CHAPTER II
PRELIMINARY
ENVIRONTMENTAL

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PRELIMINARY ENVIRONMENTAL

2.1. Geo Chemical Components

2.1.1 Climate

In general, geographical conditions Karendan village Lahei district of North Barito crossed by the equator and has a high level of rainfall. So the climate in the region including the humid tropical climate and heat is influenced by seasons, the rainy season and dry season. With the state of the maximum temperature is about 35.4 ° C and a minimum temperature of about 23 ° C. But throughout 2014, noted that the maximum temperature occurred in September is 32.8 ° C, while the maximum temperature occurs in February and July is 22.9 ° C. The average temperature in the region of North Barito regency throughout 2014 was 24.9 ° C.

According to the rainfall map of Central Kalimantan, North Barito regency has the highest rainfall in the district of another which is between 3000 mm / year up to 4000 mm / year . The average rainfall per month throughout 2014 is 225.25 mm, which in November had the highest rainfall figures of 350 mm. Following the data on air temperature, rainfall and number of rainy days in North Barito :

Tabel 2.1. Air Temperature, Rainfall and Rainy Day in North Barito 2014

No.	Month	Max Temperature (°C)	Min Temperature (°C)	Averrage Temperature (°C)	Rainfall (mm)	Days of Rain (mm)
1	January	32,5	23,7	27,4	286	19
2	February	30,9	22,9	27,5	177	18
3	March	32,7	23,8	27,6	200	25
4	April	32,1	23,5	27,6	284	24
5	May	32,6	24,1	24,1	332	15
6	June	32,4	23,7	23,7	279	11
7	July	32,6	22,9	22,9	80	11
8	August	32,7	23,8	23,8	47	11
9	September	32,8	23,5	23,5	117	9
10	October	32,7	23,4	23,4	213	15
11	November	32,6	23,9	23,9	350	18
12	December	31,9	23,7	23,7	338	28

Source : BMKG Beringin Muara Teweh, 2014

2.1.2 Air Quality and Noise

Air quality in the power plant location Bangkanai 140 MW, 150 kV Bangkanai SUTT - Muara Teweh and PLTMG Bangkanai 155 MW and CNG Plant Central Kalimantan is still in Good Condition. This is because most of the area around SUTT 150 kV still a forest and scrub, and not many human activities that could lead to a decrease in air quality and increased noise. For air quality and noise testing performed on a 3 point coordinates are :

Tabel 2.2. Results of Testing Air Quality & Noise
Sampling Point I

Sampling Point : Upwind (S 00° 37' 20.7" & E 115° 08' 10.1")
Temperature : 36.5 °C
Wind Speed : 1.10 m/det
Humidity : 57.20%
Pressure : 752.72 mmHg

No	Parameter	Unit	Quality Standarts	Test Result	Reference Method
I	**Air Pollutants**				
	Chemical				
1	*Nitrogen Dioksida (NO_2)*	µg/Nm³	400	<10	SNI 19-7119.2-2005
2	*Sulfur Dioksida (SO_2)*	µg/Nm³	900	<17.15	SNI 19-7119.7-2005
3	Karbon Monoksida (CO)	µg/Nm³	30.000	<1.145	*Direct Reading*
4	*Oksigen (O_2)*	µg/Nm³	235	<15.61	SNI 19-7119.8-2005
	Physics				
1	Timbal (Pb)	µg/Nm³	-	0.01	SNI 19-7119.4-2005
2	Ash (TSP)	µg/Nm³	-	12.10	SNI 19-7119.3-2005
II	**Noise**				
1	Noise	dBA	70	40.75	Kep-48/MENLH/11/1996

Source : Hasil Pengukuran Kualitas Udara & Kebisingan 2015

Tabel 2.1. Results of Testing Air Quality & Noise
Sampling Point II

Sampling Point : Upwind (S 00° 37' 22.6" & E 115° 08' 10.8")
Temperature : 33.93 °C
Wind Speed : 0.75 m/det
Humidity : 57.55%
Pressure : 753.62 mmHg

No	Parameter	Unit	Quality Standarts	Test Result	Reference Method
I	**Air Pollutants**				
	Chemical				
1	*Nitrogen Dioksida (NO_2)*	µg/Nm³	400	<10	SNI 19-7119.2-2005
2	*Sulfur Dioksida (SO_2)*	µg/Nm³	900	<17.15	SNI 19-7119.7-2005
3	Karbon Monoksida (CO)	µg/Nm³	30.000	<1.145	*Direct Reading*
4	*Oksigen (O_2)*	µg/Nm³	235	<15.61	SNI 19-7119.8-2005
	Physics				
1	Timbal (Pb)	µg/Nm³	-	0.02	SNI 19-7119.4-2005
2	Ash (TSP)	µg/Nm³	-	23.50	SNI 19-7119.3-2005
II	**Noise**				
1	Noise	dBA	70	62.15	Kep-48/MENLH/11/1996

Source : Hasil Pengukuran Kualitas Udara & Kebisingan 2015

Tabel 2.1. Results of Testing Air Quality & Noise Sampling Point III

Sampling Point : Upwind (S 00° 37' 26.8" & E 115° 08' 12.6")
Temperature : 36.18 °C
Wind Speed : 0.90 m/det
Humidity : 53.61%
Pressure : 753.55 mmHg

No	Parameter	Unit	Quality Standarts	Test Result	Reference Method
I	**Air Pollutants**				
	Chemical				
1	*Nitrogen Dioksida (NO_2)*	µg/Nm³	400	<10	SNI 19-7119.2-2005
2	*Sulfur Dioksida (SO_2)*	µg/Nm³	900	<17.15	SNI 19-7119.7-2005
3	Karbon Monoksida (CO)	µg/Nm³	30.000	<1.145	*Direct Reading*
4	*Oksigen (O_2)*	µg/Nm³	235	<15.61	SNI 19-7119.8-2005
	Physics				
1	Timbal (Pb)	µg/Nm³	-	0.02	SNI 19-7119.4-2005
2	Ash (TSP)	µg/Nm³	-	16.30	SNI 19-7119.3-2005
II	**Noise**				
1	Noise	dBA	70	45.95	Kep-48/MENLH/11/1996

Source : Hasil Pengukuran Kualitas Udara & Kebisingan 2015

Based on the table above, it appears that all ambient air quality parameters in the location of activities is still far below the standards set.

2.1.3 Physiography and Geology

In general, North Barito from the South to the East is a rather low - lying , while the north to form a hilly area folds fractured fenced by mountains Muller / Schwaner. North Barito heights range between 27-500 meters above sea level.

Lahei sub-district which is the location of this activity, belong to the category rather low plateau about 500 meters above sea level, with a slope of about 35 %. This area generally has a mineral content of quartz that quite a lot and most of the area is covered by peat dome. The composition of the rock geology is as follows :

- Quaternary which is a rock Alluvium / deposition of gravel that stretched around Lahei river flow paths ;
- Miocene sedimentary rocks ie coal, sandstone, clay and Nepal ;
- Eocene with inset coal ;
- Upper Miocene - breccia along the river Lahei ;
- Upper Eocene oligosenmiosen down with inserts limestone ;
- Young frozen Stone - endesit.

2.1.4 Hydrology

River located in North Barito which is inline with South Barito river with a length of approximately 900 kilometers and an average width of 650 meters with an average depth of 8 meters which empties into the Java Sea. While the location of these activities, there is a tributary of the River Barito Lahei with a length of about 77.5 Km and 50.5 Km along navigable. While the average width of the river Lahei is about 90 meters and a depth of 5 meters.

The water quality at the location Bangkanai power plant of 140 MW, 150 kV Bangkanai SUTT - Muara Teweh and PLTMG Bangkanai 155 MW and CNG Plant Central Kalimantan is still in good condition. For water quality sampling was done at 2 point coordinates as follows :

Tabel 2.2. Surface Water Quality Testing Results

Sampling Point :
Up Stream (S 00° 37' 30.8" & E 115° 08' 11.8")
Down Stream (S 00° 37' 30.5" & E 115° 08' 13.2")

No	Parameter	Unit	Quality Standarts	Testing Results		Referenced Method
				I	II	
	Physics					
1	Total Dissolved Solids (TDS)	mg/l	1.000	55,00	55,00	SNI 06-6989.27-2005
2	Total Suspended Solids (TSS)	mg/l	400	217	606	SNI 06-6989.3-2004
3	Suhu	°C	Deviasi 3	28,1	28,3	SNI 06-6989.23-2005
	Chemical					
1	Arsenic (As)	mg/l	1	<0,005	<0,005	SM 3114-C
2	Boron (B)	mg/l	1	0,30	0,30	Hach Methode 8015
3	BOD5	mg/l	6	1,20	4,20	SNI 6989.72:2009
4	COD	mg/l	50	1,20	4,20	SNI 6989.2:2009
5	Degree of Acid (pH)	-	6,0-9,0	7,81	7,78	SNI 06-6989.11-2004
6	Detergents (MBAs)	mg/l	0,2	<0,01	<0,01	SNI 06-6989.51-2005
7	phenol	mg/l	0,001	<0,005	<0,005	SNI 06-6989.29-2005
8	Phosphate (PO4)	mg/l	1	0,07	0,22	SM 4500-P.D
9	Cadmium (Cd)	mg/l	0,01	<0,02	<0,02	SNI 6989.16:2009
10	Hexavalent chromium (Cr-VI)	mg/l	0,05	<0,02	<0,02	SNI 6989.68:2009
11	Cobalt (Co)	mg/l	0,2	<0,01	<0,01	SNI 6989.68:2009
12	Oils and Fats	mg/l	1	2,00	3,00	SNI 06-6989.10-2004
13	Nitrate (NO3 - N)	mg/l	20	24,88	32,13	SNI 6989.79:2011
14	Nitrite (NO2 - N)	mg/l	0,06	0,22	0,39	SNI 06-6989.9-2004
15	Dissolved Oxygen (DO)	mg/l	>3	4,20	3,80	SNI 06-2425-1991
16	Mercury (Hg)	mg/l	0,002	<0,001	<0,001	SNI 6989.78:2001
17	Selenium (Se)	mg/l	0,05	<0,01	<0,01	SM 3114-C
18	Zinc (Zn)	mg/l	0,05	0,09	0,07	SNI 6989.7:2009
19	Cyanide (CN-)	mg/l	0,02	<0,01	<0,01	SNI 6989.77:2011
20	Sulfide (S 2-)	mg/l	0,002	<0,005	<0,005	SNI 6989.70:2009
21	Copper (Cu)	mg/l	0,02	<0,03	<0,03	SNI 6989.6:2009
22	Lead (Pb)	mg/l	0,03	<0,07	<0,07	SNI 6989.8:2009
	Microbiology					
1	Coliform	jml/100ml	10.000	$4,6x10^{4A}$	$1,1x10^{5A}$	SM 9221 B
2	E. Coli	jml/100ml	2.000	$9,3x10^{3A}$	$1,5x10^{4A}$	SM 9221 E

Source : Hasil Pengukuran Kualitas Air 2015

Tabel 2.3. Clean Water Quality Testing Results

Sampling Point :
Clean Water Location (S 00° 37' 19.8" & E 115° 08' 12.6")

No	Parameter	Unit	Quality Standarts	Testing Results	Referenced Method
	Physics				
1	Odor	-	Tidak Berbau	Tidak Berbau	Organoleptik
2	Turbidity	NTU	25	185,00	SNI 06-6989.25-2005
3	Total Dissolved Solids (Tds)	mg/l	1.500	150.00	SNI 06-6989.27-2005
4	Temperature	°C	Suhu udara ±3	27,9	SNI 06-6989.23-2005
5	Color	PICo	50	5	SNI 06-6989.24-2005
	Chemical				
1	Aluminum (Al)	mg/l	-	<0,002	SNI 06-6989.35-2005
2	Iron (Fe)	mg/l	1	0,18	SNI 6989.4:2009
3	The Degree Of Acidity (Ph)	-	6,5-9,0	7,32	SNI 06-6989.11-2004
4	Cadmium (Cd)	mg/l	0,005	<0,02	SNI 6989.16:2009
5	Total Hardness (Caco3)	mg/l	500	187,48	SNI 06-6989.12-2004
6	Chloride	mg/l	600	8,87	SNI 6989.19:2009
7	Hexavalent Chromium (Cr - VI)	mg/l	0,05	<0,02	SNI 6989.68:2009
8	Manganese (Mn)	mg/l	0,5	16,40	SNI 06-6855-2002
9	Value Permanganate (Kmno4)	mg/l	10	<0,1	SNI 06-6989.22-2004
10	Nitrate (NO3 - N)	mg/l	10	47,71	SNI 6989.79:2011
11	Nitrite (NO2 - N)	mg/l	1	0,84	SNI 06-6989.9-2004
12	Zinc (Zn)	mg/l	15	<0,009	SNI 6989.7:2009
13	Cyanide (CN-)	mg/l	0,1	<0,01	SNI 6989.77:2011
14	Sulfate (SO42-)	mg/l	400	74,17	SNI 6989.20:2009
	Microbiology				
1	Coliform	jml/100ml	50	150	SM 9221 B

Source : Hasil Pengukuran Kualitas Air 2015

2.1.5 Magnetic and Electric Field

Measurement of magnetic fields and electric fields have been implemented around the construction site Bangkanai power plant of 140 MW, 150 kV Bangkanai SUTT - Muara Teweh and PLTMG Bangkanai CNG Plant 155 MW and Central Kalimantan. Magnetic fields and electric fields around the site is still in good condition in accordance with the quality standards set. Quality standard used SNI 04-6918-2002. It can be seen from the results of measurements of the magnetic field and electric field as follows :

Tabel 2.4. Measurement results of Magnetic Field and Electric Field

No	Location of Measurment	Magnetic Field Measurment (mT)	Magnetic Field Quality Standarts	Electric Field Measurment (kV/m)	Electric Field Quality Standarts
1	Construction Site	0,001	0,1 mT	0,001	5 kV/m
2	Luwe Village	0,001		0,003	
3	PT. Wiki	0,001		0,003	

Source : Hasil Pengukuran Lapangan 2014

2.1.6 Availability of Electricity

The addition of a power plant 140 MW PLTG Bangkanai and PLTMG Bangkanai 155 MW and 155 kV network SUTT Bangkanai - Muara Teweh an effort to increase the availability of electrical energy within the existing interconnect systems.

Electric energy needs, especially in the area of North Barito is still supplied from diesel Muara Teweh which has a capacity of 10.1 MW. And to support the power distribution system is then constructed as well substation in Muara Teweh. Based on data obtained electricity demand in North Barito regency until 2030 will reach 81 859 KVA.

While the current of electricity in the province of Central Kalimantan supplied from 150 kV interconnection system Barito through some GIs in Central Kalimantan, namely GI Strait, GI Home Knives, GI Palangkaraya, GI and GI Kasongan Sampit. The installed capacity of all power plants in the province of Central Kalimantan is 191 MW with power capable of approximately 154 MW and the highest peak load is 169 MW.

2.2 Biological Components

2.2.1 Flora

Flora is in the location of the power plant and SUTT Bangkanai 150 kV Muara Teweh - Bangkanai is characterized by forest vegetation and scrub vegetation.

a) Forest Vegetation

No	Area Name	Scientific Name	Description
1	Tamias	*Memecylon steenis*	not protected
2	Banitan	*Polyathia rumphii*	not protected
3	Keruing daun besar	*Dipterocarpus cornutus*	not protected
4	Pitaruk	*Eugenia sp*	not protected
5	Pelawan	*Tristania mainganyi*	not protected
6	Bangkirai	*Shorea leavifolia*	not protected
7	Mahang	*Mancaranga malucana*	not protected
8	Cengal	*Hopea sangal*	not protected
9	Resak	*Vetica resak*	not protected
10	Jabon	*Anthocephalus cadamba*	not protected
11	Gemor	*Alseodaphne sp*	not protected
12	Alaban	*Vitex pubescens*	not protected
13	Pungsi	*Hidnocarpus*	not protected
14	Teratang	*Comnosperma auriculata*	not protected
15	Terap	*Arthocarpus sp*	not protected
16	Kempas	*Compasia exels*	not protected
17	Rotan	*Calamus spp*	not protected
18	Rengas	*Gluta rengas*	not protected
19	Patung	*Diera costulata*	not protected
20	Binuang	*Octomeles sumantrana*	not protected
21	Pampaning	*Quercus paculiformis*	not protected
22	Merkuyit/Meranti putih	*Shoerea assamica*	not protected
23	Nyatoh	*Palaquium xanthophyllum*	not protected
24	Tengkawang	*Shoerea gibertsiana*	protected
25	Benuas	*Shoerea kunstleri*	not protected
26	Pulai	*Alstonia scholaris*	not protected
27	Keruing daun kecil	*Dipterocarpus borneensis*	not protected
28	Kapur naga	*Dryobalanops aromatic*	not protected
29	Jambu-jambuan	*Eugenia sp*	not protected
30	Merijang	*Sindora beccariana*	not protected
31	Rukam	*Flacourtia inermis*	not protected

32	Sintuk	*Dryobalanops oocarva*	not protected
33	Sapakau/jangkang	*Xylopia sp*	not protected
34	Petaling	*Ochanostachys amertaceae*	not protected
35	Madang	*Actinodaphne sp*	not protected
36	Margetahan	*Payena glabra*	not protected
37	pangin	*Shorea foxworthyi*	not protected
38	Putat	*Beringtonia recemosa*	not protected

Source : Hasil Pengukuran Lapangan 2014

b) Shrub Vegetation

No	Area Name	Scientific Name
1	Rumput liar	*Sceria sp*
2	Krinyuh	*Eupatorium palescens*
3	Paku kawat	*Lycopondium circinatum*
4	Paku katupat	*Geichenis lineraris*
5	Karamunting	*Melastoma malabartricum*
6	Alang-alang	*Imperata cylindrical*
7	Hakang	*Cyperus rotundus*
8	Terap	*Arthocarpus sp*
9	Pakis	*Caratoptes thalictroides*
10	Alaban	*Vitex pubescens*

Source : Hasil Pengukuran Lapangan 2014

c) Vegetation Field / Garden

No	Area Name	Scientific Name
1	Durian	*Durio zibhetinus*
2	Kelapa	*Cocos nucifera*
3	Nangka	*Artocapus intergral*
4	Sawo	*Manilkara sp*
5	Karet	*Havea brasiliensis*
6	Sirsak	*Annona muricata*
7	Ketela pohon	*Manihot utilisima*
8	Nenas	*Ananas comosus*
9	Kacang panjang	*Vigna unguculata*
10	Cabe merah	*Capsicum annum*
11	Mangga	*Mangifera indica*
12	Pisang	*Musa paradica*
13	Papaya	*Carica papaya*
14	Labu	*Legenaria ieucantha*
15	Bayam	*Amaranthus sp*

Source : Hasil Pengukuran Lapangan 2014

2.2.2 Fauna

Fauna types at location distinguished as cultivation fauna (animals) and wildlife. Types of domestic animals or pets that are kept by local residents that dogs (caris familiaris), wild boar (sus bartus) and partridges (gallus gallus).

Tabel 2.5. Types of Fauna Around PLTG Bangkanai and SUTT 150 kV Muara Teweh – Bangkanai

No	Area Name	Scientific Name	Descripton
I	**Mammals**		
1	Wild Boar	*Sus barbatus*	not protected
2	Squirrel	*Tupaia splendidula*	not protected
3	Ungko	*Hylobates agilis*	not protected
4	Ape	*Macaca nemestrina*	not protected
5	Long-Tailed Macaques	*Macaca fascicularis*	protected
6	Deer	*Ceryus unicplor*	protected
7	The Forest People	*Pongo pygmaeus*	protected
8	Honey Bear	*Helarctos melayamus*	protected
9	Weasel	*Macregelidia mushenbroeki*	not protected
10	Owa - Owa	*Hylobates spp*	protected
11	Kijang	*Ceryus sp*	protected
12	Lemur	*Tragulus javanica*	not protected
13	Proboscis	*Nasalis larsavus*	protected
II	**Bird**		
1	Bulbuls	*Pycnonotus zeylanicus*	protected
2	Meninting	*Alcedo meninting*	not protected
3	Hornbill	*Buceros rhinoceros*	protected
4	Hornbill	*Rhyticeros undulates*	protected
5	Lathe	*Centrocarpus sinensis*	not protected
6	Pampulu	*Cuculus melurinus*	not protected
7	Sparrow	*Lochura leicogatroida*	not protected
8	Turtledove	*Steptopolia chiensis*	not protected
9	Owl	*Aethopygia mytalis*	protected
10	Tiung	*Myophonus glaucinus*	protected
11	Black-Winged Kite	*Elanus caeralius*	protected
12	Black Eagle	*Inntinaetus malayenensis*	protected

No	Area Name	Scientific Name	Descripton
13	Pigeon	*Trenos vernans*	not protected
14	Review	*Ottomus reficeps*	not protected
15	Covariance	*Ducula aenea*	not protected
16	Srigunting	*Dicrucus paradiseus*	not protected
17	Empuluh Beard	*Arthotumus arthogularis*	not protected
18	Woodpecker	*Picus punicetus*	not protected
19	Cinenen Thicket	*Orthotomus arthogularis*	not protected
20	Barbets Tutut	*Magalaima chysopogon*	not protected
21	Serindit	*Loriculus galgulusi*	not protected
22	Kucica Village	*Copshycur saulanis*	not protected
23	Sweep Twigs	*Cyionis tickelliae*	not protected
III	**Reftilia And Amphibi**		
1	Lizard	*Mobouya multifasciata*	not protected
2	Lizard	*Veramus nebulosus*	not protected
3	Boa	*Phyton reticulates*	not protected
4	Python	*Phyton morulus*	not protected
5	Green Snake	*Chendrophyton leichardii*	not protected
6	Snake Stick	*Phyton karos*	not protected
7	Cobra	*Calotes sp*	not protected
8	Chameleon	*Collates jobatus*	not protected
9	Water Snake	*Achatinapulica*	not protected
10	Snail	*Bufo sp*	not protected
11	Frog Ashore	*Rina cangciflora*	not protected
12	Frog Water	*Bufo sp*	not protected
13	Frog	*Hyla sp*	not protected
14	Snake Tadung	*Dryopsis prasinus*	not protected

Source : Pengamatan Lapangan, 2014

2.2.3 Aquatic Biota

Tabel 2.6. Nekton Types Around Lahei River

No	Spread Place	Local Name/Indonesia	Scientific Name	Description
1	Calm Water	Haruang/ikan gabus	*Optriocephalus striatus*	Not Protected
		Tahuman/ikan tauman	*Ophiocephalus micropeltes*	
		Karadang	*Chana striata sp*	
2	Water Flow	Sanggiringan	*Mystus nigriceps*	
		Baung/pantik	*Mystus nemurus*	
		Saluang hutan	*Rasbora spp*	
		Saluang balu	*Rasbora spp*	
		Salap	*Puntius schwanefeldi*	
		Tabiring	*Belodonichthys dinrma*	
		Tapah	*Wallago leeri*	
		Puyau	*Puntius javanicus*	
		Banta	*Osteochilus triporos*	
		Pipih	*Chitala lopis*	
		Lampan	*Puntius schwanefeldi*	
		Jelawat	*Leptobarbus hoevenii*	
		Saluang bilis	*Rasbora spp*	
		Bahekang	*Mystus spp*	

Source : Pengamatan Lapangan, 2014

2.3 Social Components

2.3.1 Demography

This is the demographic data in Sub Lahei , Lahei West and Central Teweh data collection based on the results obtained :

Tabel 2.10. Total Population and Population Density in Sub-District Lahei, West Lahei and Central Teweh

No	Sub - District	Scale (Km^2)	Total Population	Population Density
1	Lahei	1.618,48	12.127	8
2	Lahei Barat	1.141,00	9.832	9
3	Teweh Tengah	1.008,00	43.411	43

Source : BPS Kabupaten Barito Utara , 2014

Tabel 2.11. Population By Gender In Sub-District Lahei, West Lahei and Central Teweh

No	Sub - District	Male	Female	Total
1	Lahei	6.319	12.127	12.127
2	Lahei Barat	6.319	5.808	9.832
3	Teweh Tengah	22.275	21.136	43.411

Source : BPS Kabupaten Barito Utara , 2014

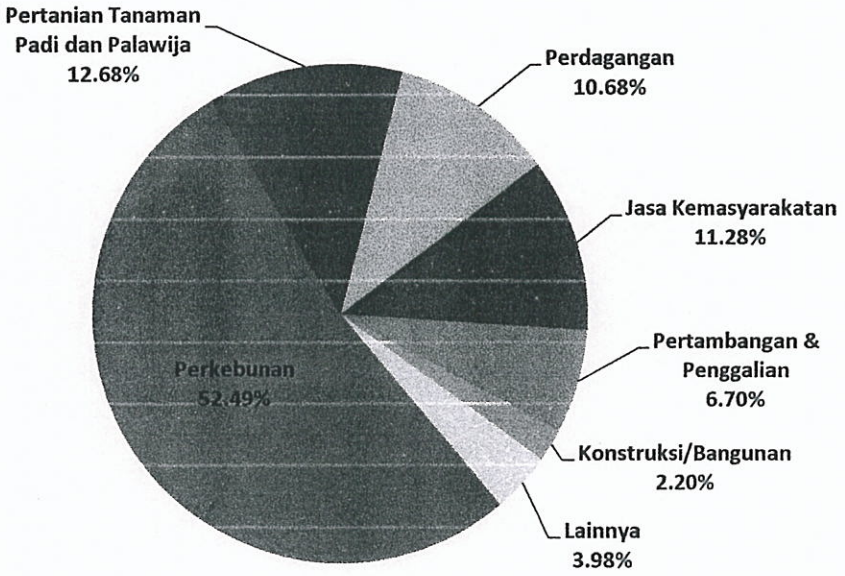
In three of the sub-district, the population percentage of elementary school level education is the largest, while the population as much as 14.62 % graduated from high school and graduated from colleges and universities is only about 1.1 %.

The majority livelihood of the population, both in District Lahei , Lahei West and Central Teweh plantations and agricultural crops are rice and pulses. And the labor force participation rate in the region is 80 %, the number of work seekers to date is about 15 690 people, of which the most dominant level of education are primary school graduates, followed by junior and senior high school graduates.

2.3.2 Sosio - Economic

Based on the data that has been obtained by the main livelihood of the population in the region Bangkanai location of the power plant 140 MW, 150 kV and PLTMG SUTT Bangkanai 155 MW and CNG Plant, it is known that most of the population works in the field of agriculture and plantation. In general, GDP at Current Market Prices (ADHB) North Barito continues to increase for 5 years. The current rate growth of GDP per capita ADHB increased about 10.42 %, while the average growth rate of 11.22 % per year. The positive growth rate indicates that the economy of North Barito quantitatively can be said to be better than the previous year. The

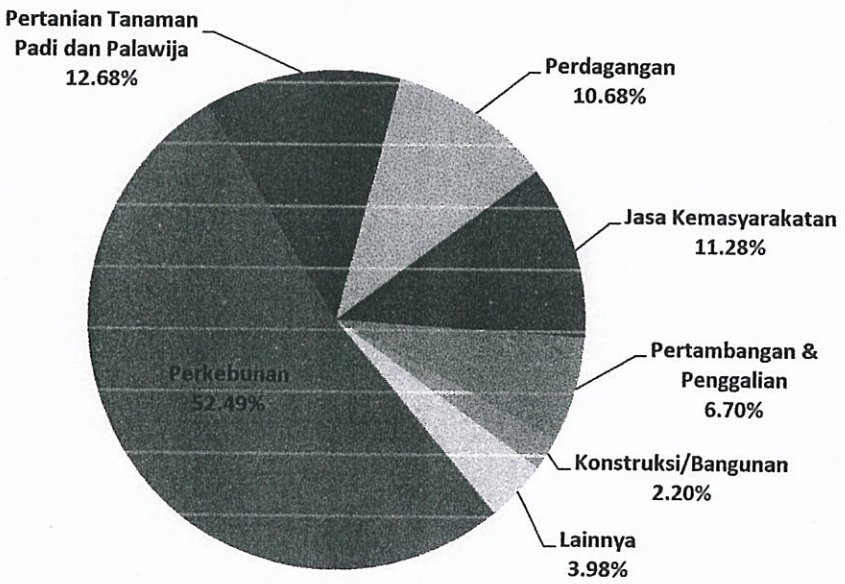
following is the distribution of the main livelihood of the population in the region :



Gambar 2.1 Main Livelihood Types At The Activity Area

Mining and quarrying sector is a sector that plays an important role in economic growth in North Barito in the amount of 23.57 %, followed by plantation and agriculture and trade sectors in the amount of 22.13 % and 17.41 %. The economic fundamentals in the study area supported by facilities and infrastructure that enable the development of society, such as trade, agriculture and other economic activities. From secondary data it is known that in the study area there are many places such trading markets, shops / kios, stalls, KUD.

The role of economic sectors in PDRB ADHB in North Barito regency can be seen in the image below:



Gambar 2.2 Economic Sector Role in PDRB ADHB at North Barito

Sub-District of Central Teweh which is the economic center in North Barito has the facilities and infrastructure of the economy with the highest number compared to the District Lahei and Lahei West, which is about 1,153 units. Facilities and infrastructure is composed of 7 units of the common market, 789 units of shop / café, a grocery, 312 units of stalls / shops, 10 bank units and 35 units of KUD / non KUD. While in District Lahei alone has about 427 units, which is 6 general market units, 255 shop units, 165 units of kiosks / stalls and 1 unit of KUD / non KUD.

From the data, the percentage of North Barito reached 6.10%. However, the terms of the achievement of Human Development Index (HDI), North Barito quite encouraging achievement, which reached 75.97.

Tabel 2.11. Total Worship Based Sub-District

No	Sub-District	Mosque	Surau/ Langgar	Church	Pura/ Balai Karaiangan Vihara
1	Lahei	13	6	6	9
2	Lahei Barat	11	1	8	11
3	Teweh Tengah	33	95	25	8
Jumlah		**57**	**102**	**39**	**28**

Source: BPS Kabupaten Barito Utara , 2014

2.4 Components of Public Health

The potential magnitude of the impact or occurrence of the disease is reflected in some of the morbidity by some kind of disease in three districts at the study area. The type of disease that affects many people in the study area as a whole is a respiratory infection, gum disease and periodontal tissue as well as influenza disease. Number of cases of respiratory disease that occurred in the study area as many as 3,580 cases or approximately 36.14 % of the total number of cases that occurred in the region.

Tabel 2.12. Disease Patterns in Study Area

No	Type of Disease	Total Case	Persentase (%)
1	Other acute infections in the upper respiratory tract	3.580	36,14
2	Gum disease and periodontal tissue	2.162	21,82
3	Influenza disease , virus not identified	1.244	12,55
4	Diarrhea and other intestinal diseases	843	8,51
5	High blood pressure / hypertension	814	8,22
6	Diseases of the muscular system and network	372	3,75
7	Eye diseases / conjungtipitas	132	1,33
8	Infectious skin diseases	76	0,77
9	hypotension	50	0,51

10	asthma	39	0,39
11	Other (in addition to the 10 above)	595	6,01
Jumlah		**9.907**	**100**

source : BPS Kabupaten Barito Utara , 2014

In Sub-District Lahei, Lahei West and Central Teweh have adequate health facilities, but the public expect better services in terms of health infrastructure.

Tabel 2.13. Total Health Facility in Study Area

No.	Sub-District	Polyclinic /Puskesmas	Puskesmas Pembantu	Posyandu
1	Lahei	2	11	19
2	Lahei Barat	2	10	13
3	Teweh Tengah	5	9	41

Source : BPS Kabupaten Barito Utara , 2014

The number of medical personnel available in the study area is very important to improving the quality of health services for local residents. This is data on the number of medical personnel available in the study area :

Tabel 2.14. Total of Medical Staff in Study Area

No.	Sub-District	Doctor	Nurse	Midwife
1	Lahei	2	25	12
2	Lahei Barat	1	15	15
3	Teweh Tengah	5	39	39

Source : BPS Kabupaten Barito Utara , 2014

Status The health status of the environment in the study area can be seen from the environmental conditions that include : quality of water, air, land, housing conditions and environmental sanitation residents around the location of activities. The sanitation facilities include: a source of clean water for drinking and cooking, toilet facilities (shower, sink , toilet), drainage channels, and garbage disposal facilities. The condition or status of environmental health

greatly affects the quality of public health, as has been mentioned above that the biological needs of human life, fulfilled by the environment.

2.5 Questionnaire results

From the questionnaire taken at random people residing or staying in the vicinity of the activities as much as 34 respondents showed the following results :

a. Gender, Marital Status, Respondents status and Number of Members

Dari Of the 34 respondents were interviewed from all respondents were male as much as 34 (100 %). The respondent Head of Family as many as 34 (100 %) with the marital status of respondents are mostly households that as many as 34 (100 %) of respondents with marital status. The number of family members of respondents ranged between 1-4 amounted to 20 (58 %) and > 4 amounted to 14 (42 %). The complete data regarding gender, marital status responder status and the number of members who are in the vicinity of the location of activities can be seen in the following table :

Tabel 2.15. Gender, Marital Status ,Respondents status and the Amount of Peoples Around Locations Activity

Gender	Male		Female		No Answer	
	Jumlah	%	Jumlah	%	Jumlah	%
	34	100	-	-	-	-
Martial Status	Married		Not Msrried		No Answer	
	Jumlah	%	Jumlah	%	Jumlah	%
Respondent Status	Head of Family		Family Member		No Answer	
	Jumlah	%	Jumlah	%	Jumlah	%
	34	100	-	-	-	-

Total Family Member	1 – 4 Orang		< 4 Orang		No Answer	
	Total	%	Total	%	Total	%
	20	58	14	42	-	-

Source : Hasil Kuisioner Tahun 2014

b. Socio – Economics Conditions

Judging from the level of socioeconomic communities are located in areas that will be carried out construction activities Bangkanai power plant of 140 MW, 150 kV Bangkanai SUTT-Muara Teweh and PLTMG Bangkanai 155 MW and CNG Plant Central Kalimantan is a society with a socio-economic level to the middle. This condition is characterized by the housing conditions and income levels and education levels of society. From the data obtained in the field in general, people in the area of development activities in general respondents have a home stay with the status of property rights 26 (61%). Respondents as a major livelihood of subsistence farmers with the number of respondents 24 respondents (70%). The education level of respondents in general are high school educated by the number of 18 respondents (53%). In general, people already know the plan of development activities Bangkanai power plant of 140 MW, 150 kV Bangkanai SUTT-Muara Teweh and PLTMG Bangkanai CNG Plant 155 MW and Central Kalimantan. The complete data regarding the socio-economic conditions can be seen in the table below :

Tabel 2.16. Status of Residence Respondents Around Location Activity

Status of Residence							
Ownership	**%**	**Rent**	**%**	**Join in Family**	**%**	**Join**	**%**
26	76	8	24	-	-	-	-

Source : Hasil Kuisioner Tahun 2014

The type of house that is used as shelter respondents can be seen in the following table:

Tabel 2.17. Type of Respondent Living

Jenis Rumah					
Permanent	%	Semi Permanent	%	Non Permanent	%
7	20	6	17	21	61

Source : Hasil Kuisioner Tahun 2014

Data on the type of work the people who are in the vicinity of the location of activities can be seen in the table below :

Tabel 2.18. People Work Around the Activity Area

Job	Jumlah	%
farmer	24	70
Farm workers	-	-
trader	2	5
Industry employees	-	8
Civil,military, police	3	2
miner	1	11
other	4	-
No answer	-	