



**NON-TECHNICAL SUMMARY OF
IRON ORE ENRICHMENT CALCINATION PLANT
FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT (JULY 2012)**



MARCH 2023

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ABBREVIATIONS

Abbreviation	
BOD	Biological Oxygen Demand
CHS	Community, Health and Safety
CR	Critically Endangered
E&S	Environmental and Social
ECA	Export Credit Agency
EIA	Environmental Impact Assessment
EN	Endangered
ESDD	Environmental and Social Due Diligence
ESHS	Environmental, Social, Health and Safety
GHG	Greenhouse Gas
GLC	Ground Level Concentration
HGG	Hot Gas Generator
IFIs	International Financial Institutions
IUCN	International Union for Conservation of Nature
LC	Least Concern
LNG	Liquefied Natural Gas
MoEUCC	Turkish Ministry of Environment, Urbanization and Climate Change
MVA	Megavolt Ampere
NTS	Non-Technical Summary
OECD	The Organisation for Economic Co-operation and Development
OHS	Occupational Health and Safety
PIF	Project Introduction File
PM	Particulate Matter
PPE	Personal Protective Equipment
Project Owner / Hekimhan Mining	Hekimhan Mining Imports, Exports, Trade and Industry Co.
R&D	Research and Development
TEİAŞ	Turkish Electricity Transmission Corporation
ToC	Table of Contents
VU	Vulnerable

0. FOREWORD

The Project is the Capacity Increase Project of Hekimhan Siderite Calcination Plant, which was established by Hekimhan Mining in Boğazgören Village, Hekimhan District, Malatya Province, Türkiye. The site location map of Hekimhan Siderite Calcination Plant is presented in Figure 1.

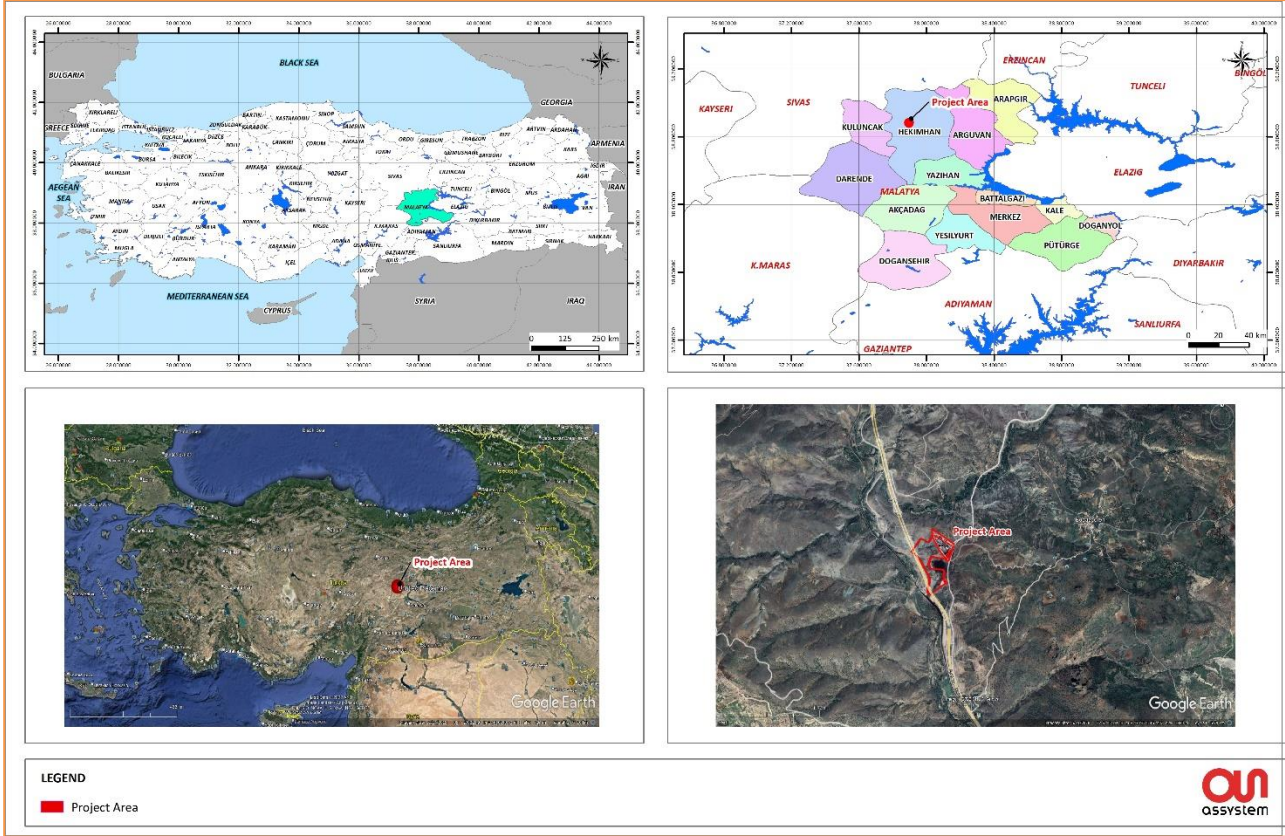


Figure 1 Site Location Map of Hekimhan Siderite Calcination Plant

The Siderite Calcination Plant, Crushing and Screening Plant and Deveci Iron Mine constitute the three main components of the Project as they are all directly related to the Capacity Increase Project. All three facilities are operated by Hekimhan Mining and are currently operational.

With the implementation of the Capacity Increase Project, 1,516,000 tons/year of siderite ore (whereas the current capacity is 712,800 tons/year) containing 34-40% Fe will be extracted as large rocks from Deveci Iron Ore Mine and will be transported by trucks to the Crushing and Screening Plant with a capacity of 2,000,000 tons/year. The extracted siderite ore, which is reduced to approximately 10 mm in size in the Crushing and Screening Plant, is transported from the Crushing and Screening Plant to the Calcination Plant by trucks. The production amount of calcined siderite ore, which completes the calcination process through the calcination furnace and contains 52-54% Fe, will be approximately 1,000,000 tons/year (see Figure 5 and Figure 6). Currently, the enriched ore accumulated in silos is transported by trucks to the transfer station. However, a New Closed Conveyor System will be installed in the scope of Capacity Increase Project to realize this transfer without trucks. From the transfer station, the ore to be shipped to the domestic market is sent to Karabük Province while the ore to be shipped to the overseas market is sent to İskenderun Port via railroad.

Currently, the amount of raw material (siderite ore) supplied from the Deveci Mine to the Calcination Plant is 712,800 tons/year, while this amount is expected to be 1,516,000 tons/year with the Capacity Increase Project. For this reason, issues such as the shortening of the operating life of the Deveci Mine and the continuity of the raw material source came to the fore. According to the Mining Business Project of Deveci Mine dated December 3, 2021, Hekimhan Mining has an iron operation permit area of approximately 900 hectares and an operation license area of approximately 3,500 hectares. In addition, the estimated probable reserve amount in the area calculated by subtracting the operation permit area from the license area is 33,595,903.16 tons and the mineable amount of this reserve is 23,517,132.22 tons. Considering the annual need of 1,516,000 tons, the current reserve will be sufficient approximately for 15 years. Since it is known that the entire operation area has not been used yet, Hekimhan Mining is not expected to have any problems with the mine or waste area in the long term.

If there is a need for additional raw materials, it is possible to open additional mining sites within the existing operation area, of which Hekimhan Mining already has relevant operation permits. In case of opening a new quarry, environmental, social, health and safety (ESHS) impacts of the area will be assessed through national Environmental Impact Assessment (EIA) legislation and the compliance with all other relevant regulations will be ensured. Necessary permits will be obtained for the pasture, agricultural, forest or private lands. There are no protected areas within the operating permit area of Deveci Mine Ore Pit.

The Client has obtained the exploration and operation rights of the Hekimhan Deveci Iron Mine (in Malatya Province of Türkiye) for 33 years (starting from 2007). It is the second largest iron field in Türkiye with its siderite reserves of 50 million tons accompanied by limited limonite reserves. It is also the largest manganiferous iron site in Türkiye with its high level of manganese component and has been in operation since 1960.

The Client has completed its high manganese content and low empirical siderite calcination investment in 2020, with the technical support of Metso Outotec. The Client planned to increase the capacity of Hekimhan New Siderite Calcination Plant to expand its current production by supplying the necessary engineering and equipment services from Metso Outotec. To this end, the Client has already signed a Technology Agreement with Metso Outotec Inc. regarding Basic Engineering and Equipment Supply for a Siderite Calcination Plant. This Technology Agreement includes the necessary delivery of goods and engineering services for the construction of the second production line as well as site advisory services to be given by Metso Outotec.

The ownership of the project area was acquired by Hekimhan Mining from the Ministry of Treasury in 2011. National EIA for Hekimhan New Siderite Calcination Plant has been prepared in line with the national legislation in 2012, and the environmental impacts that would arise from the construction and operation of the Plant have been assessed in the report. Since the planned capacity increase did not exceed the capacity specified in the current EIA study, a new EIA study was not required as per the opinion of the Ministry of Environment, Urbanization and Climate Change (MoEUCC), therefore no additional Environmental and Social (E&S) studies were carried out for the Capacity Increase Project.

In the 2012 EIA Report prepared for the Plant, issues such as water resources, air quality, fauna and flora, geological features, seismicity, land use, protected areas, forest areas were taken into consideration within the scope of the environmental baseline studies. Since the Capacity Increase

Project is carried out within the existing plant area, the baseline studies of the EIA Report remain valid in general terms. In addition to the baseline studies, the impacts expected to arise from the construction and operation phases of the plant have been assessed. The assessed impacts include air quality, noise and vibration, water resources and wastewater, wastes, ecology, socioeconomics, community health and safety (CHS), and occupational health and safety (OHS). With the capacity increase, additional impacts on air quality, noise and vibration, waste amount, water use, wastewater production are foreseen to occur.

An “EIA is Not Required” decision was taken on July 27, 2011 for Deveci Iron Ore Pit, and a Project Introduction File (PIF) was prepared for the Crushing and Screening Plant in October 2013. The Crushing and Screening Plant has a production capacity of 8,000 tons/day and is subject to environmental permits.

The general layout of the Calcination Plant, showing the planned changes with the Capacity Increase Project, is presented in Figure 2.



Figure 2 Planned General Layout for Hekimhan Siderite Calcination Plant Capacity Increase Project

The planned changes in the Hekimhan Siderite Calcination Plant within the scope of the Capacity Increase Project are the changes to be made in the existing rotary kiln burner, the new rotary kiln planned to be established, eight (8) Liquefied Natural Gas (LNG) tanks with a total capacity of 410 m³ to be established, construction of a new steel silo with 30,000 m³ capacity and changes planned in the coal storage area. The changes to be made in the Plant are summarized in Table 1 in comparison with the current situation and the EIA coverage.

Table 1 Planned Changes in the Hekimhan Siderite Calcination Plant

Subject	2012 EIA Coverage	Current Situation	Capacity Increase
Capacity	1,000,000 tons/year calcined ore production from 1,516,000 tons/year ore	498,960 tons/year calcined ore production from 712,800 tons/year ore	1,000,000 tons/year calcined ore production from 1,516,000 tons/year ore
Kiln	One (1) Calcination Furnace	One (1) Calcination Furnace	One (1) Calcination Furnace + One (1) New Calcination Furnace
Burner	One (1) Rotary Kiln Burner	One (1) HGG (Hot Gas Generator) Burner + One (1) Rotary Kiln Burner	Two (2) Burners + Two (2) Rotary Kiln Burners
Fuel Type	Lignite Coal	Lignite Coal + LNG	Lignite Coal + LNG / Natural Gas
LNG tanks	-	LNG Tanks	Eight (8) New LNG Tanks
Mode of Conveyance of Calcined Ore from silos to transfer station	With Trucks	With Trucks	With New Closed Conveyor System

An environmental and social due diligence study (ESDD) is carried out for the Calcination Plant Capacity Increase Project, and the E&S impacts of the Project are included in detail. The main project components assessed under the ESDD study are:

- Hekimhan Siderite Calcination Plant;
- Güvenç Crushing and Screening Plant; and;
- Deveci Iron Ore Pit.

Associated Facilities

The Associated Facilities of the Project are as follows:

- Administrative Facilities;
- Social Facilities (campsites);
- Transmission Lines;
- New Natural Gas Pipeline;
- Transfer Station (railway).

The map showing the Project's main components and some of its associated facilities is presented in Figure 3.

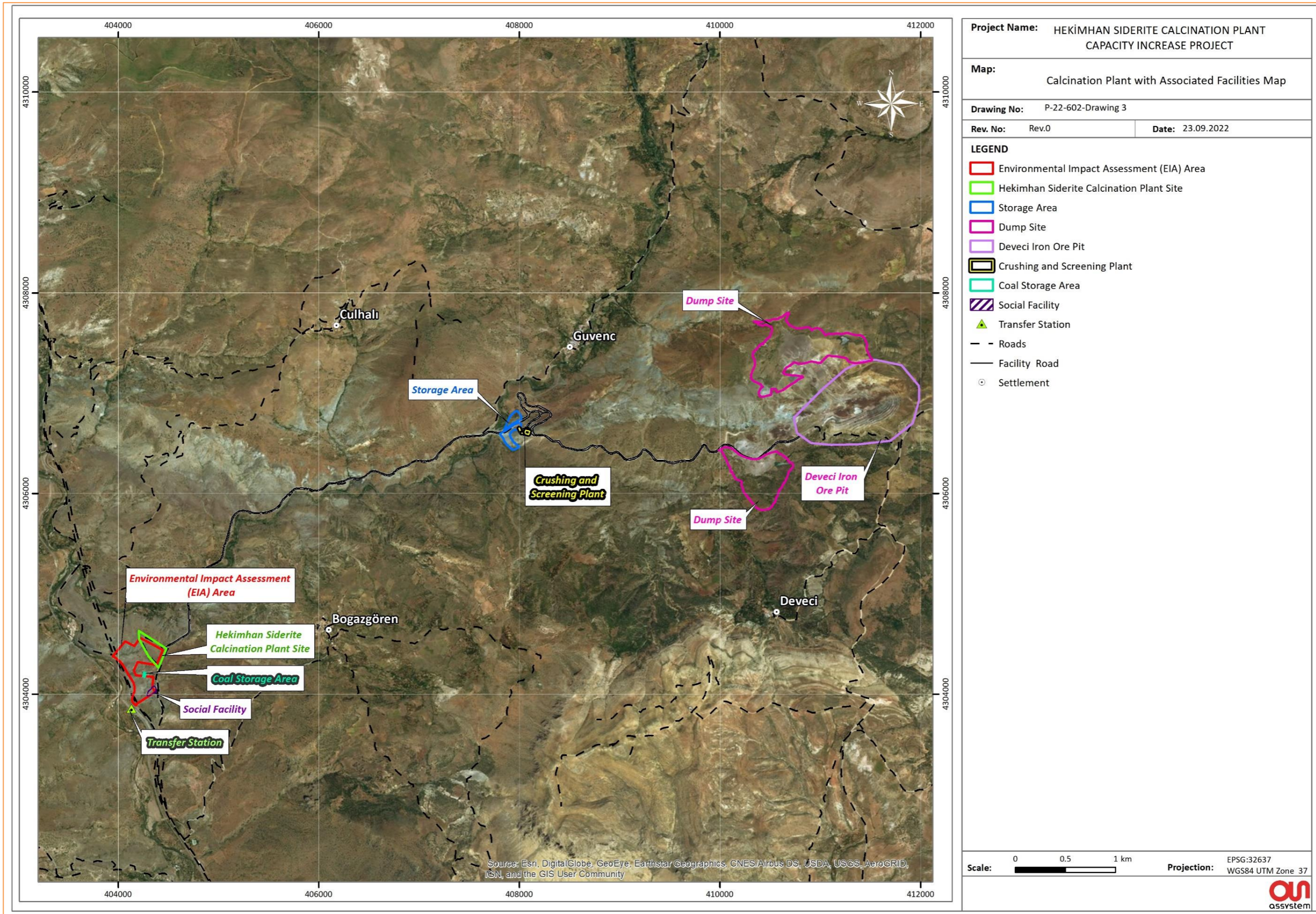


Figure 3 Map of Calcination Plant together with some of its Associated Facilities

1. INTRODUCTION

Within the scope of ESDD studies carried out by Assystem TR for the Hekimhan Siderite Calcination Plant Capacity Increase Project, this Non-Technical Summary (NTS) has been prepared with reference to the “Final EIA Report of Iron Ore Enrichment Calcination Plant (The Project)” dated 2012 and will be used during the public announcement of the Capacity Increase Project by FINNVERA PLC, the Export Credit Agency (ECA) of the Project, in accordance with the Organisation for Economic Co-operation and Development (OECD) Common Approaches.

The Final EIA Report prepared in accordance with Turkish legislation consists of the following six main headings:

- Chapter 1: Project Description and Objective
- Chapter 2: Project Location
- Chapter 3: Existing Environmental Characteristics of the Project Site and Its Area of Influence
- Chapter 4: Significant Environmental Impacts of the Project and Mitigation Measures
- Chapter 5: Public Participation
- Chapter 6: A Non-Technical Summary of the Information Provided According to the Topics Given Above

This NTS provides a summary of the outcomes of the Final EIA Report prepared for the Project in 2012 and does not present any additional comments or updates on the Project. Also, it is structured based on the guidelines of International Financial Institutions (IFIs) and does not follow the original layout of the national EIA Report.

Please refer to Annex A and Annex B for the Table of Contents (ToC) and List of Annexes of the original EIA Report 2012, respectively.

1.1. Project Background

The project in question is the Iron Ore Enrichment Plant Project planned to be established in Türkiye, Malatya Province, Hekimhan District, Bogazgoren Village, Karakisik Locality, Parcels No. 870 and No. 871, with a total surface area of 169,431.99 m² by Hekimhan Mining Imports, Exports, Trade and Industry Co. (hereinafter referred to as “Hekimhan Mining” or “Project Owner”).

The Project Owner decided to make a change in the investment of the “Cast Iron Production from Iron Containing Ores” and limited its investment to the “Establishment of the Ore Enrichment Calcination Unit” as the first stage of its investment and it should be indicated that the realization of the entire investment stages will be decided in line with the results to be obtained from the research and development (R&D) studies planned to be continued. As a result of the application made on April 12, 2012, regarding the acknowledgment of this specified change in the investment, the abolished Ministry of Environment and Urbanization, General Directorate of Environmental Impact Assessment, Permit and Inspection decided to endure the existing EIA process and shared the “EIA Report Special Format”.

The EIA report has been prepared in line with the EIA Special Format and within the scope of the *Environmental Impact Assessment Regulation*, which came into force after being published in the Official Gazette dated 17.07.2008 and numbered 26939.

The Calcination Plant Project to be implemented within the scope of the EIA study will be built on a total area of 30,000 m². An area of 13,270 m² will be used, of which 9,120 m² is closed and 4,150 m² is open space. The remaining areas will be arranged as green areas and empty spaces.

The satellite image showing the activity area specified in the EIA report is presented in Figure 4.



Figure 4 Satellite Image Showing the Area of Activity

The Project Owner is obliged to comply with all commitments specified in the EIA report and local legislation provisions during the construction, installation, operation, and decommissioning phases of the project.

1.2. Project Rationale

Iron ore minerals commonly found in nature are Magnetite (Fe_3O_4), Hematite (Fe_2O_3), Limonite ($2\text{Fe}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$), Goethite ($\text{Fe}_2\text{O}_3 \cdot \text{H}_2\text{O}$), Siderite (FeCO_3), and Pyrite (FeS_2). The Iron Ore Enrichment Plant aims to enrich the 38-53% iron-containing siderite, limonite, hematite, and magnetite ores in the Hekimhan District of Malatya Province, and transform them into ferrous raw materials with higher added value in order to offer them to domestic and foreign markets under international competitive conditions. Since siderite ore is extensively mined in the region, the primary raw material of the Plant will be siderite ore.

Siderite ore, which is in the problematic ore group due to its low iron grade, cannot be used directly in the sinter plants and blast furnaces of national integrated iron and steel plants as it is extracted from the quarry. Within the project's scope, it is aimed to increase the iron content of ores by calcination method and to ensure their usability in iron and steel plants.

As a result of the market research carried out, it has been determined that the need for domestic fine ore in the sector has increased and thus, an important market opportunity has arisen for the calcination section of the Project.

In addition, in the Environmental Cost-Benefit Analysis prepared within the scope of the EIA Report, it has been stated that environmental impacts can be minimized thanks to the proximity of the project

site to the mine and the railway, and thus the Project will provide added value from an environmental point of view.

1.3. Land Ownership Status

The project area is located in Parcel No. 870 allocated to the name of the Project Owner by the Ministry of Treasury and in Parcel No. 871 with a title deed on behalf of the Project Owner. The area with Parcel No. 870 is 144,289.99 m², while the area with Parcel No. 871 has a surface area of 25,142 m². Accordingly, the total area of activity is 169,431.99 m².

1.4. Project Schedule

According to the project schedule, the EIA process started in October 2010, and the Plant is planned to be operational in 2013.

2. PROJECT INFORMATION

2.1. Project Location

The project area is located in Malatya Province, Hekimhan District, Bogazgoren Village, Karakisik Locality. Its distance to Malatya city center is approximately 68 km, and its distance to Hekimhan District Center is approximately 7.5 km.

Hekimhan - Kangal Highway passes in the northwest-south direction of the project site. In the same direction, there is also a railway at 200 m air distance from the Plant.

The project site has been approved as an "Industrial Area" in the 1/1,000 and 1/5,000 Zoning Plans. According to the approved 1/100,000 scale Environmental Plan, the project site is located within the area defined as "Ecologically Important Areas".

2.2. Project Characteristics

Process Flow

Siderite ore, which is planned to be processed primarily in Hekimhan Siderite Calcination Plant, is extracted as large rocks from Deveci Iron Ore Pit, and its dimensions are reduced to diameters of less than 10 mm in Güvenç Crushing and Screening Plant. The ore, which has passed through the crushing-screening process and will be used as raw material, will be brought to the ore stockyard in the Plant by trucks.

The workflow to be followed at the Calcination Plant during the operation phase of the Project is listed below, respectively:

1. Unloading of 10 mm crushed siderite ore to the planned entrance ore stockyard,
2. Loading the ore into the calcination furnace through the conveyor system,
3. Performing the calcination process,
4. Cooling the hot material (calcined ore) coming out of the calcination furnace with air,
5. Filling the cooled calcined ore into containers with a conveyor belt, cyclone and spiral system,
6. Transport of calcined ore containers to Karakisik Train Loading Station by trucks,
7. Loading the containers on wagons and shipping them to domestic integrated iron and steel plants for sale.

The process flow charts of the Project based on the capacity and the transportation type are presented in Figure 5 and Figure 6, respectively. These charts are taken from the 2012 EIA Report.

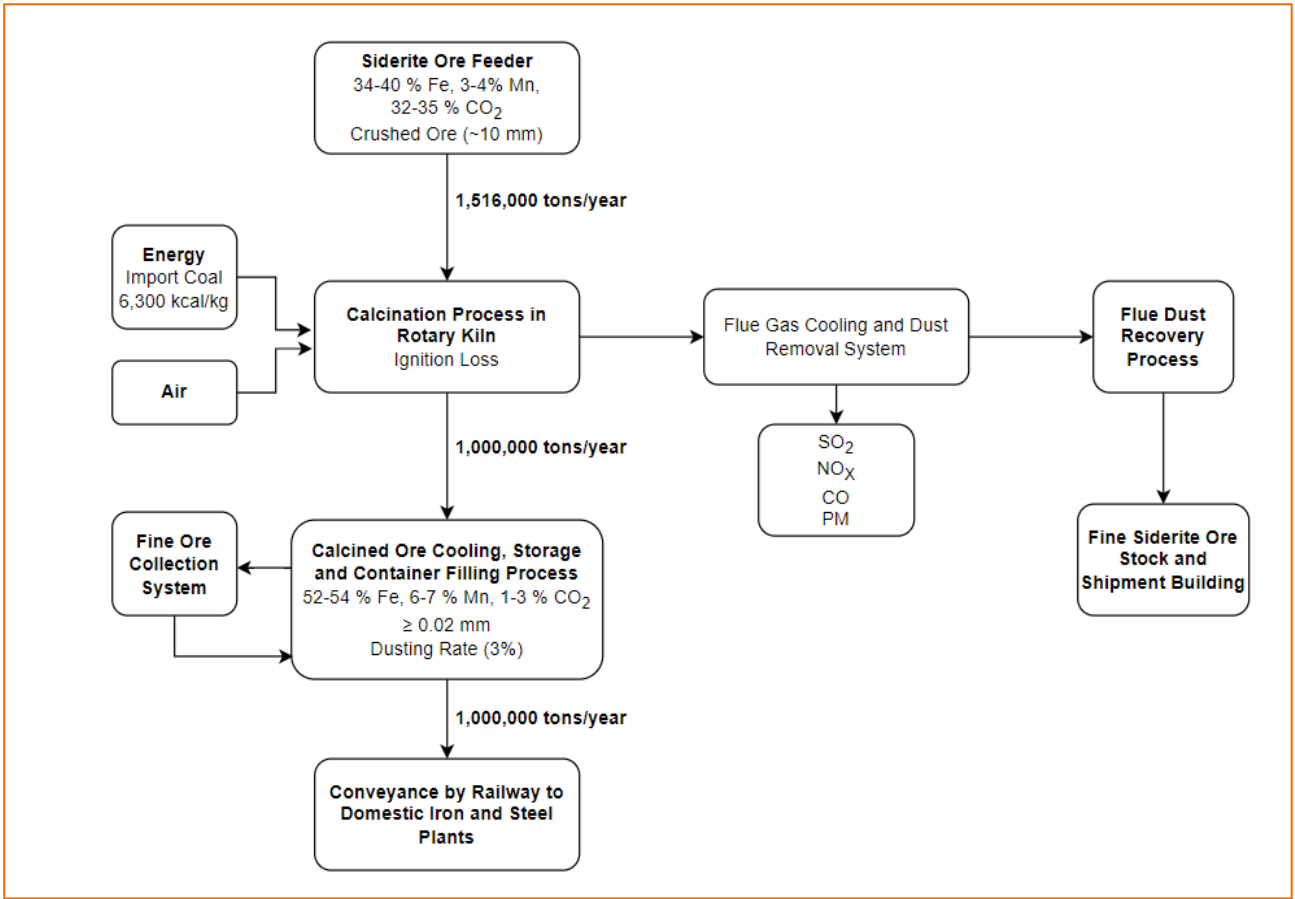


Figure 5 Process Flow Chart Based on Capacity

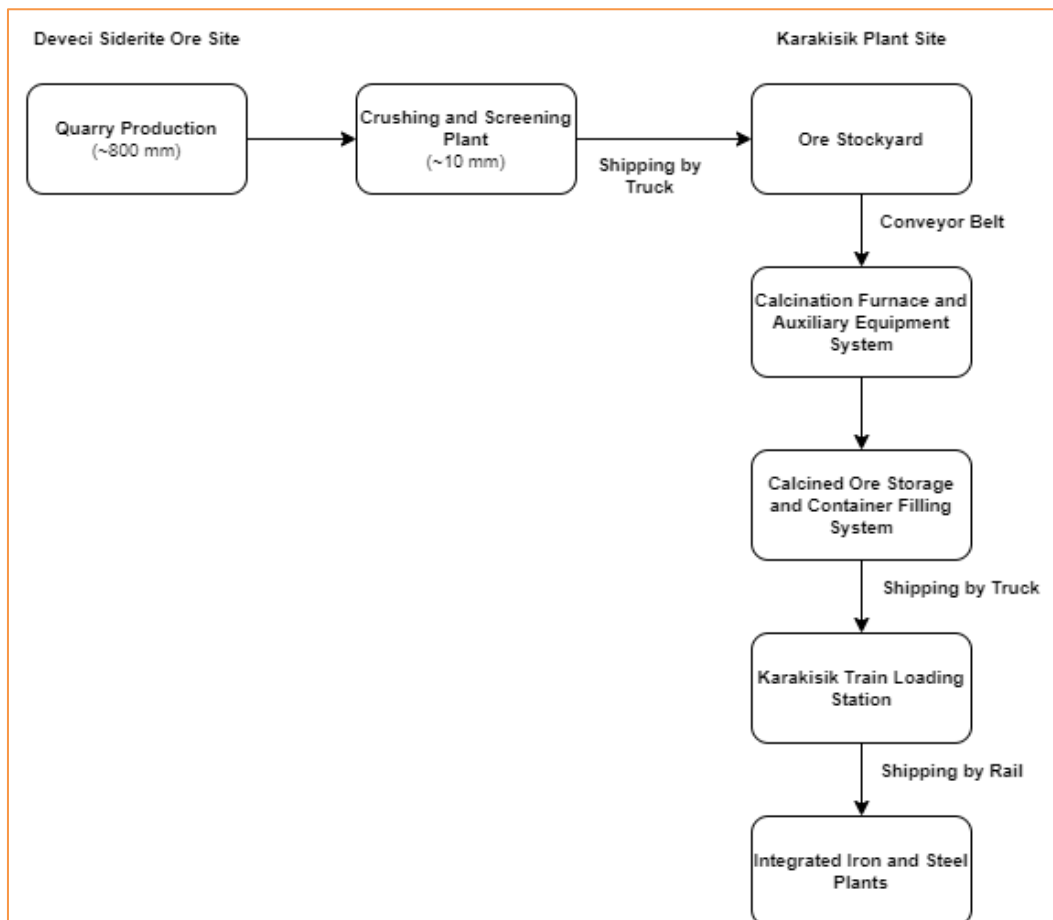


Figure 6 Process Flow Chart by Transportation Type

Design Characteristics

The technical design characteristics are determined as a result of R&D studies, pilot plant and laboratory experiments. Some of the technical characteristics of the Plant planned to be established are presented in Table 2 below.

Table 2 Technical Characteristics of the Plant

Theoretical Material Input / Output Ratio	1.50
Calcined Siderite Kiln Capacity (output)	1,000,000 tons/year (125 tons/hour)
Siderite Ore Kiln Capacity (inlet)	1,500,000 tons/year (210 tons/hour)
Working Hours	8,000 hours/year
Plant Utilization Ratio	91.32%
Fuel to be used	Dry imported coal (Calorific Value: 6,300-6,700 Kcal/kg)
Siderite Ore Feeder Particle Size	0 - 10 mm
Moisture rate in the Material Entering the Rotary Kiln	3%
Ore Fines Ratio of Flue Gas	5%
Time to leave the material from the kiln	90 minutes
Energy Requirement	253,759 kcal/ton
Amount of Coal to be used	50 kg/ton - siderite (9,375 kg/hour)

Raw Material Supply

The maximum production capacity of the Plant is envisaged as 1,000,000 tons/year of fine calcined ore. Since siderite ore is extensively mined in the region, the primary raw material of the Plant will be siderite ore. In the Plant to be established, 1,516,000 tons/year of siderite with a diameter of 0 - 10 mm will be needed at maximum capacity. The iron-containing ore, which is the raw material requirement of the Plant, will primarily be procured from the Deveci Mine located 7.5 km from the project site.

According to the technical design criteria of the Plant, 50 kg of coal will be used as fuel per 1 ton of siderite during the calcination process. Therefore, the amount of coal to be supplied will be 75,800 tons/per year at the maximum capacity. The coal requirement to be used in the Project can be imported from different sources. It is planned to bring the coal from the Iskenderun Port Area to Hekimhan by rail.

Electrification Plan

In the negotiations with Turkish Electricity Transmission Corporation (TEİAŞ), Hasancelebi Transformer Station was seen as the closest 154 kV electrical energy supply source to the region. The distance of the line from Hasancelebi Transformer Center to Pole No. 1002 at the border of the plant area is 16 km.

Two 34.5 kV medium voltage lines were installed to be fed from the existing 154/34.5 kV transformer output starting from Hasancelebi Transformer Center. With this system, which is planned as an investment-specific above-ground line, an infrastructure up to 20 Megavolt Ampere (MVA) servicing power was established.

2.3. Project Service Life

The amount of calcined ore planned to be produced at maximum capacity at the Plant is 1,000,000 tons/year. In order to realize this production, 1,516,000 tons/year of ore will be needed. The siderite ore to be primarily processed at the Plant will be procured from the Deveci Iron Mine located in the Hekimhan region and other mines in the surrounding area. Since the ore to be used as raw material by the Plant is mostly located in Malatya Province, production will be possible as long as the reserve in the region allows. The amount of reserve in the region was determined as 87,892,712 tons as a result of the researches carried out in 2005. Accordingly, the project economic lifetime is calculated as 58 years. The economic life of the Project is also the service life of the Plant. However, it is planned to serve the region and the country for many more years by increasing the service life with technological improvements and the use of ores to be obtained from different regions.

2.4. Decommissioning of the Project

There is no new project planned after the decommissioning of the Plant. After the operation is over, the operation buildings will be demolished and then the rehabilitation works of the area will be started. During the dismantling of equipment and units, the provisions of the relevant regulation will be followed. Impacts from the Project are not expected to continue after the decommissioning phase. The Project Owner undertakes to rehabilitate the entire project site.

2.5. Workforce Requirements

It is anticipated that a maximum of 50 people will work at the project site during construction, whereas, a total of 100 personnel will be expected to work at the Plant during the operation period.

Technical staff will constitute approximately 20 percent of the number of personnel to be employed in the planned Calcination Plant. Technical personnel will be appointed from the core staff of the Project Owner, and the remaining 80 percent will be employed from the local people.

The personnel that will be needed at various stages of the project will be recruited from the local residents as much as possible. In this way, it is aimed to increase employment opportunities in the region.

2.6. Project Alternatives

2.6.1. Location Alternatives

The siderite ore that the Plant plans to process is mostly located within the borders of Malatya Province in Türkiye. For this reason, the activity was planned to be carried out in the Hekimhan District of Malatya Province.

In addition, while choosing the location for the Plant, its proximity to the Deveci Siderite Iron Mine and other mines in the vicinity, the railway, and the highway was taken into consideration. Raw material transportation costs will be kept at a minimum, thanks to the proximity of the Plant to the Iron Mine, which is approximately 7.5 km away.

2.6.2. Technology Alternatives

According to the results of the laboratory, pilot plant and industrial plant experiments carried out so far on Deveci Siderite Iron Ore, it was deemed appropriate to choose rotary kiln among rotary, vertical or fluidized bed-type calcination kiln technologies.

One of the most important parameters in the design of the calcination furnace is the determination of the energy source to be used. In the Calcination Plant subject to the Project, the use of imported coal was found appropriate due to the low operating cost and high energy efficiency.

3. CURRENT ENVIRONMENTAL CHARACTERISTICS

3.1. Baseline Studies

Air Quality Monitoring Survey

The project area is outside of the provincial air quality monitoring area. Therefore, systematic measurement results could not be used. In order to evaluate the baseline air quality, particulate matter (PM₁₀), settled dust, SO₂ and NO₂ measurements were performed, especially in the winter period (January, February and March 2012). Sampling points were determined by considering meteorological data and the areas likely to be affected by the project.

When the measurement results are assessed, it has been observed that all of them are well below the limit values of the *Regulation on the Control of Industrial Air Pollution*. When the project site and its immediate surroundings are examined in terms of air quality, it is an uncontaminated area.

Surface Water Sampling

The flow direction of the source was considered during the selection of sampling points from the surface water sources located in the impact area of the project site. Water samples were taken from three (3) points on Uludere Stream, on Güvenç Stream and on the highway side of the plant area on Uludere Stream.

Considering the results of the analysis, it was determined that the surface water was contaminated in terms of total phosphorus, Kjeldahl nitrogen, oil and grease, fecal coliform and total coliform at three (3) points where water samples were taken. It is predicted that this pollution is caused by domestic wastewater leaks and agricultural activities. According to the *Water Pollution Control Regulation*, the remaining parameters at all sampling points are of first quality in terms of water quality. No radioactive pollutants were detected in the analyzes made on the water samples.

Soil Survey

An analysis of the instant soil sample taken from the plant construction site was made in February 2012. The results were evaluated according to the *Regulation on Soil Pollution Control and Point Source Contaminated Sites* and it has been observed that the parameters follow the regulation limit values, except nickel and cobalt.

Noise Monitoring Survey

Background measurements were made at two (2) sensitive receptors, i.e. two (2) households in Culhali and Bogazgoren Villages, for 24 hours between February 2 and 3, 2012. The L_{daytime} values detected at the measurement point are below 55 dBA. The measurement results were used while preparing the Acoustic Report.

Terrestrial Flora and Fauna Survey

In July 2011, land surveys covering the project area and its immediate surroundings were carried out, and the current ecological characteristics, flora and fauna species of the project area were revealed.

The Ecosystem Assessment Report was prepared by using the information obtained from the field studies carried out in the region in previous years, the field studies conducted in July 2011 and the literature information.

3.2. Seismicity

According to historical earthquake catalogs, earthquakes were experienced in the Malatya region. Lastly, the region was affected by a great earthquake called Malatya Earthquake in 1964. The closest fault line that can cause these earthquakes to affect Malatya and its immediate surroundings is the Malatya Fault.

According to the Turkey Earthquake Zones Map, the project site is within the boundaries of the 2nd degree earthquake zone. However, there is no landslide and avalanche risk in the project area.

Seismicity will be considered during the construction considering the lithological and geotechnical characteristics of the geological units.

3.3. Hydrogeological Characteristics

Malatya is among the provinces that do not have a problem in terms of water quantity, and the groundwater potential within the provincial borders is 75.5 hm³/year in total. The drinking water supply in the residential areas in Malatya is generally met from groundwater.

A productive groundwater aquifer could not be determined in the study area from a hydrogeological point of view. However, it is possible to obtain groundwater through deep wells in the study area and its immediate surroundings.

The Ministry of Forestry and Water Affairs has granted groundwater exploration permission to the Project Owner to utilize this water as drinking and utility water.

3.4. Hydrological Characteristics

Malatya Province is located in the Upper Euphrates Basin of the Eastern Anatolia Region, which is the largest basin in Türkiye. It is richer than most of the provinces in terms of rivers and other water resources. There is no important natural lake in Malatya, except for small lakes. Two (2) small dam lakes were formed for irrigation purposes. Apart from these, there is Karakaya Dam Lake as the largest water body.

Within a radius of 1 km and approximately 200 m southwest of the activity, there are Uludere Stream, which is constantly flowing and has wide beds in places, and Guvenc Stream feeding it.

The project area is not within the scope of a dam, lake or protection area from which potable water is supplied.

The project site is topographically rough terrain with high slopes (> 20%). The general slope of the project area is from east to west. Considering these features, no flood risk is foreseen.

3.5. Flora and Fauna

An Ecosystem Assessment Report for the Project area was prepared. In this report, findings of the field studies conducted in the project area and literature information were provided. Existing ecological characteristics of the project area, flora and fauna species are explained in the report. In addition, the population status of the identified species, whether they are under threat of extinction and the measures to be taken with the realization of the project are explained.

All of the endemic, rare and endangered plants were classified according to the International Union for Conservation of Nature (IUCN) categories. In the project area, there are 43 endemic plant species in total, 30 Least Concern (LC), 9 in Vulnerable (VU), 2 in Endangered (EN) and 2 in Critically Endangered (CR) categories. IUCN hazard categories were evaluated based on the Red Data Book of Turkish Plants (2000).

No plant species recorded under the "Bern Convention" were found in the project area.

All amphibian, reptile, bird and mammal species distributed in the Project area and its immediate surroundings were also evaluated and presented.

3.6. Land Use

Malatya Governorship Provincial Directorate of Food and Livestock reported that the project area does not have the characteristics of agricultural land and that there is no objection to the establishment of an "Iron Production Plant".

3.7. Protected Areas

Protected areas within the three (3) km impact area of the project were examined. In this context, areas that need to be protected by both local legislation and international conventions were reviewed.

Protected Areas in Accordance with the Local Legislation

The project area is located outside the areas defined as "Cultural Property", "Natural Heritage", "Archeological Site" and "Conservation Area". However, Cirzi Inscription is present in Bogazgoren Village, approximately 2 km from the activity area.

The activity area is not within the Aquaculture and Reclamation Areas. However, Uludere Stream, which is 200 m away from the project site, and Güvenç Stream feeding it are located within the Aquaculture and Reclamation Areas.

The activity area is within the areas specified in the *Regulation on the Protection of Wetlands*. Uludere, which passes approximately 200 meters from the activity area, complies with the definition of wetlands in this regulation.

There are no national parks, natural parks and natural conservation areas, natural monuments, wetlands, special environmental protection areas, archeological sites and recreation areas within the Project boundaries and impact area.

Protected Areas in Accordance with the International Conventions to which Turkey is a Party

The project area is not among the areas that need to be protected in accordance with the international conventions to which Turkey is a party.

3.8. Forest Areas

The area where the activity is planned to be carried out is outside the forest area according to the forest restriction and cadastral status.

4. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1. Air Quality

There are no industrial facilities in the project site and its immediate surroundings. An air quality modeling study was conducted to determine the impacts of the project on the region due to the construction and operation activities.

The daily and annual ground level concentration (GLC) values resulting from the construction phase are well below the limit values to be complied with under controlled and uncontrolled working conditions. In the operation phase, while the daily and annual GLC values exceed the limit values specified in the regulation under uncontrolled working conditions, the scenario showing controlled working conditions meets the limit values. Controlled working conditions are those in which the measures (e.g. watering, use of closed transport systems, keeping the material moist, loading and unloading without material being thrown, etc.) -specified in the national regulations- are taken; whereas uncontrolled working conditions are those in which no measures are taken.

There will be two (2) stack emission sources in the Plant, one 15 m high stack connected to the coal grinding system and one 40 m high stack connected to the calcination furnace. According to the air quality modeling results, the stack gas emissions (SO₂, NO₂, CO, CO₂) that will be generated at the Plant will remain below the limit values specified in the regulation. These limit values will also be met in the nearest sensitive receptors, which are Karakısık, Boğazgören, Kurdalı, Beykent settlements. In order to prevent flue gas emission in the coal grinding system and calcination process, high efficiency filter systems containing the latest technology will be used.

During the construction phase, dust emissions from non-stack sources meet the limit values for PM₁₀ and settled dust parameters. During the operation phase, limit values are met for both parameters according to the modeling run for controlled working conditions. However, in the model representing uncontrolled working conditions, the limit values specified in the regulation are exceeded for both parameters 50 m west of the Plant. However, they are still well below the limit values in nearby settlements. During the operation phase, maintaining controlled working conditions, by loading and unloading without wasting, irrigating the in-plant roads, and taking similar measures, will prevent exceeding the limit values.

According to the model results, pollutant distributions occur in northwest, northeast, east and southeast directions with the effect of prevailing winds and existing topography. The annual distribution maps obtained under controlled conditions are presented in Figure 7, Figure 8, and Figure 9.

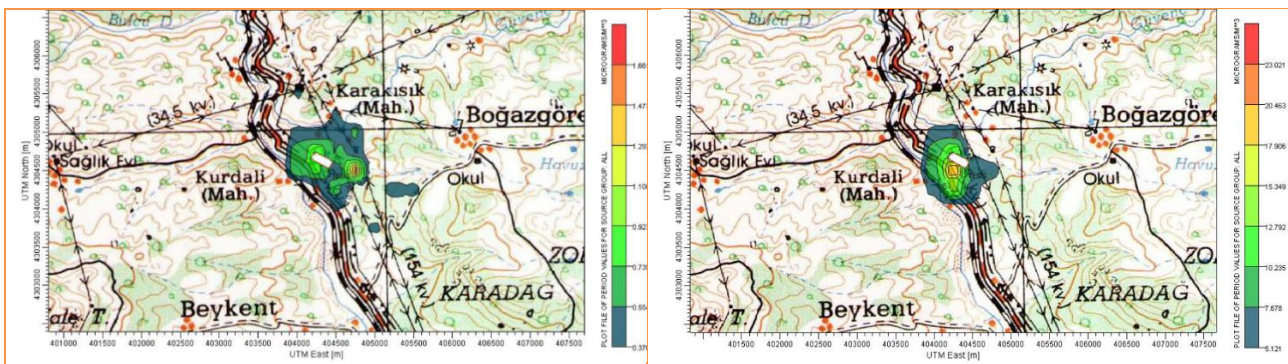


Figure 7 Annual Average PM₁₀ GLC Distributions from the Plant during Construction (left) and Operation (right) Phases Under Controlled Conditions

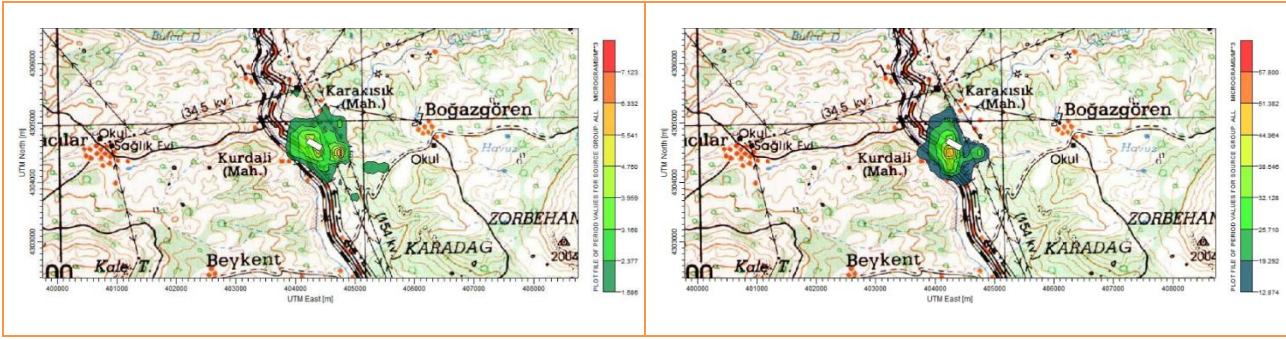


Figure 8 Annual Settled Dust Distribution from the Plant during Construction (left) and Operation (right) Phases Under Controlled Conditions

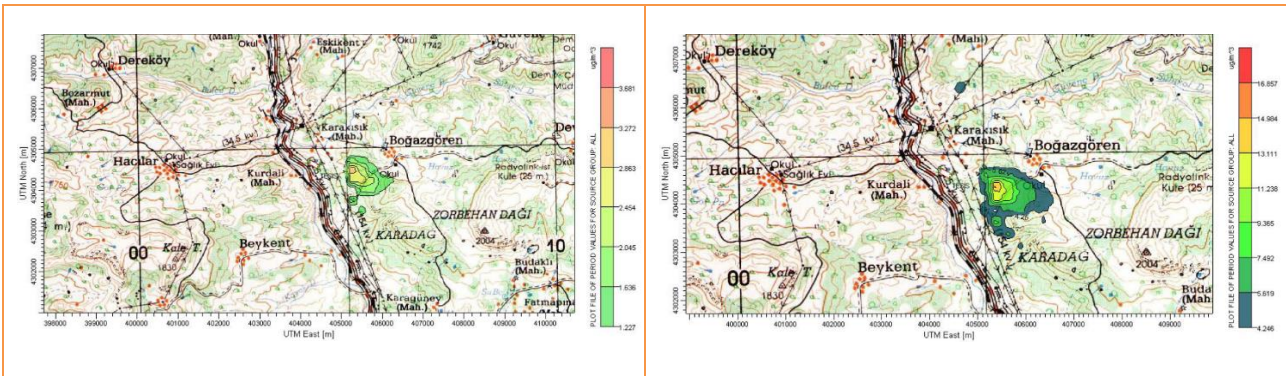


Figure 9 Annual Average NO₂ (left) and SO₂ (right) GLC Distributions from the Plant

As a result, it is predicted that the implementation of the control measures specified in the regulations and standards at the Calcination Plant will reduce the dust emission and prevent the negative air quality changes that may occur at the sensitive points. In addition, if the technology and fuel envisaged in the EIA report are used in the combustion units, flue gas emissions are not expected to exceed the limit values specified in the legislation or cause negative impacts.

In addition, dust-emitting units will be equipped with filters to prevent potential negative impacts of the activity. Produced materials will be stored in closed volumes or dust emission will be prevented during storage and loading. Conveyor and carrier systems will be designed as closed. Unloading and filling will be done without wasting. The roads inside the Plant will be paved with concrete and watered regularly to prevent dust. Full filters will be discharged in closed systems or moisturized during discharge to prevent dust emission.

According to the results of the air quality modeling study, a monitoring program was created for the parameters PM₁₀, settling dust, NO₂, CO and SO₂ for the construction and operation periods of the Project.

The Project Owner also undertakes to comply with the provisions of the *Regulation on the Monitoring of Greenhouse Gas (GHG) Emissions*.

4.2. Noise and Vibration

In accordance with the Environmental Legislation, the Plant is also subject to an environmental permit in terms of noise. The Project Owner undertakes to obtain the noise control permit within six (6) months after the Plant is operational.

The closest sensitive receptor to the project site is the residence located within the boundaries of Karakısık Neighbourhood and 400 m away from the Plant. The expected noise level at this point

during the construction period is 57.1 dBA. During the operation period, the highest noise level expected to originate from the Plant at the same point is 47.7 dBA. In this context, the environmental noise limit values specified in the *Regulation on the Assessment and Management of Environmental Noise* will not be exceeded during construction and operation activities.

The noise sources during the operation phase of the Plant are foreseen as the calcination furnace, coal grinding and burning system, flue gas cooling and filter system, transformer station, and switchyard. All measures in the regulation will be taken for the noise-causing units. Personnel will be provided with personal protective equipment (PPE) to prevent noise and will be ensured to use the PPE. Units that cause high levels of noise in the Plant will be located indoors and environmental noise will be kept at the lowest level.

Environmental noise during the operation phase of the Project will be monitored and reported by the Project Owner. In this context, noise measurements will be made at the nearest sensitive receptor and compared with the regulation limit values. In case of exceeding the limit values, the measures specified in the regulation will be taken.

It is undertaken by the Project Owner that the limit values given in the regulation will be met for the vibration to be created during the operation phase of the Plant.

4.3. Water Resources and Wastewater Management

Uludere Stream is located approximately 200 m southwest of the activity area. There is also a seasonally flowing stream bed passing through the southern part of the activity area boundary. The natural width of the stream bed will be preserved so that precipitation water from the upper basin can be transferred to the Uludere Stream.

With the construction of the Plant, stormwater collection channels and grids will be placed at the activity site. During the operation phase, periodic controls of the grid openings will be made against a possible blockage and the channels will be kept clean.

The Project Owner undertakes that no excavation material will be spilled into the water resources in the vicinity, care will be taken to protect the stream bed, and work will be carried out in accordance with the relevant regulations during the activity. Also, no water will be drawn from Uludere and Guvenc Streams.

Water Usage

It is assumed that the daily drinking and utility water requirement per person will be 0.15 m³. During the construction phase where a maximum of 50 people will work, 7.5 m³/day of water will be used. In the operation phase where 100 people will work, 15 m³/day of water will be used. It is planned to supply the domestic water requirement during the construction and operation phases from the well. For this purpose, a drilling application was made with a request of 30 m³/day.

In addition, during the construction period, 15 m³/day of water will be used for dust prevention and concrete irrigation. During the operation period, it is foreseen that 96 m³/day of water will be used for dust prevention in the pre-heating system, 15 m³/day of water will be used for dust prevention on roads and 5 m³/day of water will be used for dust prevention in raw material supply. It is planned to bring the water to the Plant by tankers. It is foreseen that a maximum of 2 m³/day of water will be added to the system to compensate for evaporation losses.

Wastewater Generation

Assuming that all water used by the personnel turns into wastewater, 7.5 m³/day of domestic wastewater will be generated during the construction and assembly phase and 15 m³/day during the operation phase. Wastewater generated due to personnel needs will be treated in the wastewater treatment plant. The planned treatment plant is designed as a package unit to treat 20 m³/day wastewater flow and 6 kg/day organic load as total biological oxygen demand (BOD₅) load.

In the disposal of wastewater to be generated within the scope of the activity, the receiving environment discharge standards in the *Water Pollution Control Regulation* will be met. After the wastewater is treated, it will be used to prevent dusting of the roads in the Plant area and to irrigate the Plant garden. When there is no need for treated water, it will be taken to the Municipality's dumping site by licensed vacuum trucks.

4.4. Soil and Groundwater

The Project Owner will comply with the provisions of the relevant regulations at all stages of the activity and will not cause any pollution in soil and groundwater.

In order to prevent any possible pollution, the floors of all units in the activity area will be constructed as impermeable reinforced concrete.

The vegetable soil and excavated soil that will be removed during the construction and assembly works of the Plant will be stocked in the designated area without mixing. After the end of the construction, the vegetable soil will be reused as topsoil in green areas and similar works and excavated soil will be used for filling, recreation and similar purposes.

4.5. Waste Management

The types of wastes likely to be generated during the construction and operation phases of the Project are solid wastes, packaging wastes, hazardous wastes, waste mineral oils, vegetable waste oils, battery and accumulator wastes, end-of-life tires, and medical wastes.

Domestic solid wastes that will be generated during the construction and operation phases and cannot be utilized will be collected in the waste storage sites to be established within the activity site. The collection system of Hekimhan Municipality will be utilized for waste removal. In case no service is provided to the region, the wastes will be taken to the nearest dumping site deemed appropriate by the Municipality.

After the sludge to be generated from the treatment plant is analyzed and it is determined whether it is hazardous waste or not, it will be disposed of by deciding in which class of landfill site it will be stored. The Project Owner undertakes to comply with the provisions of the regulation on the disposal of treated sludge.

In addition, there will be no use of flammable, explosive, dangerous, or toxic substances during the construction, assembly, and operation phases of the Project.

4.6. Ecology

Mitigation measures for the ecological impacts of the Project activities will be planned before the relevant activities begin.

In particular, seeds of threatened taxa that will remain under the reservoir in the activity area and its immediate vicinity will be collected during or before the construction process. The Project Owner will

deliver some of the seeds to the relevant Seed Gene Banks. Species requiring protection will be transferred as seeds or seedlings to off-site habitats with close ecological characteristics and new populations will be established.

There will be habitat loss with the start of work in the specified area. However, since terrestrial fauna species have mobility, they will gravitate towards similar habitats in the immediate vicinity. Therefore, fauna species will not be threatened. Construction activities will be carried out very carefully and noise will be minimized between March and June, the breeding season of wild animals.

The natural flora texture will be destroyed in the area where the construction of the Plant will be carried out and this impact will be permanent. The continuity of the natural flora texture will be ensured by laying vegetable soil on the parts of the activity site where construction activities are not carried out.

If protected species are encountered in and around the Project area, the relevant provisions of the Bern Convention will be followed.

Within the scope of the Fisheries Law, there are Uludere Stream, which is 200 m away from the activity site, and Guvenc Stream feeding it. Studies will be carried out by considering the species found in these inland waters, the natural characteristics of these species, the species under protection in national and international legislation, their feeding, shelter and living environments, and the protection decisions determined for these environments. During the activity, no water will be drawn from Uludere and Guvenc Streams.

The period of the monitoring program has been determined as six months by the Ministry of Environment and Urbanization. In the first period of the program, biodiversity of Uludere Stream will be studied under the leadership of an expert Hydrobiologist and Aquaculture Engineer. The impacts of dust and flue gas emissions from the Project on these species will be determined. In addition, in the event of any negative impact in line with the data obtained in the monitoring programs, the Project Owner accepts and undertakes to take and implement all measures to eliminate these impacts.

4.7. Socio-Economy

The settlements in the socio-economic impact area of the Plant are the villages, neighborhoods and vineyard houses around the activity area. These settlements are located in Hekimhan and Hasancelebi Districts. There are no densely populated areas within the physical impact area of the Project.

The population of Bogazgoren Village, where the project area is located, is 92 people. The planned Plant will employ 80% of the personnel from the local community. Thus, it is aimed to increase employment opportunities in the region. In case of need at various stages of the Project, it is planned to recruit personnel from the region.

The fact that a large part of the personnel needs will be selected from the surrounding regions and that material procurement and similar services will be provided from the region during the construction and operation phases will create vitality in the socio-economic structure of the region.

4.8. Community Health and Safety

Environmental and social impacts during the construction phase can be listed as dust from excavation operations, exhaust gas pollutants from trucks, noise from construction activities, and disturbance of natural flora. However, the construction phase impacts are short-duration and are expected to end with the completion of construction activities.

All necessary measures will be taken to ensure that people and animals living in the surrounding villages are not affected by dust and emission sources arising from the activities during all phases of the Project. During the operation phase of the Plant, filter systems will be in continuous operation, flue gases will be measured periodically, and the emission values will be monitored.

During the construction activities of the Project, construction machinery will not use Hekimhan-Kangal Highway. Trucks will not pass through settlements and will only operate within the project site. The excavation that will be generated during the construction phase will not be transported to other sites and will be used in land arrangement.

During the operation phase, the activity will be carried out in closed areas. However, necessary measures will be taken within the scope of the relevant regulation for noise-causing units and trucks carrying raw materials.

Siderite ore will be transported from the Crushing and Screening Plant to the operation site by trucks, and the existing asphalt road will be used by the Project Owner after the deteriorated parts are repaired. Therefore, Hekimhan-Kangal Highway will not be used during raw material supply. The calcined ore will be shipped by rail to the integrated iron and steel factories in Türkiye. During the operation period, the traffic load that will occur in case the calcined ore will be shipped by road will be approximately 75 trips/day. This will increase the existing vehicle volume of Hekimhan-Kangal Highway by 1.9% and will not greatly affect the traffic load of the existing road.

During the implementation period of the Project, in case of damage to the living creatures, orchards, agricultural and grassland areas due to the activities to be carried out, the damages to the villagers will be covered immediately, and the activity will continue after all the measures related to the issue causing the damage are taken. The Project Owner accepts and undertakes to cover all damages and losses and to take the necessary measures in case of any negative impact caused by the Project.

In addition, an Emergency Response Plan has been prepared for the Plant in order to minimize the damage in case of an emergency that may occur in sections where there is a major accident risk affecting the environment and society. The plan has been prepared for the construction and operation phases and will be revised if needed.

In summary, all kinds of measures will be taken to protect the environment and community health during the construction and operation phases of the activity.

4.9. Occupational Health and Safety

The Project Owner will take all the necessary measures in accordance with the legislation in force, based on the Labor Law, in order to protect the health and safety of the employees during both the construction and operation phases.

In case of possible fires during the construction and operation phase of the activity, the personnel to be employed will be informed about the measures to prevent forest fires. Necessary warning signs will be placed around the Project area. Any fire that may occur in the Plant will be immediately intervened. For this purpose, a fire extinguishing system consisting of a fire water tank, pump and hydrants will be installed. In addition, all necessary equipment will be provided, and personnel will be employed in the infirmary. In cases where the Plant response will be insufficient, support will be received from the nearest fire department in Hekimhan District, which is approximately 7.5 km from the activity area.

Security measures will be developed against any earthquake that may occur and training will be given to the personnel in this regard.

An Emergency Response Plan covering all possible emergencies has been prepared within the scope of the EIA Report and will be implemented in all project phases.

Material selection, assembly, commissioning and operation of the Plant will comply with national and international occupational health and safety standards and legislation.

The rotary kiln will be stopped once a year and the damaged heat-resistant materials inside the kiln will be replaced. In addition, dust filters will be replaced at intervals determined in line with the Operation Maintenance Engineer's Report.

All necessary PPEs will be provided and used by the personnel to ensure occupational health and safety during the construction and operation phases.

The tools and equipment to be used by the personnel will be suitable for human anatomy and physiology. Adequate lighting will be provided within the project area. In electrical installations, cables and their connection points will be isolated and warning signs will be placed where necessary.

Drinking and utility water of the personnel who will work during the construction and operation phase of the Project will be provided in accordance with the provisions of local legislation.

In summary, the Project Owner will aim to ensure that accidents that may occur despite taking all occupational safety precautions are overcome with minimum damage and in the shortest time possible. For this reason, warning signs will be placed in the work areas, PPE will be given to the personnel, and all necessary training and documentation activities will be carried out in order to ensure all kinds of occupational safety and prevent accidents.

5. STAKEHOLDER ENGAGEMENT

5.1. Project Stakeholders

The distances and directions of Malatya Province, Hekimhan District and the other closest settlements to the project site are presented in Table 3. The project stakeholders consist of approximately 15 households within one (1) km impact area from the project site and the cultivated lands and orchards of the surrounding villages.

Table 3 Location and Distance of Closest Settlements to the Project Site

Residential Area	Direction by Field of Activity	Air Distance to Field of Activity
Malatya Province	Southeast	68 km
Hekimhan District	Southeast	7.5 km
Bogazgoren	East	2 km
Karakisik	North	0.4 km
Kurdali	West	0.28 km
Culhali	Northeast	3.8 km
Hasancelebi District	North	7.5 km
Hacilar	West	3.4 km
Beykent	Southwest	2.6 km

5.2. Stakeholder Engagement Activities

A Public Participation Meeting was held on December 6, 2011, in Bogazgoren Village Primary School in Hekimhan District, and it was chaired by the abolished Malatya Provincial Directorate of Environment and Urbanization. In order to ensure high level of public participation to this meeting, an announcement was published in a local and a national newspaper.

At the meeting, the representatives of Project Owner and the environmental consultancy company that prepared the EIA Report were present to inform the participants about the project activities and the related potential environmental and social impacts and answer their questions. Detailed information on the measures to be taken against the environmental and social impacts of the Project activities was also shared with the participants.

Local residents expressed their concerns about water use and apricot orchards. The impacts of the activity on the surrounding agricultural lands were explained and it was stated that these impacts would be minimized with the measures to be taken. It was emphasized by many participants that they support the investment provided that the measures described in the meeting are taken. In addition, participants had requests for employment and stated that they wanted the investment to be made immediately.

After the public participation meeting, the EIA Report was prepared in line with the EIA Special Format given by the abolished Ministry of Environment and Urbanization, General Directorate of Environmental Impact Assessment, Permit and Inspection.

6. REFERENCES

- Iron Ore Enrichment Calcination Plant Final Environmental Impact Assessment Report, July 2012.

7. ANNEXES

Annex A: Table of Contents (ToC) of the Original EIA Report 2012

CHAPTER I: PROJECT DESCRIPTION AND OBJECTIVE

- I.1 Project Description, Definition of Investment, Lifetime, Operation Period (Calculations), Service Objectives, Social and Economic Importance and Necessity of the Project, Time Table
- I.2 Features of All Units in the Scope of Project, Process Methods and Technologies, Process Flow Chart, Capacities, Services to be Offered on The Units Other Than Operational Units
- I.3 Quantities of Raw Material and Auxiliary Materials Required for the Project, Supply Information Table
- I.4 Production Amounts of Final and By-Products in the Project, Guideline for Marketing and Storage
- I.5 Amount of Land to be Used in Construction and Operation Phase of the Project and Land Definition
- I.6 Quantity and Properties of Machinery, Vehicles, and Tools to be Used within the Project
- I.7 Location Selected for the Project and the Assessment of the Technology Alternatives Used

CHAPTER II: PROJECT LOCATION

- II.1 Coordinate of the Location Selected for the Project
- II.2 Current Plans Regarding Region in 1/25.000, 1/5.000, and 1/1.000 Scale If Present and Marking the Field of Activity on a 1/100.000 Scale Map
- II.3 Demonstration of Groundwater, Surface Water, Assay of Fault Lines, Geological Structure, Village and Industrial Areas, Transportation Network, Power Lines, Land Capabilities, Protected Areas, Other Strategical Areas and Indirectly Affected Areas on 1/25.000 and 1/5.000 Scaled Map in 1 km Radius with Center of Field of Activity
- II.4 Location of the Units within the Scope of the Project (Demonstration of all Administrative, Social, and Technical Units If Present on the Situation Plan, and Their Determined Open and Closed Field Size, Number of Floors and Heights, Wastewater Treatment Plant, Storage Area, Roads, Demonstration of Construction Site)
- II.5 Ownership Status of the Land, Coordinates of the Land, Addition of Panoramic Photos Regarding Field of Activity

CHAPTER III: EXISTING ENVIRONMENTAL CHARACTERISTICS OF THE PROJECT SITE AND ITS AREA OF INFLUENCE (Physical and Biologic Environmental Characteristics and Use of Natural Resources)

- III.1 Geological Features (1/25.000 Scale Map and Sections)
- III.2 Seismicity (Determination of Active Fault Lines, Its Seismic Zone Category, and Evaluation of Structures to be Built According to the Relevant Earthquake Regulations)
- III.3 Hydrological Features, Current and Planned Usage of Groundwater Sources, Their Flow Rate and Distance
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- III.5 Flora and Fauna (Species in the Project Area, Endemic Species, Wildlife and Biotope, Species Protected by National and International Legislations, Project Period, Endangered Species and Their Habitat, Their Determined Protection Areas and Determination of Danger Category According to the Red Data Book, Flora Table, Prey Animals, Their Populations and Habitats, Their Evaluation By Central Hunting Commission Decree, Proper Arrangement of Fauna, Determination of Species According to Bern Convention)
- III.6 Meteorological and Climatic Features (General Climatic Conditions, Temperature Pattern, Precipitation Pattern, Humidity Pattern, Evaporation Rates, Patterns for Other Special Conditions (Foggy, Snowy, Snowcapped, Maximum Snow Depth), Wind Distribution of the Area, Highest Precipitation Rates for Regular Conditions, Addition of Updated Long-Term Meteorological Data to the Report)
- III.7 Soil Conditions (Soil Structure and Land Use Capability Class, Slope Capability, Erosion Condition, Natural Vegetation Pasture, Meadow)
- III.8 Agriculture and Livestock (Agricultural Development Project Area, Magnitude of Irrigated and Dry Farming Areas, Livestock Types)
- III.9 Protected Areas (Project Area, Effected Sensitive Areas and Their Features, National Parks, Wetlands, Monuments, Natural Conservation Areas, Wildlife Protection Areas, Wildlife Breeding Areas, Cultural Treasures, Natural Treasures, Protected Areas, Biogenetic Reserve Areas, Biosphere Reserves, Special Environmental Areas, Special Protection Areas, Protection Areas Regarding Water Sources Intended for Human Consumption, Tourism Areas and Other Conservation Areas), Their Distance to Project Area and Possible Effects
- III.10 Forest Lands and Precautions (Tree Species, Amounts, Magnitude and Closeness of Covered Area, Current or Planned Intended Usage, Study of Negative Effects on Forest Lands and Precautions to be Taken, Measurement of Distance Between Project Area and Forest Land, Preparation Attachment of Stand Map)
- III.11 Determination of Pollution Load to the Project Area and Vicinity (Analysis of Pollution in Terms of Soil, Air, Water, Radioactivity etc.)

CHAPTER IV: SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE PROJECT AND MITIGATION MEASURES

- IV.1** Preparation of the Land and Determination of How, Where, and How Much Excavation is Required, Where to Move the Excess Excavation, Where to Store It, For What Purpose It Will Be Used
- IV.2** Flood Prevention and Processes for Drainage
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- IV.4** Population Movement (Employment During Operation Phase, Economical Changes, Migration)
- IV.5** Electrification Plan
- IV.6** Water Supply System Plan During Construction and Operation Phases, Water Source to be Used, Total Amount of Water to be Supplied and Share Per Intended Usage, Type and Amount of Resulting Wastewater, Disposal Methods and Discharge Points (Required Permissions Should be Taken and Warrant Should be Added to the Report)
- IV.7** Fuel Types to be Used on Operational Units and Others, Amount and Content of Fuel to be Used, Distribution of Fuel Usage Per Unit and Combustion Systems, Resulting Emissions and Precautions
- IV.8** Plot of Emission Points and Particle Filters with Their Numbers on Process Flow Chart
- IV.9** Vibration During Construction and Operational Phases, Noise Levels and Sources, Precautions to Suppress Noise, Acoustic Report
- IV.10** Types of Solid, Hazardous (Waste Oil etc.), and Medical Wastes to be Generated During Construction and Operational Phase, Their Amounts and Properties, Disposal Methods
- IV.11** Transport, Storage, and Usage of Waste Generated During Construction and Operation Phases Which Are Inflammable, Explosive, Hazardous, and Toxic
- IV.12** Health and Safety Measures During Construction and Operational Phase
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- IV.14** Suggested Health Protection Strip for the Project
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- IV.16** Environmental Benefit-Cost Analysis (Profits and Losses Resulting from the Investment on the Environment Should be Analyzed and the Necessity of the Project Should be Determined)
- IV.17** Possible Post-Operational Effects and Precautions (Land Reclamation, Post-Operational Long-Term Field Service Program, Current Impact on Surface Water and Ground Water Sources and Monitoring)

CHAPTER V: PUBLIC PARTICIPATION

CHAPTER VI: A NON-TECHNICAL SUMMARY OF THE INFORMATION PROVIDED ACCORDING TO THE TOPICS GIVEN ABOVE

ANNEXES
NOTES AND REFERENCES
WORKING GROUP WHO PREPARED THE EIA REPORT

Annex B: List of Annexes of the Original EIA Report 2012

This section includes the studies carried out, the documents prepared, and official correspondence within the scope of the 2012 EIA report. In order to summarize the work done, the annexes are listed in Table 4 below.

Table 4 List of Annexes of the Original EIA Report 2012

Annex 1	Property Related Documents and Project Site Satellite Image
Annex 2	EIA Report Special Format
Annex 3	Scientific Article named "Reserve and Quality Estimation of Hekimhan Deveci Siderite Ore Deposit and Its Importance for Turkish Iron-Steel Industry"
Annex 4	Coal Analysis Report
Annex 5	Schematic Representation of the Coal Grinding System
Annex 6	1/1,000 Scale and Coordinated Plant Layout Plan
Annex 7	1/25,000 Scale Topographic Map
Annex 8-a	1/1,000 Scale Local Zoning Plan, 1/5,000 Scale Master Development Plan and Explanation Report of The Plans and Act of Parliament on Local Zoning Plan
Annex 8-b	1/100,000 Scale Environment Plan
Annex 8-c	Local Zoning Plan Institutional Opinions
Annex 9	Panoramic
Annex 10	Document of EIA is Not Required Decision for Raw Iron Production from Iron Ore R&D Project dated September 20, 2011
Annex 11	Institutional Opinion of the Provincial Directorate of Food, Agriculture and Livestock
Annex 12	1/25.000 Scale Activity Center Topographic Map
Annex 13	Official Letter from General Directorate of Highways 8 th Regional Directorate
Annex 14	Geological and Geotechnical Report Conclusion and Suggestion Section and Cd of The Entire Report
Annex 15	1/25,000 Scale Geology Map Showing the Project Area and Its Surroundings
Annex 16	Settlement Suitability Map
Annex 17	Institutional Opinion of General Directorate for State Hydraulic Works 9 th Regional Directorate
Annex 18	Ecosystem Assessment Report
Annex 19	Arapgir Meteorology Station Data Between 1970-2010
Annex 20	Institutional Opinion of Elazig Regional Directorate of Forestry, 1/25.000 Scale Hometown Map, and 1/25,000 Scale Forest Management Map
Annex 21	Analysis Results and Satellite Image Showing the Air Quality, Water, Soil, Noise and Vibration Sampling Points
Annex 22	Electrification Plan
Annex 23	Groundwater Exploration Document
Annex 24	Technical Details of The Package Treatment Plant
Annex 25	Air Quality Modelling Report
Annex 26	Acoustic Report
Annex 27	Emergency Response Plan and Opinion of Provincial Disaster and Emergency Directorate
Annex 28	Local and National Newspaper Announcements for Public Participation Meeting