

BASELINE ENVIRONMENT

Development of Sheola Land Port (IDA Credit No. 6002-BD)

**Study Conducted By: MM Builders & Engineers Ltd.
and M/S Anik Trading Corporation (JV)**

Contract No. BLPA/W-2

REPORT

March-2021

Contents

1	Baseline Environment	2
1.1	Physical Environment	2
1.1.1	Physiography	2
1.1.2	Climate.....	2
1.1.3	Hydrology	5
1.1.4	Geology	5
1.2	Chemical Environment	8
1.2.1	Sampling and analysis	8
1.2.2	Ambient Air Quality	11
1.2.3	Noise Quality.....	12
1.2.4	Ground water	12
1.2.5	Surface Water.....	13
1.2.6	Soil Quality	14
1.3	Biological Environment	15
1.3.1	General Biodiversity.....	15
1.3.2	Flora	16
1.3.3	Fauna.....	16
1.3.4	Fishes	16
1.4	Brief Socio-Economic Baseline	17
1.4.1	Population and Demography.....	17
1.4.2	Income and Occupation	17
1.4.3	Literacy	17
1.4.4	Health Facilities and Sanitation	17

Annexes:

I. Laboratory Test Reports from DoE.....	19
II. Laboratory Test Reports from SRDI.....	22
III. List of Participants of Consultation Meeting.....	23

List of Tables

Table 1.1: Ambient Air Quality.....	11
Table 1.2: Noise Quality.....	12
Table 1.3: Groundwater Quality.....	13
Table 1.4: Surface water Quality.....	14
Table 1.5: Surface Soil Quality.....	15
Table 1.6: List of Faunal Species	16

List of Figures

Figure 1.1: Satellite Image of Sheola Land Port and the region.....	2
Figure 1.2: Generalized Tectonic Map of Bangladesh and Adjoining Area.....	7
Figure 1.3: Locations of the Sampling Sites.....	8
Figure 1.4: Locations of Water, Air and Noise Sampling Sites.....	9
Figure 1.5: Soil Sampling from Adjacent to the Project Sites.....	15
Figure 1.6: Public Consultation-FGD and KII in Project Area.....	18

1 Baseline Environment

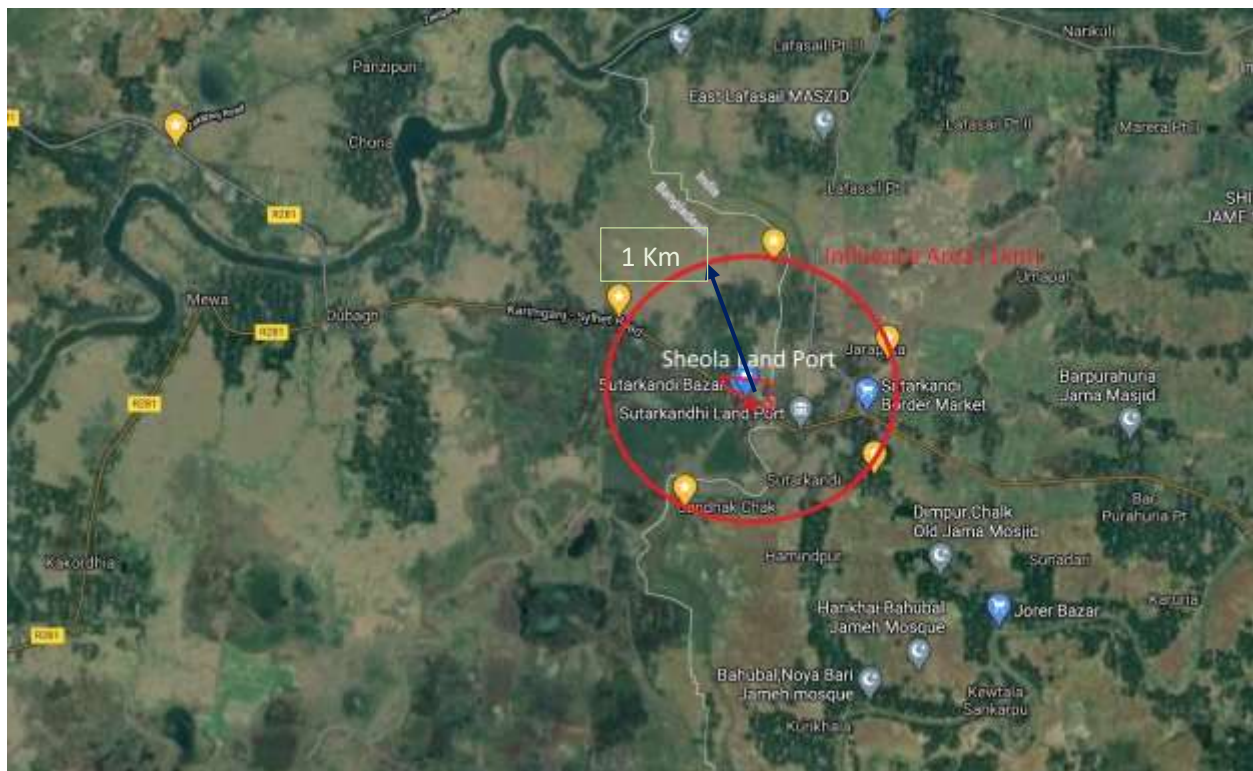
1.1 Physical Environment

Definition of the study area or project influence area: The influence area of the overall Project is defined as areas that are likely to be directly or indirectly affected by the proposed land filling and construction activities. This includes 1 km area surrounding the proposed port facilities.

1.1.1 Physiography

The general physiographic area is shown in Figure 1.1. The area is mostly plain and floodplain land. Most of the proposed area for Sheola land port is located in the catchment area of Kushiyara River. A rainwater drain flowing through the area carries the flood waters to the Kushiyara River. The areas south of the land port will drain to the in land drainage basin, Murihaaor.

Figure 1.1: Satellite Map of Sheola Land Port showing the project influence area



1.1.2 Climate

The climate of Bangladesh is sub-tropical with three seasons; namely summer from March to May, monsoon from June to October, and winter season from November to February. The average monthly minimum and maximum temperature at Sylhet varies from 16.8 °C to 29.2 °C. Maximum temperature occurs in the month of June and minimum temperature in January. Mean annual rainfall in this region is about 3691.8 mm at Sylhet. More than 70 percent of annual rainfall occurs during May to August. The average wind speed varies from 2.40 m/s to 3.60 m/s. Mean monthly data of temperature, rainfall, humidity and wind speed measured at the Sylhet meteorological station are given in Table 1.1, Table 1.2, Table 1.3 and Table 1.4, respectively.

Table 1.1: Monthly Temperature Data at Sylhet (degrees centigrade)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2011	16.8	21.3	24.5	26.7	26.9	28.1	28.1	28.1	28.5	27.5	22.6	20.0
2012	17.7	20.6	25.2	24.7	27.8	27.1	28.4	28.6	28.2	26.4	22.9	18.3
2013	17.3	22.2	25.9	26.8	25.9	29.2	28.5	28.0	28.2	26.3	22.4	19.0
2014	18.7	19.7	24.5	27.7	27.3	28.0	29.1	27.9	27.7	26.9	23.7	19.9
2015	19.6	20.7	24.9	25	26.4	27.6	28.3	27.8	28.1	27.2	23.5	19.1
2016	17.9	22.3	25.5	26	26.5	28.7	28.1	29.5	28.5	27.8	23.3	21.2
2017	19.7	21.9	22.5	24.7	27.7	27.6	28.4	28.2	28.1	26.8	23.9	20.7
2018	17.9	21.5	24.6	25.4	25.8	28.2	28.6	29	28.3	25.8	22.7	19.8
2019	19.4	20.9	24.2	26.4	27.5	28.5	28.2	29.7	28.5	26.7	24.1	19.4
2020	18	20.6	24.6	26.4	26.9	27.9	28.1	****	****	****	****	****
Mean Temp (°C)	18.3	21.17	24.64	25.98	26.87	28.09	28.37	25.68	25.41	24.14	20.91	17.74
Max Temp (°C)	19.7	22.3	25.9	27.7	27.8	29.2	29.1	29.7	28.5	27.8	23.9	21.2
Min Temp (°C)	16.8	19.7	22.5	24.7	25.8	27.1	28.1	27.8	27.7	25.8	22.6	18.3

Table 1.2: Monthly Rainfall Data at Sylhet (mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
2011	0	3	99	78	403	578	673	722	490	55	0	0	3101
2012	10	0	101	659	406	1185	700	738	261	502	48	0	4610
2013	0	7	16	229	959	729	567	520	347	451	0	0	3825
2014	0	34	78	118	540	724	316	797	732	33	0	0	3372
2015	16	40	28	539	747	857	644	754	832	53	4	7	4521
2016	11	28	134	1004	703	657	531	396	561	158	108	5	4296
2017	0	137	344	874	629	1047	774	1155	571	318	3	92	5944
2018	0	39	94	330	583	789	677	410	452	139	39	29	3581
2019	0	29	39	349	653	789	697	446	309	348	9	0	3668
2020	18	3	23	244	640	651	990	***	***	***	***	***	***
Ave.	6.5	32	95.6	394.4	626.3	800.6	656.9	593.9	455.5	205.7	21.1	13.3	3691.8

Table 1.3: Monthly Humidity Data at Sylhet (mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2011	77	64	64	69	80	85	86	85	82	77	72	75
2012	76	60	63	77	77	88	84	84	84	81	77	82
2013	74	62	60	69	83	81	83	85	83	81	74	75
2014	75	73	62	63	79	86	81	86	85	77	74	77
2015	75	68	62	78	82	86	83	88	86	77	73	76
2016	77	71	68	81	81	83	86	81	84	80	77	73
2017	71	65	74	81	78	87	85	88	87	83	77	78
2018	81	71	67	75	83	84	85	83	85	81	77	76
2019	69	69	66	72	80	85	86	82	84	83	79	76
2020	78	67	63	67	81	88	88	***	***	***	***	***
Ave.	75.3	67	64.9	72.2	80.4	85.3	84.7	76.2	76	72	68	68.8

Table 1.4: Monthly Wind Speed Data at Sylhet (m/h)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2011	2.8	2.8	3.9	3.3	3.3	2.6	3	2.8	2.6	2.1	2.2	2.4
2012	2.6	4.3	2.8	3.5	2.7	2.5	4.8	2.9	2.5	2.3	2.1	2.1
2013	4.2	2.8	2.5	3	3.2	2.8	3.2	2.6	2.7	2.4	2.3	2.2
2014	3.2	3.9	4.3	3	3.7	2.9	3.2	2.9	2.2	2.2	2.1	3.1
2015	3.7	2.7	5.1	2.6	2.7	2.6	3	2.6	2.2	2.5	2.4	2.5
2016	2.6	3	4.1	4.7	3.6	2.7	3.3	2.8	2.7	2.5	3.8	2.8
2017	3.2	3.2	3.7	4.1	3	3.2	2.8	2.6	2.8	3.7	3	3.1
2018	3	3.1	3	3.4	3.3	2.7	2.6	2.5	2.8	3.2	3.2	3.2
2019	3.2	3.6	3.3	3.5	3	2.6	3.1	3	2.9	3.1	2.8	2.8
2020	2.9	3.3	3.3	4.2	3.2	2.5	2.5	***	***	***	***	***
Ave.	3.14	3.27	3.60	3.53	3.17	2.71	3.15	2.47	2.34	2.40	2.39	2.42

Source: Climate Division, Bangladesh Metrological Department, Date of Collection: February 28, 2021

1.1.3 Hydrology

The project area is located in the floodplain land. A rainwater natural canal, with a catchment area of about 10 sq.km is passing through the proposed land port. The location of the canal is shown in Figure 1.3. The current alignment of the canal has a bend and erosion is noticed along the bends. The canal alignment will be straightened, as part of the port development, to reduce the erosion of the bank and to efficiently drain the flood water. The canal carries the flood waters to the Kushiyara River, which is located about 3 km on the western side. On the southern side of the canal, the drainage is towards the inland Murihahaor.

BWDB hydrological data station of the Kushiyara River is at Sheola and very near to the project site. As such, the station represents the project. Both water level as well as discharge data has been collected from BWDB for 100 years. The collected hydrological data of Sheola on the Kushiyara River has been used for the frequency analysis.

The representative water level hydrograph for Sheola on the River Kushiyara developed by FFWC, BWDB for the year 2016 (having highest ever recorded water level), 1988, 1998 and 2007 (three remarkable wet season). This gives an understanding of the water level profile of the River Kushiyara at Sheola. Frequency analysis for extreme Water Level of Sheola has been performed using HYMOS tool a hydrological analytical tool developed by DHI, The Netherlands. Three different probability distributions (Gumbel-EV1, Log Pearson-3 and Log Normal) have been used to find the best fit one for the dataset of Kushiyara River, and finally Log-Normal distribution was considered to fit the best among the three distributions.

So, considering the 100 years Return period the flood level would be 14.884 m PWD. For planning and designing or establishing a project to withstand against 100 years returned period the R.L for the project should be provided at $14.884 + 1$ (free board) + 0.5 (for anticipating climate change effect) = 16.384 m PWD equivalent to 15.87 m MSL. Now consider the final design land port R.L. at 16.35 m PWD equivalent to R.L. 15.87 m MSL.

The project area falls under the flash flood area of Bangladesh. The river Kushiyara flows at a distance of 3 km from the project site. This river has got the dominating influence on the flood as well as drainage on and nearby areas of the project over the channel flowing through the project. In general, if not overtopped the bank high flood bears velocity ranging from 1.25 to 2.0 m/sec. When flood water spills the bank the velocity falls as it flows all over the flood plain. As such precautionary measures to be taken for bank protection against velocity of 2 m/sec.

There is no change in ESIA baseline data and present data. The design ground level of land port, is higher than the highest flood level.

Source: Bangladesh Water Development Board (BWDB): SW173-Sheola Station, Beanibazar, Sylhet, Kushiyara River (1949-2020) collected on February 28, 2021.

1.1.4 Geology

The geology of north-eastern Bangladesh is dominated by alluvial sediments deposited by numerous streams. The port area is underlain by thick deposits of alluvial sediments. The surface soils are usually grey silt loams and silty clay loams.

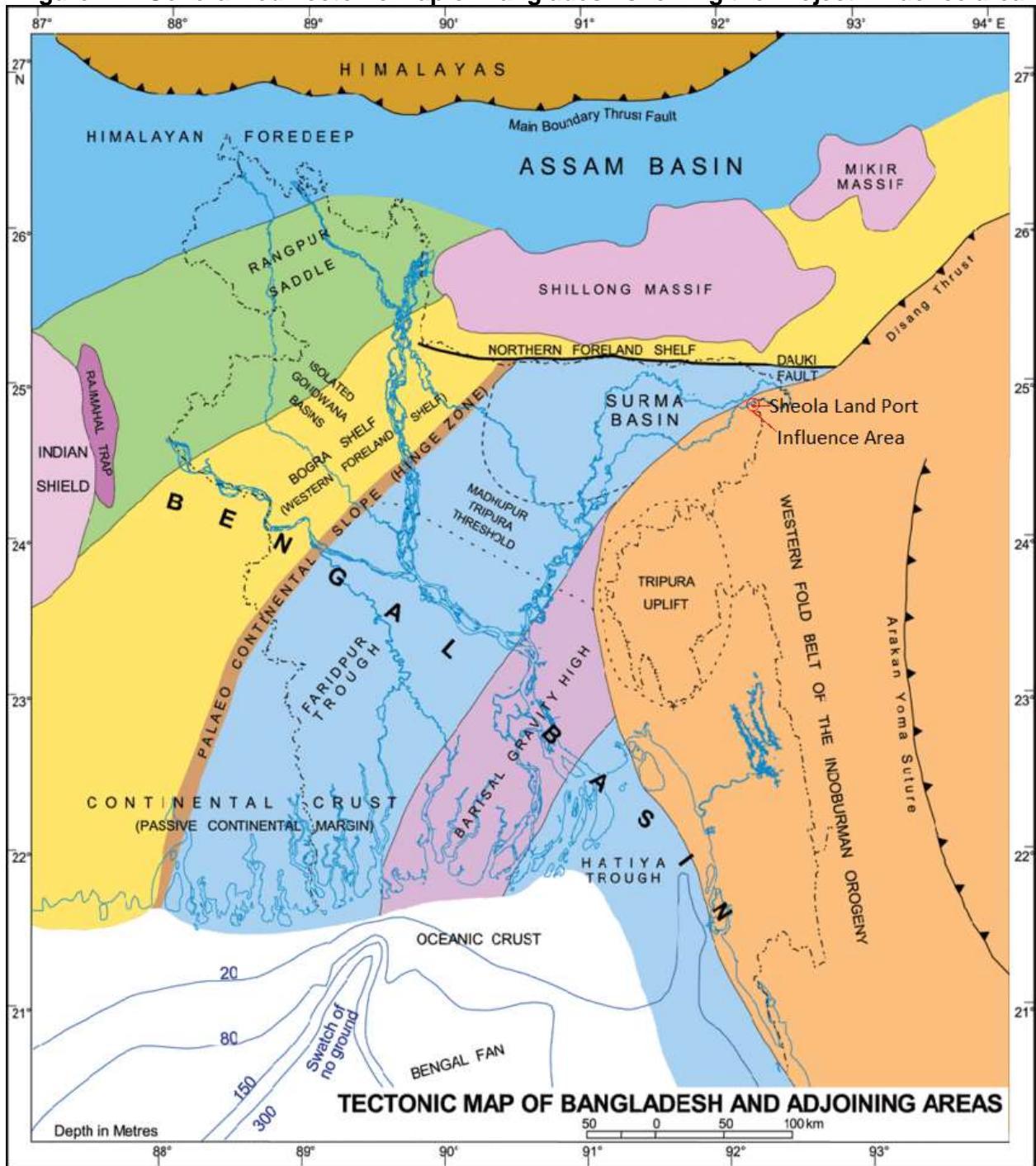
According to Bangladesh National Building Code, the Project area is located in Zone 1, which corresponds to a maximum earthquake of 6.5 g magnitude (for 2500 years return period) and an

intensity of VII to VIII on the Modified Mercalli Scale. According to this code, all the buildings in this zone are to be designed for a 0.08 g magnitude seismic coefficient.

Groundwater level occurs at shallow depths of 5 to 10m and groundwater is extensively used for drinking water purposes.

Tectonically Bangladesh occupies the major part of Bengal Basin and forms the largest delta complex in the world. It is bounded in the east by the Indo-Burma ranges, in the west by the Indian shield, in the north by the Shillong massif and the Himalayan thrust fault and in the south it is open towards Bay of Bengal for a considerable distance (Alam et al., 1990). The delta development activities are still going on in the south by the deposition of the major river system. Quaternary sediments, deposited mainly by the river Ganges, Brahmaputra and Meghna, covers about three-quarters of Bangladesh with the exception of Tertiary folded belts. Rangpur platform, Bogra shelf, Hinge zone, Trough area and Tripura-Chittagong folded belt are the major tectonic elements of the country. According to Monsur (1995) and Umitsu (1993) the study area lies in the Faridpur trough of Bengal Fore deep considering the tectonic setting (Figure 1.2).

Figure 1.2: Generalized Tectonic Map of Bangladesh showing the Project influence area



Source: Guha (1978), GSB (1990), Reimann (1993)

1.2 Chemical Environment

1.2.1 Sampling and analysis

Sampling and analysis is carried out for air, noise and water quality. The coordinates of sampling locations are shown in Figure 1.3 while the photographs from sampling locations are shown in Figure 1.4. Field test for air and noise was done on October 8, 2020 and sample of water and soil was collected on same date. Further noise quality was tested during day and night on 22nd February 2021. Details analysis is given in the paragraphs below:

Figure 1.3: Locations of the Sampling Sites

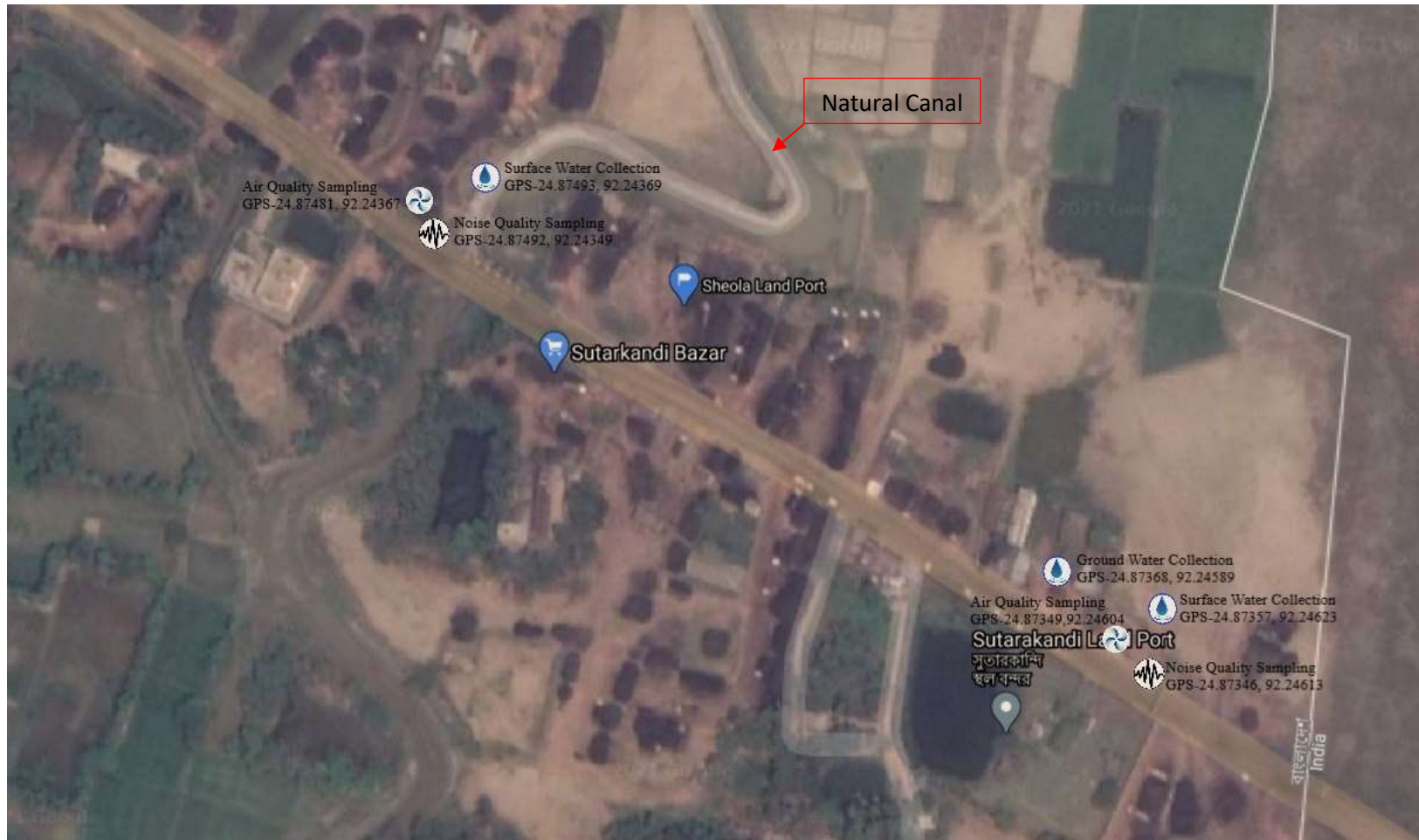


Figure 1.4: Locations of the water, air and noise Sampling Sites



Surface Water Collection from (from left) Close to BGB Camp and adjacent to Sutarkandi Bridge



Groundwater Collection from Adjacent to Custom Office site Tube well



Air Quality Water Sampling from (from left) Close to BGB Camp and adjacent to Sutarkandi Bridge



Noise Quality Sampling from (from left) Close to BGB Camp & adjacent to Sutarkandi Bridge

1.2.2 Ambient Air Quality

Ambient air quality in the project area is within the DOE standards. Maximum concentrations of PM₁₀ is about 23 µg/m³ and suspended particulate matter is about 82 µg/m³ both from the West side of project near to Sutarkandi Bridge. The ambient air quality and the DOE standards are given in Table 1.1.

Table 1.1: Ambient Air Quality

SN	Location	Ambient Air Quality in µg/m ³				
		SPM (µg/m ³)	PM ₁₀	PM _{2.5}	SO _x	NO _x
01	Sheola Immigration Check Post BGB Camp	77.00	21	8.5	6.3	4.7
Duration (hrs)		8	8	8	8	8
02	West side of project near to Sutarkandi Bridge	82.00	23	9.0	5.9	5.1
DoE (Bangladesh) Standard (Schedule – 2)		200 (8h)	150 (24h)	65	365 (24h)	100 (Y)
Method of Analysis		Gravimetric	Gravimetric		West-Geake	Jacob & Hochheiser

1. SPM Suspended Particulate Matter
2. PM₁₀ Particulate Matter of a diameter of 10 micron or less
3. PM_{2.5} Particulate Matter of a diameter of 2.5 micron or less
4. NO_x Oxides of Nitrogen
5. SO₂ Sulphur Di-Oxide

ESIA Ambient Air Quality

SN	Location	Ambient Air Quality in µg/m ³					CO mg/m ³
		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	
01	Sheola Immigration Check Post	79.33	50.66	38.85	0.0	66.39	Nil
Duration (hrs)		8	8		8	8	1
DoE (Bangladesh) Standard (Schedule – 2)		200	150		365	100	10
Method of Analysis		Gravimetric	Gravimetric		West-Geake	Jacob & Hochheiser	CO Meter

Comparison: The present baseline data shows some changes in the value of PM₁₀, SO₂ and NO_x compare to ESIA data. The PM₁₀ value of ESIA was about 51 but the present baseline shows only 21, on the other hand ESIA baseline did not find any presence of SO₂ but the present baseline study finds 6.3 µg/m³. The No_x value of ESIA was 66.39 but the present Baseline value shows 4.7. During the time of Baseline survey on March 2016, Huge quantity of coal was imported to

our country but presently that function is temporarily stopped. For this reason, quality of air is better from the previous situation.

1.2.3 Noise Quality

Noise quality results are given in Table 1.2. The day time & night time noise level is maximum 54 and 48 dBA which did not exceed the national and World Bank standards (National and WBG standards for mixed area is 60 and 50 dBA).

Table 1.2: Noise Quality

Sl. No.	Sampling Location	Date	Time	Sound Level (dBA)		Time
				Day	Night	
01	West side of the project near to BGB Camp	22.02.2021	04.49pm	54	48	9.12pm
02	East side of BGB Camp the project near to Sutarkandi Bridge	22.02.2021	04.54pm	49	41	9.18pm
Bangladesh Standard at Day Time for Mixed Area as per Noise (Pollution Control) rules, 2006		-	6.00am to 9.00pm	60.0	50	9 pm-6 pm

ESIA Noise Quality

SN	Location	Results in dB-A (Leq)		DoE (Bangladesh) Noise Standard for Mixed Area (Schedule-1)	
		Day (6 AM-9 PM)	Night (9 PM-6 PM)	Day Time (6 AM-9 PM)	Night Time (9 PM- 6 AM)
01	Place No 1	58.5	42.4	60	50
02	Place no 2	64.4	44.3	60	50
Method/Instrument				Sound Level Meter Model: SL - 4033SD	

Comparison: The present baseline data shows some changes in the value of noise quality compare to ESIA data. The day time value of ESIA was higher than that of present value (ESIA: 58.4 and 64.4, present baseline) shows 54 and 49 respectively. On the other hand, night time value was lower than that of present value (ESIA: 44.3, present baseline is 48).

1.2.4 Ground water

In general, the groundwater is suitable for drinking purposes with a higher limit TDS of 1000mg/l. In our site the value of Concentration is 107.4. Iron concentration is found 0.11 which is below the lower limit of standard. The detailed results of groundwater quality are given in Table 1.3.

Table 1.3 Ground water Quality

SN	Parameter	Unit	Concentration of Ground Water	Bangladesh (DoE) Standard for Ground Water (Schedule-3-B)
01	pH		6.7	6.5 – 8.5
02	DO	mg/l	0.0	6
03	COD	mg/l	3.5	4
04	EC	μS/cm	223	-
05	TDS	mg/l	107.4	1000
06	Iron	mg/l	0.11	0.3-1.0
07	SO ₄	mg/l		400

Sampling Date: 08.10.2020

ESIA Groundwater Quality

SN	Parameter	Unit	Concentration of Ground Water	Bangladesh (DoE) Standard for Ground Water (Schedule-3-B)
01	pH		7.4	6.5 – 8.5
02	DO	mg/l	6.2	6
03	COD	mg/l	0.0	4
04	EC	μS/cm	268	
05	TDS	mg/l	135	1000
06	Iron	mg/l	1.1	0.3-1.0
07	Arsenic	mg/l	< BDL	0.05

Comparison: The present baseline data shows some changes in the value of ground water quality compare to ESIA data. The present pH value shows slightly lower than that of ESIA data (ESIA: 7.4, present baseline: 6.7 but within the recommended range). The dissolved oxygen from ESIA value was 6.2 but present study did not find and dissolved oxygen in tube well water, but the recommended value of the same is 6mg/l. The EC value of ESIA was 268 μS/cm but the present data shows 223 μS/cm, lower than that of previous one, which shows appearance of metallic substance is relatively low. The ESIA value of TDS was 135 mg/l but present value shows 107.4mg/l, relatively low that within the recommended range. The concentration of Iron of ESIA study was 10 times higher than that of present study (present study: 0.11mg/l, ESIA: 1.1mg/l). The value of COD within the recommended range of DoE, however, the earlier study did not found any COD.

1.2.5 Surface Water

The surface water quality is analyzed on the sample collected from the existing drain near BGB camp and under the Sutarkandi Bridge. The test result shows that dissolved oxygen, biochemical oxygen demand and total dissolved and suspended solid is within the DoE standards. The results are shown in Table 1.4.

Table 1.4: Surface Water Quality

SN	Parameter	Unit	Concentration of Surface Water	Bangladesh (DoE) Standard for Surface Water (Schedule- 3-A)
Close to BGB Camp				
01	pH		7.13	6.5 – 8.5
02	DO	mg/l	9.37	≥5
03	BOD ₅	mg/l	5.21	≤6
04	COD	mg/l	12.00	
05	EC	μS/cm	46.9	2250
06	TDS	mg/l	18.52	
07	TSS	mg/l	14.31	
Adjacent to Sutarkandi Bridge				
01	pH		6.4	
02	DO	mg/l	6.21	
03	BOD ₅	mg/l	6.08	
04	COD	mg/l	14.00	
05	EC	μS/cm	17.69	
06	TDS	mg/l	11.99	
07	TSS	mg/l	42.40	

Sampling Date: 08.10.2020

ESIA Surface Water Quality

SN	Parameter	Unit	Concentration of Surface Water	Bangladesh (DoE) Standard for Surface Water (Schedule- 3-A)
01	pH		7.6	6.5 – 8.5
02	DO	mg/l	6.5	≥5
03	BOD ₅	mg/l	6.1	≤10
04	COD	mg/l	26.66	
05	EC	μS/cm	55	2250
06	TDS	mg/l	29	
07	TSS	mg/l	50.6	

Comparison: The present baseline data shows little changes in the value of surface water quality compare to ESIA data. The present pH value shows insignificant change. The ESIA COD value was 26.66 mg/l but the present value shows only 17-18mg/l. The TDS value of ESIA was 29mg/l but the present study shows 12-18.52mg/l, no significant change in other parameters.

1.2.6 Soil Quality

The surface soil quality is analyzed for the nearby area. The results are shown in Table 1.5

Table 1.5: Surface Soil quality estimation (5 locations)

Sl. No.	Parameters							
	pH	OM	N	Ca	S	Fe	Zn	Pb
		%		Meq/100g soil	Mg/kg (ppm)			
1	6.0	0.14	0.008	0.95	8.2	3.12	2.95	4.2
2	6.0	0.41	0.023	0.76	15.7	2.11	0.11	5.0
3	6.0	0.34	0.019	0.81	6.5	1.24	0.02	3.1
4	6.0	0.74	0.0429	0.98	8.0	32.67	0.37	2.1
5	6.0	0.74	0.0418	0.93	10.5	27.84	0.36	0.08

The value of surface soil quality did not exceed the recommended value of DOE, however, the ESIA study did not address any surface soil quality parameters.

Figure 1.5: Locations of the Soil Sampling Sites



Soil sampling from adjacent to the project sites

1.3 Biological Environment

1.3.1 General Biodiversity

The biodiversity in the project area is influenced by human activities and most of the current land use is agriculture with cultivated paddies and grasses. The project area is a floodplain land and hence is habitat of fish species during rainy season. The Muriha haor which is located about 3 km downstream of the proposed land port site is an inland drainage basin and can be considered as a good fish habitat. No flora and fauna species of red listed status are located in the project area.

1.3.2 Flora

The project area and surrounding areas consist of different fruit and fuel wood trees. Among the trees, the most widely available ones are Shal, Shilkoroi, Mehagani, Eucalyptus, Hijol, Borun, Pidali etc. Also, there are some fruit trees such as Mango, Coconut, Jackfruit, Betel nut, guava, etc. The shrub consists of species like *Leeacrispa*, *Glycosmisarborea*, *Thespesialampa*, and *Urenalobata*. It also has climbers such as *Mucunapuriens*, *Fucusscandens*, *Pothasscandens*, and *Smilax macrophilia*, and herbs like *Ageratum conicoid's*, *Desmodium gangeticum*, *Cleome viscosa*, and *Clerodendrum viscosum*.

1.3.3 Fauna

The faunal species reported in the project area and surroundings are given in Table 1.6. Small Asian mongoose (*Herpestes auropunctatus*) is vulnerable species, and though there is no suitable habitat for this species in the project area, it was reported to visit the project area.

Table 1.6: List of Faunal species reported in the Project area

Mammals			
Local name	Scientific name	Habitat	IUCN Status
Chicka (house shrew)	<i>Suncus murinus</i>	paddy field	Not threatened
Benji (mongoose)	<i>Herpestes auropunctatus</i>	Bush	Vulnerable
Avian fauna			
Ghugu	<i>Streptopelia orientalis</i>	Tree branches	Least Concern
Kak	<i>Corvus splendens</i>	Tree branches/ Bush	Not threatened
Myna	<i>Sturnus contra</i>	Tree branches/ Bush	Not threatened
Bhatshalik	<i>Acridothera stristis</i>	Tree branches/ Bush	Not threatened
Reptiles			
Raktochosha	<i>Calotes versicolor</i>	Bush	Not threatened
Amphibians			
Kuno bang	<i>Bufo melanostictus</i>	House corner/ damp places	Not threatened

1.3.4 Fishes

The common fish species in the project area in the flood plains, haors, rain water drain and Kushiara river are catfishes (Magur and Shing), major carps (Katla, Rui, and Mrigal), minor carps (Puti), Tilapia, other (Tengra, Boal, Mola, Taki, Shol). No aquatic species of conservation importance are recorded in the Kushiara River. Commercially valuable fish species such as hilsa has also not been found in the Kushiara River.

Comparison: No changes in the flora and fauna baseline status between the ESIA and present study.

1.4 Brief Socio-Economic Baseline

1.4.1 Population and Demography

The proposed land port is located in Dubag Union of Beanibazar Upazila. According to Dubag UP Office Information Center-February 2021, total population of Dubag Union is 36,300; male population is 18,300 (50.4%) and female population is 18000 (49.6%); total household is 4500; average literacy rate is 65%; male 52% and female 48%, which is lower than national average (according to the Bangladesh Bureau of Statistics, literacy report 2020, the literacy rate stood at 74.70%). Average family size is 8.0; more than double of the national average (BSVS, BBS-2018). About 88% people are Muslims and remaining are mostly Hindus. No indigenous people are located in and around the project area.

1.4.2 Income and Occupation

The Socio- Economic condition of the project area is given below. The project area has diversified character and income level.

Main crops are Paddy, pulses and winter vegetables and Boro are the main rice varieties. So, other than agriculture, farm laboring most depends on the business. Around the project site around 75% households rely on the firm.

Main fruits are Jackfruit, orange, litchi, guava, satkora, etc.

Fisheries, dairies, and poultries This Upazila has some fishing, dairies, and poultries.

The area is mainly remittance earning zone. A good number of the people are living in the abroad, especially in Britain. So, rich people are accustomed to western living standard. Though the fact, ordinary citizens are very conservative in belief.

Main sources of income Agriculture 26.39%, non-agricultural laborer 6.80%, industry 0.78%, commerce 12.20%, transport and communication 3.09%, service 4.16%, construction 3.74%, religious service 0.51%, rent and remittance 28.37% and others 13.96%.

Source: Banglapedia

1.4.3 Literacy

The rate of education and significant educational in the Beanibazar Upazila are as follows. Literacy rate and educational institutions Average literacy 65%; male 52%, female 48%. Educational institutions: college 4, secondary school 34, primary school 134, community school 6, kindergarten 4, madrasa 345. Noted educational institutions: Lauta High School (1871), Panchakandha Hargovinda High School (1917), Khasa Government Primary School (1895), Jaldhup Government Primary School (1909).

Source: Banglapedia

1.4.4 Health Facilities and Sanitation

In Beanibazar Upazila people mainly depend on government hospital. Some charity health clinics with limited facilities are available in the Upazila. Typical health services are available in the hospital and no specialized doctors and facilities. No significant and critical treatment are available there. The local people urged the plant authority should have supported or built a hospital with modern health facilities.

Sources of drinking water Tube-well 79.79%, tap 2.37%, pond 13.28%, and others 3.70%.

Sanitation 60.46% (urban 74.46% and rural 59.13%) of dwelling households of the Upazila use sanitary latrines, and 36.08% (urban 24.41% and rural 37.19%) of dwelling houses use non-sanitary latrines; 3.45% of households do not have latrine facilities.' (Source: Banglapedia)

Sanitation facilities in the area are medium. At the project site 60% households are using sanitary latrines, 20% kutchra latrine and 20% household have pucca latrine but not these always sterile (Source: Public consultation and FGD meeting).

Source: Banglapedia

Figure 1.6: Public consultation-FGD and KII in Project area



পেচ প্রসিদ্ধ বাংলাদেশ
পরিদেপ পরিদেপ

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তারিখ: ২৭ অক্টোবর ২০২০ খ্রিস্টাব্দ

সং. নং/পরিদেপ/০০১৪/০০১০/২৪৬

বিষয়: কল্যাণ প্রকল্প।

সূত্র: পরিদেপ নং ০৭/১০/০০২০ খ্রি. তারিখের প্রসিদ্ধকৃত আদেশ।

উপর্যুক্ত বিষয় ও সূত্রের পরিপ্রেক্ষিতে কোম্পানি, সুসারফার্ম, বিদ্যুতবিদ্যুত, বিদ্যুত এলাকার স্থানিকতা "পেচ প্রসিদ্ধ হ্রদ" নদে প্রয়োগিত হ্রদের দু-পার্শ্ব, দু-পার্শ্ব, বায়ু ও পান পরীক্ষার কল্যাণ প্রকল্পের প্রকল্প করা হল।

(ক) দু-পার্শ্ব পানি

Sample Location	Date	Lab Code No.	pH	DO mg/l	BOD mg/l	COD mg/l	TDS mg/l	TSS mg/l	EC μ S/cm
দু-পার্শ্ব পানি (বিদ্যুত বিদ্যুত বিদ্যুত), পেচলা নদ	08.10.2020	436	7.13	9.37	5.21	12	18.52	14.31	46.9
সুসারফার্ম প্রকল্প, পেচলা নদ	08.10.2020	437(1)	6.4	6.21	6.08	14	17.69	11.99	42.4
Bangladesh Standard for Inland Surface Water as per ECR-1997			6.5-8.5	≥5	≤6	-	-	-	-

(খ) দু-পার্শ্ব পানি (পার্শ্ব লব্ধ)

Sample Location	Date	Lab Code No.	pH	DO mg/l	COD mg/l	Iron mg/l	So ₄ mg/l	TDS mg/l	EC μ S/cm
দু-পার্শ্ব পানি (লব্ধ), পেচ পেচলা নদ	08.10.2020	437	6.7	0.0	3.5	0.11	03	107.4	223
Bangladesh Standard for Drinking Water as per ECR-1997			6.5-8.5	6	4	0.3-1.0	400	1000	-

[Signature]

[Signature]

[Signature]

[Signature]
29.10.2020


(খ) বায়ু


Sample Location	Date	Lab Code No.	SPM µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	NOx µg/m ³	SOx µg/m ³
East Side of Project (Proposed) near with BGB Camp	08.10.2020	506	77	21	8.3	4.7	6.3
West Side of Project (Proposed) near with Sutarkandi Bridge.	10.10.2020	507	82	23	9.0	5.1	5.9
Ambient Air Quality Standards as per ECR-1997 (Amendment-2005)			200(8 Hour)	150(24 Hour)	65(24 Hour)	100(year)	365(24 Hour)

(গ) শব্দ

Lab Code No	Sample Location	Date	Time	Sound Level in (dB(A))
490	East Side of the Project near with BGB Camp	08.10.2020	03.36 pm	38.5
	West Side of the Project near with the Sutarkandi Bridge	08.10.2020	03.47 pm	36.4
Bangladesh Standard at day time for Mixed Area as per Noise pollution (control) rules, 2006			6:00 am To 9:00 pm	60.0


25.10.20
মুদ্রা স্বাক্ষরকারী


25.10.2020
প্রকল্প পরিচালক


26.10.20
স্বাক্ষরকারী


29.10.2020
(মহাপ্রকল্প পরিচালক)
পরিচালক
CWF 10943-980248

প্রকল্প পরিচালক
মহাপ্রকল্প পরিচালক কার্যালয় (সেতল)
মহাপ্রকল্প স্থল কর্মসূচী
উদ্বিধা মন(১৬৪ ডপ), মাহেন্দ্র নগর, ঢাকা-১১১০।

শেখ হাসিনার বাংলাদেশ
পরিষ্কৃত পরিবেশ



গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পরিবেশ অধিদপ্তর
সিলেট বিভাগীয় কার্যালয়
বিজ্ঞাপন পর্যায়ে বড়োনা অফিস ভবন (৫ম তলা)
আগামপুর, সিলেট
www.doc.gov.bd

নং- পস/পানি/সমু/শস-৬০২৪/২০১৩/ ২২৫

তারিখঃ ২৩ ফেব্রুয়ারি ২০২১ খ্রি.

বিষয়ঃ ফলাফল প্রেরণ।

সূত্রঃ অত্রিকক্ষে পত্র ২২/০২/২০২১ খ্রি. তারিখের অবেদন।

উপর্যুক্ত বিষয় ও সূত্রের প্রেক্ষিতে ককোনাগ্রাম, সুতাবকান্দী, বিখানীঝারাব, সিলেট এলাকায় অবস্থিত "শেওলা জলবন্দন কর্তৃপক্ষ" নামক (প্রস্তাভিত) প্রকল্পটির শব্দের মানমাত্রা পরীক্ষার ফলাফল এতদসঙ্গে প্রেরণ করা হলো।

(A) Day

Lab Code No	Sample Location	Date	Time	Sound Level in dB(A)Leq*
611	West Side of the Project near with BGB Camp (Day)	22.02.2021	04:49 pm	54.0
612	East Side of the Project near with BGB Camp (Day)	22.02.2021	04:55 pm	49.0
Bangladesh Standard at day time for Mixed Area as per Noise pollution (control) rules, 2006			6:00 am To 9:00 pm	60.0

(B) Night

Lab Code No	Sample Location	Date	Time	Sound Level in dB(A)Leq*
613	West Side of the Project near with BGB Camp (Night)	22.02.2021	09:12 pm	48
614	East Side of the Project near with BGB Camp (Night)	22.02.2021	09:18 pm	41
Bangladesh Standard at day time for Mixed Area as per Noise pollution (control) rules, 2006			9:00 pm To 6:00 am	50.0

সহকারী পরিচালক

23.02.2021
সহকারী পরিচালক

23.02.21
সহকারী পরিচালক

20/02/2021
(মোহাম্মদ আব্দুল হোসেন)
পরিচালক
ফোনঃ ৫৫৮২১-৫৫০১২২

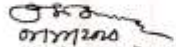
স্বাক্ষরিত পরিচালক
শেওলা জলবন্দন কর্তৃপক্ষ (প্রস্তাভিত)
ককোনাগ্রাম, সুতাবকান্দী, বিখানীঝারাব, সিলেট

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
কৃষি মন্ত্রণালয়
মৃত্তিকা সম্পদ উন্নয়ন ইনস্টিটিউট
বিকাশীয় গবেষণাগার, শিলেট।

প্রকল্প পরিচালক (মুগু সচিব), বাংলাদেশ রিজিওনাল কানেকটিভিটি প্রজেক্ট-১, বাংলাদেশ ফুলবাথর কর্তৃপক্ষ,

নৌপরিবহন মন্ত্রণালয়, কাওরান বাজার, ঢাকা-১২১৫ হইতে প্রাপ্ত মৃত্তিকা নমুনার বিশ্লেষণী ফলাফলঃ

শ্যাম. নং	সেয়েকের নং	pH	OM	N	K	Ca	Mg	P	S	Fe	Zn	Pb	Cd	Ni
			%	meq /100 g soil			mg/Kg (ppm)							
১০১১৪	১	৫.০	০.১৪	০.০০৮		০.৯৫			৮.২	০.১২	২.৯৫	৪.২		
১০১১৫	২	৬.১	০.৪১	০.০২০		০.৭৬			১৫.৭	২.১১	০.১১	৫.০		
১০১১৬	৩	৬.১	০.৩৪	০.০১৯		০.৮১			৬.৫	১.২৪	০.০২	৩.১		
১০১১৭	৪	৬.২	০.৭৪	০.০৪২		০.৯৮			৮.০	০২.৬৭	০.০৭	২.১		
১০১১৮	৫	৬.৩	০.৭৪	০.০৪৩		০.৯০			১০.৫	২৭.৮৪	০.০৬	০.০৮		


ড. মোঃ এনায়েৎ উল্লাহ
প্রধান বৈজ্ঞানিক কর্মকর্তা
ফোনঃ ০৮২১-৭১৭১৪১
E-mail: anayetsrdi@yahoo.com

প্রকল্প এলাকা সংলগ্ন ফোকাল গ্রুপদের সাথে পরিবেশগত বেসম্পাইন বিষয়ক আলোচনার অংশগ্রহণকারীদের তালিকা

শেখা হুলাবন্দর উন্নয়ন প্রকল্প, শেখা, বিমানবাজার, সিলেট।

নির্বাহন প্রতিষ্ঠান: মেমোরি অসিক প্রকল্প ও এনএম বিভাগ (জে.ডি)

ইউনিটনং: ০৯২ দুলাল ইউনিটনং

একত্রের নাম: শেখা হুলাবন্দর উন্নয়ন প্রকল্প। মিটিংয়ের স্থান: সৈয়দপুর রুহেজ্জা এনএম জাতিক ০৮/০৭/২০২০

ক্রমিক নং	নাম	গ্রাম	পিতা	পেশা	স্বাক্ষর	মোবাইল ফোন নং
(১)	(২)	(৩)	(৪)	(৫)	(৬)	(৭)
০১	আব্দুল ফারুক	ইকনাঙ্গাম	শু	জার্মান	আব্দুল ফারুক	০১৭৩২-৫৫৭২০২
০২	হাফিজ	জোনাঙ্গাম	শু	জার্মান	হাফিজ	০১৭২০-৮৭২০২২
০৩	মো: নাসিরুজ্জামান	জোনাঙ্গাম	শু	ছাত্র	NAHID	০১৭২০-৩০২২২৩
০৪	এম. এ. হামিদ	জোনাঙ্গাম	শু	জার্মান	Rahi Khatun	০১৭২২-৩৭৫২২
০৫	ফারুক আলী	জোনাঙ্গাম	শু	জার্মান	ফারুক আলী	০১৭৪৫-৩২৭৪৪
০৬	মো: মাহমুদুল আলী	জোনাঙ্গাম	শু	জার্মান	মাহমুদ	০১২৫২-৫২২৩২২
০৭	মো: মুহাম্মদ আলী	জোনাঙ্গাম	শু	জার্মান	মো: মুহাম্মদ	০১৭৩৫৫-৩৫৩২৩
০৮	মো: মোহাম্মদ আলী	জোনাঙ্গাম	শু	জার্মান	মো: মোহাম্মদ	০১৭৩৪-৫৫৩৬২০
০৯	মিলুজা মুন্সীরাম	জোনাঙ্গাম	শু	ছাত্র	মিলুজা	
১০	মিলুজা মুন্সীরাম	জোনাঙ্গাম	শু	জার্মান	মিলুজা	০১৭২২-৩৩৫৫৩৭০
১১	মিলুজা মুন্সীরাম	জোনাঙ্গাম	শু	জার্মান	মিলুজা	০১৭২৫-৩০৪২২৫
১২	মো: আব্দুল করিম	জোনাঙ্গাম	শু	জার্মান	মো: আব্দুল করিম	০১৭৩৫-৪৫৩৪২০
১৩	মো: মুন্সীরাম	জোনাঙ্গাম	শু	জার্মান	মুন্সীরাম	০১৭২৫৩৩২৫৩
১৪	মো: মোহাম্মদ আলী	জোনাঙ্গাম	শু	জার্মান	মো: মোহাম্মদ আলী	০১৭২২০৩১৫
১৫	মো: আব্দুল করিম	জোনাঙ্গাম	শু	জার্মান	মো: আব্দুল করিম	০১৭২২-৩৩৫৫৩৭০