in the past. This will be done by requesting a police record.

7.5.2.1 Complaints and Security Personnel

Complaints regarding security personnel will be investigated immediately and automatically. These will be classified as "high" (or "urgent") priority. As such, these complaints will enter into an accelerated process of investigation and resolution.

The Community Relations team will meet with the complainant to gather additional information if necessary. Subsequently, the complaint will be investigated and will develop and implement corrective actions. If the members of the social management team are men and the complainant prefers to talk to a woman, the Project will take it into consideration. In the case of complaints related to events and reports of illegal or abusive acts, the Project will initiate its investigation immediately and will contact the local authorities to deal adequately with the matter.

In case the complaint is verified as true, the Project will respond in proportion to the seriousness of the infraction. For minor offenses, the Project will issue a formal rebuke for a first offense, and will respond with a dismissal in the event of a second offense. Serious infringements will result in immediate dismissal. The Project undertakes to cooperate fully with local authorities if legal measures are necessary.

7.5.2.2 Standards of Conduct for Security Personnel

All security personnel must comply at all times with the company's behavior guidelines. It will always be taken into account that:

- Communities and individuals in the Project area will be treated with respect and dignity at all times; and

- Excessive use of force will not be tolerated.

7.5.2.3 Formation

Both safety personnel and field personnel must at least take a course of Occupational Safety and Health Administration (OSHA) as well as training on Project Safety and Respect for Human Rights. Construction personnel will also receive an OSHA (Occupational Safety and Health Administration) which include information about:

- The Project's CHSP objectives and the role they play as security personnel in building and maintaining positive relationships with communities;
- The Code of Conduct, including the behavioral standards and corrective actions required of all Project employees, contractors and subcontractors;
- Information on the International Financial Corporation's Performance Standards and the Equator Principles, with emphasis on respect for the surrounding communities; y
- CM procedures and the handling of complaints. Project personnel, including safety.

7.5.2.4 Equipment

Excessive use of force and / or unjustified bullying is strictly prohibited (for example, intimidation by showing or aiming a weapon in a threatening manner in a non-emergency situation). Complaints received in this regard will be diligently investigated and necessary corrective actions will be taken (including dismissal if deemed justified).

7.5.3 ***Management of Workers***

One of the factors that could represent a negative impact on the population is the presence of a large group of workers during the construction phase of the Project. This includes Project employees as well as contractors and subcontractors.

These impacts could include:

- Social or cultural conflicts between the local population and the Project staff (ie between the local population and migrant workers);
- An increase in the crime rate, alcohol and / or drug abuse and prostitution; and
- Transmission of infectious diseases.

7.5.3.1 Code of Conduct

The code of conduct is designed to promote productive and respectful relationships between Project workers and nearby communities.

7.5.3.2 Formation

All Project employees and their contractors will undergo a training course that will include:

- The Project's CHSP objectives and the role they play as security personnel in building and maintaining positive relationships with communities;
- The Code of Conduct, including the behavioral standards and corrective actions required of all Project employees, contractors and subcontractors;
- Information on the International Financial Corporation's Performance Standards and the Equator Principles, with emphasis on respect for the surrounding communities; y
- CM procedures and treatment of complaints. Project personnel, including safety; and
- Procedures in case of fortuitous archaeological finds.

7.5.4 ***Access to the Construction Area***

Access to the construction area will be limited. It will prevent the local population from accessing. For this, fences and security personnel will be installed during construction, minimizing the chances that the local population (especially children) will be injured. For this purpose, specific

project safety manuals will be applied to analysis of occupational, safety and specific risks such as work in confined areas or work at heights.

7.5.5 *Responsibilities*

As mentioned throughout this document, the Project is interested in maintaining good relations with local communities during all phases of the Project. To do so, it assumes responsibility for compliance with what is described in this CHSP. The ultimate manager of this plan is the Project Manager. This involves ensuring that all contractors and their employees comply with all measures described in the CHSP.

7.5.6 *Indicators*

- Number of accidents as a result of the Project;
- Number of "almost accidents" resulting from Project activities; and
- Incidence of injuries, illness or damage to property in local communities resulting from Project activities.

7.5.7 *Monitoring*

This CHSP monitoring plan is one more component of the EMP. It will integrate the lessons learned during the implementation of the CHSP. Therefore, this plan is not a final document, but a document in process, designed to be updated throughout the life of the Project.

The objectives of the monitoring program are as follows:

- Verification of the implementation of specific actions for the timely fulfillment of what is described in the CHSP;
- Continuous evaluation of the effectiveness of CHSP strategies and their adjustment as needed;
- Monitoring and reporting of incidents and other pertinent information to the Project Manager; and
- Verify that the road conditions are adequate for the execution of the Project and that these conditions are maintained or improved throughout the project life cycle.

7.5.8 *Reporting*

From the beginning of the construction phase until the end of the first year of operations of the transmission line, the Health and Safety Officer will submit monthly reports to the Project Director. In the case that there are

no incidents or significant problems after the first year of operation, these reports shall be submitted every three months. Those responsible for the CHSP, together with the Project Health and Safety Officer, will present the reports to the stakeholders. These meetings will be part of those planned for the public participation process (*see the Public Participation Plan, Section 7.2 of the Social Management Plan*).

The monitoring of the CHSP should continue throughout the life of the Project, starting with the beginning of construction until the end of the closure phase.

7.5.9 *Commitments*

Table 7.5.1 presents the actions and commitments assumed by the Project in relation to the implementation of the CHSP.

Table 7.5-1 Health and Safety Commitments

Potential Impacts	*Mitigation Measures*	*Objective*	*Responsibility*	*Resources*	*Monitoring*	*Reports*
Community Health	The Project, its workers and contractors adhere to the behavioral guidelines described in this management plan to minimize the increase in public health problems, including alcoholism, sexually transmitted diseases, etc. The Project will hire as much as possible a part of its workforce in the area.	Maintain or improve the health of nearby communities.	Project Manager. Responsible for Health and Safety of Subcontractors.	Social Managers and all the necessary local support staff.	Biannual	Social Management Team will prepare weekly reports during construction; provide key performance indicators in monthly reports.

Potential Impacts	*Mitigation Measures*	*Objective*	*Responsibility*	*Resources*	*Monitoring*	*Reports*
Community Security	The Project prevents access to the site through the use of fences and security guards. The Unpaved Road Improvement Project and associated infrastructure to minimize the risks of increased traffic during construction. Workers will be required to comply with the behavior guidelines described in this Plan to minimize their impacts on nearby communities.	Maintain project security, as well as avoid impacts on community Access	Project Manager. Responsible for Health and Safety of Subcontractors.	Social Managers and all the necessary local support staff.	Monthly during construction	Social Management Team will prepare weekly reports during construction; provide key performance indicators in monthly reports.

Potential Impacts	*Mitigation Measures*	*Objective*	*Responsibility*	*Resources*	*Monitoring*	*Reports*
Community Security	Workers and security contractors, in particular, will be required to comply with the behavior guidelines described in this Plan to minimize their impacts on nearby communities. Security forces will be recruited from registered security companies and staff will receive training on international standards for the protection of Human Rights.	Respect the rights and maintain the safety of people in nearby communities.	Subcontractors	Training to be developed by the Social Management team.	Monthly during construction	Social Management Team will prepare weekly reports during construction; provide key performance indicators in monthly reports. Training on standards of conduct before beginning work on the ground.

7.6 *IMPACTS ON CULTURAL HERITAGE*

For the construction of the proposed Project will require movement of land in the TL path, in the area where the towers, substations and access roads to the Project will be installed. This will represent a potential risk of impacting archaeological resources. According to the design, for each tower it is necessary to install foundations to six meters depth within an area of approximately 100 m2 (10 m x 10 m). After their construction, the towers will enjoy a regime of restricted access, under the control of EDP.

Even after having conducted a surface survey along the entire trace, complemented by cabinet studies and a paleontological survey, there is likelihood that cultural traces will be discovered during the excavation process. In the case of finding archaeological and / or cultural resources during the development of the Project, the necessary measures will be taken to minimize the impact on them. SECULTURA will be contacted to determine the course to follow in order to preserve and protect the resource. For this reason, this impact is classified as: insignificant to moderate, direct, localized, of low intensity, of permanent duration, irreversible, mitigable and of possible occurrence.

The restriction of access to the right of way of the Project will minimize the potential for looting of cultural heritage resources, facilitating routine follow-up and monitoring of sites reported during pre-survey, phase II and construction. Therefore, this impact is considered positive, indirect, generalized, of relative duration to the useful life of the project, reversible and of probable occurrence.

8.0 FORTUITOUS FINDINGS PLAN

The purpose of the Fortuitous Findings Plan is to prevent, mitigate and compensate for the deterioration that the construction of the Project may cause to the archaeological heritage. In addition, it seeks to ensure that fortuitous findings (from the Prehispanic, Colonial or Republican periods) can be properly cataloged and rescued during the construction and operation stage.

8.1 *ARCHAEOLOGICAL MONITORING*

Archaeological monitoring will verify compliance with the protection measures at identified archaeological sites, which could be affected during the construction of the project, according to the regulations established by SECULTURA.

The monitoring will also verify compliance with the documentation procedures associated with these measures. Archaeological monitoring activities shall be the responsibility of the archaeologist(s) designated by EDP Project Management or by the contractor. The archaeologist(s) will work under the direct supervision of the environmental supervisor, with the direction of the environmental manager. The archaeologist(s) will submit a quarterly report to the Management detailing:

- Status of the delimitation and signaling of the archaeological sites identified during the construction stage.
- Compliance with the rescue tasks at each of these sites.
- Compliance with the obtaining of certificates of non-existence of archaeological remains or equivalent, granted by the competent entity.
- Compliance with the procedures to be followed, before archaeological findings (photographic record, laboratory results, documented evidence, etc.)
- Compliance with digging and rescue reporting, inventory of recovered artifacts, etc.

The following is a detail of the monitoring activities that EDP must carry out during the different activities of the Project.

8.1.1 *Rehabilitation of Existing Access Roads*

The construction of foundations and access routes can result in archaeological finds. The monitoring will consist of the verification of compliance with the measures contemplated:

- Site delimitation, site rescue supervision, documentation of communications with the competent entity, preparation of photographic registration, conducting laboratory tests (if any), reporting, etc.

The first step for the opening is the cutting and clearing of vegetation, and cleaning of the right of way. The latter consists of the removal of archaeological remains (in case of being) proceeding with the rescue of the site. The monitoring will proceed in the same way as in the construction of the new access roads and service routes.

It is recommended that the presence of the specialist be prioritized during excavations close to the findings documented in the baseline. The rest of the time may depend on personnel previously trained to properly monitor the excavations. However, the contractor in charge of construction must have enough monitors to respond to calls from multiple construction fronts, or an individual previously trained to identify cultural vestiges and with the ability to move between different simultaneous fronts. Such an individual shall have the responsibility and authority to stop work if a potential fortuitous finding is identified.

8.1.2 *Monitoring Reports*

The Manager should prepare periodic compliance reports and, in addition, extraordinary reports when an unforeseen event occurs. The frequency of reporting will depend on the stage of the project, according to the following:

- Construction Stage - Quarterly Reports
- First year of operation - Semester Reports
- From the second year of operation - Annual Reports

These reports shall be sent to the Project Holder and to the Project Manager, according to the stage of the project, within five working days, as of the month in which the report is made.

During the construction phase, quarterly reports will be sent to the MARN, while during the operational phase, semi-annual reports will be sent during the first year and annual reports in the subsequent years. These reports will include all the information collected regarding the

execution of the activity and the results of the monitoring activities, with emphasis on the environmental management measures carried out, the achievements and the difficulties encountered. The reports will be made by an environmental consultant duly registered in the MARN.

It is recommended to develop and implement a training plan so that workers can cope with any fortuitous finding (artifacts, traits associated with human occupation, human remains, architecture and paleontological resources) in an adequate and consistent manner, including routine monitoring of constructive activities (With emphasis on any ground movement and underground incursion). If subsequent to the inspections and evaluations during the earth movements, archeological remains are to be proceeded according to what establishes the current law under the direction of the specialized personnel of SECULTURA.

8.2 *FORTUITOUS FINDINGS PROCEDURE*

This Plan identifies four scenarios of response to different categories of Fortuitous Findings. The characteristics that define each scenario must be homologated with SECULTURA. The response to Fortuitous Finding or Potential Fortuitous Finding first falls on the archeological monitor, that is, that person trained to identify cultural traces, who will establish the applicable stage level (I-IV). The procedures for solving a Fortuitous Find depend on the level of the scenario. The least significant incidental findings will be documented and collected in the field by the monitors. The consultation of significant incidental findings requires participation of SECULTURA and EDP.

Scenarios of fortuitous findings are:

Scenario I – Non-Archaeological / Cultural Finding. This scenario refers to a non-archaeological / non-cultural finding such as modern artefacts or architecture, or current wildlife remains. It is solved by the archaeological monitor(s).

Scenario II – Non-Significant Fortuitous Finding. This scenario refers to a fortuitous finding that the archaeological monitor determines as non-significant in the field. An example of this type of finding is a fragment or a small dispersion of ceramic fragments.

Scenario III – Potentially-Significant Fortuitous Finding. This scenario depends on the archaeological monitor determining that the Find is potentially significant. An example could be a deposit, ruins or dense concentration of fragments or complete ceramic pieces. The response to a

Scenario III requires that the work be stopped in the area while the contractor, EDP and the specialist consult with SECULTURA.

Scenario IV – Human remains and / or materials related to a burial. This scenario depends on the archaeological monitor determining that the Find contains human remains or material related to a burial. In case they are, the archaeological monitor will try to determine if they are human remains and if they are recent or archaeological. If they are modern human remains, the relevant authorities would be notified (Police / communal representatives) by the contractor or EDP. If it is human archaeological remains, the response requires stopping the work while the contractor, EDP and the specialist establish dialogue with SECULTURA.

8.3 *ANSWERS TO FORTUITOUS FINDINGS SCENARIOS*

It is very likely that most of the Fortuitous Findings will be categorized in the field as Scenario I or II. Each instance requires a brief cessation of operations while the archaeological monitor categorizes the Find and collects information. The work summarizes once the monitor completes the field log corresponding to the Fortuitous Find. The data for each Find is included as part of the Documentation of the Fortuitous Findings Procedure (FFP). The consultation does not require elevation beyond the relevant contractor equipment.

If the monitor establishes that the finding belongs to level III or IV, all work will cease in the vicinity and representatives of EDP, the specialist and SECULTURA will be consulted to make the determination corresponding to the actions to be taken, either additional evaluation surveys, excavations and / or Finding mitigation. Typical treatment for Scenarios III or IV include on site preservation through re-design or specialized construction techniques, or pre-construction rescue excavations if evading the resource is not possible.

The plan for the site will be forwarded to EDP and SECULTURA for review, comment and approval. In special circumstances, civil authorities and community representatives are advised to consider including them in the consultation process. Upon completion of treatment, construction may continue.

8.4 *PROCEDURE FOR RESPONSE TO FORTUITOUS FINDINGS*

The protocol step-by-step procedures are outlined below.

In case the archaeological monitor(s) or staff of the Project locates a Fortuitous Find:

- Earthmoving work stops in the immediate area of Potential Fortuitous Findings;
- The contractor supervisor or supervisor in charge is notified of the Fortuitous Find;
- Temporary measures of site protection (high-visibility warning tape, stakes, signaling) will be installed around the Fortuitous Find;
- If the Find is done by someone other than the Archaeological Monitor, the monitor will be notified;
- Additional relevant personnel will be informed of the Finding if any part of the work is restricted;
- The Archaeological Monitor will conduct a preliminary assessment to determine if it is a Fortuitous Finding or not. If it is, it will be determined whether it is an isolated finding or part of a feature or larger site;
- The archaeological monitor will assign one of the four levels of Scenario to Find;
- If the Find is not archaeological (Scenario I) or is not significant (II), and can be documented by the monitor in the field, the Monitor will authorize the removal of the protection measures and the work can be resumed after its due documentation;
- Finding can be documented through photographs, field forms, notes, GPS coordinates, and maps;
- Artifacts will remain in place when possible; to be collected, will be placed in bags and labeled by the Monitor and transported to a previously established healing space. The Staff cannot keep any artifact or fragment as a souvenir;
- If the Monitor confirms Scenario III or IV, will establish immediate contact with the specialist and then SECULTURA to begin the development of a treatment plan;

- The Archaeological Monitor will complete an initial report of Fortuitous Finding (for all possible Fortuitous Findings, cultural heritage or not); will include coordinates for inclusion in the SIG template of cultural heritage;

- If necessary, the Monitor will implement the treatment plan approved by SECULTURA and relevant authorities. The plan will be led and implemented by qualified and authorized specialist(s); and

- While the treatment is being carried out, the Archaeological Program leader and the Site Supervisor will keep the contractors / service providers informed about the status and timing of the investigations, informing them when construction can resume.

The collection of archaeological artifacts or any other object of patrimonial value must be the minimum possible and the objects must be left in their original place when possible. Any artifact that was accidentally excavated or disturbed must be properly documented with regard to its original position and photographs of its original context.

Photos of artifacts can be very useful in the consultation process and have to be taken as soon as a potential Fortuitous Finding is found. All relevant documentation, including photos, forms and notes must be shared with the archeology specialist. In its final disposition, the Government of El Salvador is the sole owner of the artifacts of patrimonial value, and the Project staff will be responsible for their proper transportation and transfer to the corresponding authorities.

A training program for the recognition of archaeological remains and implementation of the Fortuitous Findings Protocol (FFP) procedure is to be carried out for relevant personnel as part of their induction to field work. Routine reinforcement sessions should also be carried out.

8.5 *MODIFICATION OF THE FORTUITOUS FINDINGS PROTOCOL*

This Fortuitous Findings Procedure has been prepared by the consultants in charge of the EIS and EDP. SECULTURA must be a participant in this plan and confirm it, including any changes that it deems relevant before being implemented.

In addition, the FFP is established as a "living" document that can be modified based on changes to the construction plan, re-design, changes to roles and responsibilities, and changes in project participants. Modifications will be made after consultation with the parties (EDP, SECULTURA, communities and competent authorities). The database must be regularly updated corresponding, at a minimum, to the required quarterly reports.

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Annex A – Summary Tables

Mitigation Measures, Monitoring Program and Execution Schedule

Table A-1 Summary of Proposed Mitigation Measures - Construction Stage

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Description of the Proposed Measure	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
Construction	• A, B and C	• Terrain leveling; construction of towers, substations, access roads and facilities. It is estimated that the total volume of eviction material (dirt moving during construction) is approximately 3,576 cubic meters.	• Increased erosion and sedimentation	Attenuation	• **Measure F1:** In the area of each tower or post, the final design will evaluate the possibility of installing the tower or post without leveling the area. The final design will include descriptive notes documenting the design measures adopted.	Area of each tower or post (campus)	EDP and contractor	74,000	During the final design of the towers or posts.	Optimized design.
					• **Measure F2:** Implement measures to control soil erosion, storm water management and sedimentation. These measures include the use of sediment fences, installation of permanent and temporary drainage systems to manage runoff from construction sites, gutters, sewers, sediment and sedimentation barriers and the use of sediment capture trenches; as well as the use of regulation dams to control water runoff, among others.	In all construction areas	EDP and contractor	206,000	During the installation of towers, substations, facilities and access roads.	Minimum erosion and sediment containment within approved areas for construction.
					• **Measure F3:** Protect the soil during vegetation clean-up activities. This includes: limiting vegetation cleanliness to approved building areas and compacting, stabilizing and / or replanting affected areas within 72 hours of completed clearing of vegetation or construction activities.	Facilities, substations and access roads	EDP and contractor	45,000	During the installation of towers, substations, facilities and access roads.	Minimum exposure of bare soil, both in area and in time.
					• **Measure F4:** Revegetate the slopes.	Cutting areas in Segment A (access roads and towers' areas).	EDP and contractor	20,000	During the installation of towers and access roads.	Slopes protected against erosion.
					• **Measure F5:** Deposit surplus material in properly approved areas or reuse as fill material.	Cutting areas in segment A.	EDP and contractor	20,000	During the installation of towers, substations, facilities and access roads.	Excess material appropriately disposed or used.

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Description of the Proposed Measure	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
					• **Measure F6:** Once the construction phase is completed, close and restore to its original conditions those access routes that are not necessary for the stage of project operation. Requests from the community or owners to maintain an open service path or route will be evaluated in conjunction with the appropriate authorities.	Facilities, substations and access roads	EDP and contractor	55,000	At the end of construction activities in each area.	Restored areas or new roads available to owners or community.
Construction	• A, B and C	• The risk of contamination of soils by accidental spills of fuel and lubricants of equipment and machinery during the installation of towers, construction of roads and substations.	• Potential contamination of soils	Prevention	• **Measure F7:** Keep vehicles and construction equipment in good mechanical condition, to avoid fuel and lubricants losses that can contaminate the floors and be washed away by rain.	Work and maintenance areas	EDP and contractors	5,000	Throughout the construction. Submit vehicles and equipment to a check-up and maintenance schedule.	Vehicles and construction equipment operating in good condition.
					• **Measure F8:** Adapt specific areas, with waterproofing protection, to carry out maintenance activities of vehicles and construction equipment.	Selected areas inside the facilities for site maintenance activities	EDP and contractor	5,000	Throughout the construction.	Spill protected maintenance areas.
					• **Measure F9:** In case of spills, implement the Contingency Plan (see Section 7.0 - Environmental Management Program).	Work and maintenance areas	EDP and contractor	20,000	In case of an incident.	Appropriate response to pollution events.
Construction	• A, B and C	• Installation of the TL and substations	• Potential effects of volcanic eruptions, earthquakes, earthquakes and landslides	Attenuation	• **Measure F10:** Incorporate design measures that consider safety factors and comply with local and international seismic protection codes and standards.	The whole project	EDP and contractor	12,500	During the final design.	Designs that comply with seismic codes and standards.
					• **Measure F11:** For any change in the trace that may be proposed, show that the new trace is outside the path of lava flows and lahars of the two volcanoes near the TL.	TL trace	EDP and contractor	12,500	During the final design.	The trace avoids the trajectory of lava flows and lahars.
					• **Measure F12:** In case of an emergency, implement the contingency plan (see Section 7.0 - Environmental Management	The whole project	EDP and contractor	50,000	Throughout the construction.	Appropriate response to the emergency.

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Description of the Proposed Measure	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
					Program).					
Construction	• A, B and C	• Emissions of gases and particles from equipment, machinery and vehicles (mobile sources) that use hydrocarbons as a source of fuel.	• Alteration of air quality	Attenuation	• **Measure F13:** Water the roads and accesses to the right of way and within the right of way. Such irrigation will be by means of water trucks.	Access roads and exposed areas	EDP and contractor	52,000	During dirt movement and removal of vegetation; installation of towers and substations	Dust reduction.
					• **Measure F14:** Cover the box of vehicles transporting debris, dirt or construction material with a tight canvas to prevent dust and materials from leaking during its journey.	In the whole project	EDP and contractor	25,000	Throughout the construction.	Protected vehicle loads at all times during transportation.
					• **Measure F15:** Any vehicle, whether transportation, forklift or maneuvering equipment may only be moved and operate within the designated roads, gaps and ways.	In access roads and demarcated areas for traffic and movement of equipment and machinery.	EDP and contractor	20,000	Throughout the construction.	Orderly traffic and within approved areas.
					• **Measure F16:** Maintain vehicle engines and equipment in good condition, including good catalytic converters or diesel filters, as the case may be.	In the whole project	EDP and contractor	180,000	Throughout the construction.	Reduction of emissions of gases and particles.
					• **Measure F17:** Set speed limits for project vehicles that circulate in populated areas as well as access to the project (maximum speed of 35 km / h). Install signals that indicate the speed limit in the project areas.	Facilities, substations and access roads	EDP and contractor	15,000	Throughout the construction.	Orderly traffic and good sign of the speed limit.
					• **Measure F18:** Perform resistance testing of materials, galvanizing impregnation and other tests at the factory and not on site.	Outside the project area.	EDP and contractor	30,000	Throughout the construction.	Avoid testing in the project area.
Construction	• A, B and C	• Construction of towers, substations, access roads and	• Change in surface runoff	Attenuation	• **Measure F19:** In the proposed facilities, install roof drains that collect runoff water and direct it to the ground where they can follow	Facilities	EDP and contractor	50,000	During the construction of the facilities.	Facilities with appropriate drainage.

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Description of the Proposed Measure	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
		facilities.			their normal course.					
					• **Measure F20:** In the parking and storage areas of machinery / equipment and in the open, place suitable control systems such as hay bales to avoid contamination of the runoff water.	TL, substations and facilities	Contractor	45,000	During the construction of the facilities	Storage areas properly protected against the flow of pollutants.
Construction	• A, B and C	• Construction of towers, substations, access roads and facilities; accidental spills of chemicals, lubricants and fuels. • Dirt movement. • Crossing of ravines by vehicles and machinery can introduce contaminants. • Three of the nine facilities or temporary warehouse areas are located within 100 m of a body of water.	• Changes in the quantity and quality of water	Prevention	• **Measure F21:** Temporarily deposit the material generated in the dirt movements at a suitable distance to avoid material falling into nearby rivers and / or ravines. The material collection area must be selected before starting work. (The final disposition will be made according to Measure F5.)	TL, substations and access roads.	Contractor	169,000	During dirt moving activities	Material deposited properly.
					• **Measure F22:** Install portable sanitary modules for the treatment of domestic wastewater. Use at least one portable toilet for every 15 people and give daily treatment with detergents and biodegradable additives to these sanitary modules. The solid waste from these toilets will be extracted and deposited in appropriate dumps by the company that rents these devices.	TL, facilities, substations and access roads.	Contractor	45,000	Throughout the construction.	Proper management of domestic wastewater and solid waste.
					• **Measure F23:** In case of accidental spills, implement a contingency plan (see Section 7.0 - Environmental Management Program).	TL, substations and access roads.	Contractor	50,000	During the construction of TL, access roads, substations and facilities.	Fast and appropriate response in case of emergencies.
					• **Measure F24:** Use sealed barrels with device for the transfer of fuel for the generators of energy.	Facilities	Contractor	15,000	Throughout the construction.	Safe transfer of fuel.

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Description of the Proposed Measure	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
					• **Measure F25:** Maintain noise levels at levels that comply with the values established in the Salvadoran standard and the International Financial Corporation's (IFC) Safety and Hygiene guidelines. These standards indicate that all machinery, vehicles and equipment used in the project must be kept in perfect working order, limiting working hours to daytime hours. Likewise, personnel working on the project that manage equipment, machinery and / or vehicles that generate noise levels higher than those allowed by the standard, must have adequate sound protection equipment (PPE).	TL, facilities, substations and access roads.	Contractor	15,000	During the construction of TL, access roads, substations and facilities.	Maintain the noise level at levels that comply with what is established in the standard.
Construction	• A, B and C	• Tree cutting during construction and installation of towers and substations; construction of access roads and storage areas - facilities (towers and lifting cables).	• Loss of plant cover, including individuals of threatened or endangered species	Compensation	• **Measure B1:** Prior to construction, make a final inventory of the trees to be felled, identifying their species and counting the number of trees of threatened or endangered species to be affected.	Sites of installation of towers, TL, substations, facilities and access roads.	EDP	10,000	Before the removal of vegetation.	List and final accounting of trees to be affected
					• **Measure B2:** Implement an environmental compensation program through reforestation of trees (10 trees x cut tree and 25 x 1 for protected species) and shrubs (1 shrub per bush cut). It is estimated that the cost of this measure is $ 273,524 to be executed through an agreement with FIAES.	TL, facilities, substations and access roads.	EDP	0	During the construction of TL, access roads, substations and facilities.	Net profit of trees
					• **Measure B3:** If cutting trees whose timber is of commercial or utilitarian value, consult with landowners if they are interested in retaining the timber. The contractor will cut the logs to appropriate sized segments. If the landowner is not interested in wood, the contractor may seek other ways to distribute the wood to entities that can be used.	TL, facilities, substations and access roads.	EDP	1,000	During the construction of TL, access roads, substations and facilities.	Beneficial use of wood

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Description of the Proposed Measure	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
					• **Measure B4:** Grind other generated plant materials and use them to provide a layer of protection against erosion.	TL, facilities, substations and access roads.	EDP	10,000	During the construction of TL, access roads, substations and facilities.	Protection of soil exposed to erosion.
Construction	• A	• Loss of habitat and mortality of individuals during construction activities.	• Loss of habitat and individuals from black-eyed frog	• Compensation	• **Measure B5:** Prior to construction, conduct a catch and relocation campaign (to areas adjacent to the right of way) of the frogs in habitats to be affected by the project.	Sites for the installation of towers and access roads.	EDP	5,000	Before the construction of TL.	Prevention of direct mortality of frogs because of project activities
					• **Measure B6:** Construct two water catchment piles in each area where the presence of frog was documented to increase the availability of habitats for breeding the species (Santa Rita and Tequendama farms). The "piles" are artisanal structures used by coffee producers in the region to store water. Frogs use these piles as shelters and breeding grounds. Four piles constructed according to local custom should be installed with the following dimensions and materials: approximate dimensions - 2.5 m long x 1.5 wide x 1.6 m deep with a canopy roof and down pipe; and materials - building bricks, cement, sand, grooved sheets, nails and/or screws, with cement refining.	Santa Rita and Tequendama farms	EDP	1,200	During the construction of TL	Creation of sites suitable for the reproduction of the black-eyed frog.
					• **Measure B7:** Carry out a school education campaign on the importance of frog conservation and the advantages of organic coffee cultivation without agrochemicals. The campaign will include the preparation of a brochure to be distributed at schools in the area and talks in at least five schools.	Segment A	EDP	5,000	During the construction of TL	Dissemination of information about the black-eyed frog and the importance of organic coffee cultivation.
Operation	• A, B and C	• Collision with cables of the TL, mainly in the	• Bird collisions with transmission	• Prevention	• **Measure B8:** Installation of 460 bird flight deterrents.	TL within the IBA and crossings of rivers and	EDP	7,500	Raising and operation of the TL in the IBA section	No collision of birds with the transmission cables

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Description of the Proposed Measure	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
		cables of guard for being of smaller diameter and less visibility.	cables			ravines (see Table 6.7-1 of the EMP)			and crossings of rivers and ravines	
Construction	• A, B and C	• Risk of conflicts between the local population and the Project	• Risk of conflicts between the local population and the Project	Prevention	• **Measure S1:** Implement the Citizen Participation Plan: o Conduct quarterly public queries during construction in two localities close to the project. o Keep the public service offices in Acajutla and Sonzacate in operation during construction. o Train workers in the requirements of the code of conduct in their relationship with the community and emphasize its application at all times.	In the communities of the area of influence of the project.	EDP	2,000	Throughout the construction.	Absence of conflicts
					• **Measure S2:** Implement the Complaint Management Mechanism: o Respond to all complaints within a maximum of 30 days. Contractors will have to be governed by the code of conduct of the workers and all employees will be required to induce in relations with the community.	In the communities of the area of influence of the project.	EDP	3,000	Throughout the construction.	Appropriate handling of complaints
Construction	• A, B and C	• Traffic of vehicles and equipment during the construction of TL and infrastructure.	• Risk of traffic accidents on public roads	Prevention	• **Measure S3:** Implement a traffic maintenance plan: o Schedule works to keep main communication channels always enabled. o Maintain signage on active areas of the project, caution and speed limits both day and night, according to the rules of the competent authority complying with current regulations.	Access roads to construction areas	Contractor	1,000	Throughout the construction.	Orderly traffic and good sign of the speed limit.
					• **Measure S4:** Submit all Project staff and contractors related to vehicle driving to a defensive driving training course (Smith System).	In he whole project.	Contractor	1,000	Before starting work activities.	Absence of accidents

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Description of the Proposed Measure	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
Construction	• A, B and C	• Purchase of right of way	• Purchase of right of way	Compensation	• **Measure S5:** Complete the right of way management according to the management plan, in a fair and equitable way.	Facilities and TL	EDP	2,500	Prior to the construction of TL	No complaints related to the compensation of goods.
					• **Measure S6:** Carry out resettlement activities with appropriate dissemination of information, consultation and informed participation of affected persons.	Facilities and TL	EDP	25,000	Prior to the construction of TL	Resettlement made with appropriate communication
					• **Measure S7:** Keep the Homeowners Office (open from September 2015) active until all land parcels are processed.	Facilities and TL	EDP	2,500	During the processing of right of way	Compensation
Construction	• A, B and C	• Construction of TL and infrastructure.	• Occupational accident risk	Prevention	• **Measure S8:** EDP will ensure that the working conditions in the Project comply with the occupational health and labor standards of El Salvador. The staff must be qualified to carry out the activities of the Project. All employees will receive training in Occupational Health and Safety.	TL and infrastructure	EDP and contractor	10,000	Throughout the construction.	Accident prevention
Construction	• A, B and C	• Terrain leveling; Excavation for bases and construction of towers, access roads and facilities.	• Potential alteration of the context or state of resources of pre-Hispanic cultural heritage		• **Measure S9:** Implement the fortuitous findings plan.	TL and infrastructure	EDT	10,000	Throughout the construction.	Appropriate handling of findings

Table A-2 Summary of Proposed Mitigation Measures - Operation Phase

Execution Phase	Segment in which it applies	Project Activity	Description of the Generated Environmental Impact	Environmental Measure	Proposed Measure Description	Location of the Environmental Measure	Responsible for its execution	Calculated Amount of Environmental Measure (US $)	Time of execution	Expected result
Operation	• A, B and C	• The risk of contamination of soils by accidental spills of fuel and lubricants from equipment and machinery during the maintenance of the TL, roads and substations.	• Soil contamination	Prevention	• **Measure F1:** Maintain vehicles and equipment in good mechanical condition.	Work and maintenance areas	EDP	10,000	During vehicle and equipment operation.	Vehicle and maintenance equipment operating in good condition.
					• **Measure F2:** In case of spills, implement the Contingency Plan (see Section 7.0 - Environmental Management Program).	Work and maintenance areas	EDP	5,000	During vehicle transit and equipment use.	Appropriate response to pollution events.
Operation	• A, B and C	• Gaseous and particulate emissions from equipment, machinery and vehicles (mobile sources) using hydrocarbons as a fuel source.	• Air quality alteration	Attenuation	• **Measure F3:** Maintain vehicles and equipment in good mechanical condition.	Work and maintenance areas	EDP	10,000	During vehicle movement, equipment and machinery operation.	Vehicle and maintenance equipment operating in good condition.
Operation	• A, B and C	• Collision with cables of the TL, mainly in the cables of guard for being of smaller diameter and less visibility.	• Bird collisions with the transmission cables	Prevention	• **Measure B1:** Maintenance of bird flight deterrents.	TL within the IBA and crossings of rivers and streams	EDP	2,000	Lifting and operation of the TL in the stretch of the IBA and crossings of rivers and ravines	No collision of birds with the transmission cables
Operation	• A, B and C	• Vegetation pruning during facility maintenance and TL activities.	• Quality and visual fragility alteration	Attenuation	• **Measure S1:** Activities of pruning, removal of branches near the TL, revegetation of slopes and repair of possible landslides, check of state of conductors and insulators.	TL and facilities	EDP	50,000	During TL maintenance activities.	Maintain transmission line safety.

Table A-3 Environmental Measures Monitoring Program - Construction Phase (see Table A-1 for measures description)

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
Site and construction preparation	A, B and C	Measure F1 (Optimize tower design)	Final design of each tower or pole site.	Each tower or pole site	Once the final design	Record the final design of each tower or pole with the design measures taken to minimize or avoid terrain leveling	Contractor Company	Finding that the design minimizes the need for leveling.	A final design review reveals if there are additional measures that can be taken.	Physical environment impacts - Section 5.2.1 - Geology, Topography and Soils
Site and construction preparation	A, B and C	Measure F2 (Erosion control)	Erosion or sedimentation evidence	All construction areas and ground disturbance.	Daily and after each rain event	Visual inspection of all areas of work. • Verify that sedimentation fences and other physical measures are installed correctly • Observe for evidence of erosion or sedimentation, especially sediment being washed away from work areas.	Contractor; Construction manager.	• Compare observations against design parameters of physical measurements. • Erosion is evidenced by furrows or entrained sediments.	• If a faulty physical measurement (for example, a broken fence) is found, replace or repair within 24 hours. • In case of evidence of erosion, evaluate the causes and implement a solution within 48 hours.	Physical environment impacts - Section 5.2.1 - Geology, Topography and Soils
Site and construction preparation	A, B and C	Measure F3 (Soil protection during vegetation cleansing)	Evidence of soil protection.	Areas where vegetation is being cleared.	Continuous during the cleaning activity of the vegetation.	Accompaniment of the activity throughout the time.	Principal Contractor; Construction manager.	• All activity occurs within approved areas. • The soil is compacted, stabilized and / or replanted within 72 hours of the end of the vegetation cleaning activity.	• If the activity leaves the approved work area, stop work and replant the affected area within 48 hours. • If the soil is not protected within 72 hours, protect it within 24 hours.	Physical environment impacts - Section 5.2.1 - Geology, Topography and Soils
Site and construction	A and B	Measure F4 (Revegetation	Revegetated slopes	Slopes in cut areas (especially in Segment A)	Daily and after each rain event.	Daily visual inspections.	Contractor; Construction	Slopes have been revegeted within 48	In case the slopes have not been	Physical environment

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
preparation		slopes)					manager.	hours.	revegetated in 48 hours, proceed in 24 hours.	impacts - Section 5.2.1 - Geology, Topography and Soils
Site and construction preparation	A	Measure F5 (Handling of surplus material)	Disposal of material	In cut areas, on Segment A	Continuous during cutting activity.	Continuous accompaniment of the activity.	Contractor; EDP	Surplus material must be removed from the site or reused.	Ensure material is handled properly.	Physical environment impacts - Section 5.2.1 - Geology, Topography and Soils
Site and construction preparation	A, B and C	Measure F6 (Restore access paths)	Access roads restored to their original condition	Pathways created by the project and not used after construction	An inspection at the end of the restoration.	Inspection of restored area.	Contractor; EDP	Restored areas must have been re-leveled and revegetated with common species in the adjacent area.	If the area has not been satisfactorily restored, complete the restoration within 30 days.	Physical environment impacts - Section 5.2.1 - Geology, Topography and Soils
Site and construction preparation	A, B and C	Measure F7 (Vehicles, equipment and machinery maintenance to prevent leaks)	Periodic maintenance records	Facilities	Monthly	Compilation of vehicle maintenance records	Contractor; EDP	Each vehicle, equipment and machinery will have its schedule and maintenance record up to date.	If it is a vehicle, equipment or machinery that does not have its maintenance up to date, prohibit its use until the stipulated maintenance is completed	Physical environment impacts - Section 5.2.1 - Geology, Topography and Soils
Site and construction preparation	A, B and C	Measure F7 (Vehicles, equipment and machinery maintenance to prevent leaks)	Air quality pollutants (SO_2, CO, NO_2, and hydrocarbons)	Near points along the trace of the TL.	Monthly monitoring during the construction phase.	Concentrations of volatile organic compounds, sulfur dioxide (SO_2), nitrogen dioxide (NO_2) and carbon monoxide (CO) will be monitored.	EDP environmental inspector. Salvadoran Environmental Authorities and Labor and Social Security (Ministry of Environment and Natural Resources, Ministry of Labor and Social Security).	The results will be compared with the guidelines on environment, health and safety (EHS), IFC: Transmission and Distribution of Electricity, April 30, 2007; And the Salvadoran Standard. Air quality Environmental, Atmospheric Inmissions (NSO 13.11.01: 01- Official Journal, San Salvador, August 26, 2003).	In case of evidence of a potential adverse impact, EDP will take corrective measures.	Physical environment impacts- Section 5.2.3 – Air quality
Site and construction	A, B and C	Measure F7 (Vehicles,	Air quality pollutants	Near points along the trace of the TL.	Monthly monitoring during the	Particle concentrations less than 10 microns in	EDP environmental	The results will be compared with the	In case of evidence of a potential	Physical environment

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
preparation		equipment and machinery maintenance to prevent leaks)	(PM_{10} and $PM_{2.5}$)		construction phase.	aerodynamic diameter (PM_{10}), of particle less than 2.5 microns aerodynamic diameter ($PM_{2.5}$), will be monitored.	inspector. Salvadoran Environmental Authorities and Labor and Social Security (Ministry of Environment and Natural Resources, Ministry of Labor and Social Security).	guidelines on environment, health and safety (EHS), IFC: Transmission and Distribution of Electricity, April 30, 2007; and the Salvadoran Standard. Air quality Environmental, Atmospheric Inmissions (NSO 13.11.01: 01- Official Journal, San Salvador, August 26, 2003).	adverse impact, EDP will take corrective measures.	impacts- Section 5.2.3 – Air quality
Site and construction preparation	A, B and C	Measure F8 (Adaquation of vehicle maintenance areas)	Adequate maintenance areas.	Areas designated for maintenance.	Daily.	Visual inspection of the area.	Contractor; EDP	Check that the area is waterproofed and there is no evidence of spillage.	• If a defect is detected, prohibit the use of the area until repaired. • If a spill is detected, prohibit the use of the area until the spill is contained and the area is cleaned.	Physical environment impacts - Section 5.2.1 - Geology, Topography and Soils
Site and construction preparation	A, B and C	Measures F9, F12 and F23 (Implement contingency plan in case of incidents)	Effectiveness of incident handling.	Where the incident occurs.	At the end of the incident control activity.	Inspection of the area.	Contractor, EDP	Verify that the incident has been neutralized.	If it is detected that the area has not been restored to its condition before the incident, continue with the cleaning activity until the work is completed.	Contingency Plan (see Section 7.0 - Environmental Management Program and Annex O)
Design, site preparation and construction	A, B and C	Measure F10 (Seismic design measures)	Final design in compliance with seismic codes.	Final design.	Upon completion of the final design.	Design review.	Contractor; EDP	Verify that the final design contains notes on how the required measurements were incorporated.	If the design does not comply with seismic codes, review the design.	Physical environment impacts- Section 5.2.2 - Natural Threats
Design, site	A, B and	Measure F11	Trace of the TL.	Areas where the trace is	When the layout of	Design review.	Contractor; EDP	Verify that the	If the adjusted	Physical

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
preparation and construction	C	(trace out the path of lava flows and lahars)		checked.	the trace adjustment is completed.			adjusted trace prevents the trajectory of lava flows and lahars.	trace crosses the path of lava flows and lahars, adjust the design to avoid them.	environment impacts- Section 5.2.2 - Natural Threats
Site and construction preparation	A, B and C	Measure F13 (Watering areas of bare soil)	Areas duly watered.	Work areas with exposed soil (for example, land paths).	Daily.	Visual inspection	Contractor; EDP	Verify the exposed areas are being watered.	If exposed areas that have not been watered and where dust is collected, irrigate immediately.	Physical environment impacts- Section 5.2.3 – Air quality
Site and construction preparation	A, B and C	Measure F14 (Cover the box of vehicles)	Cover the box of vehicles	In the facilities where the vehicles are parked.	Weekly.	Visual inspection	Contractor; EDP	Verify that all trucks carrying material have its cover and in good condition.	In the event that a cover is missing or is in poor condition, the vehicle will not be used until the situation is corrected.	Physical environment impacts- Section 5.2.3 – Air quality
Site and construction preparation	A, B and C	Measure F15 (Vehicles operating only in approved areas)	Confined traffic to approved areas.	In all areas where vehicles are moving.	Daily.	Visual inspection	Contractor; EDP	Verify that vehicles are kept operating within approved areas.	If a vehicle is seen to be circulating in an unapproved area, ask the driver to return to the approved area. Verify if the vehicle caused any damage and, if necessary, repair the damage immediately.	Physical environment impacts- Section 5.2.3 – Air quality
Site and construction preparation	A, B and C	Measure F16 (Vehicles, equipment and machinery maintenance to minimize emissions)	Periodic maintenance records.	Facilities	Monthly	Compilation of vehicle maintenance records.	Contractor; EDP	Each vehicle, equipment and machinery will have its schedule and maintenance record updated.	If you find a vehicle, equipment or machinery that does not have its maintenance up to date, prohibit its use until the stipulated maintenance is completed.	Physical environment impacts- Section 5.2.3 – Air quality
			Air quality pollutants (SO_2,	Near points along the trace of the TL.	Monthly.	Concentrations of volatile organic compounds, sulfur	Contractor; EDP.	The results will be compared with the	In case of evidence of a potential	Physical environment

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
			CO, NO_2, and hydrocarbons)			dioxide (SO_2), nitrogen dioxide (NO_2) and carbon monoxide (CO) will be monitored.		guidelines on environment, health and safety (EHS), IFC: Transmission and Distribution of Electricity, April 30, 2007; and the Salvadoran Standard. Air quality Environmental, Atmospheric Inmissions (NSO 13.11.01: 01- Official Journal, San Salvador, August 26, 2003).	adverse impact, EDP will take corrective action.	impacts- Section 5.2.3 – Air quality
			Air quality pollutants (PM_{10} and $PM_{2.5}$)	Near points along the trace of the TL.	Monthly.	Particle concentrations less than 10 microns in aerodynamic diameter (PM_{10}), of particle less than 2.5 microns aerodynamic diameter ($PM_{2.5}$), will be monitored.	Contractor; EDP.	The results will be compared with the guidelines on environment, health and safety (EHS), IFC: Transmission and Distribution of Electricity, April 30, 2007; and the Salvadoran Standard. Air quality Environmental, Atmospheric Inmissions (NSO 13.11.01: 01- Official Journal, San Salvador, August 26, 2003).	In case of evidence of a potential adverse impact, EDP will take corrective action.	Physical environment impacts- Section 5.2.3 – Air quality
Site and construction preparation	A, B and C	Measure F17 (speed limit)	Speed allowed (35 km / h)	Access roads	Sporadic	Observation	Contractor; EDP	Observation of traffic to verify that the speed limit is met.	If a vehicle is observed moving above the safety limit, discipline the driver according to the applicable work procedures.	Physical environment impacts- Section 5.2.3 – Air quality
Site and construction preparation	A, B and C	Measure F18 (Do not test on the project site)	No testing activities in project areas.	Facilities.	Sporadic.	Observations of activities.	Contractor; EDP.	It is expected that no test activity will be observed.	If any test activity is observed, it will stop immediately and move to appropriate areas outside the project	Physical environment impacts- Section 5.2.3 – Air quality

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
									(factory).	
Site and construction preparation	A, B and C	Measure F19 (Install roof drains)	Roof drains in the facilities.	Facilities.	Monthly.	Visual inspection	Contractor; EDP.	Drains must be in good condition.	If a drainage is observed in poor condition, repair it before the next rain event.	Physical environment impacts- Section 5.2.4 – Water resources
Site and construction preparation	A, B and C	Measure F20 (Control of runoff in maintenance and storage areas)	Runoff control devices installed.	Maintenance and storage areas.	Weekly.	Visual inspection	Contractor; EDP	Installed devices are in good working order.	If any device is observed in poor condition, repair it immediately.	Physical environment impacts- Section 5.2.4 – Water resources
Site and construction preparation	A, B and C	Measure F21 (Temporary storage of material)	Deposited material.	Material movement areas.	Continuous.	Visual inspection	Contractor; EDP.	Verify that material is temporarily deposited in appropriate areas.	If material is deposited in unsuitable areas (for example, at the top of a slope that descends into a body of water), stop the activity and move the material to an appropriate area immediately.	Physical environment impacts- Section 5.2.4 – Water resources
Site and construction preparation	A, B and C	Measure F22 (Portable sanitary modules)	State of the modules.	All construction areas.	Daily.	Visual inspection	Contractor; EDP.	Verify that there are enough modules and that these are working properly.	If a module is detected that is not working properly, try to repair or replace it within 48 hours.	Physical environment impacts- Section 5.2.4 – Water resources
Site and construction preparation	A, B and C	Measure F24 (Use sealed barrels for fuels)	State of the barrels.	Facilities.	Weekly.	Visual inspection	Contractor; EDP.	Verify that the barrels are tightly closed.	If a faulty barrel is observed, move the fuel to another barrel and dispose of the defective barrel properly.	Physical environment impacts- Section 5.2.4 – Water resources
Site and construction preparation	A, B and C	Measure F25 (noise control)	Noise levels.	All project areas.	Monthly monitoring for 24-hour periods (or if there are claims) of noise levels in the closest human settlements along the TL.	Use of calibrated sonometers at an approximate height of 1.5 meters. Monitoring measurements will be recorded.	Contractor; EDP.	The results were compared to the threshold values established by IFC (see Table 4.1-14 of EIS) and compared with values measured during the baseline study (see Table 4.1-	In case of evidence of a potential adverse impact, EDP will take corrective action.	Physical environment impacts- Section 5.2.5 – Noise and Vibrations

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
								15).		
Design and preparation of the site	A, B and C	Measure B1 (Final tree inventory)	Number of trees, including protected species.	All areas where trees will be felled.	Once, before the beginning of the felling.	Inventory of each tree to be felled.	Contractor	Provide a list of trees, by species, identifying threatened or endangered species.	Update final tree list and compensation (Measure B2).	Biotic environment impacts- Section 5.3.1 - Loss of plant cover
Site and construction preparation	A, B and C	Measure B2 (Reforestation, compensation)	Trees and shrubs planted	Areas in agreement with FIAES and MARN.	According to the agreement with FIAES	According to the agreement with FIAES	According to the agreement with FIAES	According to the agreement with FIAES	According to the agreement with FIAES	Biotic environment impacts- Section 5.3.1 - Loss of plant cover
Site and construction preparation	A, B and C	Measure B3 (Wood use)	Use of wood generated in felling.	Areas of feeling.	Once, at the end of the felling by area.	Visual and documentary verification.	Contractor, EDP	Wood generated must be used.	Do not allow the usable wood to be disposed of until the harnessed possibilities are exhausted.	Biotic environment impacts- Section 5.3.1 - Loss of plant cover
Site and construction preparation	A, B and C	Measure B4 (Use of other plant material)	Disposal of plant material (not wood)	Areas of felling and clearing.	Continuous during the removal of vegetation.	Observation and verification.	Contractor, EDP	The crushed material should be deposited on bare ground.	Do not allow the material to be disposed of or burned.	Biotic environment impacts- Section 5.3.1 - Loss of plant cover
Before starting construction	A	Measure B5 (Capturing and relocating black-eyed frogs)	Number of frogs captured and relocated.	Santa Rita and Tequendama farms	Before beginning clearing and felling activities.	Visual and acoustic searches.	Environmental Supervisor	If no frogs are detected, the relocation will be considered complete.	If frogs are found during construction, a biologist must relocate them outside the work areas.	Biotic environment impacts- Section 5.3.5 – Loss of Habitat and Individuals of the Black-eyed Frog
Construction	A	Measure B6 (Piles of water for frogs)	Four piles of water	Santa Rita and Tequendama farms	Before construction.	Construction of piles.	Contractor, EDP	Piles built according to the specifications of EIS	If the piles are not installed properly, repaire them immediately.	Biotic environment impacts- Section 5.3.5 – Loss of Habitat and Individuals of the Black-eyed Frog
Before and during construction	A	Measure B7 (School education campaign)	Number of schools attended (at least five)	Ahuachapán area	During construction.	45-minute talks.	Environmental Supervisor	Verify number of children attended.	Continue the effort until you meet (at least five schools)	Biotic environment impacts- Section 5.3.5 – Loss of Habitat and Individuals of the Black-eyed

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
										Frog
Construction	A, B and C	Measure B8 (Bird flight deterrents)	Installation of flight deterrents in the TL (see Table 6.7-1 of the Environmental Management Plan)	Sections indicated in the Biotic Management Plan (Table 6.7-1)	The correct installation of the flight deterrents will be verified once before the start of the operation of the Project.	Visual inspection	Environmental Supervisor	If there are improperly installed deterrents or if the number is less than specified by the Management Plan, corrective actions will be taken.	The necessary measures will be taken so that the contractor corrects any deficiencies before the beginning of the Operation of the Project.	Biotic environment impacts- Section 5.3.6 – Bird Collisions with Cables
Before and during construction	A, B and C	Measure S1 (Citizen Participation Plan)	Public queries and operation of community relations offices.	Communities of the indirect area of influence of the project.	Monthly.	Preparation of monthly reports.	Social manager.	Compliance with plan requirements will be verified.	Adjustments or immediate corrections in case the requirements are not met.	Socioeconomic Environment impacts- Section 5.4.4.
Before and during construction	A, B and C	Measure S2 (Complaint attention mechanism)	Adequate and timely handling of all complaints.	Project workers and communities in the indirect area of influence of the project.	Monthly.	Preparation of monthly reports.	Social manager.	Compliance with plan requirements will be verified.	Adjustments or immediate corrections in case the requirements are not met.	Socioeconomic Environment impacts- Section 5.4.4.
Site and construction preparation	A, B and C	Measure S3 (Traffic maintenance plan)	Minimal alteration to traffic.	Access roads.	Preparation of monthly reports.	Observation	Contractor; EDP	Minimal traffic disruption is expected.	Immediately resolve any unanticipated disruption.	Socioeconomic Environment impacts- Section 5.4.4.
Before and during construction	A, B and C	Measure S4 (defensive driving training)	Percentage of trained drivers (target is 100%)	Facilities.	Monthly	Register of trained drivers	Contractor; EDP	All drivers are required to be trained in defensive driving.	If a driver is detected without the training, prohibit the activity until the training is completed.	Socioeconomic Environment impacts- Section 5.4.4.
Site and construction preparation	A, B and C	Measure S5 (right of way management)	Closing negotiations with owners.	Project.	Monthly.	Negotiations log.	EDP	All negotiations are required to be closed.	Continue to complete all the land parcels.	Socioeconomic Environment impacts- Section 5.4.4.
Site and construction preparation	A, B and C	Measure S6 (Disclosure of Resettlements)	Divulgation of information.	Project.	In case of resettlement.	Activity log.	EDP	Information is required to be disclosed openly.	Continue effort until completing effective disclosure.	Socioeconomic Environment impacts- Section 5.4.4.
Site and construction preparation	A, B and C	Measure S7 (Owner Attention Office)	Proper attention to owners.	Project.	Monthly.	Activity log.	EDP	Evidence of adequate care.	Continuous improvement in case of complaints.	Socioeconomic Environment impacts- Section 5.4.4.
Site and construction	A, B and C	Measure S8 (Health and	Safe conditions for workers.	Project.	Monthly.	Activity log.	Contractor, EDP	Evidence of safe conditions for	Continuous improvement in	Socioeconomic Environment

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
preparation		occupational safety)						workers.	case of performance gaps.	impacts- Section 5.4.4.
Site and construction preparation	A, B and C	Measure S9 (Fortuitous finds plan)	Adequate management of findings.	All construction areas.	Continuous.	Observation and accompaniment to the activities.	Contractor, EDP	Findings of archaeological resources.	Ensure proper management of findings.	Socioeconomic Environment Impacts - Section 5.4.11 - Impacts on Archaeological, Ceremonial and Historical Cultural Resources

Table A-4 Environmental Management Program Execution Schedule - Construction Phase

Execution Phase	Environmental Measure	Execution Phase (Quarterly)								Estimated Amount of Environmental Measure (US $)
		1	2	3	4	5	6	7	8	
Construction	**Attenuation** **Measure F1:** Optimize Tower Design.									74,000
Construction	**Attenuation** **Measure F2:** Erosion control.									206,000
Construction	**Attenuation** **Measure F3:** Soil protection during vegetation cleaning.									45,000
Construction	**Attenuation** **Measure F4:** Slopes revegetation.									20,000
Construction	**Attenuation** **Measure F5:** Excess material management.									20,000
Construction	**Attenuation** **Measure F6:** Restore paths.									55,000
Construction	**Prevention** **Measure F7:** Vehicle, equipment and machinery maintenance to prevent leaks.									5,000
Construction	**Prevention** **Measure F8:** Vehicle maintenance areas adequacy.									5,000
Construction	**Prevention** **Measures F9, F12 y F23:** Implement contingency plan.									50,000
Construction	**Attenuation** **Measure F10:** Seismic design measurements.									12,500
Construction	**Attenuation** **Measure F11:** Trace out the path of lava flows and lahars.									12,500
Construction	**Attenuation** **Measure F13:** Water the areas of bare soil.									52,000
Construction	**Attenuation** **Measure F14:** Cover the vehicles box.									25,000
Construction	**Attenuation** **Measure F15:** Vehicles operating only in approved areas.									20,000
Construction	**Attenuation** **Measure F16:** Vehicles, equipment and machinery maintenance to minimize emissions.									180,000
Construction	**Attenuation** **Measure F17:** Speed limit.									15,000
Construction	**Attenuation** **Measure F18:** No tests at the project site.									30,000
Construction	**Attenuation** **Measure F19:** Install roof drains.									50,000
Construction	**Attenuation** **Measure F20:** Runoff control in maintenance and storage areas.									45,000
Construction	**Prevention** **Measure F21:** Temporary storage of material.									169,000

Execution Phase	Environmental Measure	Execution Phase (Quarterly)								Estimated Amount of Environmental Measure (US $)
		1	2	3	4	5	6	7	8	
Construction	**Prevention** **Measure F22:** Portable sanitary modules.									45,000
Construction	**Prevention** **Measure F24:** Use hermetic barrels for fuel.									15,000
Construction	**Prevention** **Measure F25:** Noise control.									15,000
Construction	**Compensation** **Measure B1:** Final tree inventory.									10,000
Construction	**Compensation** **Measure B2:** Reforestation, compensation.									273,524
Construction	**Compensation** **Measure B3:** Wood use									1,000
Construction	**Compensation** **Measure B4:** Other plant material use.									10,000
Construction	**Compensation** **Measure B5:** Capture and relocate black-eyed frogs.									5,000
Construction	**Compensation** **Measure B6:** Piles of water for frogs.									1,200
Construction	**Compensation** **Measure B7:** School education campaign.									5,000
Construction	**Prevention** **Measure B8:** Installation of 460 bird flight deterrents.									7,500
Construction	**Prevention** **Measure S1:** Implement the Citizen Participation Plan.									2,000
Construction	**Prevention** **Measure S2:** Implement the Complaint Management Mechanism.									3,000
Construction	**Prevention** **Measure S3:** Implement a traffic maintenance plan.									1,000
Construction	**Prevention** **Measure S4:** Defensive driving training.									1,000
Construction	**Compensation** **Measure S5:** Right of Way Management.									2,500
Construction	**Compensation** **Measure S6:** Disclosure of Resettlements.									25,000
Construction	**Compensation** **Measure S7:** Owners Attention Office.									2,500
Construction	**Prevention** **Measure S8:** Occupational health and safety.									10,000
Construction	**Prevention** **Measure S9:** Implement the fortuitous findings plan.									10,000

Table A-5 Environmental Measures Monitoring Program - Operation Phase (see Table A-2 for the description of the measures)

Execution Phase	Segment in which it applies	Environmental Measure	Control Parameter	Place or Monitoring Point	Frequency of Monitoring or Measurement	Method to Use	Monitoring or Measurement Responsible	Result Interpretation	Feedback	Impact Description Reference in the Text
Operation (Vehicle traffic and equipment use)	A, B and C	Measure F1 (Prevention - Vehicle and equipment maintenance)	Spills of fuel and lubricants.	Work and maintaining areas	Annual	Verify Vehicle Maintenance record.	EDP	Vehicles must operate in good condition.	In case of vehicles in poor condition, these cannot be used until repaired.	Physical environment Impacts - Section 5.2.1 - Geology, Topography and Soils
Operation (Movement and use of vehicles and equipment)	A, B and C	Measure F2 (Prevention – Implementation of a contingency plan in case of spills of fuels and lubricants)	Spills of fuel and lubricants.	Work and maintaining areas	When the spill is reported.	Audits of spill incident reports.	EDP	Effective cleaning of the affected area.	In case of evidence that the cleaning was not effective, continue until the work is completed.	Physical environment Impacts - Section 5.2.1 - Geology, Topography and Soils
Operation (Vehicle traffic and equipment use)	A, B and C	Measure F3 (Prevention - Vehicle and equipment maintenance)	Emissions.	Work and maintaining areas	Annual	Verify Vehicle Maintenance record.	EDP	Vehicles must operate in good condition.	In case of vehicles in poor condition, these cannot be used until repaired.	Physical environment Impacts - Section 5.2.3 - Air Quality
Operation	A, B and C	Measure B1 (Attenuation – Maintenance of bird flight deterrents.)	Deterrents	Areas with deterrents	Annual	Visual inspection	EDP	Deterrents must be in good condition.	Replace Damaged Deterrents.	Biotic environment Impacts - Section 5.3.6 - Bird Collisions with Cables
Operation (vegetation pruning in the TL and facilities during maintenance activities)	A, B and C	Measure S1 (Attenuation – vegetation pruning, branches removal and maintenance of the TL and in the facilities)	Growth of vegetation, landslides repair and checking the condition of conductors and insulators.	TL	Semi-annual	Visual inspection	EDP	Check that the cables are at safe distances from the vegetation.	In the event of a complaint being received, EDP will take corrective action.	Socioeconomic and Cultural Environment Impacts - Section 5.4.

Table A-6 Environmental Management Program Execution Schedule - Operation Phase

Execution Phase	Environmental Measure	Execution time (Quarterly since the beginning of operations) [a]												Estimated Amount of Environmental Measure (US $)
		1	2	3	4	5	6	7	8	9	10	11	12	
Operation	**Prevention** **Measure F1:** Vehicles and equipment maintenance.													10,000
Operation	**Prevention** **Measure F2:** Contingency plan implementation in case of fuels and lubricants spills.													5,000
Operation	**Attenuation** **Measure F3:** Vehicles and equipment maintenance.													10,000
Operation	**Attenuation** **Measure B1:** Bird flight deterrents maintenance.													2,000
Operation	**Attenuation** **Measure S1:** Vegetation pruning, branch removal and maintenance of the TL and in the facilities.													50,000

[a] The execution time is shown for the first three years of Project operation. The monitoring will continue in the same way throughout the life of the Project.

Appendix P – T-Line Route Aerial Maps

400000 410000 420000

310000 310000

300000 300000

290000 290000

280000 280000

Ahuachapan
Tacuba
Concepcion De Ataco
Apaneca
Juayua
Salcoatitan
Jujutla
San Pedro Puxtla
Guaymango
Nahuizalco
Izalco
Sonzacate
Santo Domingo De Guzman
San Antonio Del Monte
CA-8W
CA-12S
CA-8W
RN-15S
Carretera del Litoral
Acajutla

N

0 1,950 3,900 7,800

Meters

400000 410000 420000

Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure
- 38m Right of Way
- # Property Boundary
- Proposed Temporary Laydown Area

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

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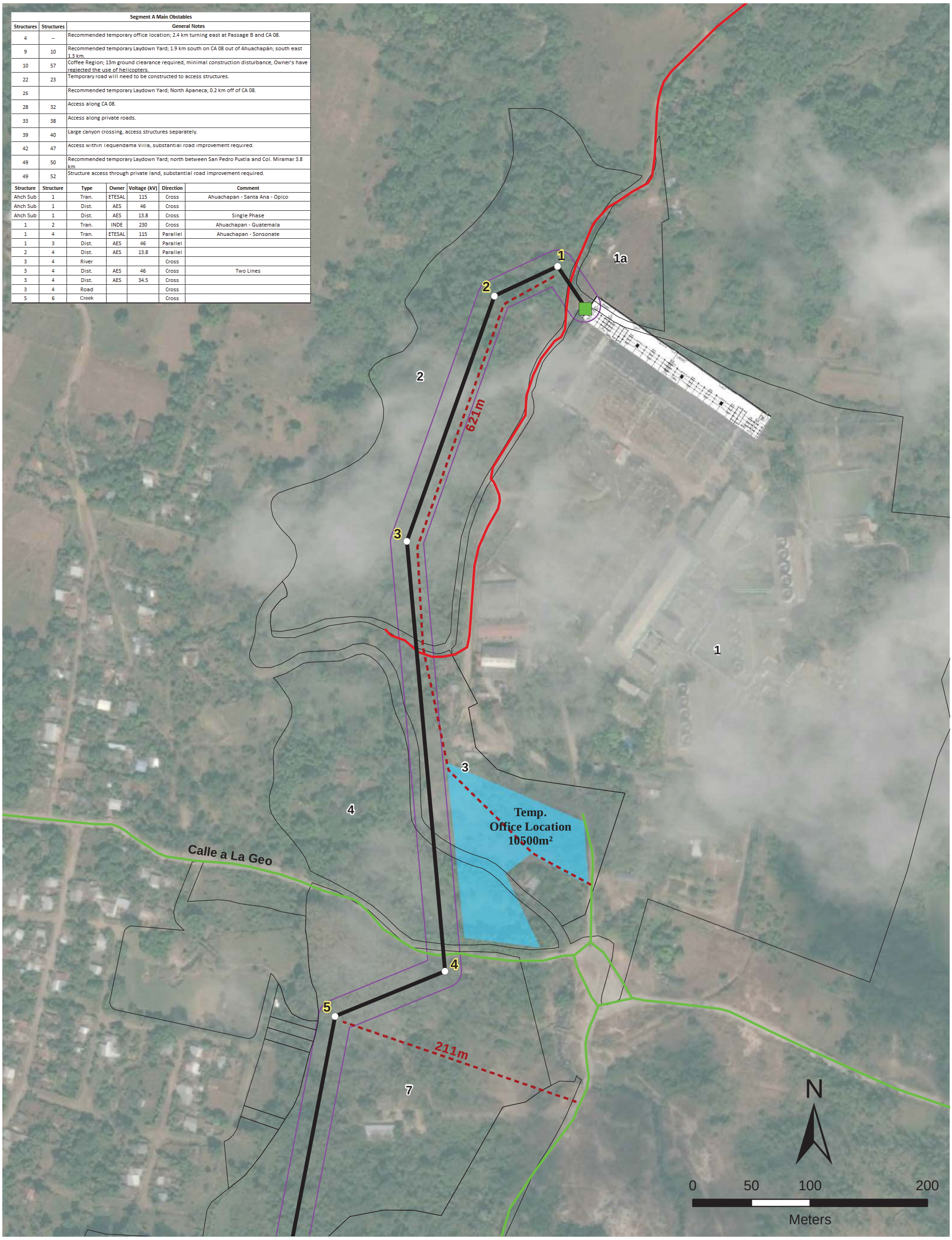
Segment A Main Obstables		
Structures	Structures	General Notes
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.
9	10	Recommended temporary Laydown Yard; 1.9 km south on CA 08 out of Ahuachapán; south east 1.3 km.
10	57	Coffee Region; 13m ground clearance required, minimal construction disturbance, Owner's have regiected the use of helicopters.
22	23	Temporary road will need to be constructed to access structures.
25		Recommended temporary Laydown Yard; North Apaneca; 0.2 km off of CA 08.
28	32	Access along CA 08.
33	38	Access along private roads.
39	40	Large canyon crossing, access structures separately.
42	47	Access within Tequendama Villa, substantial road improvement required.
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km
49	52	Structure access through private land, substantial road improvement required.

Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
Ahch Sub	1	Tran.	ETESAL	115	Cross	Ahuachapan - Santa Ana - Opico
Ahch Sub	1	Dist.	AES	46	Cross	
Ahch Sub	1	Dist.	AES	13.8	Cross	Single Phase
1	2	Tran.	INDE	230	Cross	Ahuachapan - Guatemala
1	4	Tran.	ETESAL	115	Parallel	Ahuachapan - Sonsonate
1	3	Dist.	AES	46	Parallel	
2	4	Dist.	AES	13.8	Parallel	
3	4	River			Cross	
3	4	Dist.	AES	46	Cross	Two Lines
3	4	Dist.	AES	34.5	Cross	
3	4	Road			Cross	
5	6	Creek			Cross	



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Existing Ahuachapan Substation
Proposed EDP/Invenergy Acajutla Substation
Transmission Structure

Transmission Route Segments

Segment A, 16.2km
Segment B, 20.4km
Segment C, 6.7km

38m Right of Way
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Proposed New Road

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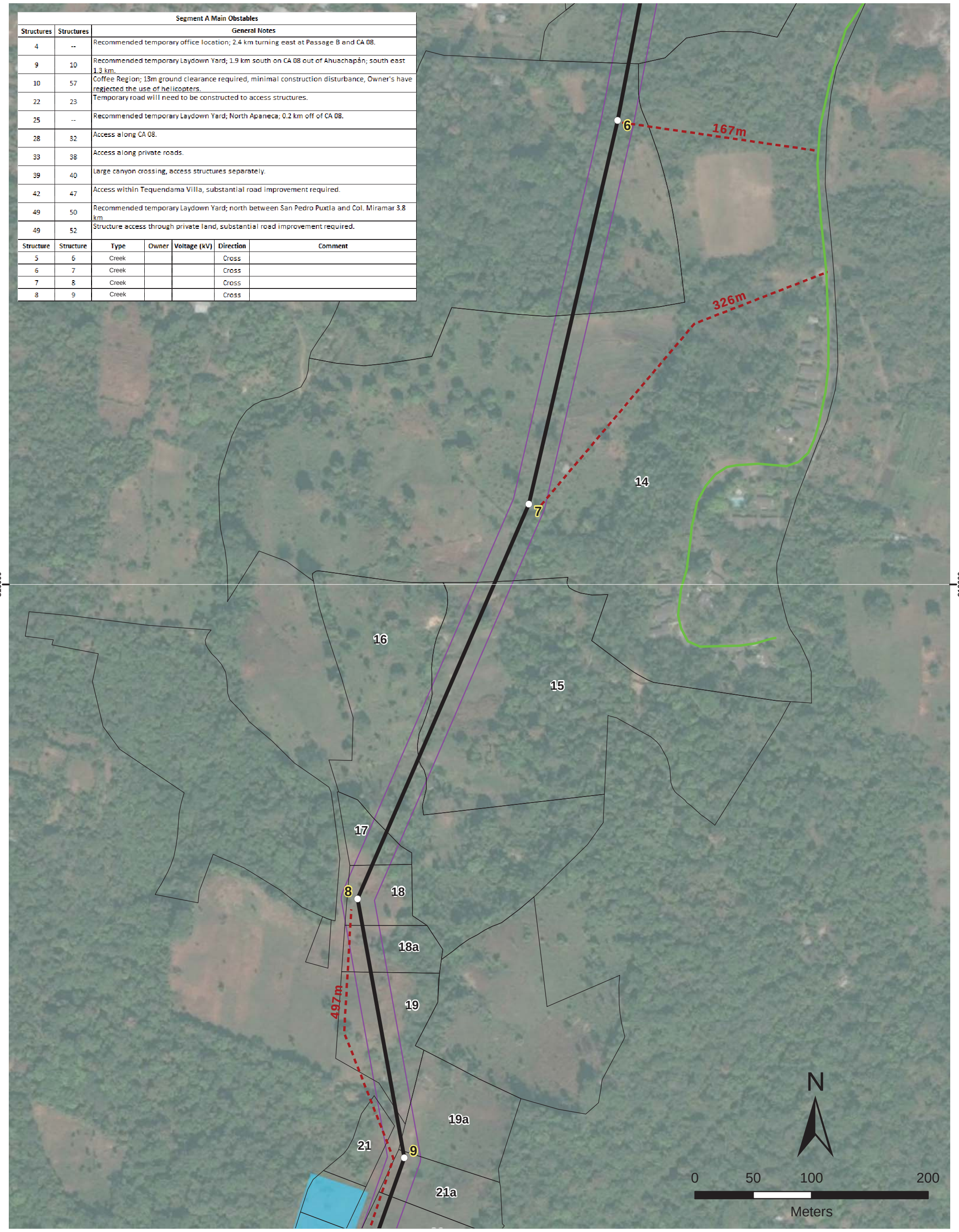
Segment A Main Obstables		
Structures	**Structures**	**General Notes**
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.
9	10	Recommended temporary Laydown Yard; 1.9 km south on CA 08 out of Ahuachapán; south east 1.3 km.
10	57	Coffee Region; 13m ground clearance required, minimal construction disturbance, Owner's have regjected the use of helicopters.
22	23	Temporary road will need to be constructed to access structures.
25	--	Recommended temporary Laydown Yard; North Apaneca; 0.2 km off of CA 08.
28	32	Access along CA 08.
33	38	Access along private roads.
39	40	Large canyon crossing, access structures separately.
42	47	Access within Tequendama Villa, substantial road improvement required.
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km
49	52	Structure access through private land, substantial road improvement required.

Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
5	6	Creek			Cross	
6	7	Creek			Cross	
7	8	Creek			Cross	
8	9	Creek			Cross	



Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure (#)
- 38m Right of Way
- # Property Boundary
- Proposed Temporary Laydown Area

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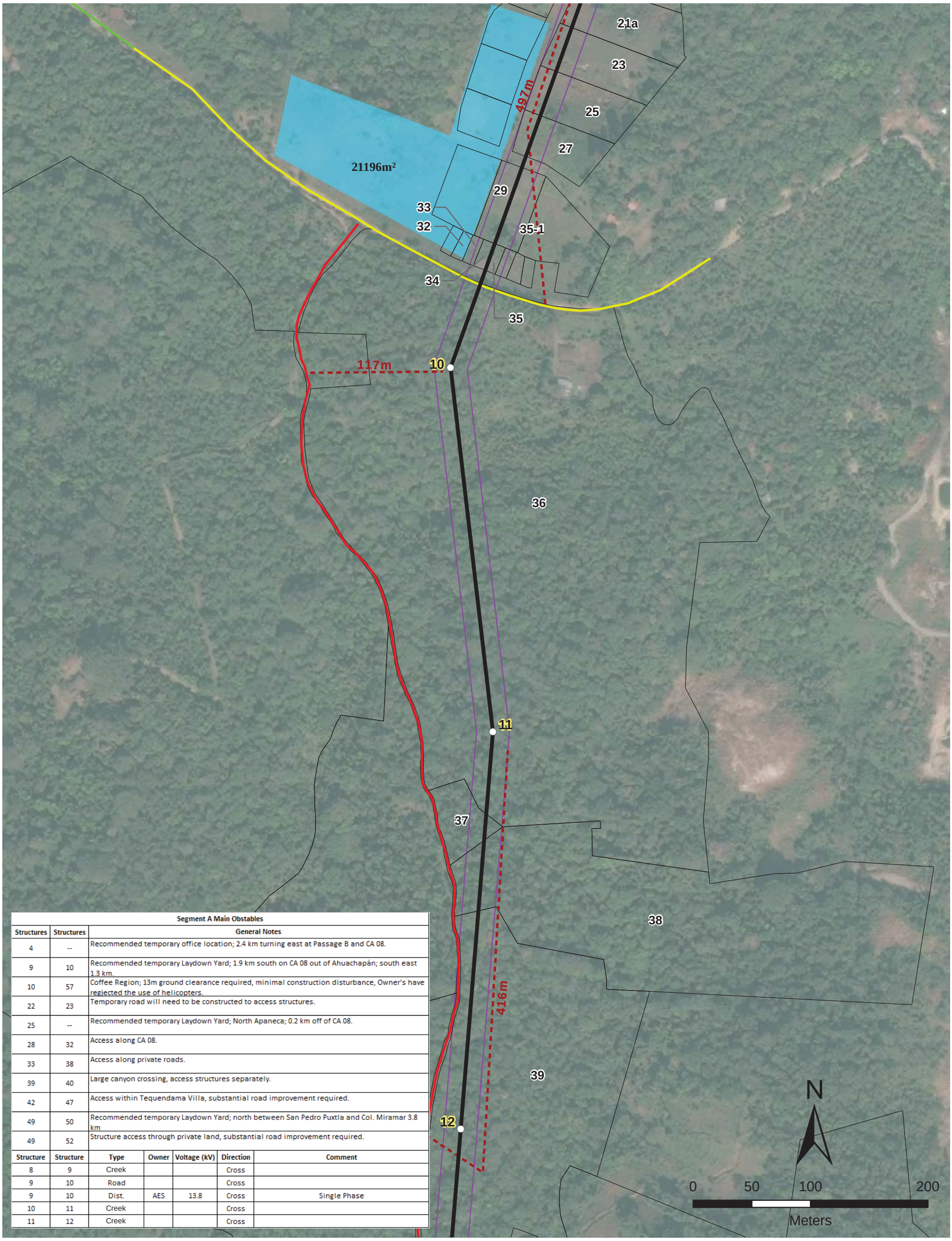

Segment A Main Obstables		
Structures	Structures	General Notes
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.
9	10	Recommended temporary Laydown Yard; 1.9 km south on CA 08 out of Ahuachapán; south east 1.3 km.
10	57	Coffee Region; 13m ground clearance required, minimal construction disturbance, Owner's have regiected the use of helicopters.
22	23	Temporary road will need to be constructed to access structures.
25	--	Recommended temporary Laydown Yard; North Apaneca; 0.2 km off of CA 08.
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33	38	Access along private roads.
39	40	Large canyon crossing, access structures separately.
42	47	Access within Tequendama Villa, substantial road improvement required.
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km
49	52	Structure access through private land, substantial road improvement required.

Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
8	9	Creek			Cross	
9	10	Road			Cross	
9	10	Dist.	AES	13.8	Cross	Single Phase
10	11	Creek			Cross	
11	12	Creek			Cross	

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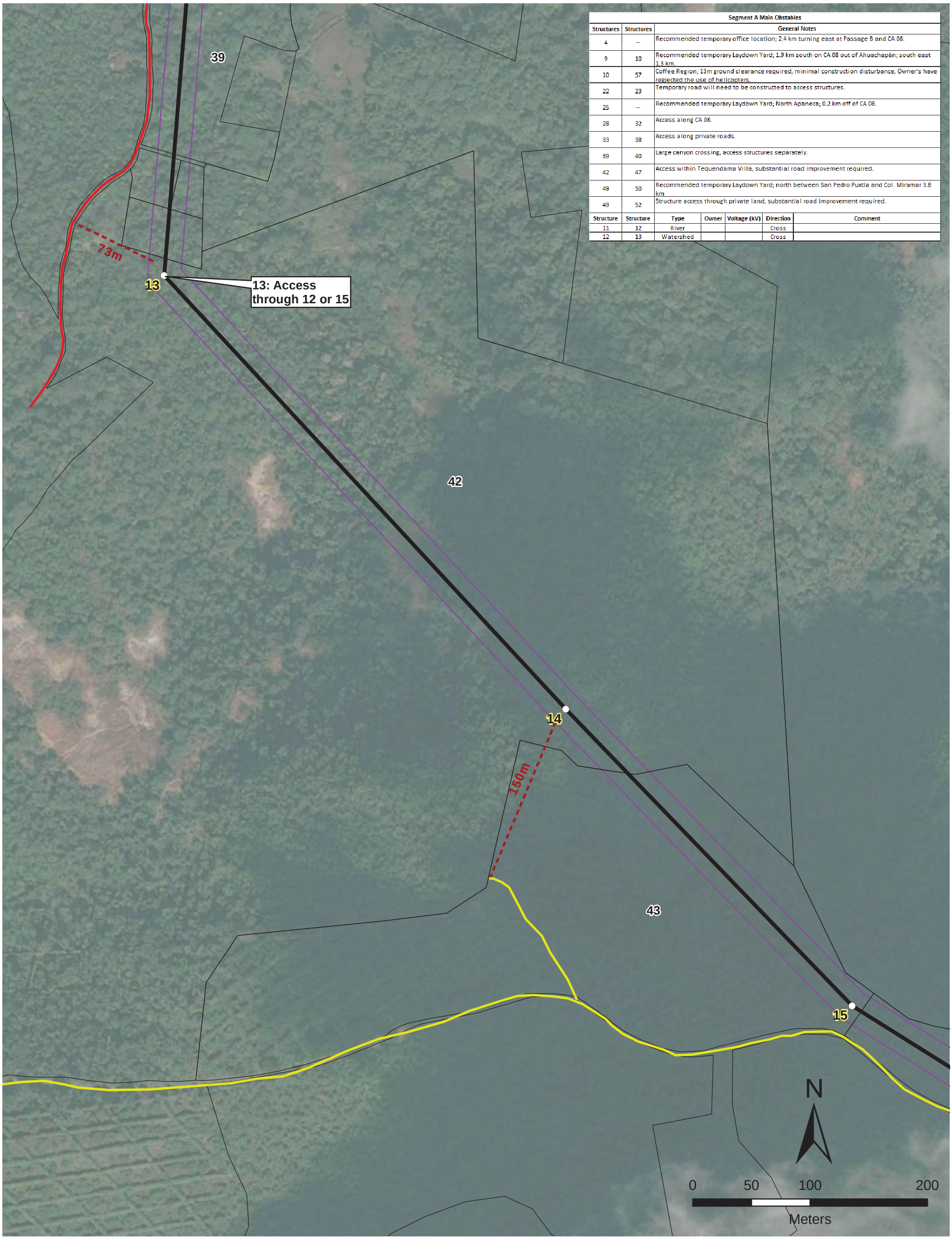
Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
11	12	River			Cross	
12	13	Watershed			Cross	



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure
- 38m Right of Way
- # Property Boundary

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
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Structures	Structures	General Notes
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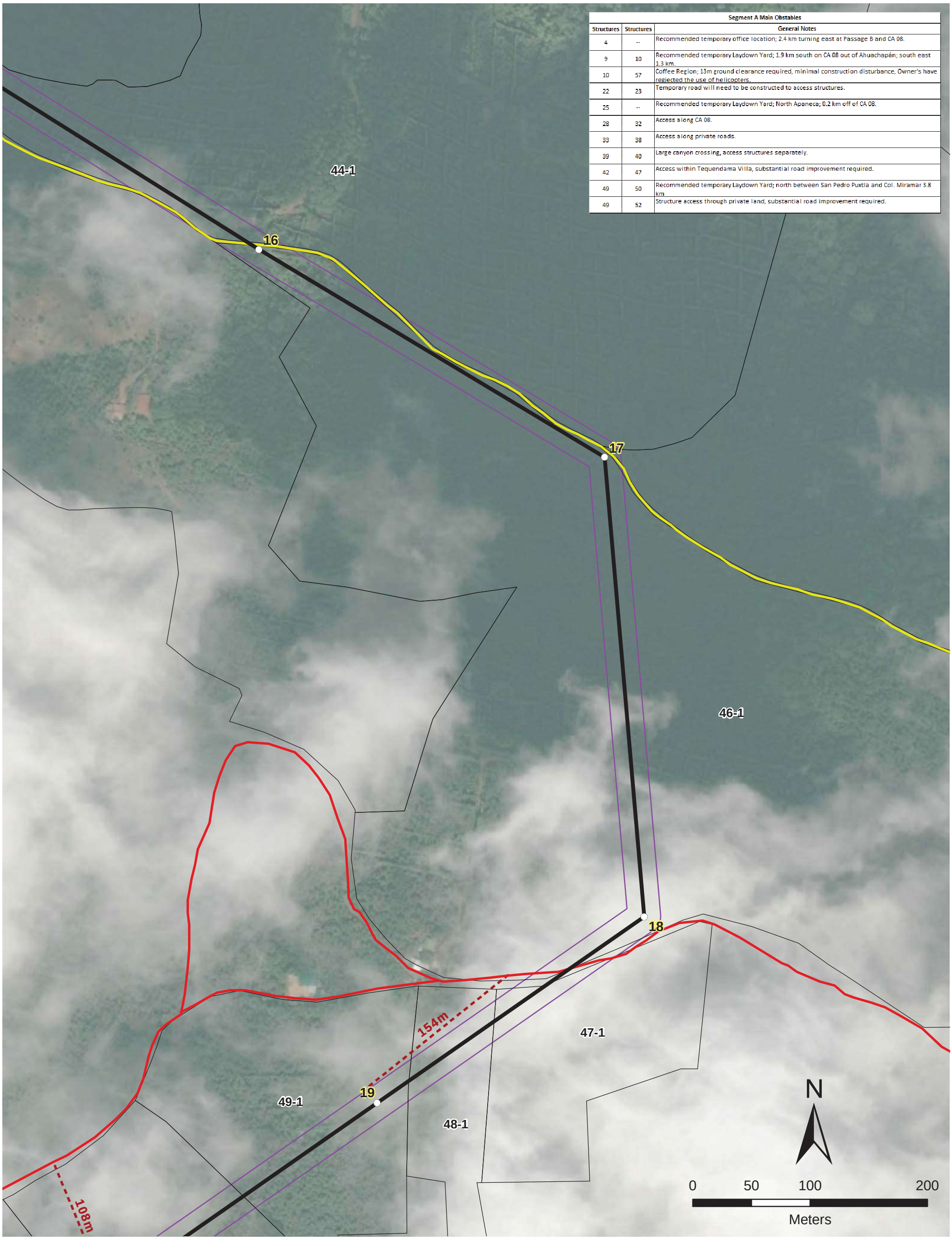
28	32	Access along CA 08.
33	38	Access along private roads.
39	40	Large canyon crossing, access structures separately.
42	47	Access within Tequendama Villa, substantial road improvement required.
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km
49	52	Structure access through private land, substantial road improvement required.



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure
- 38m Right of Way
- # Property Boundary

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

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230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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Segment A Main Obstables						
Structures	Structures	General Notes				
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.				
9	10	Recommended temporary Laydown Yard; 1.9 km south on CA 08 out of Ahuachapán; south east 1.3 km.				
10	57	Coffee Region; 13m ground clearance required, minimal construction disturbance, Owner's have regjected the use of helicopters.				
22	23	Temporary road will need to be constructed to access structures.				
25	--	Recommended temporary Laydown Yard; North Apaneca; 0.2 km off of CA 08.				
28	32	Access along CA 08.				
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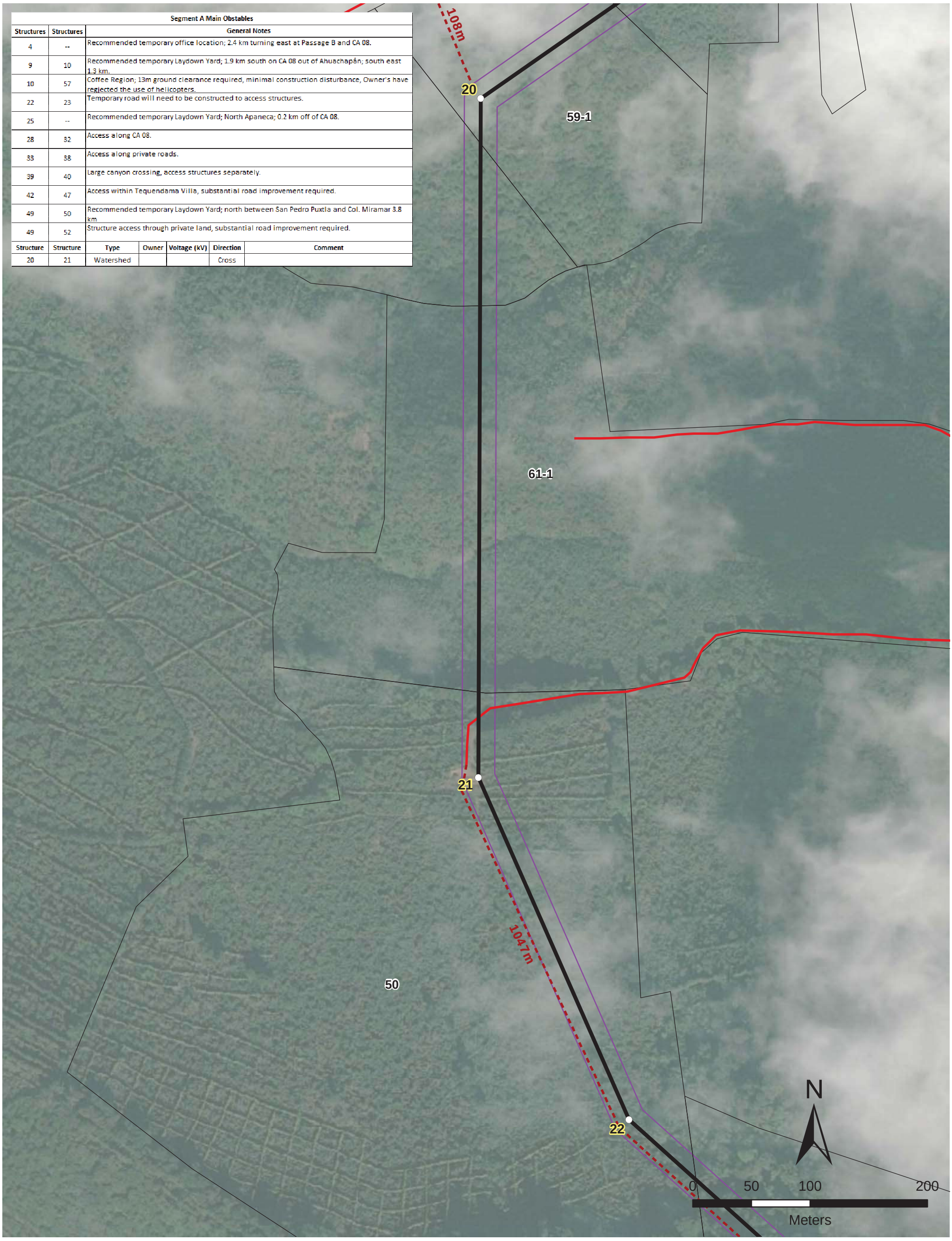
42	47	Access within Tequendama Villa, substantial road improvement required.				
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km				
49	52	Structure access through private land, substantial road improvement required.				
Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
20	21	Watershed			Cross	



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure (#)

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

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230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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23
24
25
26
966m
1047m
209m
62-1
63-1
64-1
To 24370m² Laydown Yard ---->
N
0
50
100
200
Meters

Segment A Main Obstables		
Structures	Structures	General Notes
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.
9	10	Recommended temporary Laydown Yard; 1.9 km south on CA 08 out of Ahuachapán; south east 1.3 km.
10	57	Coffee Region; 13m ground clearance required, minimal construction disturbance, Owner's have regiected the use of helicopters.
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42	47	Access within Tequendama Villa, substantial road improvement required.
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km
49	52	Structure access through private land, substantial road improvement required.

Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
24	25	Watershed			Cross	
25	26	Road			Cross	Two Road Crossing

Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure
- 38m Right of Way
- # Property Boundary

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

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Route Detail Map Book

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Segment A Main Obstables		
Structures	Structures	General Notes
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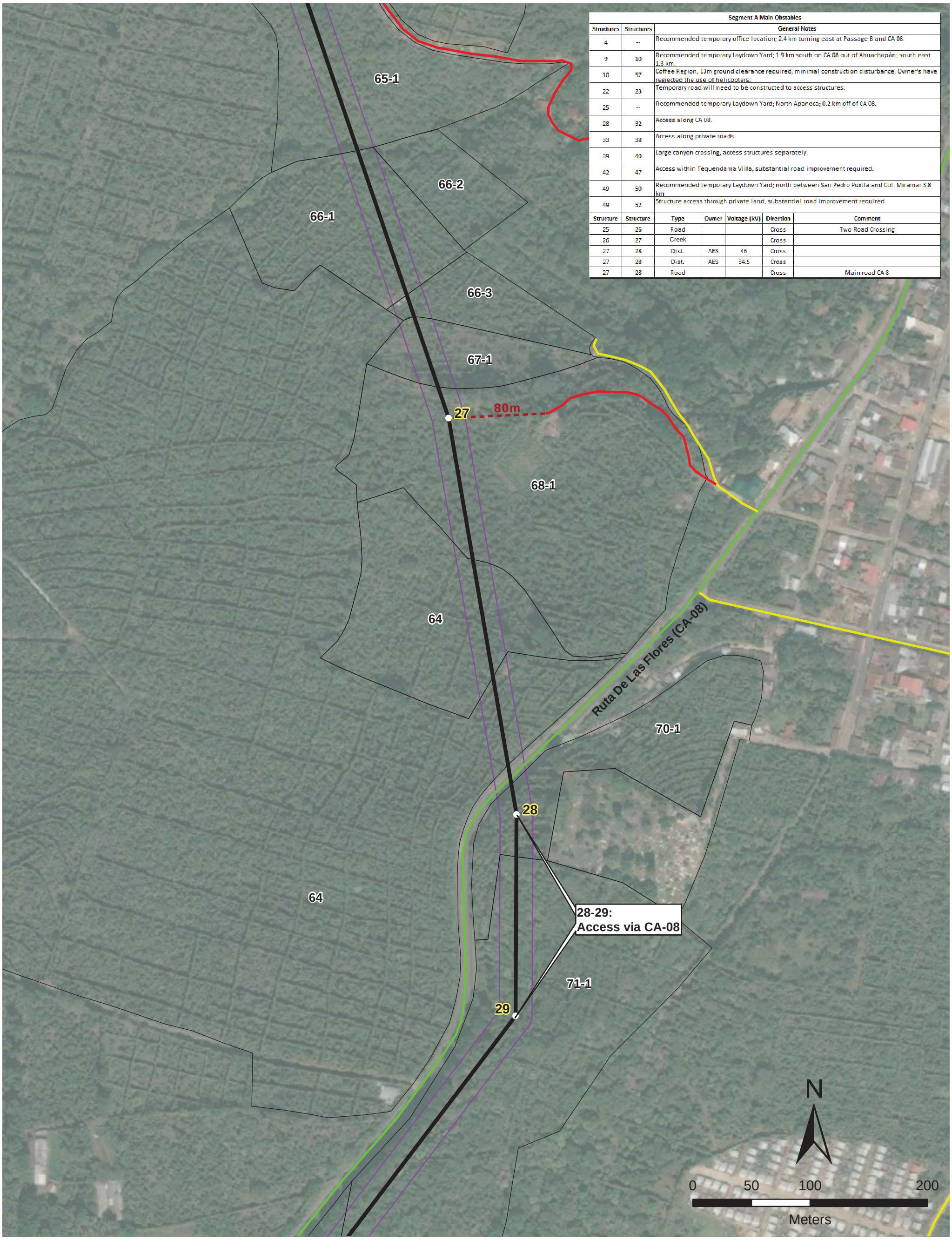
49	52	Structure access through private land, substantial road improvement required.

Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
25	26	Road			Cross	Two Road Crossing
26	27	Creek			Cross	
27	28	Dist.	AES	46	Cross	
27	28	Dist.	AES	34.5	Cross	
27	28	Road			Cross	Main road CA 8



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure
- 38m Right of Way
- # Property Boundary

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

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230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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Segment A Main Obstables						
Structures	Structures	General Notes				
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.				
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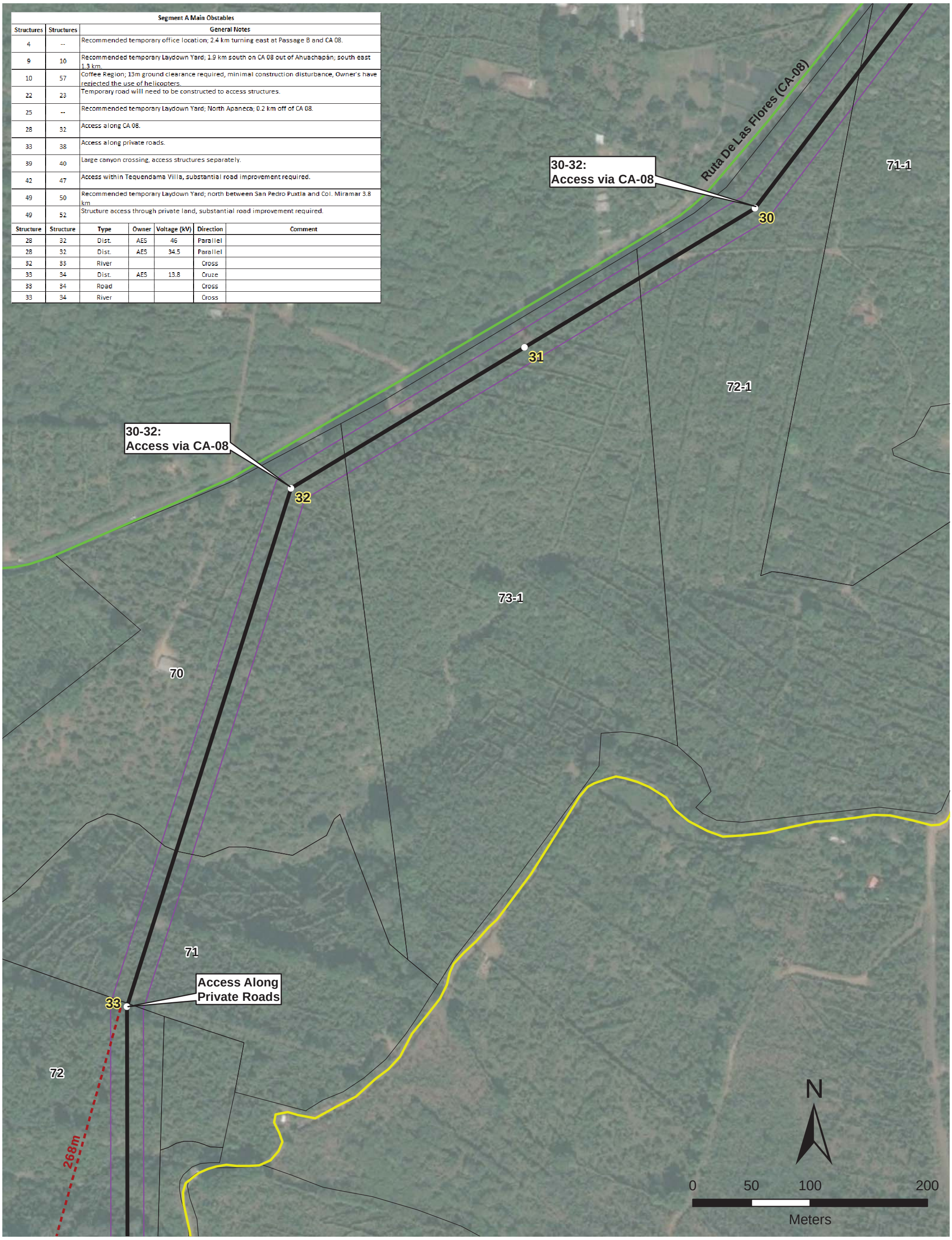
49	52	Structure access through private land, substantial road improvement required.				
Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
28	32	Dist.	AES	46	Parallel	
28	32	Dist.	AES	34.5	Parallel	
32	33	River			Cross	
33	34	Dist.	AES	13.8	Cruze	
33	34	Road			Cross	
33	34	River			Cross	



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure
- 38m Right of Way
- # Property Boundary

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

Invenergy

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Segment A Main Obstables		
Structures	Structures	General Notes
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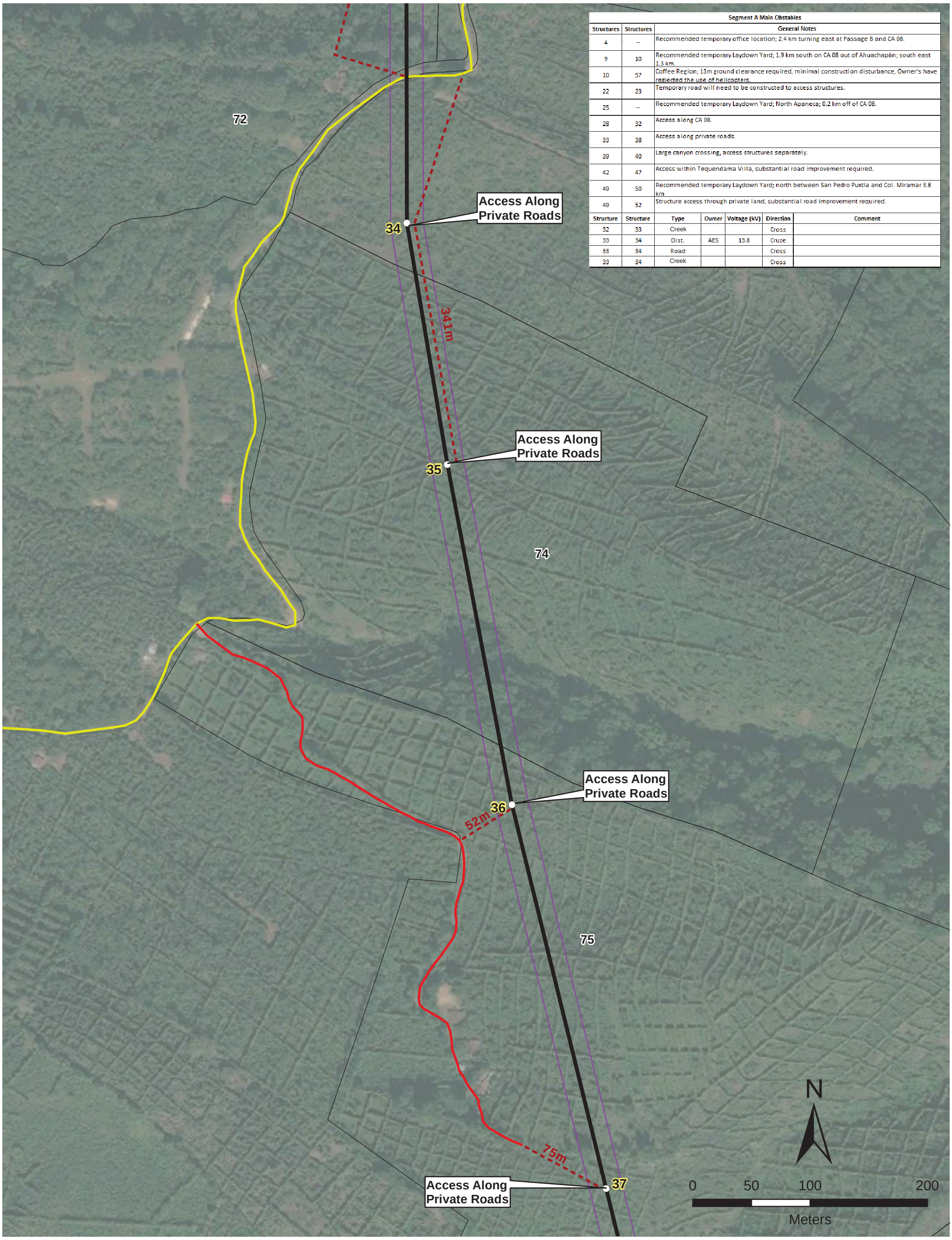
49	52	Structure access through private land, substantial road improvement required.

Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
32	33	Creek			Cross	
33	34	Dist.	AES	13.8	Cruze	
33	34	Road			Cross	
33	34	Creek			Cross	



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

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230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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Access Along Private Roads

37

75

Access Along Private Roads

38

76

398m

301m

Large Canyon Crossing: Access Structure Separately

39

77

N

0 50 100 200

Meters

Segment A Main Obstables		
Structures	Structures	General Notes
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.
9	10	Recommended temporary Laydown Yard; 1.9 km south on CA 08 out of Ahuachapán; south east 1.3 km.
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49	52	Structure access through private land, substantial road improvement required.

Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
39	40	Creek			Cross	

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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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Segment A Main Obstables						
Structures	Structures	General Notes				
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.				
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49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km				
49	52	Structure access through private land, substantial road improvement required.				
Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
39	40	Creek			Cross	

Large Canyon Crossing:
Access Structure Separately

40 41 42 43

78 79 80 82

483m 519m

300000 300000

N

0 50 100 200
Meters

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Existing Ahuachapan Substation
Proposed EDP/Invenergy Acajutla Substation
Transmission Structure

Transmission Route Segments

Segment A, 16.2km
Segment B, 20.4km
Segment C, 6.7km

38m Right of Way
Property Boundary

Access Roads

Existing Dirt Road
Existing Paved Road
Existing Private Road
Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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Segment A Main Obstables						
Structures	Structures	General Notes				
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42	47	Access within Tequendama Villa, substantial road improvement required.				
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km				
49	52	Structure access through private land, substantial road improvement required.				
Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
43	44	Watershed			Cross	
44	45	Creek			Cross	

81

82

44

319m

45

82a-d

46

N

0 50 100 200

Meters

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Existing Ahuachapan Substation

Proposed EDP/Invenergy Acajutla Substation

Transmission Structure

Transmission Route Segments

Segment A, 16.2km

Segment B, 20.4km

Segment C, 6.7km

38m Right of Way

Property Boundary

Access Roads

Existing Dirt Road

Existing Paved Road

Existing Private Road

Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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46

82a-d

47

50m

48

87

Creek

N

0 50 100 200

Meters

Segment A Main Obstables		
Structures	Structures	General Notes
4	--	Recommended temporary office location; 2.4 km turning east at Passage B and CA 08.
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25	--	Recommended temporary Laydown Yard; North Apaneca; 0.2 km off of CA 08.
28	32	Access along CA 08.
33	38	Access along private roads.
39	40	Large canyon crossing, access structures separately.
42	47	Access within Tequendama Villa, substantial road improvement required.
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km
49	52	Structure access through private land, substantial road improvement required.

Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
45	46	Road			Cross	
46	47	Creek			Cross	
48	49	Creek			Cross	

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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure
- 38m Right of Way
- # Property Boundary

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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Segment A Main Obstables						
Structures	Structures	General Notes				
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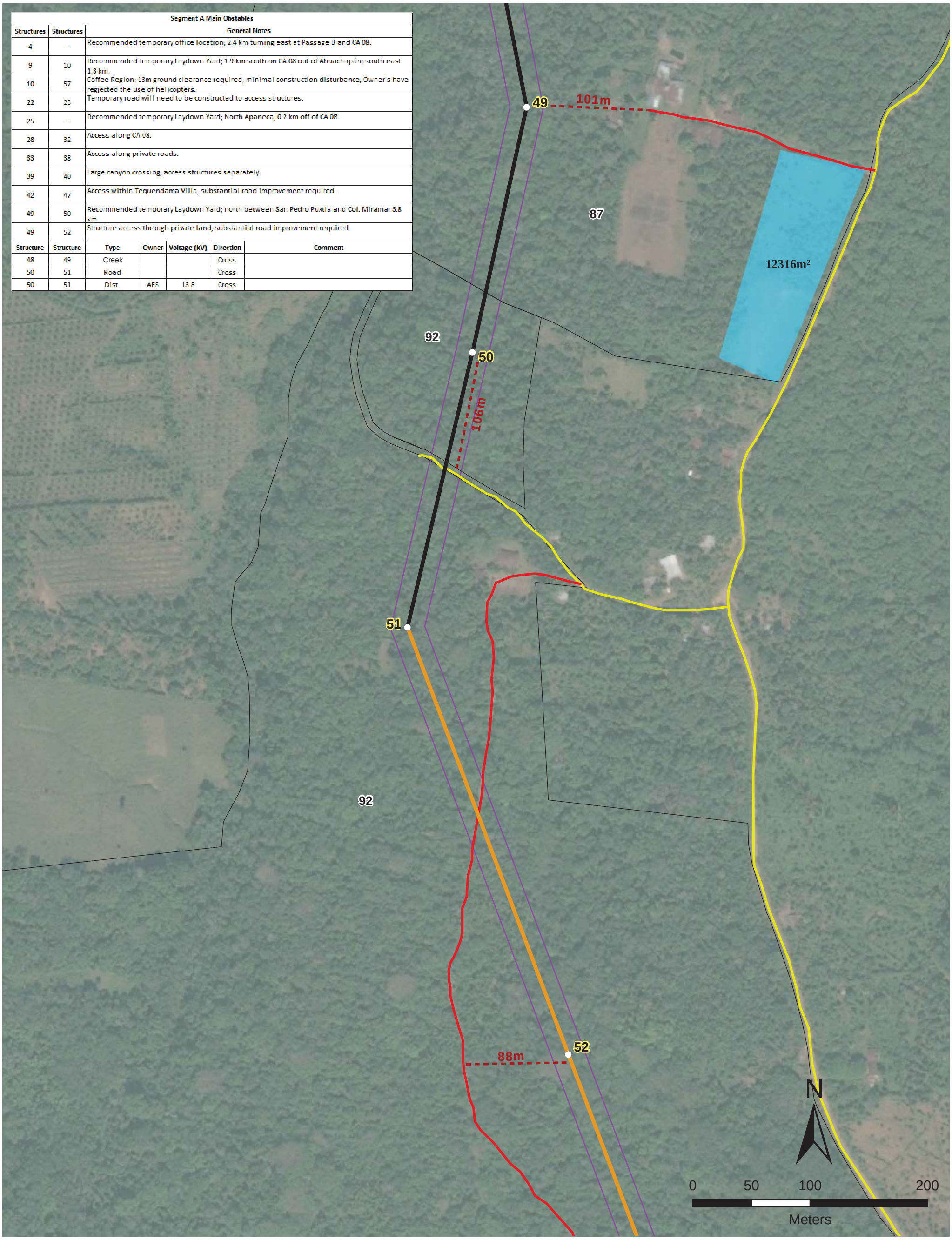
33	38	Access along private roads.				
39	40	Large canyon crossing, access structures separately.				
42	47	Access within Tequendama Villa, substantial road improvement required.				
49	50	Recommended temporary Laydown Yard; north between San Pedro Puxtla and Col. Miramar 3.8 km				
49	52	Structure access through private land, substantial road improvement required.				
Structure	Structure	Type	Owner	Voltage (kV)	Direction	Comment
48	49	Creek			Cross	
50	51	Road			Cross	
50	51	Dist.	AES	13.8	Cross	



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure
- 38m Right of Way
- # Property Boundary
- Proposed Temporary Laydown Area

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

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Acajutla to Ahuachapan
Route Detail Map Book

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92
93
94
96
97
53
54
55
76m
331m
135m
156m
N
0
50
100
200
Meters

Segment B Main Obstables		
Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation; minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
53	54	Guayava Plantation			Cross	Fruit Plantation

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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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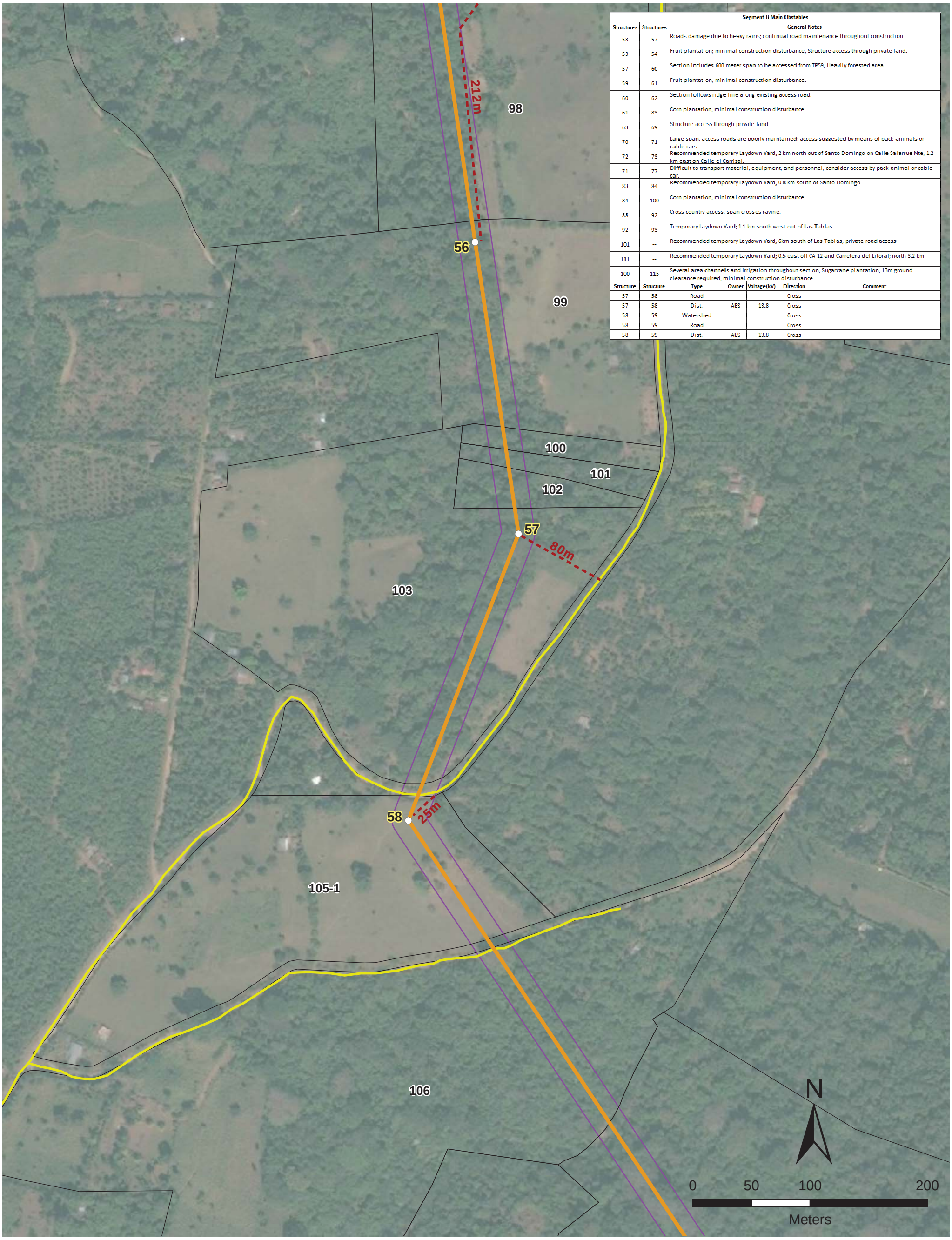

Segment B Main Obstables

Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation; minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
57	58	Road			Cross	
57	58	Dist.	AES	13.8	Cross	
58	59	Watershed			Cross	
58	59	Road			Cross	
58	59	Dist.	AES	13.8	Cross	

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Existing Ahuachapan Substation
Proposed EDP/Invenergy Acajutla Substation
Transmission Structure

Transmission Route Segments

Segment A, 16.2km
Segment B, 20.4km
Segment C, 6.7km

38m Right of Way
Property Boundary

Access Roads

Existing Dirt Road
Existing Paved Road
Existing Private Road
Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

Invenergy

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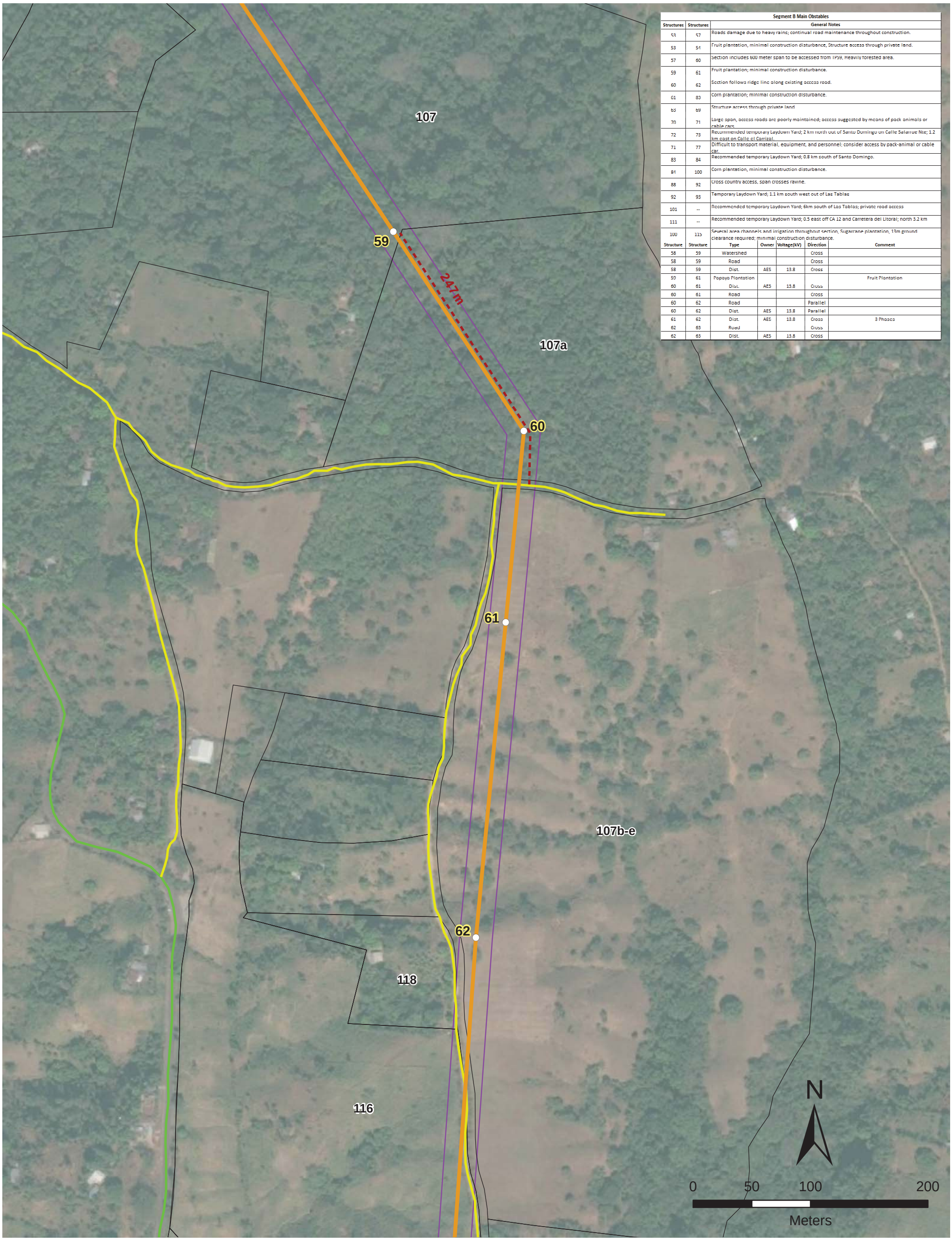
Segment B Main Obstables		
Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation, minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land
70	71	Large span, access roads are poorly maintained; access suggested by means of pack animals or cable cars
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation, minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
58	59	Watershed			Cross	
58	59	Road			Cross	
58	59	Dist.	AES	13.8	Cross	
59	61	Papaya Plantation				Fruit Plantation
60	61	Dist.	AES	13.8	Cross	
60	61	Road			Cross	
60	62	Road			Parallel	
60	62	Dist.	AES	13.8	Parallel	
61	62	Dist.	AES	13.8	Cross	3 Phases
62	63	Road			Cross	
62	63	Dist.	AES	13.8	Cross	



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Existing Ahuachapan Substation

Proposed EDP/Invenergy Acajutla Substation

Transmission Structure

Transmission Route Segments

Segment A, 16.2km

Segment B, 20.4km

Segment C, 6.7km

38m Right of Way

Property Boundary

Access Roads

Existing Dirt Road

Existing Paved Road

Existing Private Road

Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

Invenergy

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Segment B Main Obstables

Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
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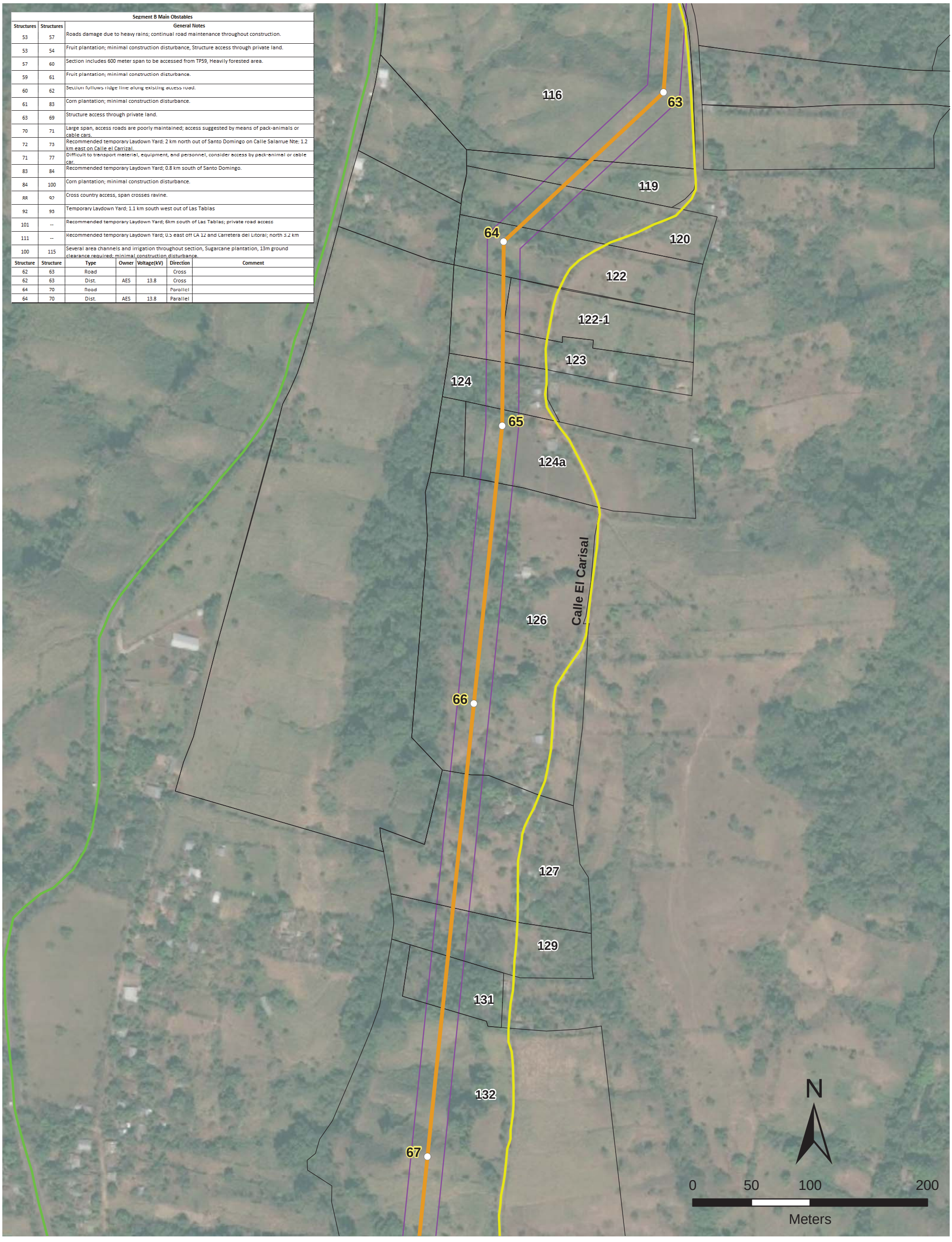
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
62	63	Road			Cross	
62	63	Dist.	AES	13.8	Cross	
64	70	Road			Parallel	
64	70	Dist.	AES	13.8	Parallel	



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Existing Ahuachapan Substation

Proposed EDP/Invenergy Acajutla Substation

Transmission Structure

Transmission Route Segments

Segment A, 16.2km

Segment B, 20.4km

Segment C, 6.7km

38m Right of Way

Property Boundary

Access Roads

Existing Dirt Road

Existing Paved Road

Existing Private Road

Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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132
134
135
136
137
138
139
140
Calle El Carisal
68
69
392m
143
70
N
0
50
100
200
Meters

Segment B Main Obstables		
Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
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63	69	Structure access through private land.
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100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
64	70	Road			Parallel	
64	70	Dist.	AES	13.8	Parallel	
70	71	Road			Cross	
70	71	Creek			Cross	

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Existing Ahuachapan Substation

Proposed EDP/Invenergy Acajutla Substation

Transmission Structure

Transmission Route Segments

Segment A, 16.2km

Segment B, 20.4km

Segment C, 6.7km

38m Right of Way

\# Property Boundary

Access Roads

Existing Dirt Road

Existing Paved Road

Existing Private Road

Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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Segment B Main Obstables		
Structures	Structures	General Notes
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100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
70	71	Road			Cross	
70	71	Creek			Cross	
73	74	Dist.	AES	0.12	Parallel	Low Voltage Distribution Line

143
Calle El Carisal
71
144
435m
146
72
10867m²
376m
73
315m
146
15m
N
0 50 100 200
Meters

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Existing Ahuachapan Substation
Proposed EDP/Invenergy Acajutla Substation
Transmission Structure

Transmission Route Segments

Segment A, 16.2km
Segment B, 20.4km
Segment C, 6.7km

38m Right of Way
Property Boundary
Proposed Temporary Laydown Area

Access Roads

Existing Dirt Road
Existing Paved Road
Existing Private Road
Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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146
147
148
149
151
153
154
155
156-1
146-1
157-1
158-1
159-1-2-3
160-1
315m
575m
74
75
290000
290000
Calle La Sabana
N
0
50
100
200
Meters

Segment B Main Obstables		
Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
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100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
73	74	Dist.	AES	0.12	Parallel	Low Voltage Distribution Line
74	75	Watershed			Cross	
75	76	Dist.	AES	13.8	Cross	
75	76	Dist.	AES	0.12	Cross	Low Voltage Distribution Line; relocate line
75	76	Watershed			Cross	

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Existing Ahuachapan Substation
Proposed EDP/Invenergy Acajutla Substation
Transmission Structure

Transmission Route Segments

Segment A, 16.2km
Segment B, 20.4km
Segment C, 6.7km

38m Right of Way
Property Boundary

Access Roads

Existing Dirt Road
Existing Paved Road
Existing Private Road
Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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Segment B Main Obstables		
Structures	Structures	General Notes
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111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
75	76	Dist.	AES	13.8	Cross	
75	76	Dist.	AES	0.12	Cross	Low Voltage Distribution Line; relocate line
75	76	Watershed			Cross	
77	78	Watershed			Cross	
78	79	Dist.	AES	13.8	Parallel	
78	79	Road			Cross	

76
77
78
79
253m
178m
68m
108m
767m
160-1
161-1
162-1
163-1
164-1
164-1
166-1
167-1
168-1
172-1
175-1
176-1
176-1
178-1
Calle La Sabana
Calle El Caulote
N
0 50 100 200
Meters

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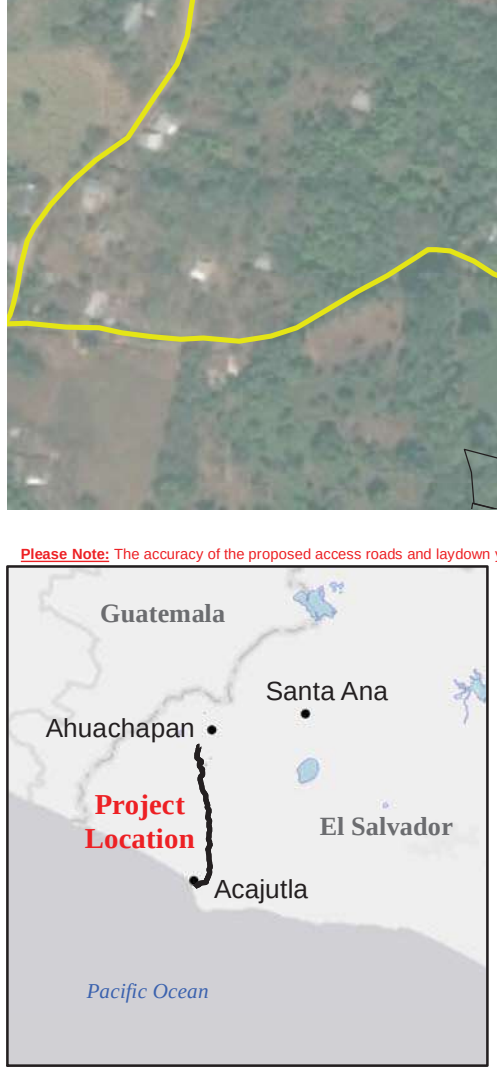

- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure
- 38m Right of Way
- # Property Boundary

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

Invenergy

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Segment B Main Obstables		
Structures	Structures	General Notes
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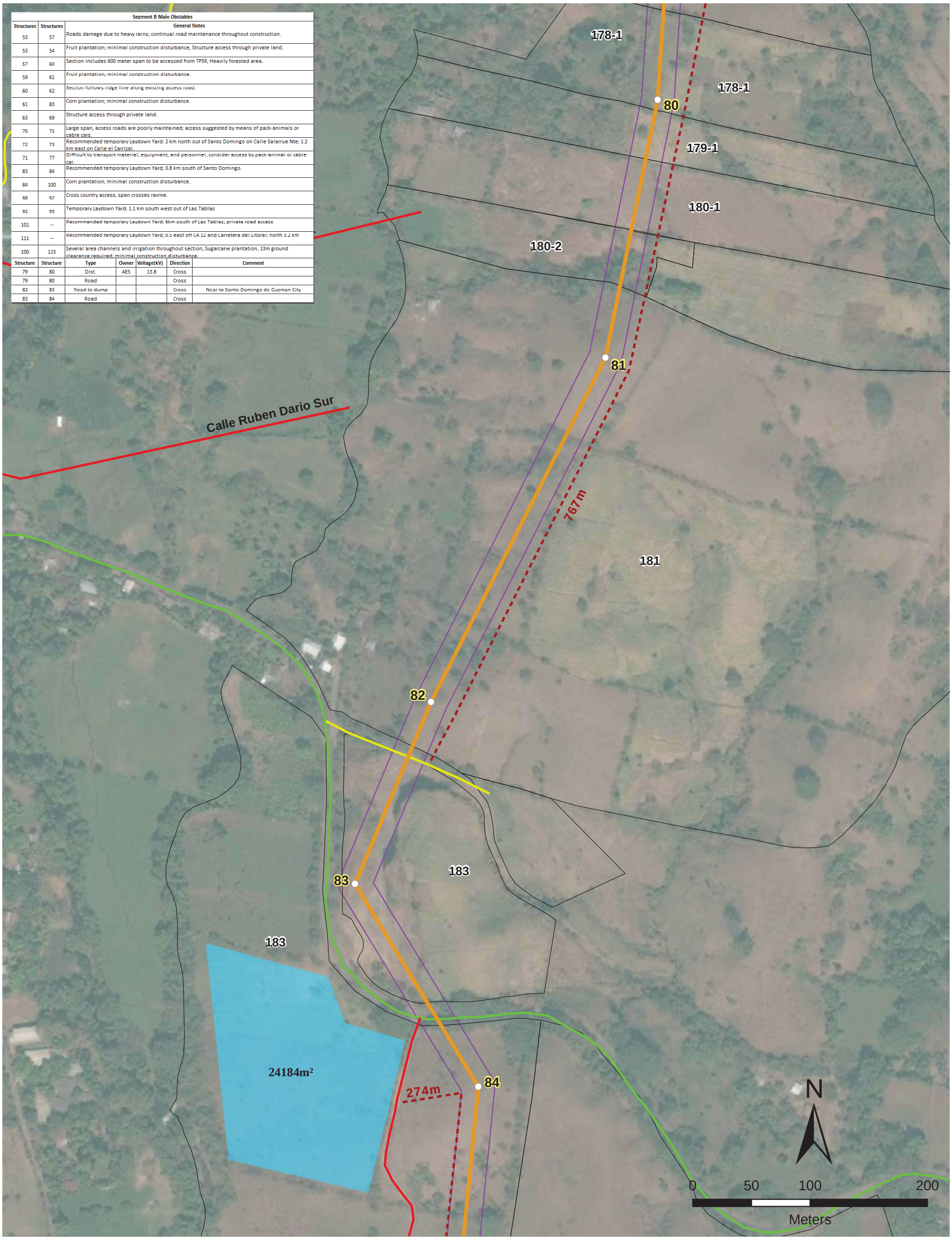
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
79	80	Dist.	AES	13.8	Cross	
79	80	Road			Cross	
82	83	Road to dump			Cross	Near to Santo Domingo de Guzman City
83	84	Road			Cross	



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure (#)
- 38m Right of Way
- # Property Boundary
- Proposed Temporary Laydown Area

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

Invenergy

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Segment B Main Obstables		
Structures	Structures	General Notes
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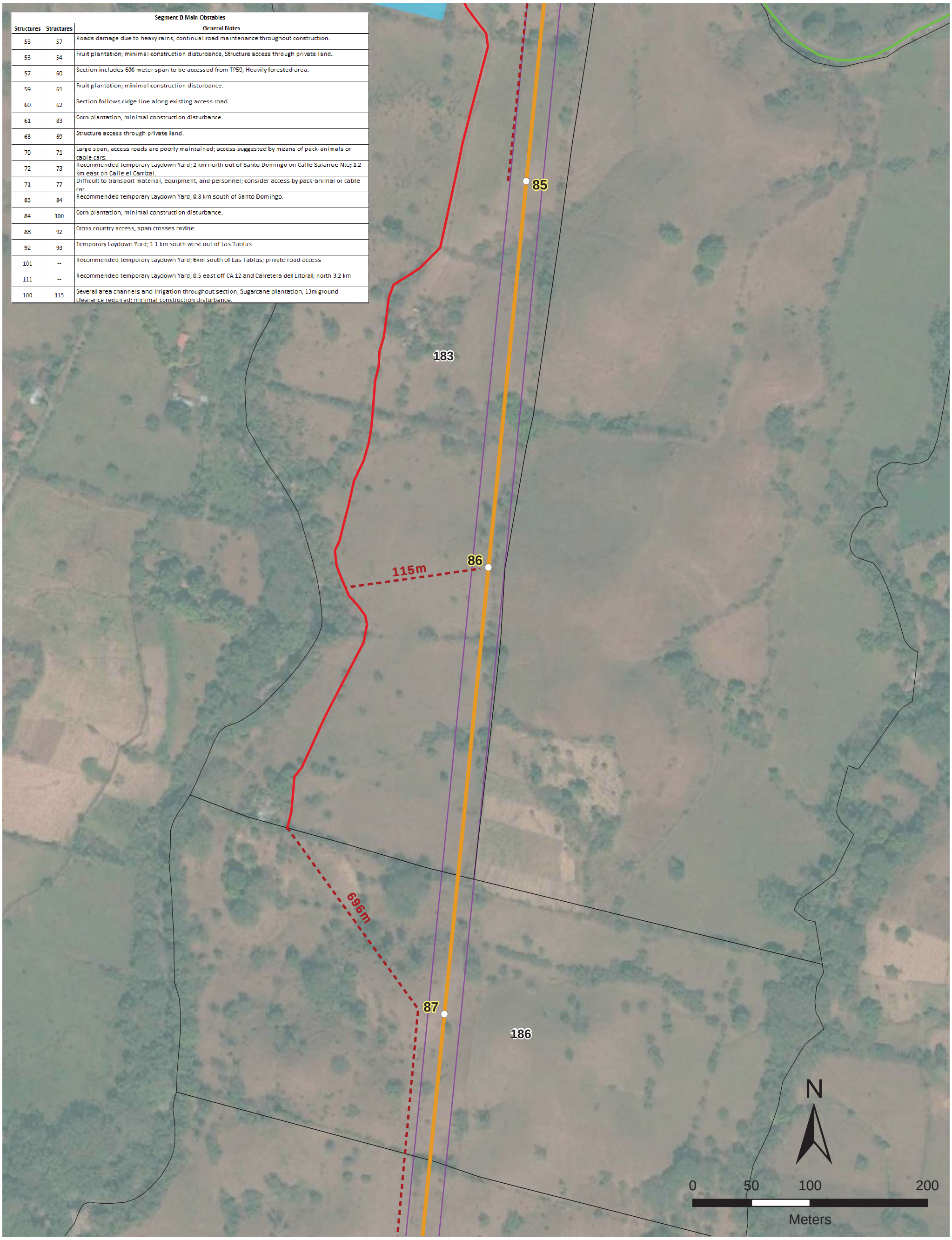

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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary
- Proposed Temporary Laydown Area

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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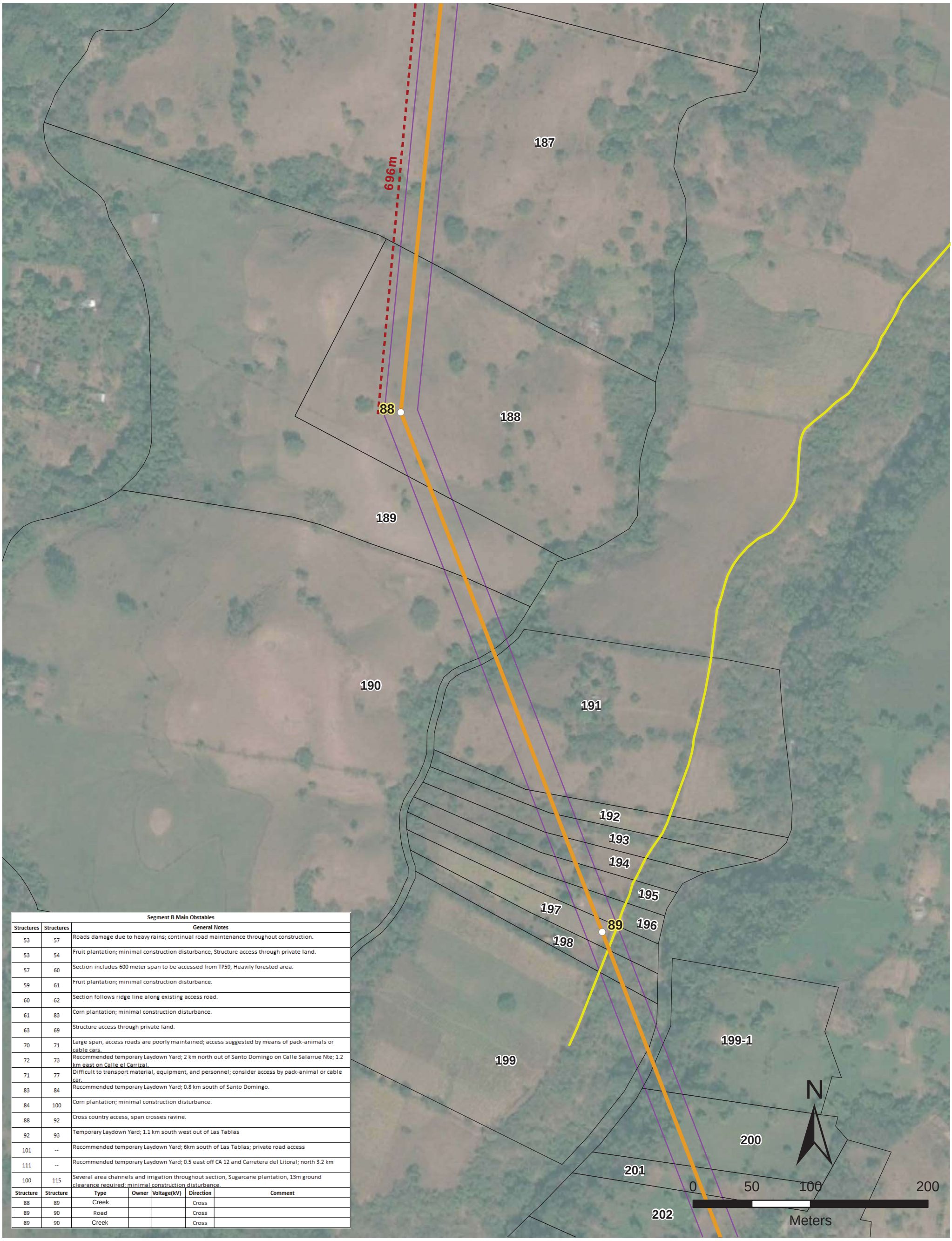

Segment B Main Obstables		
Structures	Structures	General Notes
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100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
88	89	Creek			Cross	
89	90	Road			Cross	
89	90	Creek			Cross	

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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure
- 38m Right of Way
- # Property Boundary

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

Invenergy

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202
203
204
206
205-1
207-1
208
209
210
211
212
213
216-1
216-2
217
218
219
17225m²
90
91
92
93
94
95
733m
156m
50m
73m
45m
N
0
50
100
200
Meters

Segment B Main Obstables		
Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation; minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation, 13m ground clearance required; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
89	90	Road			Cross	
89	90	Creek			Cross	
91	92	Creek			Cross	
93	94	Dist.	AES	0.12	Cross	Low Voltage Distribution Line
94	95	Dist.	AES	0.12	Parallel	Low Voltage Distribution Line
95	96	Dist.	AES	0.12	Cross	Low Voltage Distribution Line

Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure
- 38m Right of Way
- # Property Boundary
- Proposed Temporary Laydown Area

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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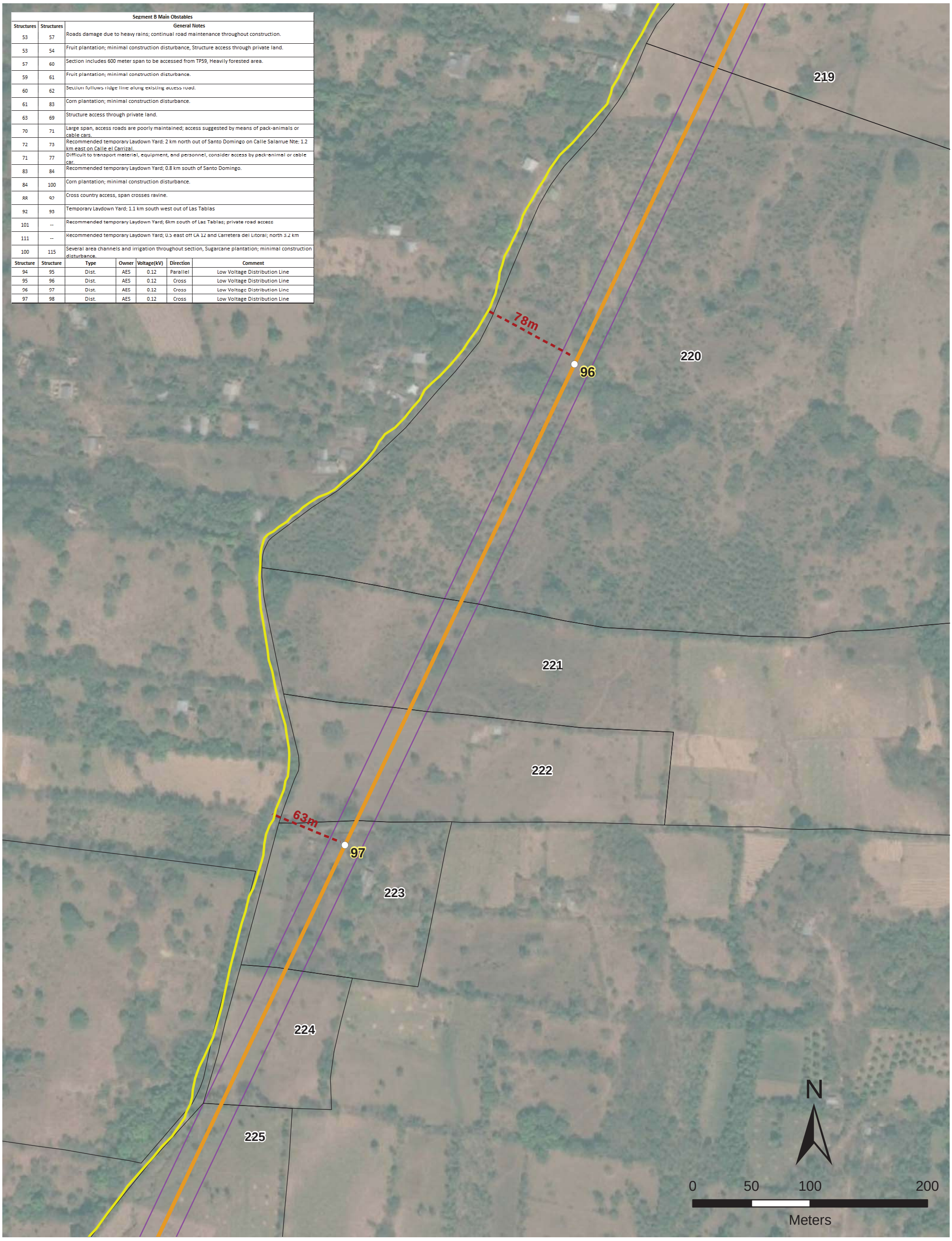
Segment B Main Obstables		
Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.
71	77	Difficult to transport material, equipment, and personnel, consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation; minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
94	95	Dist.	AES	0.12	Parallel	Low Voltage Distribution Line
95	96	Dist.	AES	0.12	Cross	Low Voltage Distribution Line
96	97	Dist.	AES	0.12	Cross	Low Voltage Distribution Line
97	98	Dist.	AES	0.12	Cross	Low Voltage Distribution Line



Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



Existing Ahuachapan Substation

Proposed EDP/Invenergy Acajutla Substation

Transmission Structure

Transmission Route Segments

Segment A, 16.2km

Segment B, 20.4km

Segment C, 6.7km

38m Right of Way

Property Boundary

Access Roads

Existing Dirt Road

Existing Paved Road

Existing Private Road

Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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53m
98
225
99
37m
226
226a
95m
100
227
228
N
0 50 100 200
Meters

Segment B Main Obstables		
Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation; minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
97	98	Dist.	AES	0.12	Cross	Low Voltage Distribution Line
98	99	Dist.	AES	13.8	Cross	
98	99	Road			Cross	
99	100	Dist.	AES	0.12	Cross	Low Voltage Distribution Line
100	101	Creek			Cross	
100	101	Dist.	AES	13.8	Parallel	Construction In progress

Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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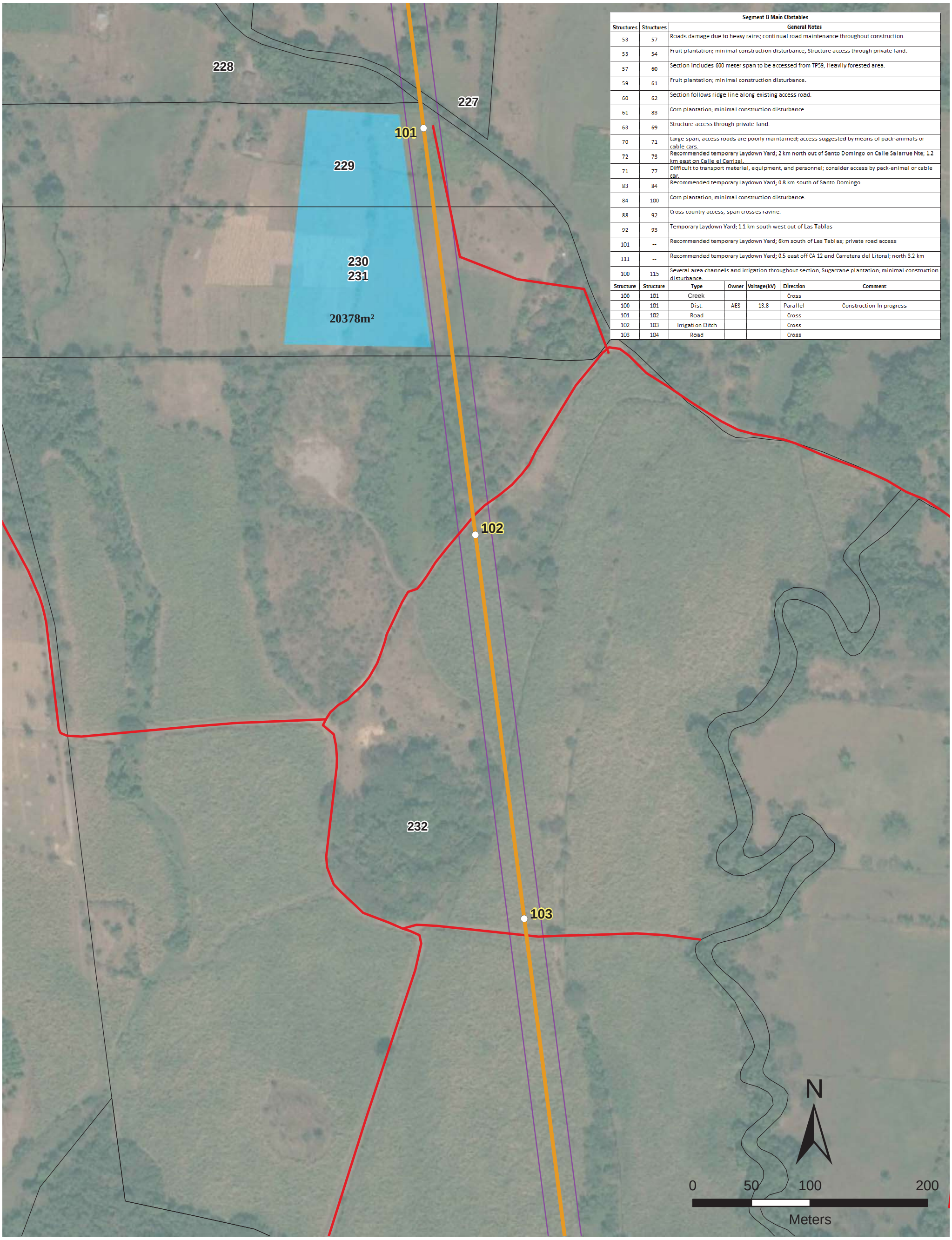

Segment B Main Obstables

Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation; minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
100	101	Creek			Cross	
100	101	Dist.	AES	13.8	Parallel	Construction In progress
101	102	Road			Cross	
102	103	Irrigation Ditch			Cross	
103	104	Road			Cross	



Existing Ahuachapan Substation
Proposed EDP/Invenergy Acajutla Substation
Transmission Structure

Transmission Route Segments

Segment A, 16.2km
Segment B, 20.4km
Segment C, 6.7km

38m Right of Way
Property Boundary
Proposed Temporary Laydown Area

Access Roads

Existing Dirt Road
Existing Paved Road
Existing Private Road
Proposed New Road

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El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.

Segment B Main Obstables

Structures	Structures	General Notes
55	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	63	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle El Carrizal.
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation, minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
103	104	Road			Cross	
104	105	Irrigation Ditch			Cross	
104	105	Road			Cross	
104	105	River			Cross	
105	106	Irrigation Ditch			Cross	
105	106	Road			Cross	
106	107	Irrigation Ditch			Cross	Two Irrigation ditch system

104
218m
232
105
106
595m
235-1
232
N
0 50 100 200
Meters

Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- # Transmission Structure

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

Invenergy

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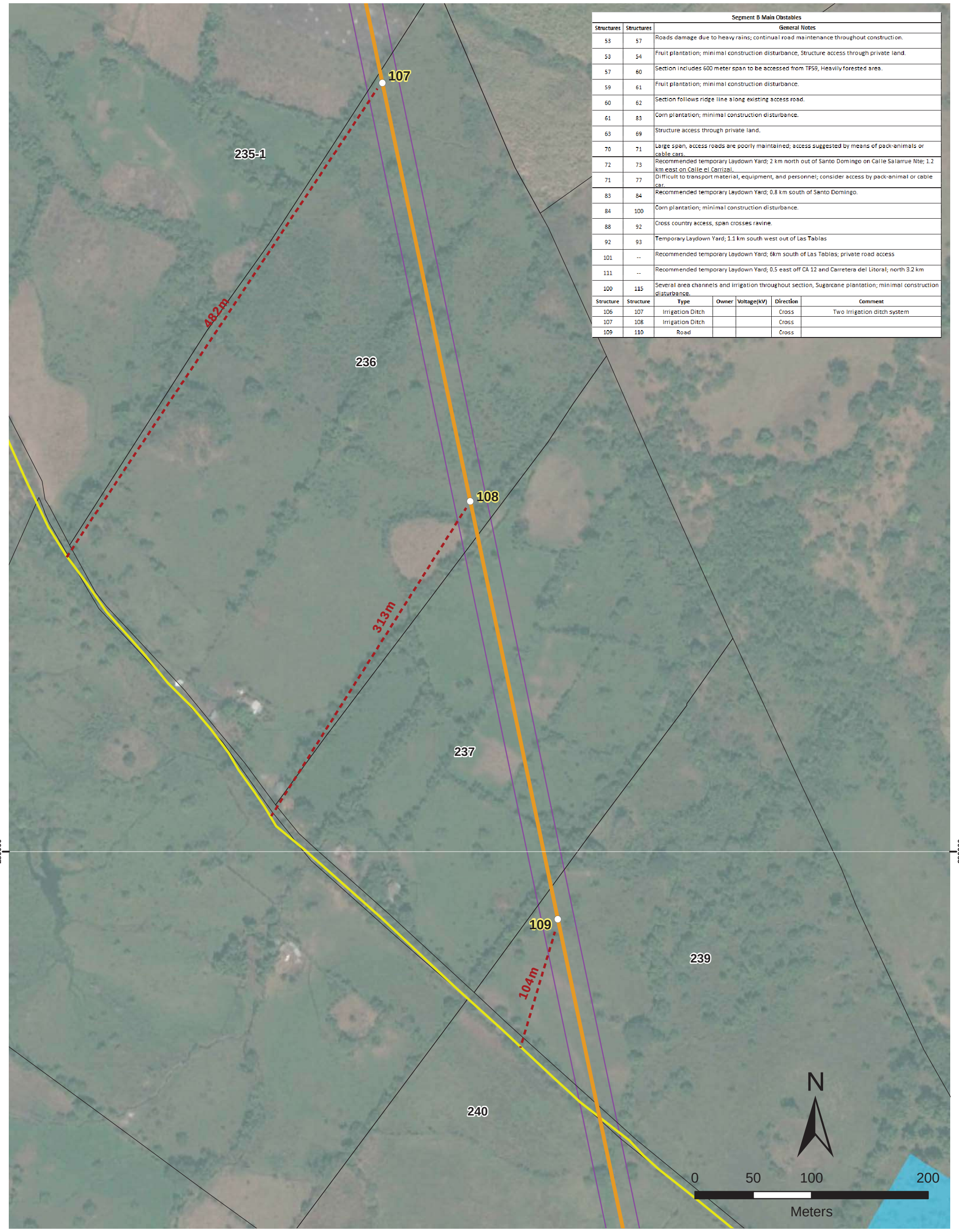
Segment B Main Obstables						
Structures	Structures	General Notes				
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.				
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.				
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.				
59	61	Fruit plantation; minimal construction disturbance.				
60	62	Section follows ridge line along existing access road.				
61	83	Corn plantation; minimal construction disturbance.				
63	69	Structure access through private land.				
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.				
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.				
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.				
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.				
84	100	Corn plantation; minimal construction disturbance.				
88	92	Cross country access, span crosses ravine.				
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas				
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access				
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km				
100	115	Several area channels and irrigation throughout section, Sugarcane plantation; minimal construction disturbance.				
Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
106	107	Irrigation Ditch			Cross	Two Irrigation ditch system
107	108	Irrigation Ditch			Cross	
109	110	Road			Cross	



Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure
- 38m Right of Way
- # Property Boundary
- Proposed Temporary Laydown Area

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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239

20276m²

111m

110

240

111

241 a-b

112

132m

242

N

0 50 100 200

Meters

Segment B Main Obstables		
Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction.
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance.
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land.
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal.
71	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation; minimal construction disturbance.
88	92	Cross country access, span crosses ravine.
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tablas; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
109	110	Road			Cross	
110	111	Irrigation Ditch			Cross	
110	111	Dist.	AES	13.8	Cross	
110	111	Road			Cross	
111	112	Irrigation Ditch			Cross	Two Irrigation ditch system
111	114	Creek			Parallel	

Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure
- 38m Right of Way
- # Property Boundary
- Proposed Temporary Laydown Area

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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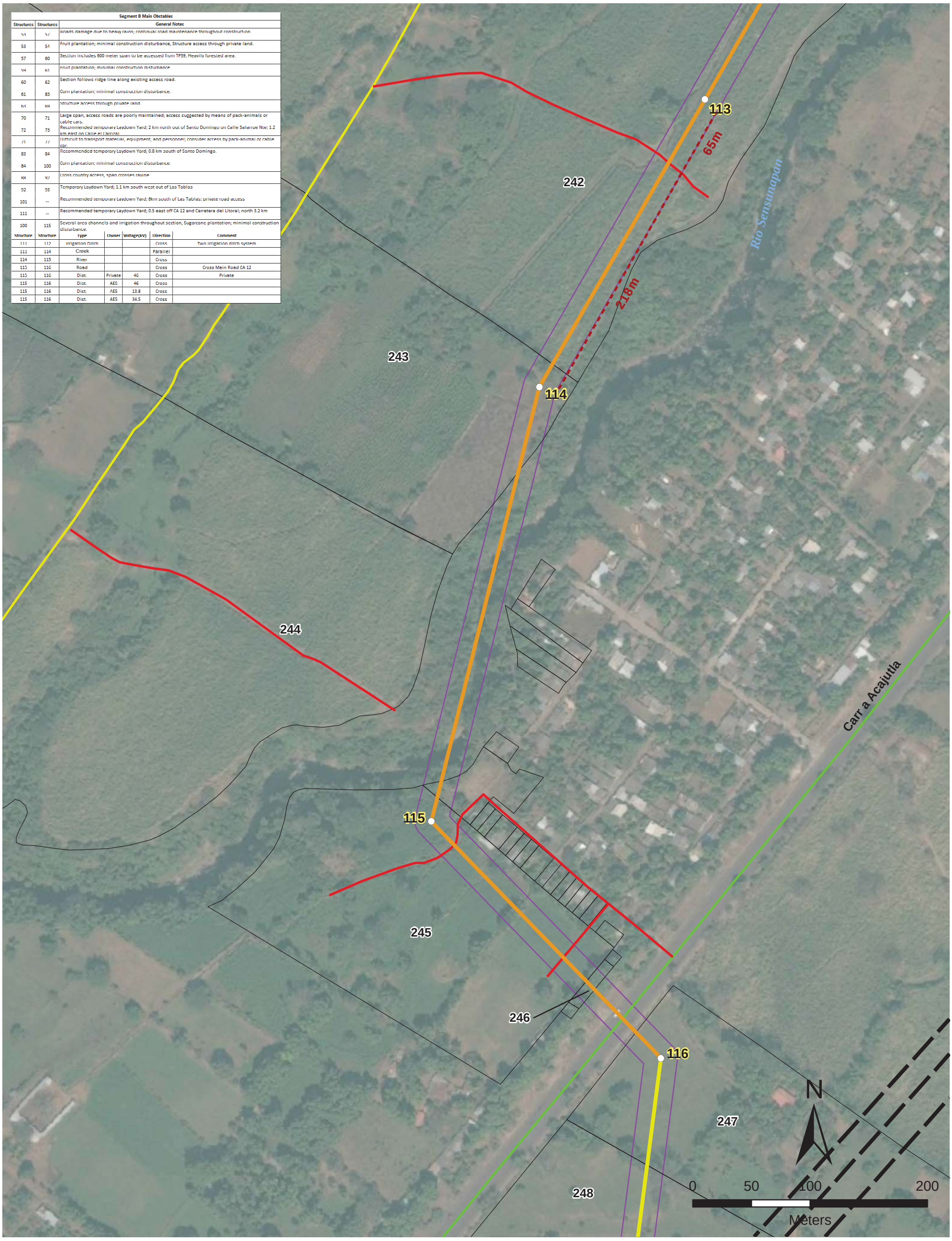
Segment B Main Obstables

Structures	Structures	General Notes
53	57	Roads damage due to heavy rains; continual road maintenance throughout construction
53	54	Fruit plantation; minimal construction disturbance, Structure access through private land.
57	60	Section includes 600 meter span to be accessed from TP59, Heavily forested area.
59	61	Fruit plantation; minimal construction disturbance
60	62	Section follows ridge line along existing access road.
61	83	Corn plantation; minimal construction disturbance.
63	69	Structure access through private land
70	71	Large span, access roads are poorly maintained; access suggested by means of pack-animals or cable cars.
72	73	Recommended temporary Laydown Yard; 2 km north out of Santo Domingo on Calle Salarrue Nte; 1.2 km east on Calle el Carrizal
77	77	Difficult to transport material, equipment, and personnel; consider access by pack-animal or cable car.
83	84	Recommended temporary Laydown Yard; 0.8 km south of Santo Domingo.
84	100	Corn plantation; minimal construction disturbance.
88	97	Cross country access, span crosses ravine
92	93	Temporary Laydown Yard; 1.1 km south west out of Las Tablas
101	--	Recommended temporary Laydown Yard; 6km south of Las Tables; private road access
111	--	Recommended temporary Laydown Yard; 0.5 east off CA 12 and Carretera del Litoral; north 3.2 km
100	115	Several area channels and irrigation throughout section, Sugarcane plantation; minimal construction disturbance.

Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
111	112	Irrigation Ditch			Cross	Two irrigation ditch system
111	114	Creek			Parallel	
114	115	River			Cross	
115	116	Road			Cross	Cross Main Road CA 12
115	116	Dist.	Private	46	Cross	Private
115	116	Dist.	AES	46	Cross	
115	116	Dist.	AES	13.8	Cross	
115	116	Dist.	AES	34.5	Cross	



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- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure
- Existing Transmission

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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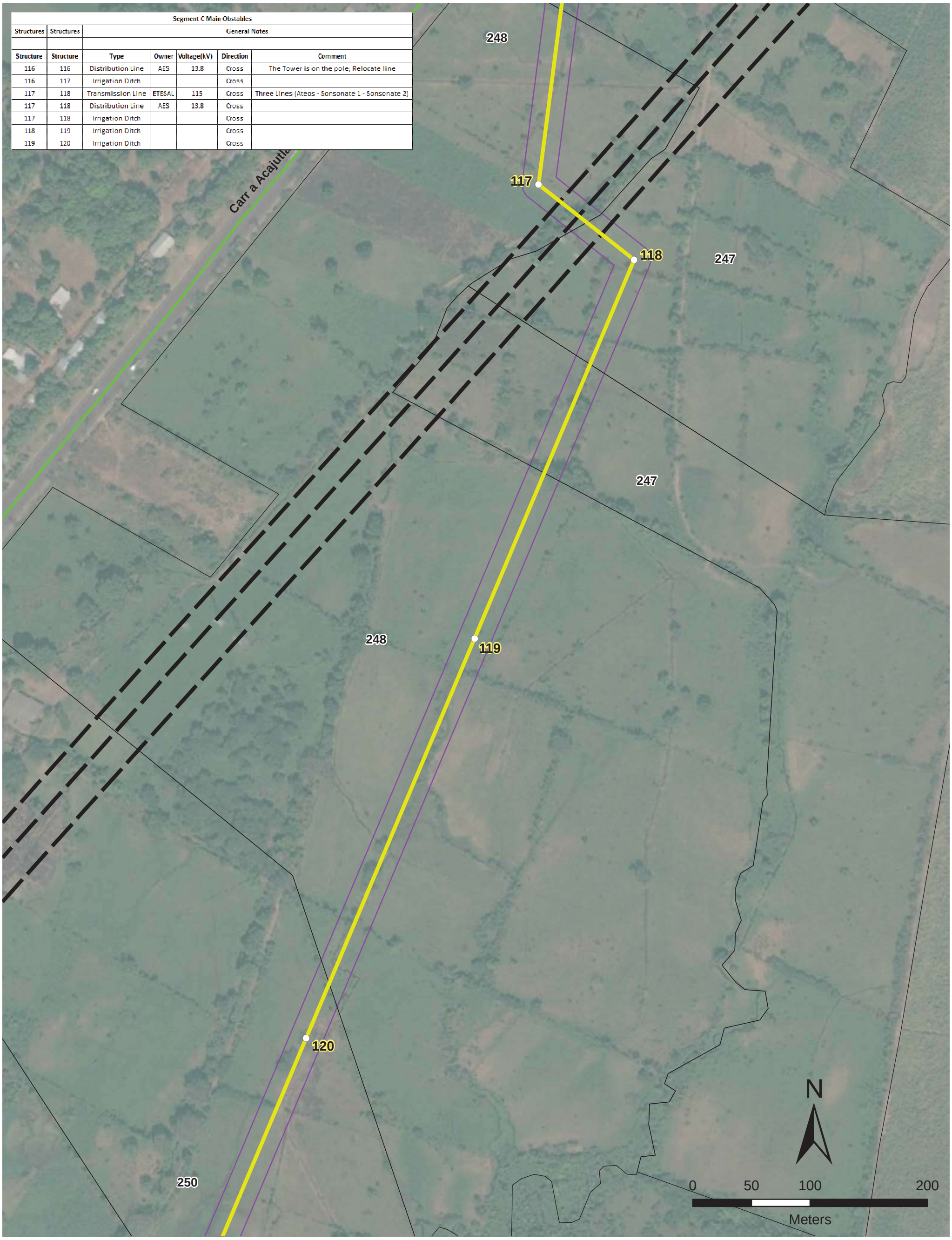
Segment C Main Obstables						
Structures	Structures	General Notes				
--	--	---------				
Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
116	116	Distribution Line	AES	13.8	Cross	The Tower is on the pole; Relocate line
116	117	Irrigation Ditch			Cross	
117	118	Transmission Line	ETESAL	115	Cross	Three Lines (Ateos - Sonsonate 1 - Sonsonate 2)
117	118	Distribution Line	AES	13.8	Cross	
117	118	Irrigation Ditch			Cross	
118	119	Irrigation Ditch			Cross	
119	120	Irrigation Ditch			Cross	



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Existing Ahuachapan Substation
Proposed EDP/Invenergy Acajutla Substation
Transmission Structure
Existing Transmission

Transmission Route Segments

Segment A, 16.2km
Segment B, 20.4km
Segment C, 6.7km

38m Right of Way
Property Boundary

Access Roads

Existing Dirt Road
Existing Paved Road
Existing Private Road
Proposed New Road

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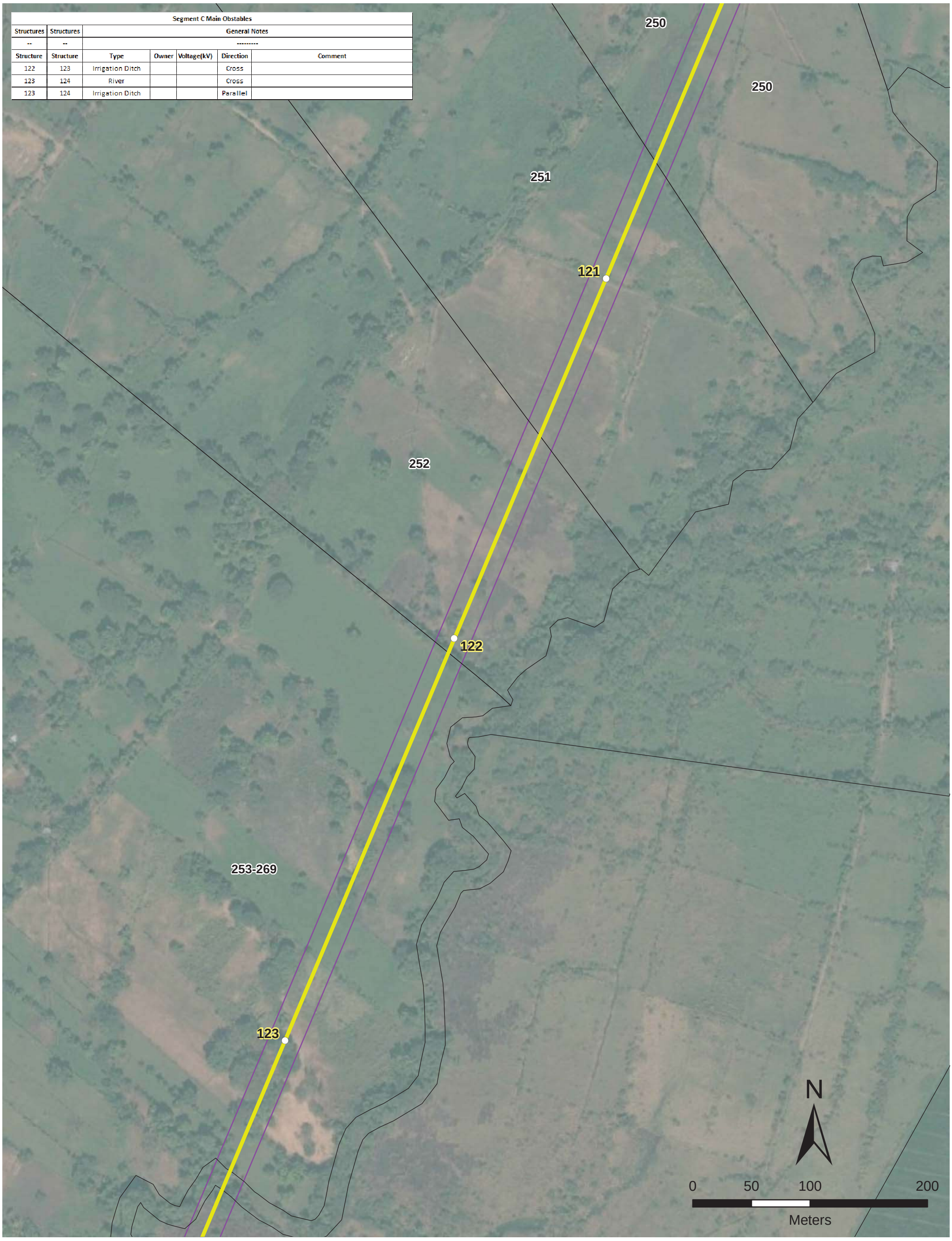
Segment C Main Obstables						
Structures	Structures	General Notes				
--	--	---------				
Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
122	123	Irrigation Ditch			Cross	
123	124	River			Cross	
123	124	Irrigation Ditch			Parallel	



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Existing Ahuachapan Substation

Proposed EDP/Invenergy Acajutla Substation

Transmission Structure

Transmission Route Segments

Segment A, 16.2km

Segment B, 20.4km

Segment C, 6.7km

38m Right of Way

Property Boundary

Access Roads

Existing Dirt Road

Existing Paved Road

Existing Private Road

Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

Invenergy

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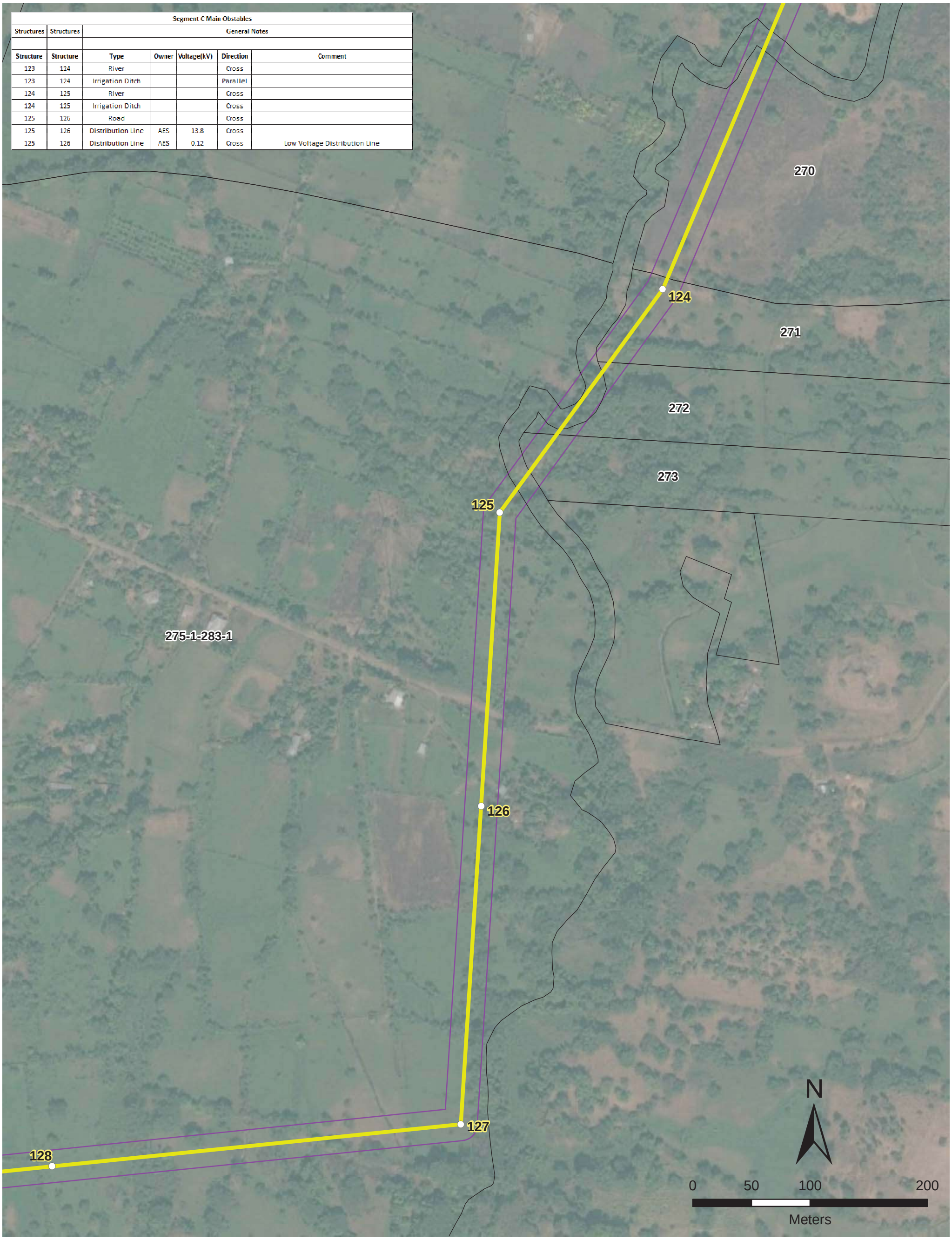
Segment C Main Obstables						
Structures	Structures	General Notes				
--	--	---------				
Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
123	124	River			Cross	
123	124	Irrigation Ditch			Parallel	
124	125	River			Cross	
124	125	Irrigation Ditch			Cross	
125	126	Road			Cross	
125	126	Distribution Line	AES	13.8	Cross	
125	126	Distribution Line	AES	0.12	Cross	Low Voltage Distribution Line



Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
- Proposed EDP/Invenergy Acajutla Substation
- Transmission Structure

Transmission Route Segments

- Segment A, 16.2km
- Segment B, 20.4km
- Segment C, 6.7km

- 38m Right of Way
- # Property Boundary

Access Roads

- Existing Dirt Road
- Existing Paved Road
- Existing Private Road
- Proposed New Road

El Salvador Double Circuit
230 kV Transmission
Acajutla to Ahuachapan
Route Detail Map Book

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Segment C Main Obstables						
Structures	Structures	General Notes				
--	--	---				
Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
128	129	Distribution Line	AES	34.5	Cross	
128	129	Communication Line			Cross	Two Line
128	129	Road			Cross	To Salinitas and Cobanos Beach
129	130	Irrigation Ditch			Cross	
129	130	Irrigation Ditch			Cross	
130	131	Irrigation Ditch			Cross	

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- Existing Ahuachapan Substation
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Segment C Main Obstables						
Structures	Structures	General Notes				
--	--	---------				
Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
130	131	Irrigation Ditch			Cross	
131	132	Transmission Line	ETESAL	115	Cross	
131	132	Irrigation Ditch			Cross	

Carr a Acajutla

131

132

286-1

287-1

289-1

288-1

290-1

291-1

289

N

0 50 100 200

Meters

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Existing Ahuachapan Substation

Proposed EDP/Invenergy Acajutla Substation

Transmission Structure

Transmission Route Segments

Segment A, 16.2km

Segment B, 20.4km

Segment C, 6.7km

38m Right of Way

Property Boundary

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Existing Dirt Road

Existing Paved Road

Existing Private Road

Proposed New Road

El Salvador Double Circuit 230 kV Transmission Acajutla to Ahuachapan **Route Detail Map Book**

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Segment C Main Obstables						
Structures	Structures	General Notes				
--	--	---------				
Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
134	135	Distribution Line	Private	0.12	Cross	Illumination low voltaje distribution line
134	135	Distribution Line	AES	46/34.5/13.8	Cross	Distribution Line
136	138	Distribution Line	AES	46	Parallel	Two Lines
136	138	Road			Cross	Main Road CA 12
136	138	Transmission Line	ETESAL	115	Cross	



Please Note: The accuracy of the proposed access roads and laydown yards must be checked by the contractor. The contractor will be responsible for proposing new access roads and laydown yards according to their own criteria. Negotiations with landowners will be carried out accroding to Exhibit A.



- Existing Ahuachapan Substation
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- Segment A, 16.2km
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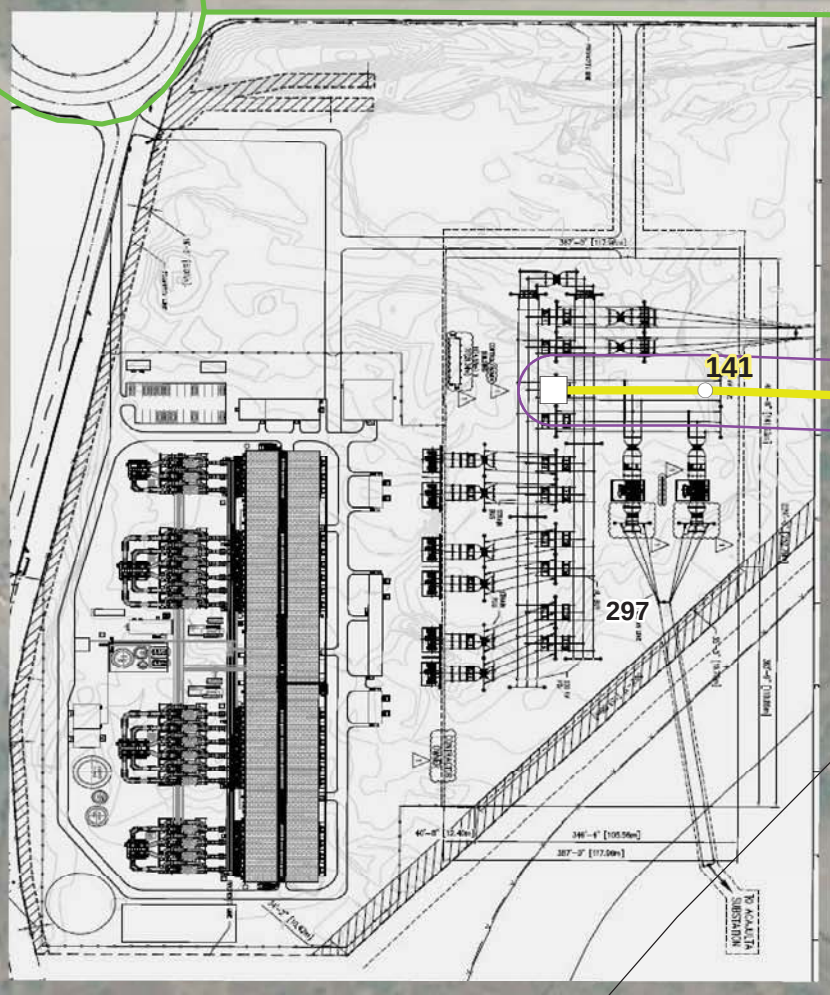

Boulevar 25 de Febrero

24 de Octubre O

297

137

138

139

141

140

Segment C Main Obstables						
Structures	Structures	General Notes				
--	--	---				
Structure	Structure	Type	Owner	Voltage(kV)	Direction	Comment
136	138	Distribution Line	AES	46	Parallel	Two Lines
136	138	Road			Cross	Main Road CA 12
136	138	Transmission Line	ETESAL	115	Cross	
138	140	Transmission Line	ETESAL	115	Parallel	

N

0 50 100 200

Meters

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Existing Ahuachapan Substation

Proposed EDP/Invenergy Acajutla Substation

Transmission Structure

38m Right of Way

Property Boundary

Transmission Route Segments

Segment A, 16.2km

Segment B, 20.4km

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Appendix Q - Lifting, Laying and Tensioning of Conductors

4ª. Calle 20-95 Boulevard Balcones
Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
Tel.: +502-24595036
Cel: +502-58341282
Email: saul.cabezas@gmail.com, saul.cabezas@selap.net

"GENERAL DESCRIPTION OF LIFTING, LAYING AND TENSIONING OF POWER DRIVERS AND GUARD PROTECTION OF TRANSMISSION LINE 230 KILOVOLTIOS AHUACHAPAN - EDP, ACAJUTLA"



Prepared by: **Saúl Cabezas – SM Ingenieria**

Attention: **Alberto Osorio / Cesar Galdámez**

4ª. Calle 20-95 Boulevard Balcones
Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
Tel.: +502-24595036
Cel: +502-58341282
Email: saul.cabezas@gmail.com, saul.cabezas@selap.net

SM

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0. CONTENT 2

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2.2 CONDUCTORS LAYING 4

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Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
Tel.: +502-24595036
Cel: +502-58341282
Email: saul.cabezas@gmail.com, saul.cabezas@selap.net

SM

1. SCOPE

The present document refers only to a general description of the activities that relate to lifting of structure, laying and tensioning of conductors between towers of the transmission line.

2. LIFTING

It refers to the activities that involve the lifting of the structure (tower) in the location corresponding to the Stakeout Table of the Structures location, of the transmission line trace design.

Prior to the lifting of the structure, the process of stakeout, site preparation, access and foundation has been completed.



Illustration 1: Foundation of a leg of a tower



Structures are composed of multiple elements prepared in such a way that they can be moved individually, which according to design can be assembled in site as a whole or pre-reinforced sections can be moved.

Small vehicles are used for entrance by the accesses available from the warehouses and pre-assembly areas to the site where the tower is located.

The type of machinery such as cranes, trucks and other smaller ones are assigned according to the area and access roads to the location of the tower. This is how 4x4 vehicles are used to transport personnel, tools, equipment and structural sections, which, according to an arming map, are assembled in site section by section.

4ª. Calle 20-95 Boulevard Balcones
Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
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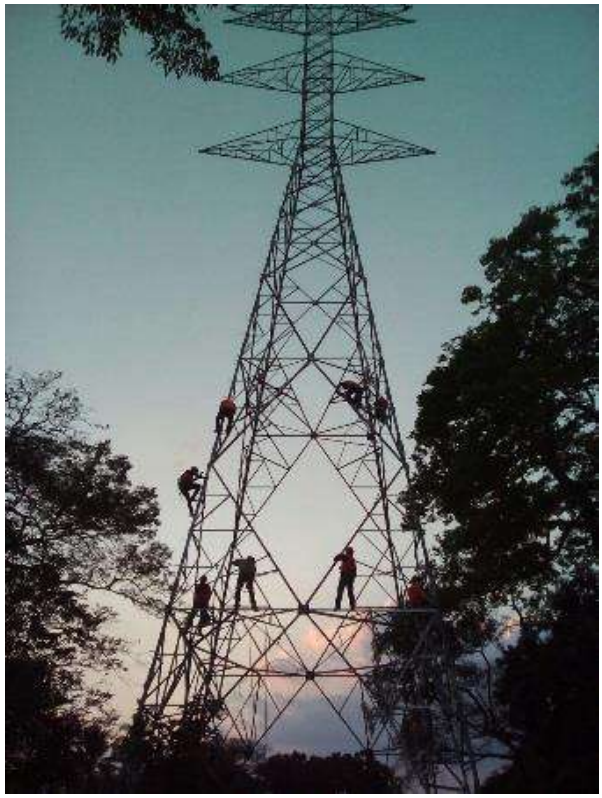
Cel: +502-58341282
Email: saul.cabezas@gmail.com, saul.cabezas@selap.net



2.1 STRUCTURES DRESS

- It is called structure dress to the work of installing the chains of insulators and ironworks.
- Temporary special pulleys are installed which are used to drive and slide the cable during laying and tensioning, and then they are removed.

2.2 CONDUCTORS LAYING

- The laying of phase conductors and guard conductors refers to all related activities to place the conductors one by one in the chain of conductors - fittings between towers according to the classification of heights and angles.
- Laying generally involves a push section and the other one of traction of the conductors for which first launches a rugged, low weight heavy duty polyethylene cable guide and drive the path using the pulleys previously installed at the points of the towers required.
- A mechanical-hydraulic system of traction and brake unwinds each of the coils gradually and coordinated between speed-tension to prevent the cable from falling and can touch obstacles in the lower part of the span that describes the driver during the process.
- The conductors must not come into contact with trees, vegetation, plantations or other obstacles, since the cable itself should not be scratched or cause any mechanical deformation.
- Also during the laying process, accessories are used to keep the conductors in suspension and avoid direct contact with plantations and trees inside and outside the right of way that do not qualify for pruning or cutting.

4ª. Calle 20-95 Boulevard Balcones
Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
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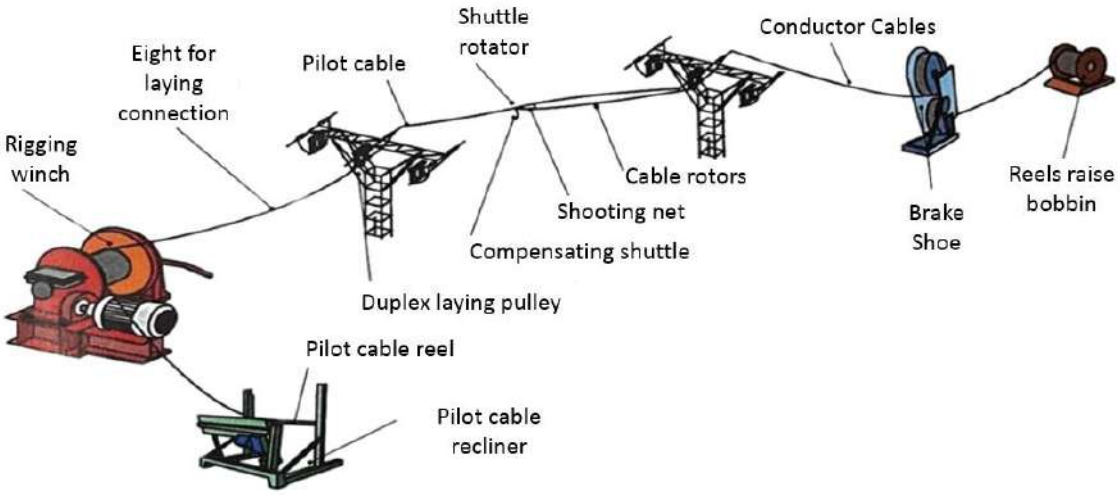

Illustration 2: LAYING GENERAL ACTIVITIES



Illustration 3: EXAMPLE OF PULLEYS USED IN THE PROCESS OF LAYING AND TENSIONING OF CABLE

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Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
Tel.: +502-24595036
Cel: +502-58341282
Email: saul.cabezas@gmail.com, saul.cabezas@selap.net



Illustration 4: VIEW OF TRACTION AND BRAKE EQUIPMENT USED IN LAYING AND TENSIONING ACTIVITY.



Illustration 5: VIEW OF THE CABLE GUIDE OR PILOT CABLE LAUNCHING PROCESS BETWEEN THE MACHINE AND TOWER.

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Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
Tel.: +502-24595036
Cel: +502-58341282
Email: saul.cabezas@gmail.com, saul.cabezas@selap.net

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Illustration 6: VIEW OF CONDUCTOR LAYING PROCESS BETWEEN MACHINE AND TOWER.

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Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
Tel.: +502-24595036
Cel: +502-58341282
Email: saul.cabezas@gmail.com, saul.cabezas@selap.net



Illustration 7: SUITABLE SIZE CRANES TO THE AREA OF ACCESS ARE USED IN THE ACTIVITY OF LAYING AND TENSIONING.

- Before beginning the cables laying, the following must be considered, among others:
  - Recognition of the section area of the Transmission Line, to know the possible inconveniences at the time of the laying and to be able to make the necessary considerations - road crossings, crossing with existing electric and telecommunication lines, railroad crossing, presence of vegetation and trees. This study is generally carried out at the beginning of the construction activities of the Transmission Line, in order to warn of any adverse situation that has not been considered during the design stage and / or has appeared later.
  - Define the appropriate places at each end of the section for the location of traction and brake equipment and machinery, as well as the location of cable reels for the supply and withdrawal operation.
  - Telescopic poles are used with special accessories at the tip to receive, maneuver and drive the guide wire which is manually-mechanical and prevents the cable from approaching the ground and / or vegetation and trees, as well as any obstacle that threatens the activity.

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Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
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Illustration 8: Variety and types of poles with accessories to lift and maintain the guide wire and conductors to avoid coming into contact with trees, plantations and fall to the ground.

- After conducting the guide wire, it is connected to the electrical conductors that need to be laid between groups of towers.
- The activities are done simultaneously and in parallel to lay the 8 drivers that supports each of the towers.

2.3 CONDUCTORS TENSIONING

After the cable has been laid and is temporarily supported by pulleys in each of the brackets or arms of each of the towers, in a coordinated way according to the electro-mechanical design to perform tensioning work between segments or sections of cables between towers.

- The guide wire or pilot wire is removed.
- Terrestrial traction equipment is used to raise the basic tension.
- Then, individual mechanical tensioning equipment is installed on the tower pole or where applicable, trapping the conductor and performing controlled and monitored tensioning until the rated design tense value is reached. Tensile values are monitored using measuring equipment called Dynamometers.

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- The activity of conductor's tense is accompanied by the temperature monitoring of the day and hour that the activity is carried out in coordination with the tense tables of the design of the Transmission Line.
- Prior to reaching the final tense, the conductor is subject to the ironworks and insulators.
- Traction and tensile measuring equipment are used throughout the activity (dynamometer) with mechanical stress protection devices are installed during the activity.
- The previous maneuvers are repeated for the remaining phases and sections included in the towers of the Transmission Line.
- During all the previous maneuvers mentioned, portable equipment and operators are used up and down of the structures to the heights of the towers. Operators must carefully monitor the safety measures to avoid their own accidents or cause accidents to their surroundings or under themselves, so that at all times there should be presence of supervision on the site.



Illustration 9: Manual equipment of cable tension and cable tension meter. - Dynamometer

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Edificio Vista al Valle, Oficina B, 3er. Nivel
Ciudad San Cristóbal II, Zona 8
Mixco, Guatemala.
Tel.: +502-24595036
Cel: +502-58341282
Email: saul.cabezas@gmail.com, saul.cabezas@selap.net



Illustration 10: Technical personnel performing individual cables tensioning in a tower.

Special conditions

- Road crossings: special coordination between the Institutions of the Ministry of Public Works - MOP to manage all permits and carries out a coordinated activity for the crossing of vehicular traffic. The use of accessories "Y" to avoid that the cables approach or fall to the asphalt or dirt road and threaten the integrity of the vehicular and / or pedestrian passage, energized power lines must be made a specific working procedure for each particular case, generally this type of crosses is realized constructing portals to each side of the crossing with meshes in its superior part to protect them of possible falls or cuts in the conductors.
- Crosses with energized lines: in general, when the crossings are with medium, high and high voltage airlines, the deenergization of the Transmission Line is programmed, thus avoiding unnecessary risks for the maneuver of lying and tensioning of the drivers.
- Crossings with communication lines: the owner of the communications network is consulted.

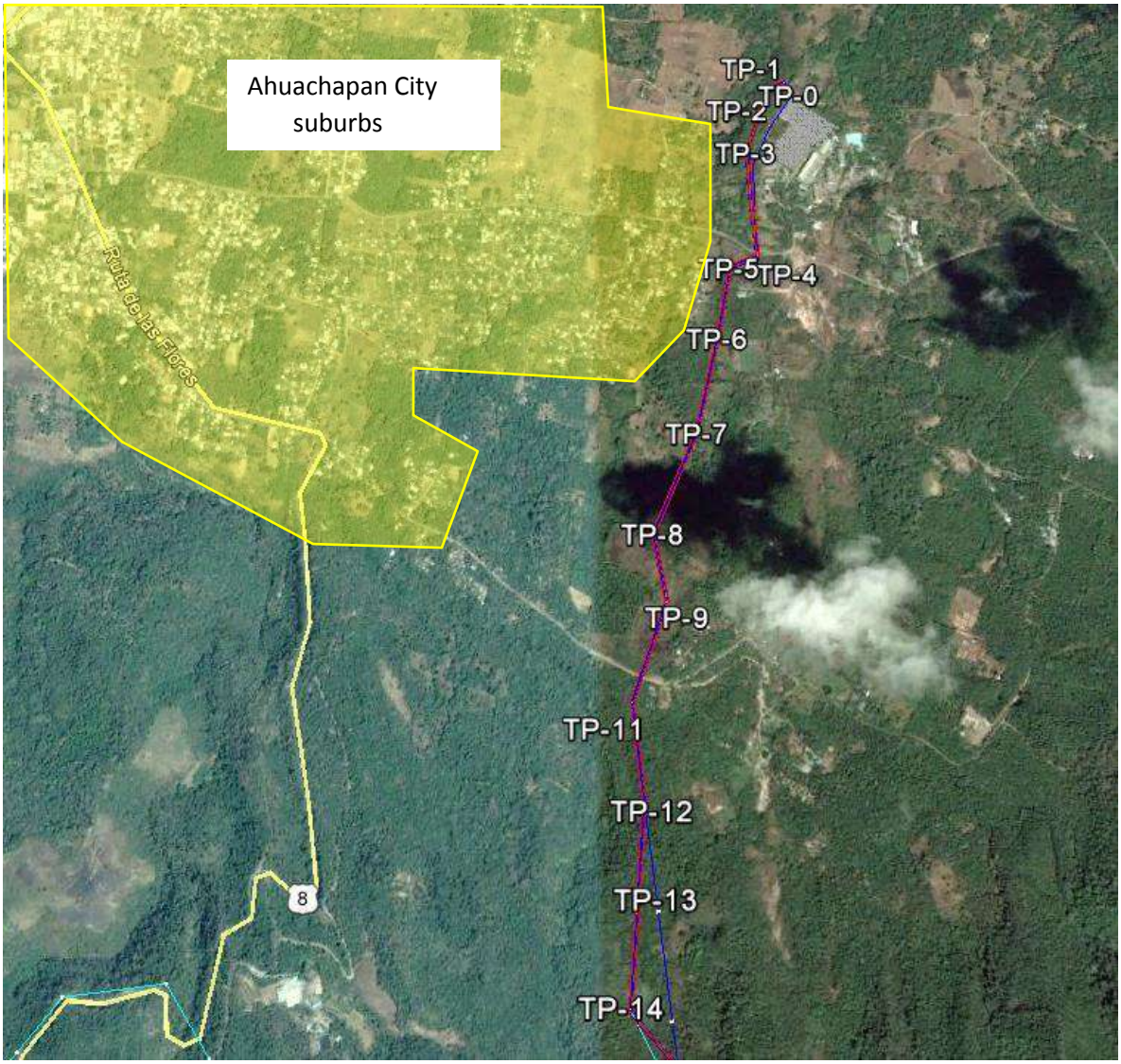
Appendix R - Trace Alternative Analysis

TRACE ALTERNATIVE

The trace of the original transmission line was relatively a straight line from north to south. However, as we studied all the land parcels, Energía del Pacífico was forced to adapt the route to overcome the different obstacles, technical, topographical, social and negative by some owners to collaborate in the project.

Next, an analysis of the different traces (represented by thin lines in the images) that were studied for Energía del Pacífico Transmission Line Project is presented. This analysis will be done by dividing the trace by sections, detailing the reasons that defined the final direction of the final trace (represented by the line that has numbered towers in the images).

Figure 1: Detail of trace between TP-1 and TP-13

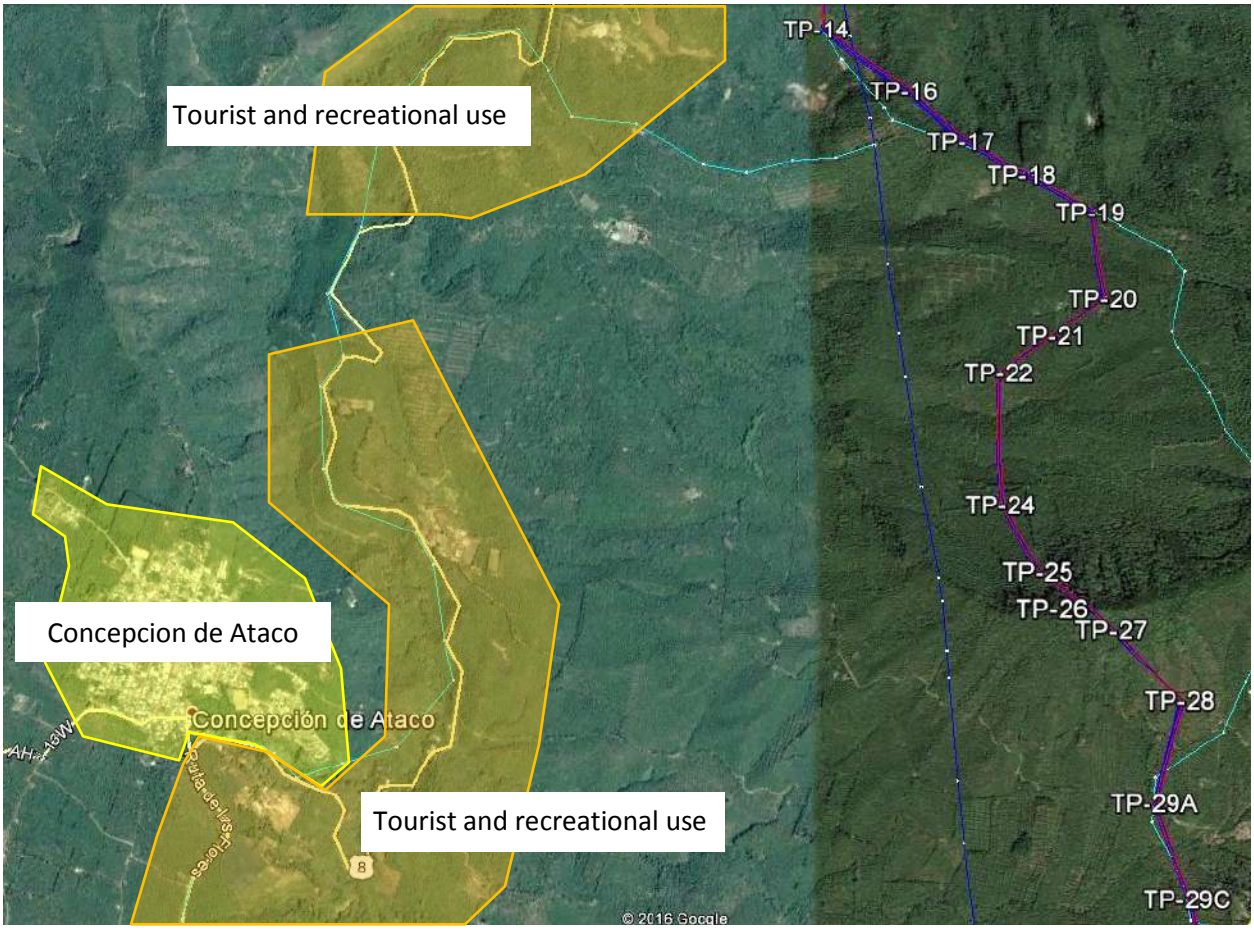


Between the TP-1 and the TP-13, the different traces studied did not have relevant variations, since all looked for to move away of the populated zones and suburbs of the city of Ahuachapan (shaded yellow, See Figure 1).

The angles in the tracing of the transmission line obey more to the negatives of owners, to technical or topographic factors.

Many traces were studied between TP-13 and TP-34, as it was the most complicated side in terms of the owners' refusal to the project's pass through their land parcels, the existence of urban and tourist centers, biosphere reserve areas, etc.

Figure 2: Detail of trace between TP-13 and TP-34 Concepcion de Ataco Area

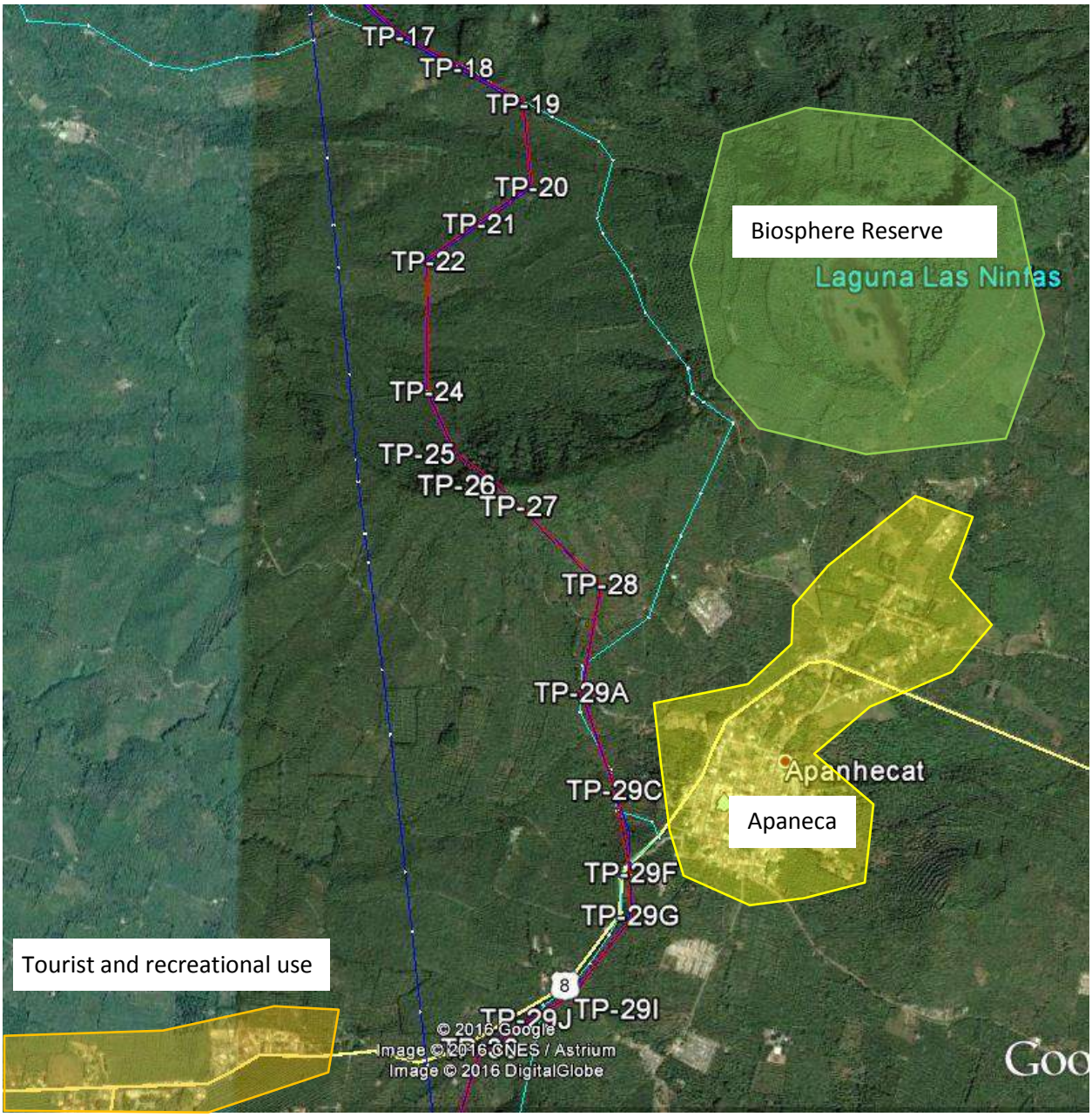


A route along the CA-8 Road, known as Ruta de las Flores, was studied, which was discarded for the great tourist and recreational use that has been given to the area (orange shaded). In addition, the route forced to cross part of the urban area of influence of Concepcion de Ataco (yellow shaded), which would generate social impacts like resettlements, which the project has always tried to avoid (See Figure 2).

The original route was a straight line (blue color) that became complex due to some topographic aspects, because in that section you can find elevation changes above sea level of hundreds of meters, these changes in some cases occur in very short distances, which reduces the feasibility of engineering. In

addition, they found many complex owners who were flatly denying the passage of the project for their land (See Figure 2).

Figure 3: Detail of trace between TP-13 and TP-34 Apaneca and Laguna Las Ninfas Area

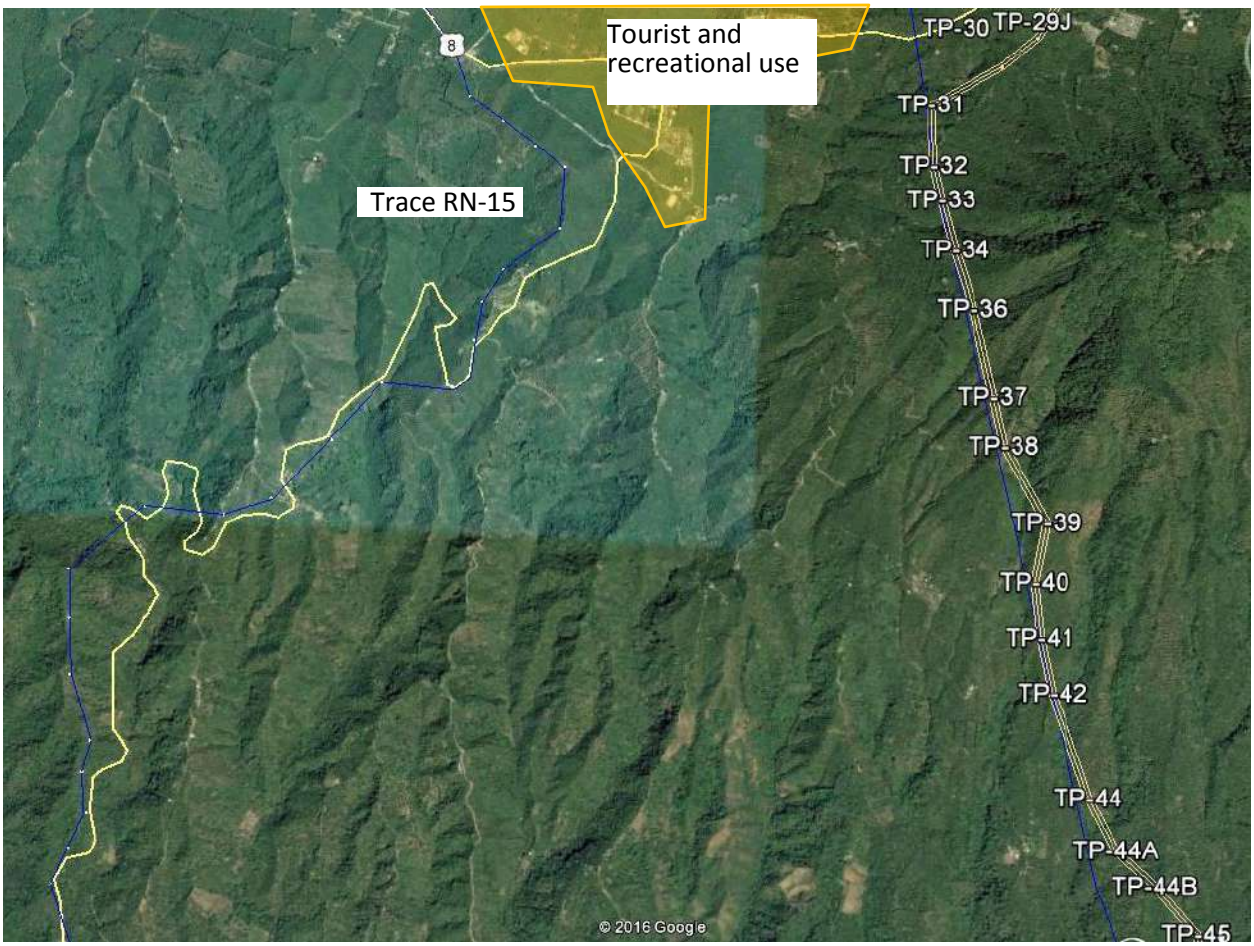


The first trace that was studied to avoid the blue straight line, was the aqua color line, which aimed to get as far away as possible from the area of influence of Apaneca (yellow shaded), which was avoided. In addition, it was sought not to touch the areas of tourist and recreational use located on the CA-8 Road, known as Ruta de las Flores, between Apaneca and Concepcion de Ataco (See Figure 3).

Unfortunately, the above-mentioned trace brought us very close to the biosphere reserve of Laguna Las Ninfas, so it was modified again, looking for an intermediate route between the blue straight line and the aqua line (See Figure 3).

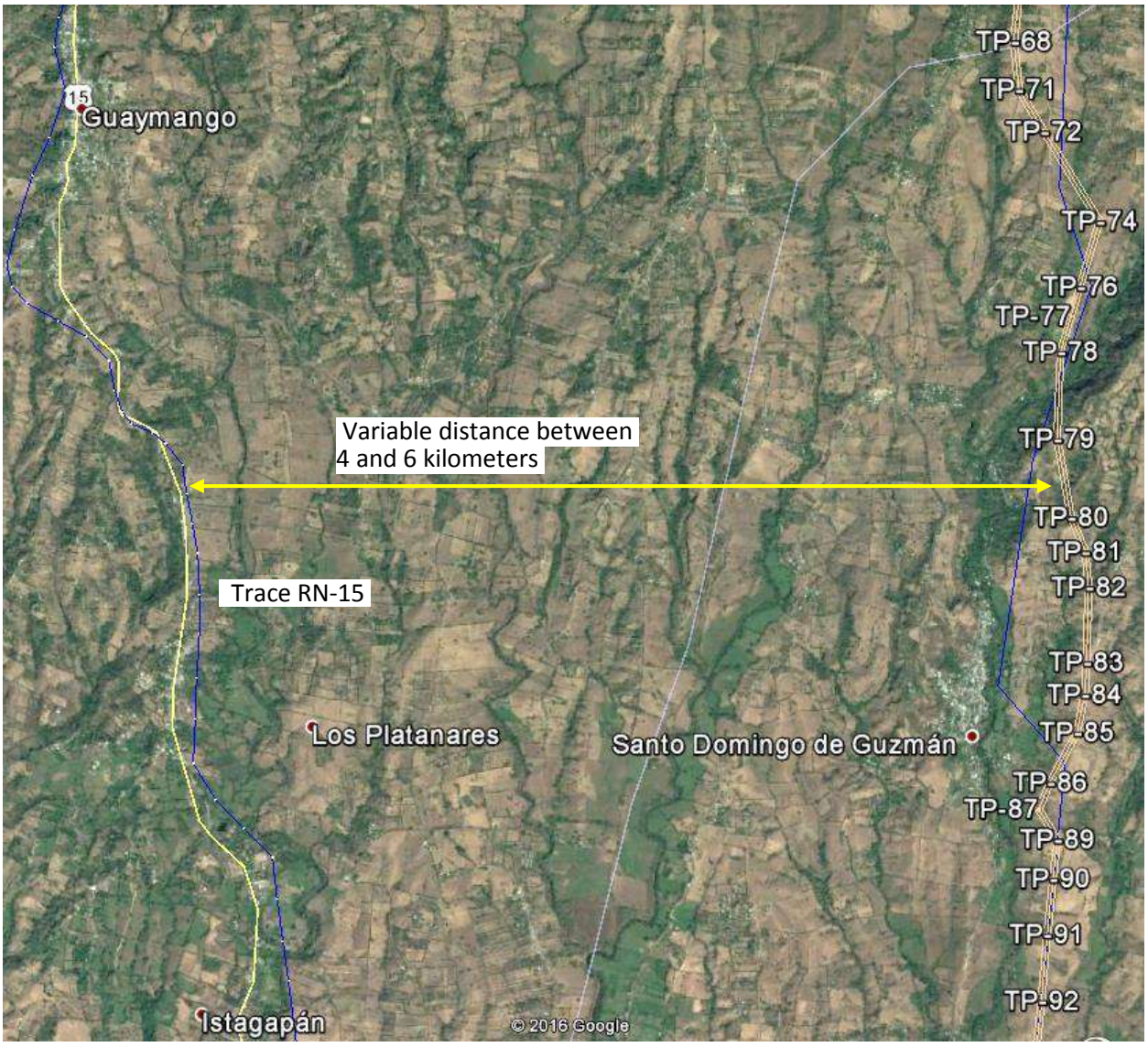
Even though the new route found inconveniences on the part of the owners of the coffee zone who were very reluctant to the project passing by their land parcels, our cadastral registration investigations managed to find a land parcel corridor that was in favor of the project. This situation led to the aforementioned trajectory having several angles, which are due to the location of these collaborating land parcels (See Figure 3).

Figure 4: Detail 1 of trace RN-15 National Route relative to current trace



There was another trace in study that was very different from all the others analyzed. This route traversed the surroundings of the RN-15 National Route, which runs from north to south relatively parallel to the definitive route, passing through the vicinity of the villages of Jujutla and Guaymango (blue line on the right side of the figure). This route ended up being discarded due to the excessive number of dwellings and lotifications that were found in its passage; this also meant a high fragmentation of the land, which made us have to negotiate with about 450 land parcel owners, instead of the 264 owners of the current parcels (See Figure 4 and 5).

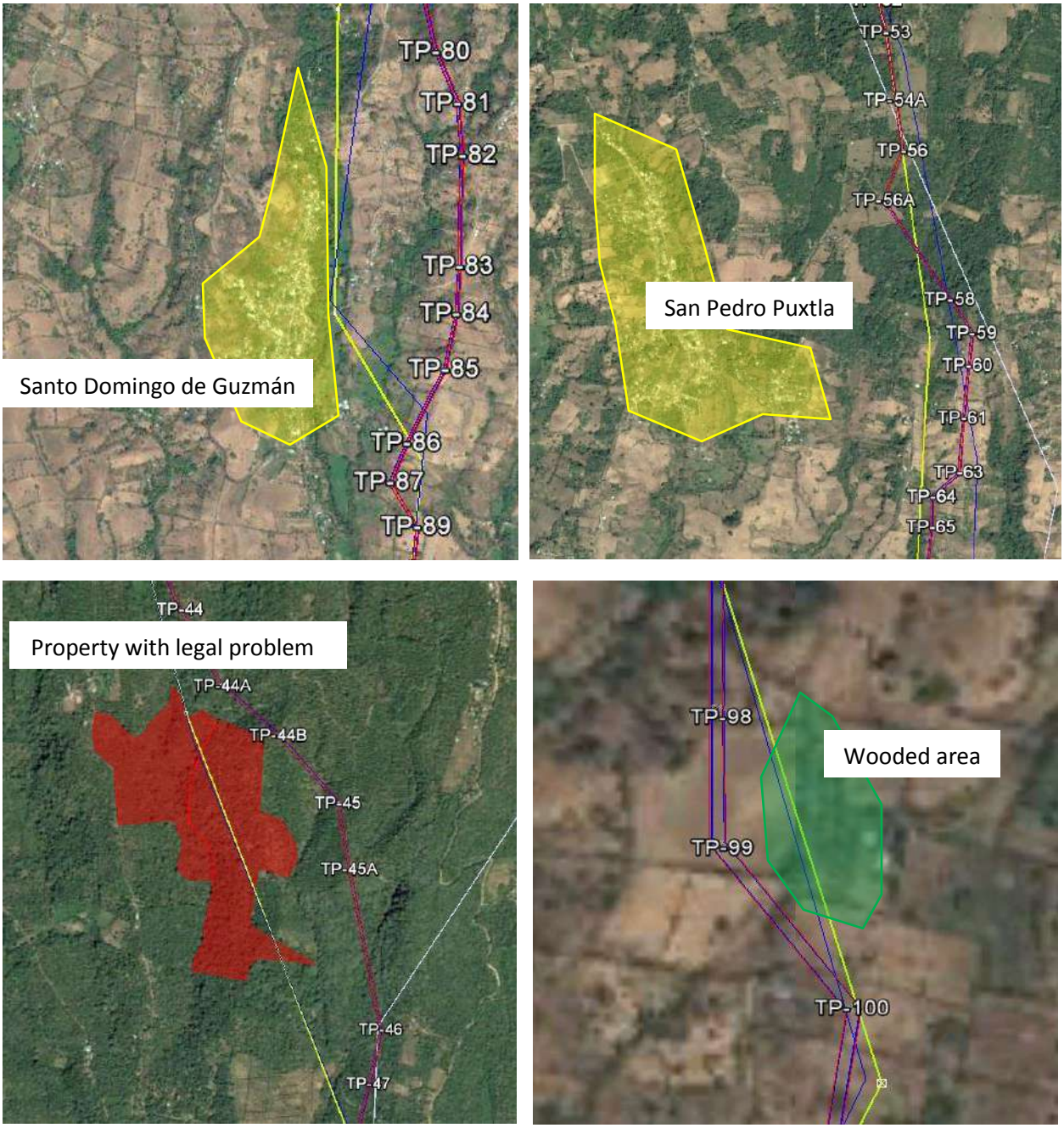
Figure 5: Detail 2 of trace National Route RN-15 relative to current trace



The RN-15 Route traveled from north to south, in a relatively parallel way to the definitive route, at a distance between them that was in a range of 4 to 6 kilometers to the west (See Figure 5).

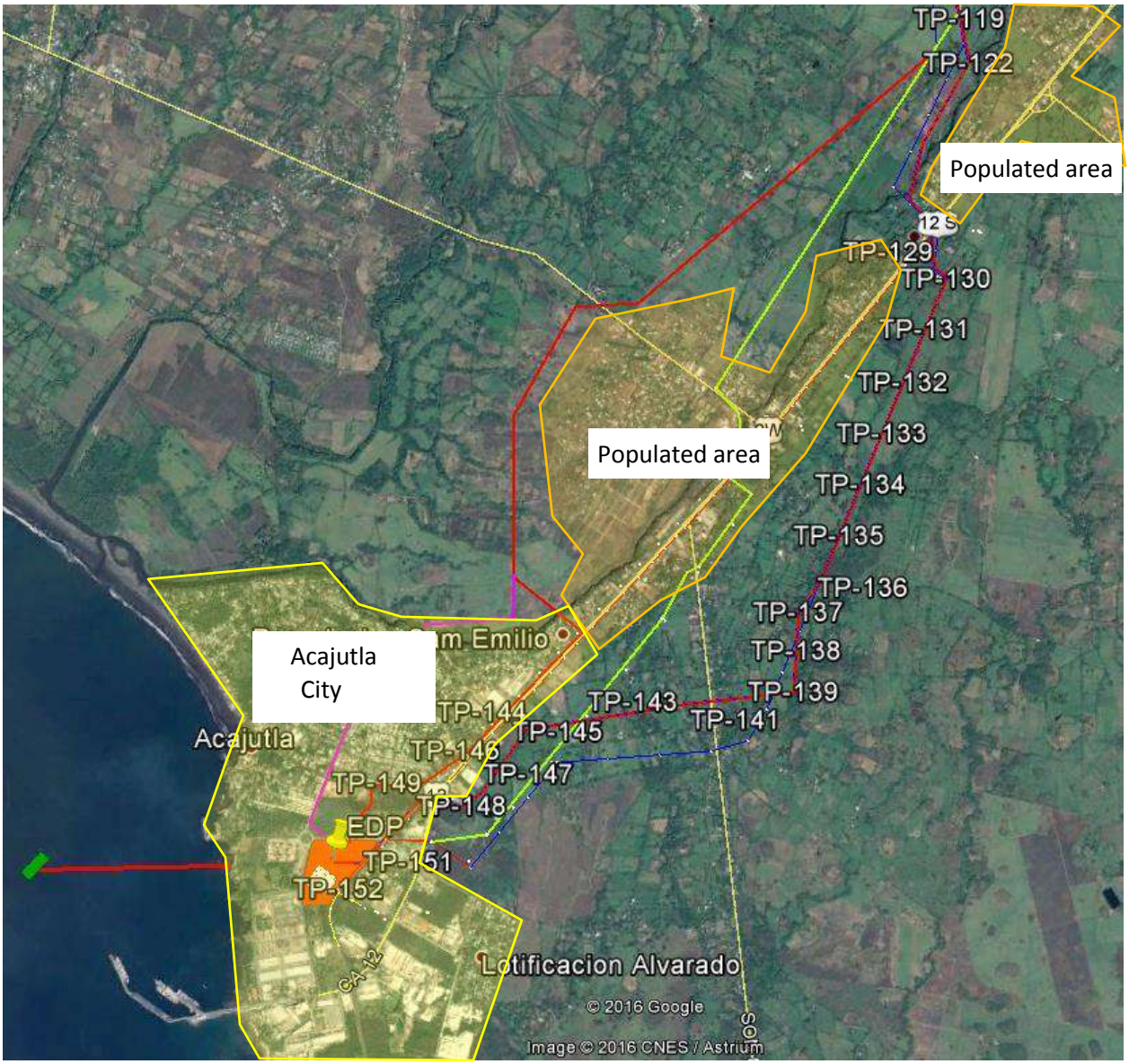
Returning to the analysis of the current trace and its previous versions, we realize that there are no major changes of route between the TP-34 and TP-122, since the original trace always represented the least physical, environmental, social, economic and cultural heritage; therefore, the only changes that lie along, among the different traces, are due to particular situations, such as: changes to move away a little more from the populated areas, as it happens in the neighborhoods of Santo Domingo de Guzmán; changes to gain elevation, reduce numbers of towers and reduce visual impact, as happens in the vicinity of San Pedro Puxtla; for avoiding properties with complicated legal problems that would take years to solve (shaded red), as it happens near the TP-44, 45 and 47, and others more; for topographic problems and search for the best location of the towers, such as the TP-79 and others; for avoiding wooded areas or important trees, such as the TP-99 and others (See Figure 6).

Figure 6: Detail of changes between TP-34 and TP-122



From TP-122 until the arrival of Energía del Pacífico Power Plant more than 10 different traces were studied, because the arrival to Acajutla became very complicated by social issues, resettlements and the proximity to so many urban areas. Below are a couple of images that show the most important routes that were thought to develop. These include even a solution with posts on the CA-12 Road to Acajutla (See Figures 7, 8 and 9).

Figure 7: Overview of routes arriving at Acajutla City



The first routes crossed by populated areas and the suburbs of the city of Acajutla, which generated social problems and many resettlements. This was avoided over time and was sought to reach the power plant by the most industrialized areas and by grassland areas on the outskirts of the city of Acajutla.

The resettlement cases were reduced throughout the project to only one case, which is general when making a crossing perpendicular to the CA-12 Road. This resettlement allows us to enter the east side of the city, which means that there is not a single resettlement within the limits of the city.

Figure 8: Detailed view 1 of routes arriving to Acajutla City

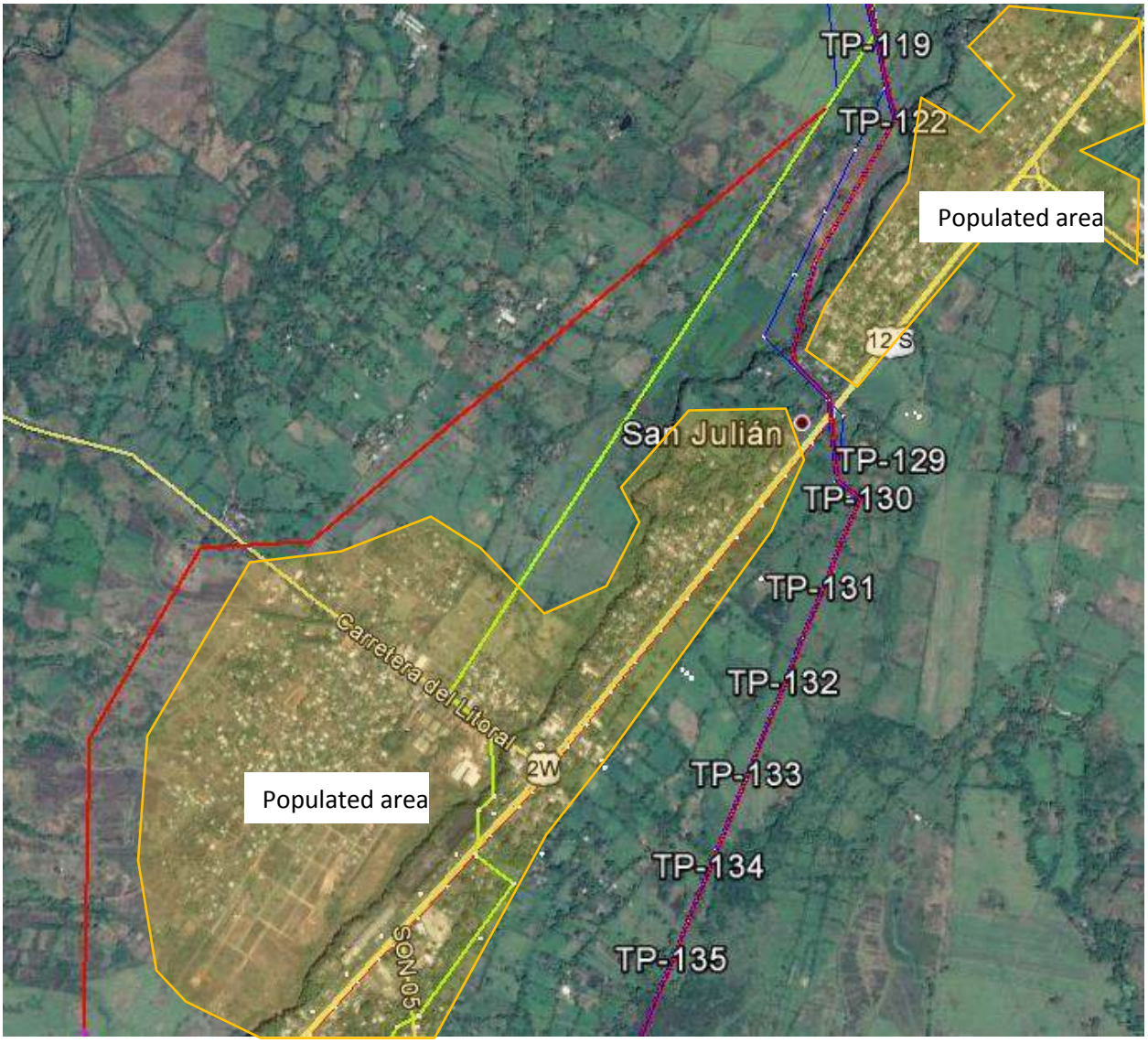
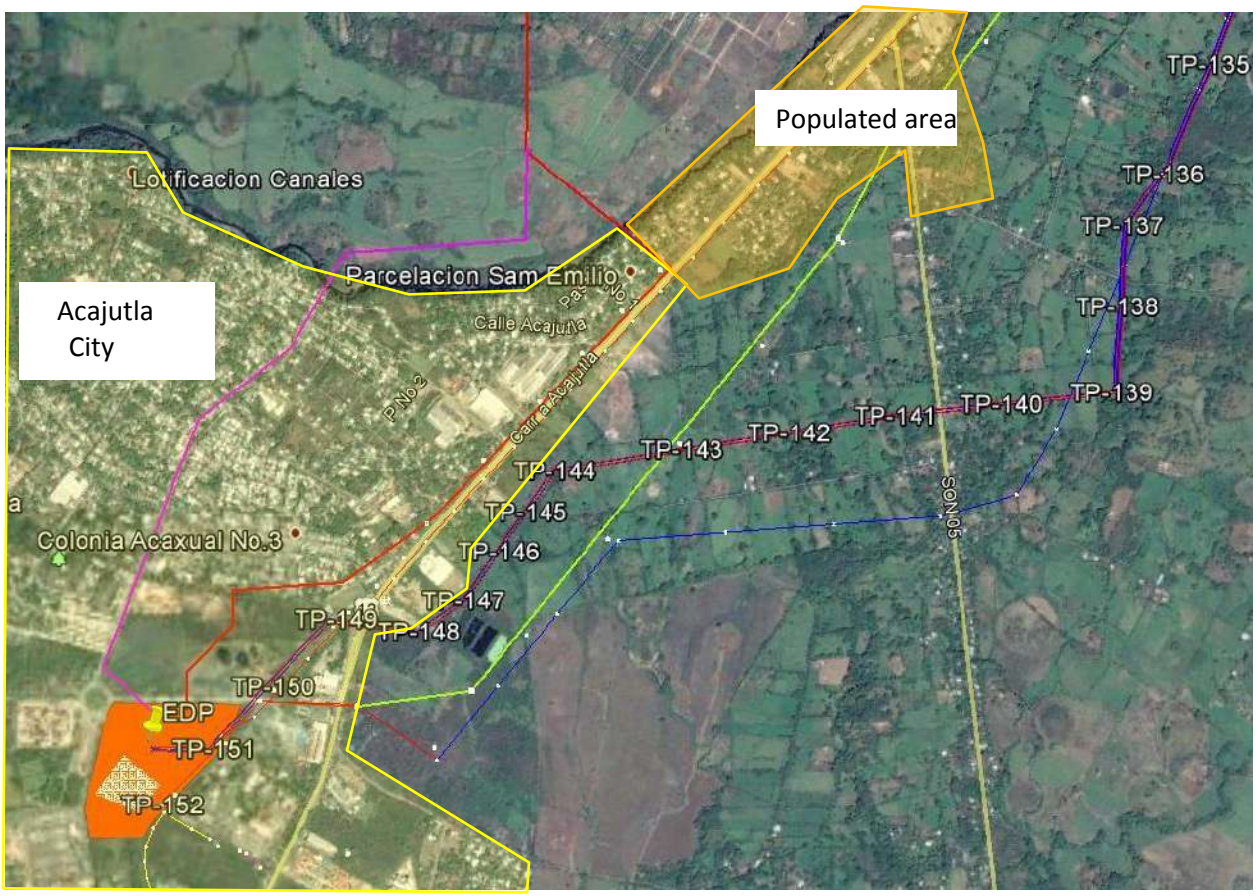


Figure 9: Detailed view 2 of routes arriving to Acajutla City

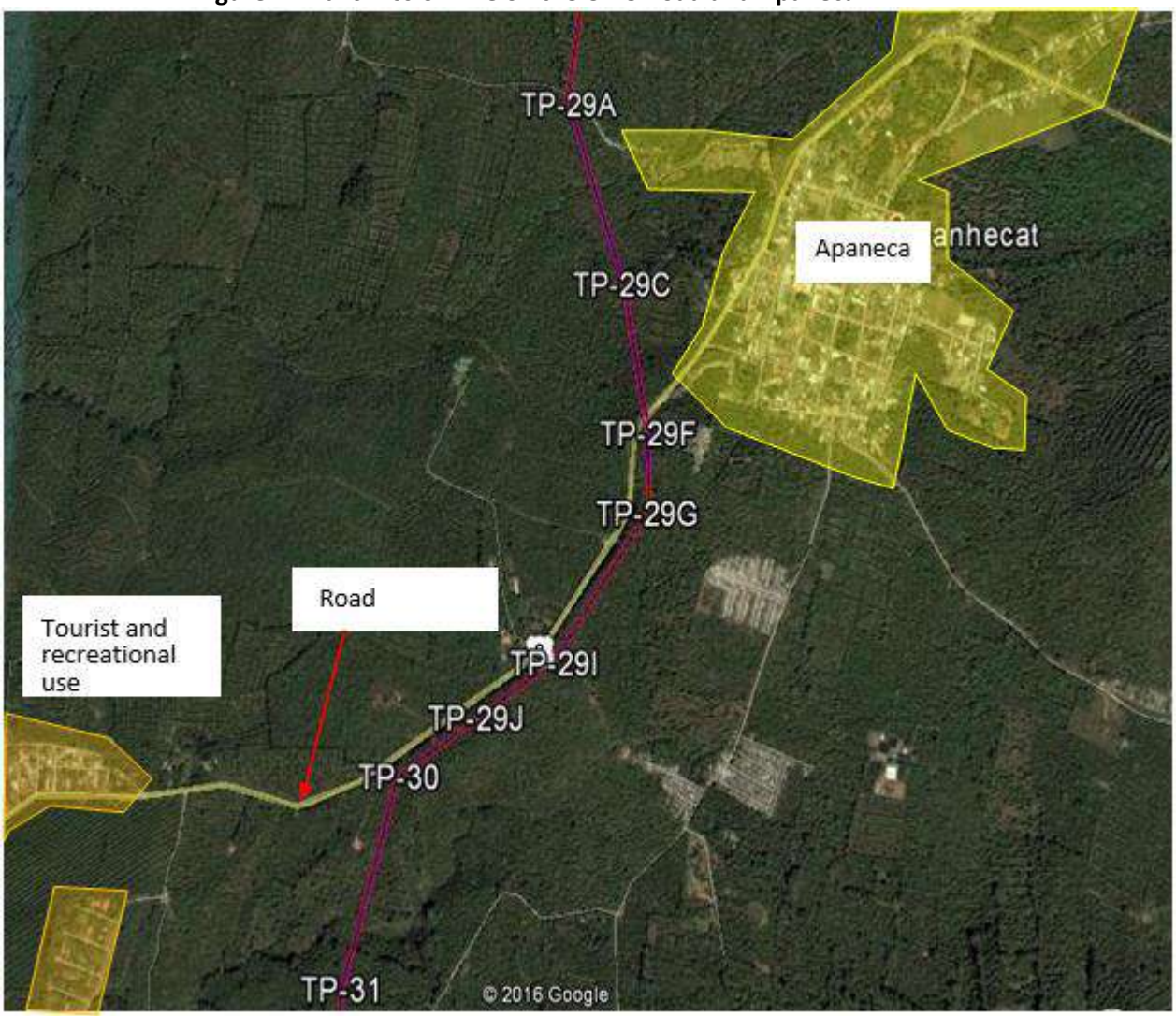


Appendix S - Analysis of Landscape Affectation

SITES WHERE THE TRACE WILL BE SEEN

The transmission line, once constructed, will be visible from very few places, being limited mainly to the places where it crosses. Regarding tourism impact, it should be limited to areas near CA-8 Road, known as Ruta de las Flores, which will be of little to insignificant (See Figure 1). It is worth mentioning that in the whole area there are already several transmission lines that cross it in different directions; This fact has never prevented the development of tourism and recreational projects, being this area one of the most attractive in the country.

Figure 1: Transmission line on the CA-8 Road and Apaneca



There are even developments of several hotels that are close to transmission lines, without this being an impediment to its execution or to reduce the attractiveness in these places. An example of this is the Santa Leticia Hotel, which is located at a distance of approximately 2.8 kilometers to the east of the trace, place where a transmission line crosses the hotel, happening just to one side of the lobby and main restaurant (See Figure 2 y 3).

Figure 2: Transmission line crossing Santa Leticia Hotel

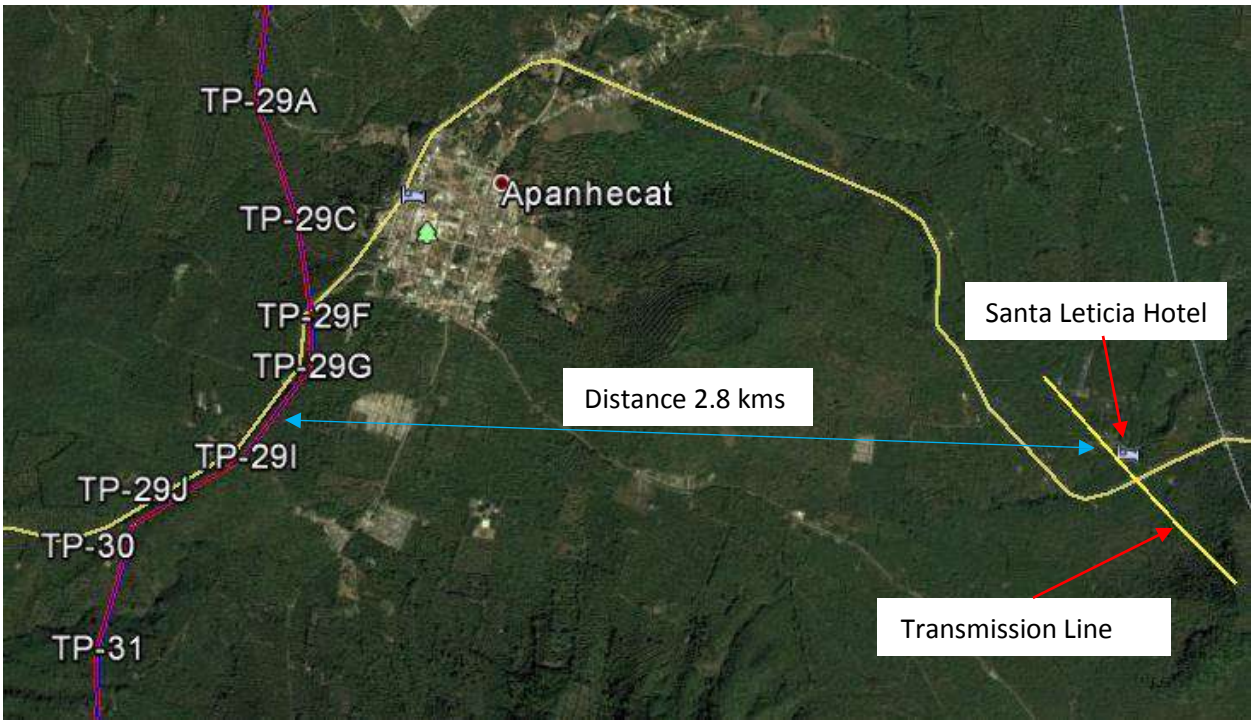
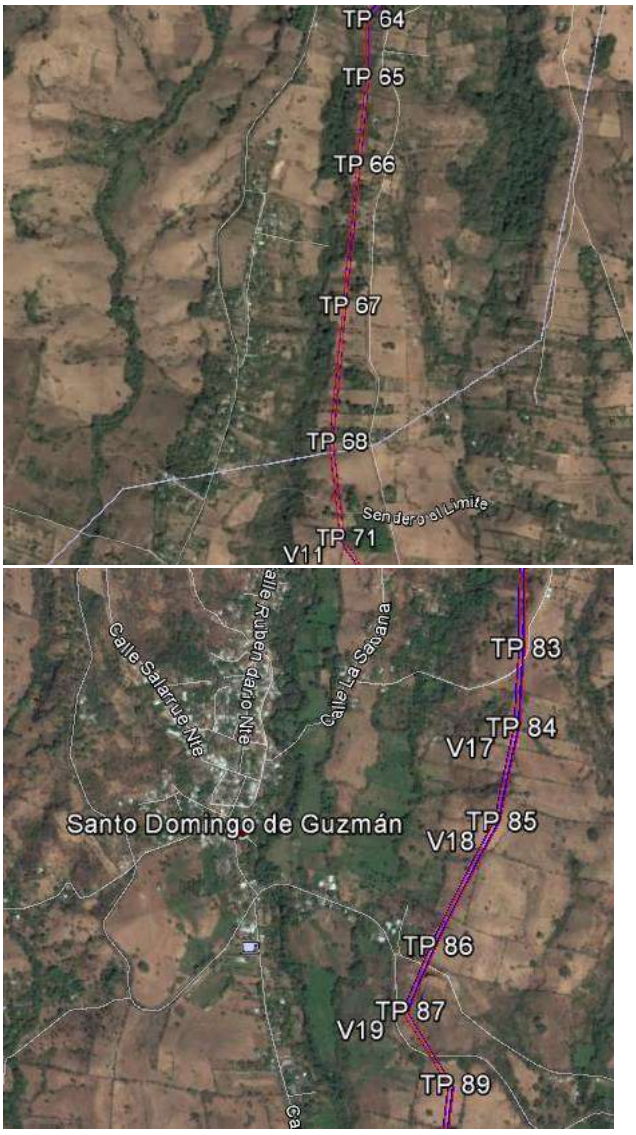


Figure 3: Transmission line crossing Santa Leticia Hotel



Outside the vicinity of the CA-8 Road, known as Ruta de las Flores, the route of the transmission line does not pass through any other tourist area. However, it is expected that there will be other locations where the infrastructure will be seen by the population, such as: the population located to the west and the east (to a lesser extent) of the trace between TP-64 and TP-71; the settlers of Santo Domingo de Guzmán located between the TP-83 and TP-89; the settlers near Canton Las Tablas between TP-99 and TP-103; and all the residents near CA-12 Road near TP-128, road to Los Cobanos, and all the villagers and workers near the city of Acajutla (See Figure 4 for examples).

Figure 4: Transmission line visible to residents of the area





Although it is true, the transmission line infrastructure will be visible from the areas mentioned above, this will not be alien to its surroundings, because in all of them (especially in the vicinity of Acajutla) there are already several transmission lines owned by CEL / ETESAL that are visible by the population.