Initial Environmental Examination

FINAL DRAFT

Project Number: 57232-01
May 2025

Volume 2

BAN: Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE)

Prepared by Power Grid Company of Bangladesh for the Asian Development Bank.

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Appendix I: TOR for EIA approved by DOE and Site Clearance Certificate

Government of the People's Republic of Bangladesh
Ministry of Environment, Forest and Climate Change
Department of Environment
Environment Clearance Section
www.doe.gov.bd

Record Number: 22.02.0000.018.72.031.24.27 Date: 30/05/2024

Subject: Approval of Terms of Reference (ToR) for EIA of Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE) project by PGCB
Reference: Memo No. 27.21.0000.414.16.055.23.751; Dated: 30.04.2024

With reference to the subject mentioned above, the Department of Environment hereby givesapproval of the Terms of Reference (ToR) for the Environmental Impact Assessment (EIA) of the **Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE) project by PGCB** subject to fulfilling the following terms and conditions:

I. The project authority shall conduct a comprehensive Environmental Impact Assessment (EIA) considering the overall activity of the said project in accordance with the ToR submitted to the Department of Environment (DoE). The EIA study shall be conducted as per the provision laid down in the Environmental Conservation Rules, 2023.
II. The EIA report shall be prepared in accordance with the guidelines provided in Schedule 11 and Rules-15, 16 of the ECR, 2023.
III. Consultation with Stakeholders/Public Consultation should be done in accordance with Rule 16 of the Environmental Conservation Rules, 2023.
IV. The project authority shall submit the EIA report to the Head Office of DoE in Dhaka.
V. Without approval of the EIA report by the Department of Environment, the project authority shall not make any land and infrastructure development.

30-05-2024
Masud Iqbal Md Shameem
Director
222218342
direc@doe.gov.bd

Chief Engineer, Power Grid Company of Bangladesh, Aftabnagar, Dhaka.

Record Number: 22.02.0000.018.72.031.24.27/1 (1) Date: 30/05/2024

Copy for Kind Information and Necessary Action:
1. Assistant Director, Office of the Director General, Department of Environment, E-16, Agargaon, Sher-E-Bangla Nagar, Dhaka..

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Site Clearance Certificate

Government of the People's Republic of Bangladesh
Ministry of Environment, Forest and Climate Change
Department of Environment
Environment Clearance Section
www.doe.gov.bd

Record Number: 22.02.0000.018.72.031.24.104 Date: 22/10/2024

Subject: Site Clearance for Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE) project by Power Grid Bangladesh PLC.

Reference: Your Application dated 20/08/2024

With reference to the above, the Department of Environment (DoE) hereby approves Environmental Impact Assessment (EIA) Report and accords Site Clearance to the project namely, "Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE)" by Power Grid Bangladesh PLC subject to the compliance of terms and conditions and environmental safeguards as under:

1. This Site Clearance is valid for following activities:
Construction and commissioning of a 400/230/132kV substation at Pekua (Chakaria, Cox's Bazar) with a total transmission capacity of 2,160 MVA and the installation of 6.7 km of 400 kV lines, 0.5 km of 230 kV and 1.3 km of 132 kV transmission lines;
Construction and commissioning of 9 substations at Monohardi, Tungipara, Dupchanchia, Matlab, Khamarkhali, Chatkhil/Sonaimuri, Paikgacha, Mathbaria and Madhabpur with a total additional transformer capacity of 1,980 MVA of 230/132 kV and 1230 MVA of 132/33 kV;
Installation of 6.7 km of 230 kV and 141.3 km of 132 kV transmission lines;
Reconductoring of 75km of 132kV transmission lines;
Installation of 10 numbers of 132 kV bay extensions.
This Site Clearance is approved for undertaking land and infrastructural development and others associated activities for the Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE) project.
The detailed design and layout plan should be maintained as per EIA report.
Project Proponent may open L/C (Letter of Credit) for importing machineries for the project which may also include machineries for waste treatment and other pollution control.
The activities to be undertaken for the above project shall not release any pollutant that affect human health or will have damaging impact on the environment or natural resources or ecosystem.
Proper and adequate mitigation measures shall be ensured throughout preparation and construction period of the proposed project activities.
Any heritage sight, ecologically critical area, wetlands and other environmentally, religious and archeologically sensitive places shall be kept protected.
Construction works shall be restricted to day time hours so as to avoid the disturbance to local people.
Proper and adequate sanitation facilities shall be ensured in labor camps throughout the proposed project period.
In order to control noise pollution, vehicles & equipment shall undergo regular maintenance; working during sensitive hours and locating machinery close to sensitive receptor shall be avoided.
No solid waste can be burnt in the project area. An environment friendly solid waste management system should be in place during the whole period of the project.
Proper and adequate on-site precautionary measures and safety measures shall be ensured so `that no habitat of any flora and fauna is endangered or destructed.
All the required mitigation measures suggested in the EIA report along with the emergency response plan are to be strictly implemented and kept operative/functioning on a continuous basis.
To control dust, spraying of water over the earthen materials should be carried out from time to time.
Storage area for soils and other construction materials shall be carefully selected to avoid disturbance of the natural drainage.
Adequate considerations should be given to facilitate drainage system for run-off water from rain.
Adequate facilities should be ensured for silt trap to avoid clogging of drain/canal/water bodies.
Construction material should be properly disposed-off after the construction work is over.
Air quality and noise level should be monitored regularly with a view to assess the natural quality of the

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surrounding environment and report of monitoring results should be submitted quarterly to Concerned Regional/Divisional offices of the Department of Environment simultaneously.

The project authority should provide all sort of logistics support to DoE for monitoring environment related items/events.

The following records must be kept in respect of any samples required to be collected for the purposes of environmental monitoring activities:

(a) the date(s) on which the sample was taken;
(b) the time(s) at which the sample was collected;
(c) the point at which the sample was taken; and
(d) the name of the person who collected the sample.

In case of any emergency, the following information shall immediately be reported to Concerned Regional/Divisional offices of the Department of Environment (DoE) simultaneously:

(a) Nature of incident (fire, accident, collision, land slide etc.)
(b) Personnel affected (injured, missing, fatalities etc.)
) Emergency support available and its location (standby transport, medical facilities, etc.)
d) Weather conditions
e) Current operations (abandoning the site, firefighting, etc.)

The project authority or its employees must notify the Department of Environment of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident.

Appropriate permission would require to be obtained from the Forest Department for cutting/felling of any plant/tree/sapling forested by any individual or government before doing such type of activity.

No activity of filling wet land is endorsed under this approval.

A full-fledged institutional setup for Environment, Health & Safety (EHS) should be put in place before commencement of the project.

Violation of any of the above conditions shall render this approval void.

Upon completion of land and infrastructural development and associated activities, the project proponent shall apply for Environmental Clearance to the Head office of DoE. Without obtaining Environmental Clearance, the proponent shall not start operation of the project.

This Site Clearance is valid for one year from the date of issuance and the project authority shall apply for renewal to the Head Office of DoE with a copy to the Concerned Regional/Divisional offices of DoE at least 30 days ahead of expiry.

This Site Clearance has been issued with the approval of the appropriate authority.



22-10-2024
Masud Iqbal Md Shameem
Director
222218342
direc@doe.gov.bd

Chief Engineer (Project Monitoring), Power Grid Bangladesh (PLC), NLDC Complex, Aftabnagar, Badda, Dhaka.

Record Number: 22.02.0000.018.72.031.24.104/1 (2) Date: 22/10/2024

Copy for Kind Information and Necessary Action (Not in the order of seniority):

1. Director, Department of Environment, Dhaka/ Chattogram Regional/Rajshahi/ Khulna, Barishal/Sylhet Divisional Office and
2. Assistant Director, Office of the Director General, Department of Environment, Head Office, Dhaka..

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22-10-2024
Masud Iqbal Md Shameem
Director

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Appendix II: Laboratory Test Results

AII.1: Air Quality Analysis Report[1]

EnviroCare International Ltd.
A house of Inspection, Testing, Assessment &Consultancy

Ref: ECIL/2024/1004-04/AAQM

Test Results of Ambient Air Quality Analysis

Name of Project	: Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE)" Project
Sample Collector	: Collected by EnviroCare Technical Team
Monitoring Date	: 30.03.2024 to 04.04.2024
Date of Analysis	: 05.04.2024-13.04.2024
Reporting Date	: 16.04.2024

Sl. No.	Sample Locations	Date	Monitoring Station	Concentration presents different parameters in ambient air							
				SPM	PM_{10}	$PM_{2.5}$	Pb	SO_2	NO_x	O_3	CO
1	AAQM-1	02.04.2024	230/132/33 kV AIS: Madhabpur, Habiganj	88.7	41.8	17.2	BDL	8.3	12.4	9.4	0.35
2	AAQM-2	30.03.2024	132/33 kV AIS: Paikgacha, Khulna	96.3	49.1	22.4	BDL	11.6	14.8	7.5	0.73
3	AAQM-3	30.03.2024	132/33 kV AIS: Tungipara, Gopalganj	92.4	56.5	23.1	BDL	9.2	13.1	6.9	0.64
4	AAQM-4	01.04.2024	132/33 kV AIS: Chatkhil/Sonaimuri, Noakhali	103.1	67.6	34.9	BDL	16.8	19.3	8.1	0.30
5	AAQM-5	01.04.2024	132/33 kV AIS: Matlab (N), Chandpur	112.6	61.9	32.2	BDL	17.5	21.9	5.7	0.51
6	AAQM-6	04.04.2024	132/33 kV AIS: Kumarkhali, Kushtia	89.2	44.8	17.4	BDL	7.0	8.6	10.1	0.97
7	AAQM-7	03.04.2024	132/33 kV AIS: Mathbaria, Pirojpur	101.1	52.6	24.5	BDL	11.4	14.9	7.3	0.58
8	AAQM-8	04.04.2024	132/33 kV AIS: Dupchanchia, Bogura	96.2	48.8	19.1	BDL	8.4	11.7	5.2	0.67
9		02.04.2024	230/132/33 kV AIS: Monohardi, Narshingdi	119.5	71.3	39.4	BDL	21.8	23.2	9.6	0.75

Address: House #9 (3rd Flr), Road # 6, Sector # 12, Uttara, Dhaka-1230, Bangladesh. Cell: 01925687029,
Phone: +88 0255087283, Web: www.envirocarebd.com, Email: info@envirocarebd.com

1

[1] Physical environment data was collected by Tecvy, PGCB's IEE consultant. The site for Monohordi substation has changed since the data was collected, the surveyed site is about 4.5km from the selected site, so has been referred for the purposes of assessment but is not suitable for impact monitoring. Further, due to lack of some coordinates so that data post-construction can be compared to pre-construction all tests will need to be repeated by the contractor for each site during detailed design.

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A house of Inspection, Testing, Assessment &Consultancy

Sl. No.	Sample Locations	Date	Monitoring Station	Concentration presents different parameters in ambient air							
				SPM	PM_{10}	$PM_{2.5}$	Pb	SO_2	NO_x	O_3	CO
	AAQM-9										
10	AAQM-10	31.03.2024	400/230/132 kV AIS: Pekua/ Chakaria, Cox's Bazar	95.9	56.4	20.3	BDL	9.8	13.7	7.1	0.22
11	AAQM-11	02.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	91.1	50.8	19.2	BDL	7.3	11.7	5.4	0.46
12	AAQM-12	02.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	108.6	67.8	34.1	BDL	12.3	17.9	8.2	0.31
13	AAQM-13	04.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	110.3	71.7	35.3	BDL	11.9	18.0	7.2	0.66
14	AAQM-14	31.03.2024	LILO of Existing Matarbari PP – Banskhali PP double circuit 400 kV line at Matarbari: 13.5 Km (Conductor: Quad ACSR Finch)	104.4	69.9	32.1	BDL	15.7	19.3	6.2	0.76
15	AAQM-15	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	127.1	79.3	28.2	BDL	9.6	10.7	5.4	0.28
16	AAQM-16	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	87.5	42.1	19.6	BDL	6.7	5.9	7.2	0.46
17	AAQM-17	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	94.7	52.5	24.6	BDL	11.9	16.4	6.8	0.33
18	AAQM-18	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line: 25 Km (Proposed Conductor, ACSR Grosbeak)	111.3	73.2	36.8	BDL	18.1	21.7	5.1	0.73
19	AAQM-19	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line: 25 Km (Proposed Conductor, ACSR Grosbeak)	103.4	51.9	26.8	BDL	11.7	12.4	7.6	0.19
20	AAQM-20	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line: 33 km (Proposed Conductor: ACSR Grosbeak)	97.3	45.7	20.9	BDL	7.6	11.5	9.1	0.50
21		03.04.2024	Bhandaria-Mathbaria 132 kV double circuit	107.8	61.1	31.3	BDL	5.2	7.9	5.6	0.41

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Sl. No.	Sample Locations	Date	Monitoring Station	Concentration presents different parameters in ambient air							
				SPM	PM_{10}	$PM_{2.5}$	Pb	SO_2	NO_x	O_3	CO
	AAQM-21		transmission line: 33 km (Proposed Conductor: ACSR Grosbeak)								
22	AAQM-22	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line: 30 km (Proposed Conductor: ACSR Grosbeak)	92.2	49.7	21.8	BDL	9.3	8.2	10.6	0.31
23	AAQM-23	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line: 30 km (Proposed Conductor: ACSR Grosbeak)	102	57	23	BDL	9.1	6.3	11.6	0.74
24	AAQM-24	30.03.2024	Gopalganj - Tungipara 132 Kv double circuit line: 19 Km (Proposed Conductor: ACSR Grosbeak)	94	47	18	BDL	7.3	5.9	9.1	0.34
25	AAQM-25	31.03.2024	Gopalganj-Tungipara 132 Kv double circuit line: 19 Km (Proposed Conductor: ACSR Grosbeak	106	64	29	BDL	11.8	16.6	7.3	0.71
26	AAQM-26	02.04.2024	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132 kV line: (58+17) = 75 km) (Proposed Conductor: CFCC type HTLS equivalent to ACSR Grosbeak)	101	59	27	BDL	7.6	11.2	5.3	0.48
Unit				µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m3
Duration				8	24	24	24	24	24	8	8
Method of Analysis				Light Scattering Nephotometer			AAS	High Sensitivity Electrochemical			
Bangladesh Standard				200	150	65	0.5	80	80	100	5

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*Standard: Air pollution Control Rules (**APCR**) On 26th July 2022; Vide S.R.O. NO. 255-Law/ 2022 and Environment Conservation Rules (ECR) 1997 through its subsequent amendment on 19th July, 2005; vide S.R.O. NO. 220-Law/2005.
Note: This ambient air monitoring report was usually accomplished by- portable **OCEANUS AQM-09** & Air Sampler with Attachment (**Single Head**)
***Note**: BDL = Bellow the detection level, AAS=Atomic Absorption Spectroscopy

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AII.2 Noise Level Analysis Report[2]

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Ref: ECIL/2024/1005-04/ANLM

Test Results of Noise Level Analysis

Name of Project	: "Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE)" Project
Sample Collector	: Collected by EnviroCare Technical Team
Monitoring Date	: 30.03.2024 to 04.04.2024
Date of Analysis	: 05.04.2024-13.04.2024
Reporting Date	: 16.04.2024

Test Result

Sampling ID	Date	Monitoring Location	Concentration Present (dBA)						Category
			Day			Night			
			L_{eq}	L_{max}	L_{min}	L_{eq}	L_{max}	L_{min}	
ANLM-1	02.04.2024	230/132/33 kV AIS: Madhabpur, Habiganj	51.32	71.6	38.9	40.12	50.6	31.7	**Mixed**
ANLM-2:	30.03.2024	132/33 kV AIS: Paikgacha, Khulna	54.83	79.5	43.3	39.65	60.4	35.2	**Silent**
ANLM-3	30.03.2024	132/33 kV AIS: Tungipara, Gopalganj	52.54	69.3	34.9	38.87	53.1	32.8	**Mixed**
ANLM-4:	01.04.2024	132/33 kV AIS: Chatkhil/Sonaimuri, Noakhali	53.79	71.4	40.1	42.60	56.5	38.2	**Residential**
ANLM-5	01.04.2024	132/33 kV AIS: Matlab (N), Chandpur	57.92	78.4	37.7	41.92	58.3	39.1	**Mixed**
ANLM-6	04.04.2024	132/33 kV AIS: Kumarkhali, Kushtia	58.43	70.4	40.3	37.89	57.1	32.5	**Mixed**
ANLM-7:	03.04.2024	132/33 kV AIS: Mathbaria, Pirojpur	50.81	68.5	36.9	33.12	54.7	32.3	**Mixed**
	04.04.2024	132/33 kV AIS: Dupchanchia, Bogura	53.56	70.1	36.5	37.98	60.2	40.6	**Residential**

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1

[2] These are initial representative sites for which data was collected by Tecvy, PGCB's IEE contractor, All Tests will be repeated by each Contractor for each site at award stage for detailed design to account for if any sites are left out.

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ANLM-8									
ANLM-9	02.04.2024	230/132/33 kV AIS: Monohardi, Narshingdi	56.39	73.4	40.3	41.45	58.8	34.2	**Mixed**
ANLM-10	31.03.2024	400/230/132 kV AIS: Pekua/ Chakaria, Cox's Bazar	50.73	67.2	38.6	38.32	54.1	33.5	**Residential**
ANLM-11	02.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	59.47	81.4	47.2	43.83	61.9	39.7	**Mixed**
ANLM-12	02.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	56.42	77.3	46.9	41.76	58.7	39.6	**Mixed**
ANLM-13	04.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	52.48	69.6	43.5	40.12	56.5	37.3	**Silent**
ANLM-14	31.03.2024	LILO of Existing Matarbari PP – Banskhali PP double circuit 400 kV line at Matarbari: 13.5 Km (Conductor: Quad ACSR Finch)	59.40	80.3	47.9	44.12	58.6	39.6	**Mixed**
ANLM-15	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	57.89	73.3	42.6	38.23	60.1	33.9	**Mixed**
ANLM-16	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	56.27	75.6	41.1	37.50	62.2	36.3	**Mixed**
ANLM-17	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	60.91	84.7	38.4	46.56	57.3	31.5	**Residential**
ANLM-18	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line: 25 Km (Proposed Conductor, ACSR Grosbeak)	53.60	67.6	44.3	37.97	51.1	32.7	**Mixed**
ANLM-19	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line: 25 Km (Proposed Conductor, ACSR Grosbeak)	58.23	76.5	47.8	41.87	62.4	34.8	**Silent**
ANLM-20	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line: 33 km (Proposed Conductor: ACSR Grosbeak)	49.03	68.4	43.7	36.79	49.6	31.8	**Mixed**
ANLM-21	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line: 33 km (Proposed Conductor: ACSR Grosbeak)	53.67	70.1	42.3	40.16	64.3	37.8	**Mixed**
ANLM-22	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line: 30 km (Proposed Conductor: ACSR Grosbeak)	51.98	68.6	40.1	37.62	60.3	34.8	**Residential**

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ANLM-23	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line: 30 km (Proposed Conductor: ACSR Grosbeak)	57.91	73.4	46.6	42.13	67.2	34.8	**Mixed**
ANLM-24	30.03.2024	Gopalganj - Tungipara 132 Kv double circuit line: 19 Km (Proposed Conductor: ACSR Grosbeak)	53.46	74.9	38.3	39.51	61.4	32.8	**Silent**
ANLM-25	31.03.2024	Gopalganj-Tungipara 132 Kv double circuit line: 19 Km (Proposed Conductor: ACSR Grosbeak	56.17	76.5	41.1	40.01	62.8	32.2	**Mixed**
ANLM-26	02.04.2024	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132 kV line: (58+17) = 75 km) (Proposed Conductor: CFCC type HTLS equivalent to ACSR Grosbeak)	52.45	68.1	42.4	34.12	60.1	33.6	**Mixed**

Bangladesh Standard	**Day Time**	**Night Time**
Industrial area	75	70
Commercial	70	60
Mixed area	60	50
Residential area	55	45
Silent Area	50	40
World Bank / IFC Standard		
Industrial area	70	70
Residential; Intuitional; Educational	55	45

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AII.3: EMF Analysis Report[3]

[3] These are initial representative sites for which data was collected by Tecvy, PGCB's IEE contractor, All Tests will be repeated by each Contractor for each site at award stage for detailed design to account for if any sites are left out.

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Ref: ECIL/2024/1008-04/EMF

Test Results of EMF Monitoring

Name of Project : Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE)" Project
Sample Collector : Collected by EnviroCare Technical Team
Monitoring Date : 30.03.2024 to 04.04.2024
Date of Analysis : 05.04.2024-21.04.2024
Reporting Date : 22.04.2024

SN	Monitoring ID	Date	Monitoring Locations	GPS Coordinates	Obtained Value of EMF in (µT)
1	EMF 01	02.04.2024	230/132/33 kV AIS: Madhabpur, Habiganj	21°45'6.50"N 91°59'23.63"E	0.14
2	EMF 02	30.03.2024	132/33 kV AIS: Paikgacha, Khulna	24° 7'23.68"N 91°18'57.08"E	0.11
3	EMF 03	30.03.2024	132/33 kV AIS: Tungipara, Gopalganj	24°7'56.99"N 90°42'30.18"E	0.12
4	EMF 04	01.04.2024	132/33 kV AIS: Chatkhil/Sonaimuri, Noakhali	22°55'7.37"N 89°54'12.65"E	0.08
5	EMF 05	01.04.2024	132/33 kV AIS: Matlab (N), Chandpur	24°53'33.72"N 89° 9'33.30"E	0.07
6	EMF 06	04.04.2024	132/33 kV AIS: Kumarkhali, Kushtia	23°24'49.88"N 90°38'0.83"E	0.08
7	EMF 07	03.04.2024	132/33 kV AIS: Mathbaria, Pirojpur	23°52'14.25"N 89°13'20.33"E	0.06
8	EMF 08	04.04.2024	132/33 kV AIS: Dupchanchia, Bogura	23° 3'16.80"N 90°59'12.27"E	0.08
9	EMF 09	02.04.2024	230/132/33 kV AIS: Monohardi, Narshingdi	22°34'41.66"N 89°17'49.49"E	0.07
10	EMF 10	31.03.2024	400/230/132 kV AIS: Pekua/ Chakaria, Cox's Bazar	22°13'56.78"N 89°58'16.52"E	0.06
11	EMF 11	02.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	24°10'46.15"N 90°44'30.98"E	0.08
12	EMF 12	02.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	24°12'17.82"N 90°49'27.78"E	0.09
13	EMF 13	04.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	24°13'38.22"N 90°52'56.25"E	0.08
14	EMF 14	31.03.2024	LILO of Existing Matarbari PP – Banskhali PP double circuit 400 kV line at Matarbari: 13.5 Km (Conductor: Quad ACSR Finch)	21°45'24.63"N 91°57'26.98"E	0.07
15	EMF 15	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	23°22'39.23"N 90°43'11.92"E	0.08
16	EMF 16	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed	23°18'3.35"N 90°48'25.44"E	0.06

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SN	Monitoring ID	Date	Monitoring Locations	GPS Coordinates	Obtained Value of EMF in (μT)
			Conductor: ACSR Grosbeak)		
17	EMF 17	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	23°16'4.18"N 90°51'41.91"E	0.07
18	EMF 18	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line: 25 Km (Proposed Conductor, ACSR Grosbeak)	22°21'45.97"N 90°18'42.62"E	0.10
19	EMF 19	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line: 25 Km (Proposed Conductor, ACSR Grosbeak)	22°31'24.71"N 90°17'42.50"E	0.11
20	EMF 20	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line: 33 km (Proposed Conductor: ACSR Grosbeak)	22°20'26.86"N 90° 1'21.11"E	0.06
21	EMF 21	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line: 33 km (Proposed Conductor: ACSR Grosbeak)	22°27'36.05"N 90° 3'31.47"E	0.12
22	EMF 22	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line: 30 km (Proposed Conductor: ACSR Grosbeak)	22°44'35.69"N 89° 5'38.34"E	0.08
23	EMF 23	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line: 30 km (Proposed Conductor: ACSR Grosbeak)	22°31'23.22"N 89° 2'20.92"E	0.07
24	EMF 24	30.03.2024	Gopalganj - Tungipara 132 Kv double circuit line: 19 Km (Proposed Conductor: ACSR Grosbeak)	23° 2'28.75"N 89°50'38.24"E	0.12
25	EMF 25	31.03.2024	Gopalganj-Tungipara 132 Kv double circuit line: 19 Km (Proposed Conductor: ACSR Grosbeak	23° 2'10.12"N 89°49'57.31"E	0.10
26	EMF 26	02.04.2024	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132 kV line: (58+17) = 75 km) (Proposed Conductor: CFCC type HTLS equivalent to ACSR Grosbeak)	24°11'8.82"N 91°20'39.59"E	0.09

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*Standard

Non-Ionizing Radiation Protection (ICNIRP) 2009		
Typical maximum public exposure	**2.0**	**0.2**
Beneath large power lines	200	20
Time-weighted average (TWA)	2000000	200000
International Agency for Research on Cancer (IARC) 2002		
IARC 2002	40	4

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AII.4: Vibration Analysis Report[4]

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Ref: ECIL/2024/1007-04/VLM

Test Results of Vibration Level Monitoring

Name of Project	: Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE)" Project
Sample Collector	: Collected by EnviroCare Technical Team
Monitoring Date	: 30.03.2024 to 04.04.2024
Date of Analysis	: 05.04.2024-21.04.2024
Reporting Date	: 22.04.2024

SN	Location	Date	Monitoring Locations	Vibration Level (mm/s)	BD Standard, ECR 2023	International Standard (BS 5228-2:2009)
1	VLM 01	02.04.2024	230/132/33 kV AIS: Madhabpur, Habiganj	0.1	NYS	**0.3 mm/sec** Vibration might be just perceptible in residential environments.
2	VLM 02	30.03.2024	132/33 kV AIS: Paikgacha, Khulna	0.1		
3	VLM 03	30.03.2024	132/33 kV AIS: Tungipara, Gopalganj	0.2		
4	VLM 04	01.04.2024	132/33 kV AIS: Chatkhil/Sonaimuri, Noakhali	0.1		
5	VLM 05	01.04.2024	132/33 kV AIS: Matlab (N), Chandpur	0.15		
6	VLM 06	04.04.2024	132/33 kV AIS: Kumarkhali, Kushtia	0.2		
7	VLM 07	03.04.2024	132/33 kV AIS: Mathbaria, Pirojpur	0.25		
8	VLM 08	04.04.2024	132/33 kV AIS: Dupchanchia, Bogura	0.1		
8	VLM 09	02.04.2024	230/132/33 kV AIS: Monohardi, Narshingdi	0.1		
10	VLM 10	31.03.2024	400/230/132 kV AIS: Pekua/ Chakaria, Cox's Bazar	0.1		
11	VLM 11	02.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	0.15		
12	VLM 12	02.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	0.2		
13	VLM 13	04.04.2024	Monohardi-Bajitput 132 kV double circuit line: 25 km (Proposed Conductor: Twin ACSR Grosbeak)	0.2		
14	VLM 14	31.03.2024	LILO of Existing Matarbari PP – Banskhali PP double circuit 400 kV line at Matarbari: 13.5 Km (Conductor: Quad ACSR Finch)	0.1		
15	VLM 15	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	0.1		
16	VLM 16	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	0.1		
17	VLM 17	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line: 35 km (Proposed Conductor: ACSR Grosbeak)	0.2		
18	VLM 18	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line: 25 Km (Proposed Conductor: ACSR Grosbeak)	0.1		

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[4] These are initial representative sites for which data was collected by Tecvy, PGCB's IEE contractor, All Tests will be repeated by each Contractor for each site at award stage for detailed design to account for if any sites are left out.

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19	VLM 19	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line: 25 Km (Proposed Conductor, ACSR Grosbeak)	0.15		
20	VLM 20	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line: 33 km (Proposed Conductor: ACSR Grosbeak)	0.2		
21	VLM 21	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line: 33 km (Proposed Conductor: ACSR Grosbeak)	0.1		
22	VLM 22	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line: 30 km (Proposed Conductor: ACSR Grosbeak)	0.25		
23	VLM 23	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line: 30 km (Proposed Conductor: ACSR Grosbeak)	0.1		
24	VLM 24	30.03.2024	Gopalganj - Tungipara 132 Kv double circuit line: 19 Km (Proposed Conductor: ACSR Grosbeak)	0.1		
25	VLM 25	31.03.2024	Gopalganj-Tungipara 132 Kv double circuit line: 19 Km (Proposed Conductor: ACSR Grosbeak	0.2		
26	VLM 26	02.04.2024	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132 kV line: (58+17) = 75 km) (Proposed Conductor: CFCC type HTLS equivalent to ACSR Grosbeak)	0.25		

***Note: NYS= Not Yet Set.**

Prepared By	Reviewed By	Approved By
Md. Shamim Biswas B.Sc. in Environmental Science (KU) Consultant (Environment) & Lab-in-charge	Sanjoy Kumar Mondol B.Sc. in ESRM (MBSTU) MS in Environmental Science (MBSTU) Technical Manager	Shorov Roy B.Sc. in ESRM (MBSTU) MS in Environmental Science (BAU) Quality Manager

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AII.5: Groundwater Quality Test Report[5]

[5] These are initial representative sites for which data was collected by Tecvy, PGCB's IEE contractor, All Tests will be repeated by each Contractor for each site at award stage for detailed design to account for if any sites are left out.

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Email: info.beetlsl@gmail.com

Customer/Accounts/Office Copy

Physical/ Chemical/ Bacteriological Analysis of Groundwater Sample

Name of Project	: Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE) Project
Description of sample	: Groundwater sources
Sample Collector	: Collected by EnviroCare Technical Team
Analyzed By	: BEETLSL Laboratory
Sample Collection Date	: 30.03.2024-04.04.2024

LABORATORY TEST RESULTS

SN	Sampling ID	Concentration presents in parameters											
		Arsenic	Chloride	Coliform (Faecal)	Coliform (Total)	EC	Iron (Fe)	Manganese (Mn)	Odor	PCBs	pH	Salinity	Turbidity
1	GW-01	0.002	18	0	0	139	0.4	0.03	Odorless	<0.5	7.7	0.15	5
2	GW-02	0.003	10	0	0	131	1.4	0.07	Odorless	<0.5	7.4	0.21	3
3	GW-03	0.004	29	0	0	150	0.6	0.05	Odorless	<0.5	7.6	0.22	9
4	GW-04	0.002	31	0	0	152	0.8	0.03	Odorless	<0.5	7.3	0.16	6
5	GW-05	0.001	16	0	0	137	1.2	0.02	Odorless	<0.5	7.2	0.13	3
6	GW-06	0.003	45	0	0	166	0.3	0.03	Odorless	<0.5	7.8	0.21	4
7	GW-07	0.001	40	0	0	161	0.6	0.05	Odorless	<0.5	7.7	0.15	7
8	GW-08	0.002	20	0	0	141	0.7	0.01	Odorless	<0.5	7.7	0.13	11
9	GW-09	0.004	17	0	0	138	0.5	0.07	Odorless	<0.5	7.3	0.14	8
10	GW-10	0.002	14	0	0	135	1.1	0.05	Odorless	<0.5	7.1	0.29	4
11	GW-11	0.001	27	0	0	148	0.6	0.04	Odorless	<0.5	7.6	0.27	9
12	GW-12	0.003	33	0	0	154	0.1	0.02	Odorless	<0.5	7.7	0.19	6
13	GW-13	0.002	23	0	0	144	0.9	0.03	Odorless	<0.5	7.5	0.16	10
14	GW-14	0.004	13	0	0	134	1.4	0.02	Odorless	<0.5	7.4	0.18	6
15	GW-15	0.002	17	0	0	138	1.5	0.04	Odorless	<0.5	7.2	0.27	4
16	GW-16	0.001	15	0	0	136	1.3	0.06	Odorless	<0.5	7.2	0.24	2
17	GW-17	0.003	21	0	0	142	1.2	0.09	Odorless	<0.5	7.5	0.31	8

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SN	Sampling ID	Concentration presents in parameters											
		Arsenic	Chloride	Coliform (Faecal)	Coliform (Total)	EC	Iron (Fe)	Manganese (Mn)	Odor	PCBs	pH	Salinity	Turbidity
18	GW-18	0.002	13	0	0	134	1.4	0.11	Odorless	<0.5	7.1	0.16	3
19	GW-19	0.001	12	0	0	133	1.1	0.08	Odorless	<0.5	7.2	0.20	4
20	GW-20	0.004	22	0	0	143	1.0	0.04	Odorless	<0.5	7.5	0.13	9
21	GW-21	0.002	29	0	0	150	0.8	0.03	Odorless	<0.5	7.7	0.25	3
22	GW-22	0.003	22	0	0	143	1.2	0.10	Odorless	<0.5	7.1	0.15	9
23	GW-23	0.001	17	0	0	138	1.4	0.09	Odorless	<0.5	7.3	0.21	4
24	GW-24	0.003	44	0	0	165	0.8	0.03	Odorless	<0.5	7.6	0.24	6
25	GW-25	0.001	40	0	0	161	0.6	0.05	Odorless	<0.5	7.5	0.15	2
26	GW-26	0.002	29	0	0	150	0.5	0.07	Odorless	<0.5	7.4	0.12	4
Unit		mg/L	mg/L	CFU/100 mL	CFU/100 mL	µS/cm	mg/L	mg/L	-	µg/L	--	ppt	NTU
Analysis Method		AAS	Titrimetric	MFM	MFM	EC Meter	AAS	AAS	Threshold Method	Chromatographic	pH Meter	Multimeter	Turbidity Meter
Bangladesh Standard, ECR 2023		0.05	250*	0	0	NYS	0.3-1.0	0.4	NYS	NYS	6.5-8.5	NYS	5

***NOTE**: ECR =Environmental Conservation Rules, AAS=Atomic absorption spectrometry, MFM=Membrane Filtration Method, NYS = Not Yet Set

Lab Test Performed by	Reviewed and checked by	Approved By
Mahadi Hasan Executive (Environmental Lab), BEETLSL	**Md. Nasim Reza** Environmental Monitoring Officer (Executive), BEETLSL.	**Dr. Fatima Akter** Director, BEETLSL
22.04.2024	22.04.2024	22.04.2024

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AII.6: Surface Water Quality Test Report[6]

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Physical/ Chemical/ Bacteriological Analysis of Surface Water Sample

Name of Project	: Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE) Project
Description of sample	: Surface water
Sample Collector	: Collected by EnviroCare Technical Team
Analyzed By	: BEETLSL Laboratory
Sample Collection Date	: 30.03.2024-04.04.2024

LABORATORY TEST RESULTS

SN	Sampling ID	Concentration presents in parameters													
		Ammonia	BOD	COD	Chloride	Coliform (Total)	DO	pH	PO_4	(PCBs)	TDS	TSS	Turbidity	Odor	Oil and Grease
1	SW-01	0.31	3	5	134	9	7.48	8.0	0.22	<0.5	33	5	4.24	Odorless	1.2
2	SW-02	0.39	5	7	181	11	6.56	7.8	0.36	<0.5	88	7	6.88	Odorless	1.6
3	SW-03	0.41	4	6	72	9	7.12	7.0	0.33	<0.5	91	6	7.36	Odorless	1.4
4	SW-04	0.39	3	4	47	10	6.48	7.1	0.41	<0.5	67	7	6.98	Odorless	1.6
5	SW-05	0.44	5	11	135	10	8.36	7.9	0.49	<0.5	47	4	4.54	Odorless	1.2
6	SW-06	0.33	4	7	111	10	8.36	7.1	0.44	<0.5	29	5	5.66	Odorless	1.5
7	SW-07	0.30	3	5	211	18	7.18	6.9	0.37	<0.5	88	7	6.18	Odorless	1.3
8	SW-08	0.32	2	4	134	9	7.48	7.1	0.46	<0.5	91	5	6.23	Odorless	1.6

Page **1** of **3**

[6] These are initial representative sites for which data was collected by Tecvy, PGCB's IEE contractor, All Tests will be repeated by each Contractor for each site at award stage for detailed design to account for if any sites are left out.

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SN	Sampling ID	Concentration presents in parameters													
		Ammonia	BOD	COD	Chloride	Coliform (Total)	DO	pH	PO_4	(PCBs)	TDS	TSS	Turbidity	Odor	Oil and Grease
9	SW-09	0.41	3	6	121	8	6.75	7.2	0.33	<0.5	34	4	6.11	Odorless	1.4
10	SW-10	0.31	3	5	156	9	7.48	8.0	0.46	<0.5	33	5	4.24	Odorless	1.2
11	SW-11	0.33	3	5	88	10	6.14	7.1	0.15	<0.5	90	6	6.18	Odorless	1.6
12	SW-12	0.41	4	9	144	19	5.73	7.2	0.23	<0.5	66	5	7.12	Odorless	1.2
13	SW-13	0.47	3	7	134	9	5.39	7.1	0.28	<0.5	52	7	5.98	Odorless	1.5
14	SW-14	0.32	3	6	177	17	6.98	8.1	0.17	<0.5	30	7	4.63	Odorless	1.4
15	SW-15	0.40	4	6	134	9	6.45	7.7	0.11	<0.5	31	4	4.89	Odorless	1.6
16	SW-16	0.33	5	7	94	12	6.27	7.9	0.17	<0.5	37	6	5.09	Odorless	1.3
17	SW-17	0.38	3	9	133	8	6.83	7.8	0.35	<0.5	34	6	4.65	Odorless	1.5
18	SW-18	0.34	5	8	83	11	6.54	7.7	0.35	<0.5	32	4	4.96	Odorless	1.3
19	SW-19	0.34	5	7	75	11	6.94	7.7	0.44	<0.5	32	6	4.95	Odorless	1.3
20	SW-20	0.30	3	6	167	13	6.36	7.1	0.39	<0.5	90	7	6.93	Odorless	0.9
21	SW-21	0.36	5	8	185	10	6.48	7.6	0.44	<0.5	41	4	5.14	Odorless	1.2
22	SW-22	0.36	5	8	192	10	6.48	7.6	0.37	<0.5	41	4	5.14	Odorless	1.2
23	SW-23	0.31	3	6	202	17	7.54	7.7	0.28	<0.5	37	4	5.13	Odorless	1.3
24	SW-24	0.38	4	6	79	24	6.87	7.1	0.21	<0.5	78	7	6.13	Odorless	1.3
25	SW-25	0.40	3	7	140	15	7.11	7.3	0.42	<0.5	101	3	4.89	Odorless	1.6
26	SW-26	0.29	5	9	63	10	6.93	7.4	0.16	<0.5	64	6	5.78	Odorless	0.8
Unit		mg/L	mg/L	mg/L	mg/L	CFU/100ml	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	NTU	-	mg/L

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SN	Sampling ID	Concentration presents in parameters													
		Ammonia	BOD	COD	Chloride	Coliform (Total)	DO	pH	PO_4	(PCBs)	TDS	TSS	Turbidity	Odor	Oil and Grease
Analysis method		UVS	5 days Incubation	CRM	Titrimetric	MFM	Multimeter	pH Meter	UVS	Chromatographic	Multimeter	Gravimetric	Turbidity Meter	Threshold Method	APHA 23RD EDN. 2017 (5520-B)
Bangladesh Standard, ECR 2023, Category d		NYS	≤6	50	NYS	≤5000	≥5	6-9	0.5	NYS	1000	NYS	NYS	NYS	NYS

***NOTE**: ECR =Environmental Conservation Rules, UVS=UV-Visible Spectrophotometer, CRM=Closed Reflex Methods, MFM=Membrane Filtration Method, NYS = Not Yet Set, BOD= Biochemical Oxygen Demand, COD= Chemical Oxygen Demand, DO= Dissolved Oxygen, TDS= Total Dissolved Solid, TSS= Total Suspended Solid, PCBs= Polychlorinated Biphenyls (PCBs)

Lab Test Performed by	Reviewed and checked by	Approved By
Mahadi Hasan Executive (Environmental Lab), BEETLSL	**Md. Nasim Reza** Environmental Monitoring Officer (Executive), BEETLSL.	**Dr. Fatima Akter** Director, BEETLSL
22.04.2024	22.04.2024	22.04.2024

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AII.7: Soil Quality Test Report[7]

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Analysis of Soil Sample

Name of Project	: Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE) Project
Description of sample	: Surface Soil
Sample Collector	: Collected by EnviroCare Technical Team
Analyzed By	: BEETLSL Laboratory
Sample Collection Date	: 30.03.2024-04.04.2024

LABORATORY TEST RESULTS

SN	Sampling ID	Concentration presents in parameters						
		pH	Copper (Cu)	Lead (Pb)	Cadmium (Cd)	Chromium (Cr)	Organic Content (OC)	Polychlorinated Biphenyls (PCBs)
1	SQ-01	6.5	1.13	1.74	0.21	23.54	10.54	<1
2	SQ-02	7.3	2.43	3.67	0.38	34.57	9.54	<1
3	SQ-03	6.9	2.16	2.54	0.26	17.63	8.43	<1
4	SQ-04	6.8	1.92	3.90	0.17	34.30	7.89	<1
5	SQ-05	7.1	2.11	4.73	0.39	36.38	10.65	<1
6	SQ-06	6.6	3.24	3.65	0.32	29.54	8.23	<1
7	SQ-07	6.5	1.90	5.34	0.41	34.31	7.83	<1
8	SQ-08	6.7	2.63	2.56	0.22	39.76	12.63	<1
9	SQ-09	6.5	1.91	4.92	0.43	38.07	11.77	<1
10	SQ-10	7.4	1.87	4.28	0.42	37.07	11.77	<1
11	SQ-11	6.9	2.69	3.43	0.22	44.76	10.31	<1
12	SQ-12	6.5	1.64	3.86	0.49	31.57	9.56	<1
13	SQ-13	6.7	2.45	3.13	0.23	30.38	8.32	<1
14	SQ-14	7.5	1.99	4.47	0.47	37.56	9.36	<1
15	SQ-15	7.2	2.56	3.65	0.47	41.12	8.45	<1

[7] These are initial representative sites for which data was collected by Tecvy, PGCB's IEE contractor, All Tests will be repeated by each Contractor for each site at award stage for detailed design to account for if any sites are left out.

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SN	Sampling ID	Concentration presents in parameters						
		pH	Copper (Cu)	Lead (Pb)	Cadmium (Cd)	Chromium (Cr)	Organic Content (OC)	Polychlorinated Biphenyls (PCBs)
16	SQ-16	7.4	1.45	4.37	0.21	40.35	12.45	<1
17	SQ-17	7.5	1.67	4.56	0.49	28.59	7.56	<1
18	SQ-18	7.3	2.35	4.12	0.38	36.43	10.45	<1
19	SQ-19	7.5	2.45	4.68	0.42	42.45	13.85	<1
20	SQ-20	6.8	2.61	3.10	0.22	40.23	9.45	<1
21	SQ-21	6.5	1.88	4.23	0.40	28.33	12.34	<1
22	SQ-22	7.2	3.56	2.56	0.33	36.38	8.34	<1
23	SQ-23	7.4	1.87	4.28	0.37	35.91	10.43	<1
24	SQ-24	6.3	1.82	5.11	0.28	34.53	9.77	<1
25	SQ-25	6.4	1.93	4.18	0.40	21.45	10.77	<1
26	SQ -26	6.6	1.90	3.93	0.21	30.53	7.83	<1
Unit		-	ppm	ppm	ppm	ppm	%	PPM
Dutch Standard		NYS	36	85	0.8	100	NYS	NYS

***NOTE**: PPM =Parts per million, NYS= Not Yet Set

Lab Test Performed by	Reviewed and checked by	Approved By
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24.04.2024	24.04.2024	24.04.2024

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AII.8: Testing Schedule

For the monitoring process of 26 noise samples within 6 days' period, considering the 24-hour timeframe each day, the monitoring process was conducted with 5 sets of noise meter and a monitoring team consisting of 6 people. The sampling process started in a location and left one person there for monitoring. After that, it moved to another location and left another person there for monitoring. Following this approach, the task was completed. The lab reports and calibration certificate of noise, air, vibration has been provided. Air, vibration, water, EMF, and soil were conducted by following the same process. The location and date for noise sampling is outlined below. The location and date is also the same for other parameters (air, vibration, water, soil, and EMF).

Sampling ID	Date	Location
ANLM-1	02.04.2024	230/132/33 kV AIS: Madhabpur, Habiganj
ANLM-2	30.03.2024	132/33 kV AIS: Paikgacha, Khulna
ANLM-3	30.03.2024	132/33 kV AIS: Tungipara, Gopalganj
ANLM-4	01.04.2024	132/33 kV AIS: Chatkhil, Noakhali
ANLM-5	01.04.2024	132/33 kV AIS: Matlab (N), Chandpur
ANLM-6	04.04.2024	132/33 kV AIS: Kumarkhali, Kushtia
ANLM-7	03.04.2024	132/33 kV AIS: Mathbaria, Pirojpur
ANLM-8	04.04.2024	132/33 kV AIS: Dupchanchia, Bogura
ANLM-9	02.04.2024	230/132/33 kV AIS: Monohardi, Narshingdi[8]
ANLM-10	31.03.2024	400/230/132 kV AIS: Pekua/ Chakaria, Cox's Bazar
ANLM-11	02.04.2024	Monohardi-Bajitput 132 kV double circuit line
ANLM-12	02.04.2024	Monohardi-Bajitput 132 kV double circuit line
ANLM-13	04.04.2024	Monohardi-Bajitput 132 kV double circuit line
ANLM-14	31.03.2024	LILO of Existing Matarbari PP – Banskhali PP double circuit 400 kV line at Matarbari
ANLM-15	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line
ANLM-16	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line
ANLM-17	01.04.2024	Kachua – Matlab (N) 132 kV double circuit line
ANLM-18	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line
ANLM-19	03.04.2024	Patuakhali-Bakerganj 132 KV double circuit line
ANLM-20	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line
ANLM-21	03.04.2024	Bhandaria-Mathbaria 132 kV double circuit transmission line
ANLM-22	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line
ANLM-23	30.03.2024	Satkhira-Paikgacha 132 kV double circuit line
ANLM-24	30.03.2024	Gopalganj - Tungipara 132 Kv double circuit line
ANLM-25	31.03.2024	Gopalganj-Tungipara 132 Kv double circuit line
ANLM-26	02.04.2024	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132 kV line

[8] Note the surveyed site for Monohordi substation is different to the selected site which is the subject of this IEE

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AII.9: Photos of Ambient Air Quality Monitoring





AQ -1





AQ -2





AQ -3

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AQ-4




AQ -5




AQ-6




AQ-7

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AQ-8




AQ-9




AQ-10




AQ-11

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AQ-12





AQ-13





AQ-14

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AQ-15





AQ-16





AQ-17

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AQ-18




AQ-19




AQ-20




AQ-21

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AQ-22





AQ-23



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AQ-24





AQ-25





AQ-26

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AII.10: Photos of Ambient Noise Level Monitoring (Day & Night)




ANLM -1




ANLM -2




ANLM -3




AAQM-4

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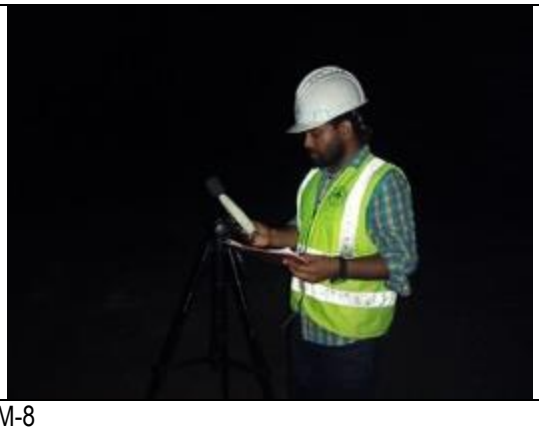

ANLM -5




ANLM-6




ANLM-7

ANLM-8

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ANLM-9




ANLM-10




ANLM-11




ANLM-12

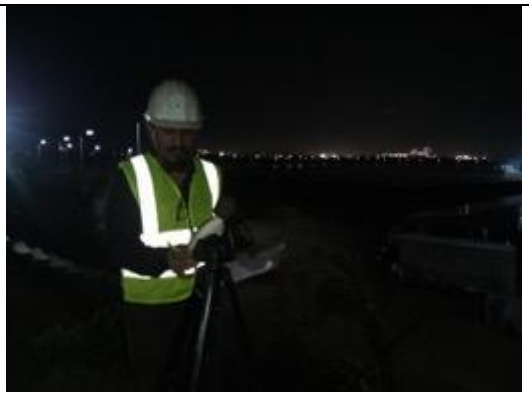
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.




ANLM-13




ANLM-14

ANLM-15




ANLM-16

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ANLM-17




ANLM-18




ANLM-19




ANLM-20

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ANLM-21




ANLM-22




ANLM-23




ANLM-24

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ANLM-25




ANLM-26

AII.11: Photos of Vibration Level Monitoring




VLM -1 VLM -2




VLM -3 VLM -4

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VLM -5	VLM -6
	
VLM -7	VLM -8
	
VLM -9	VLM -10
	
VLM -11	VLM -12

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VLM -13	VLM -14
	
VLM -15	VLM -16
	
VLM -17	VLM -18
	
VLM -19	VLM -20

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VLM -21	VLM -22
	
VLM -23	VLM -24
	
VLM -25	VLM -26

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AII.12: Photos of Groundwater Sampling

	
GW-1	GW-2
	
GW-3	GW-4
	
GW-5	GW-6
	
GW-7	GW-8

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GW-9	GW-10
	
GW-11	GW-12
	
GW-13	GW-14
	
GW-15	GW-16

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GW-17	GW-18
	
GW-19	GW-20
	
GW-21	GW-22
	
GW-23	GW-24

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GW-25	GW-26

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AII.13: Photos of Surface Water Sampling

	
SW-1	SW-2
	
SW-3	SW-4
	
SW-5	SW-6
	
SW-7	SW-8

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SW-9	SW-10
	
SW-11	SW-12
	
SW-13	SW-14
	
SW-15	SW-16

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SW-17	SW-18
	
SW-19	SW-20
	
SW-21	SW-22
	
SW-23	SW-24

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SW-25	SW-26

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AII.14: Photos of Soil Sampling





SQ-1 SQ-2



SQ-3



SQ-4



SQ-5



SQ-6



SQ-7



SQ-8

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SQ-9



SQ-10



SQ-11



SQ-12



SQ-13



SQ-14



SQ-15



SQ-16

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SQ-17	SQ-18
	
SQ-19	SQ-20
	
SQ-21	SQ-22
	
SQ-23	SQ-24

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SQ-25	SQ-26

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AII.15: Photos of EMF Sampling



EMF-1



EMF-2



EMF-3



EMF-4



EMF-5



EMF-6



EMF-7



EMF-8

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EMF-9	EMF-10
	
EMF-11	EMF-12
	
EMF-13	EMF-14
	
EMF-15	EMF-16

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EMF-17	EMF-18
	
EMF-19	EMF-20
	
EMF-21	EMF-22
	
EMF-23	EMF-24

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EMF-25	EMF-26

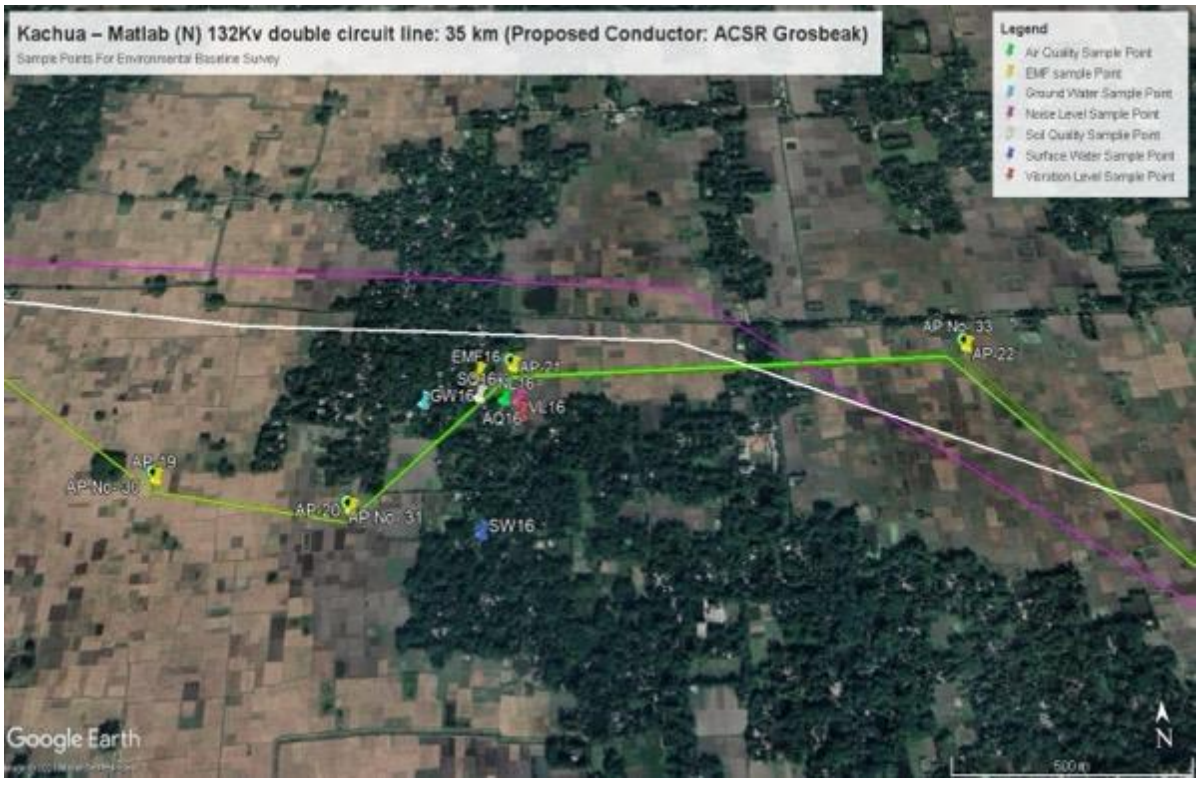
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AII.16: Monitoring Locations of the Baseline Survey

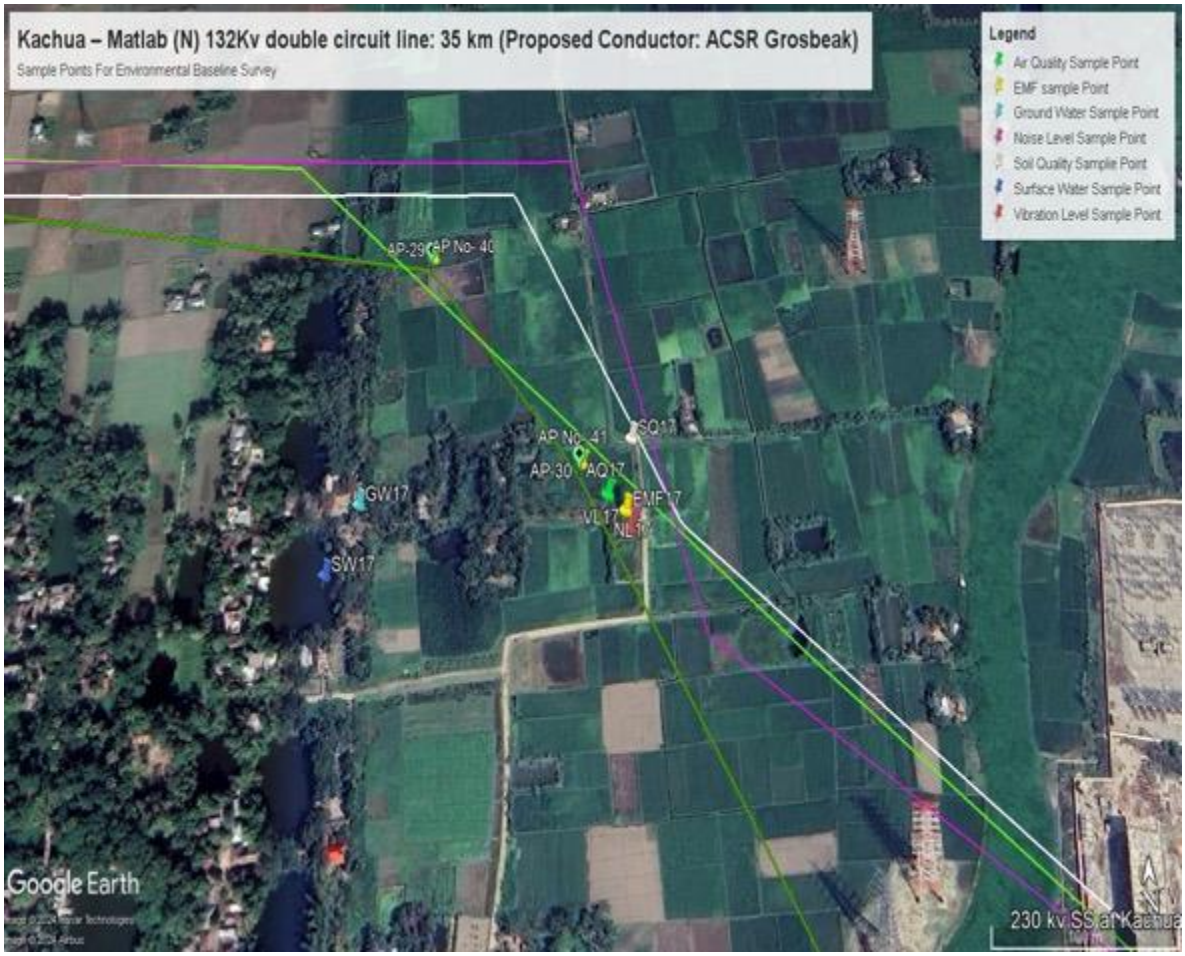


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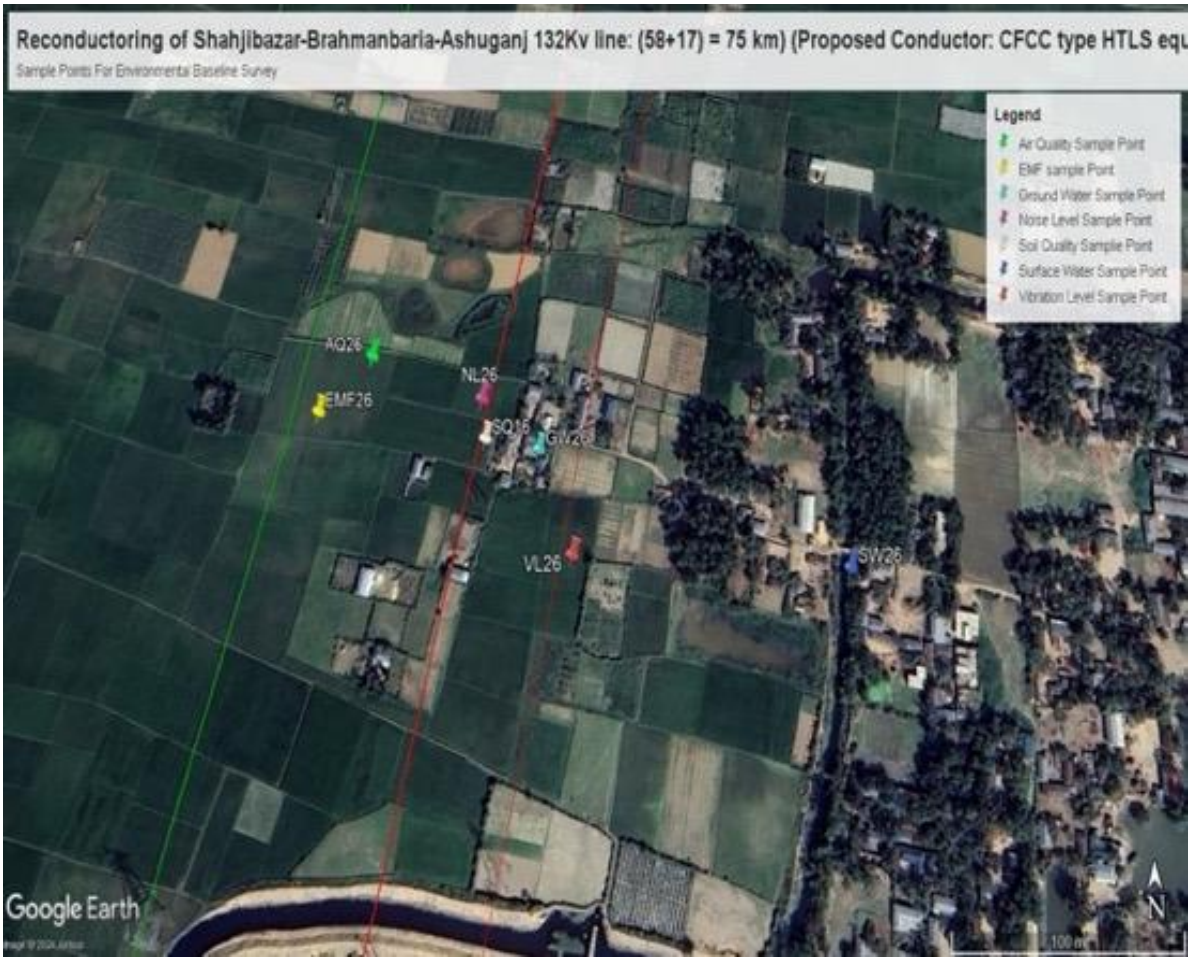


INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



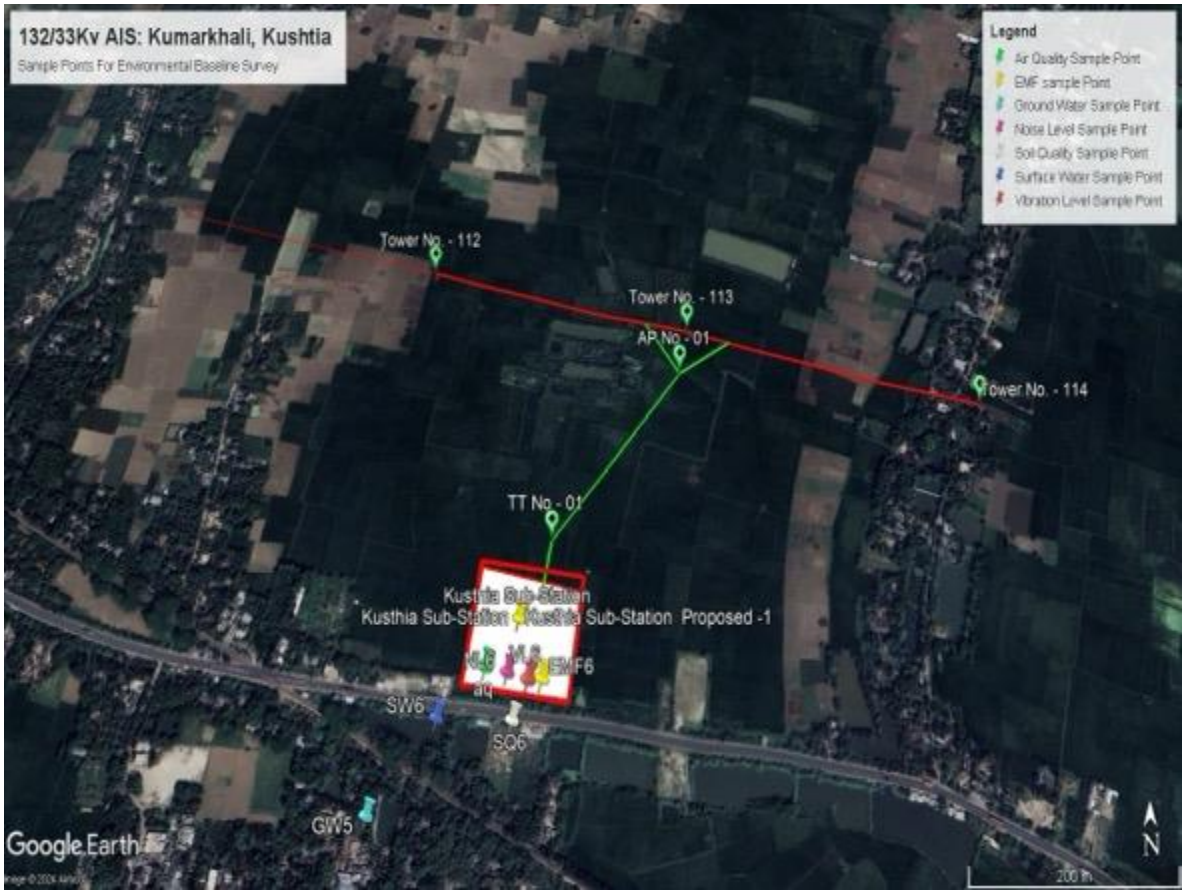


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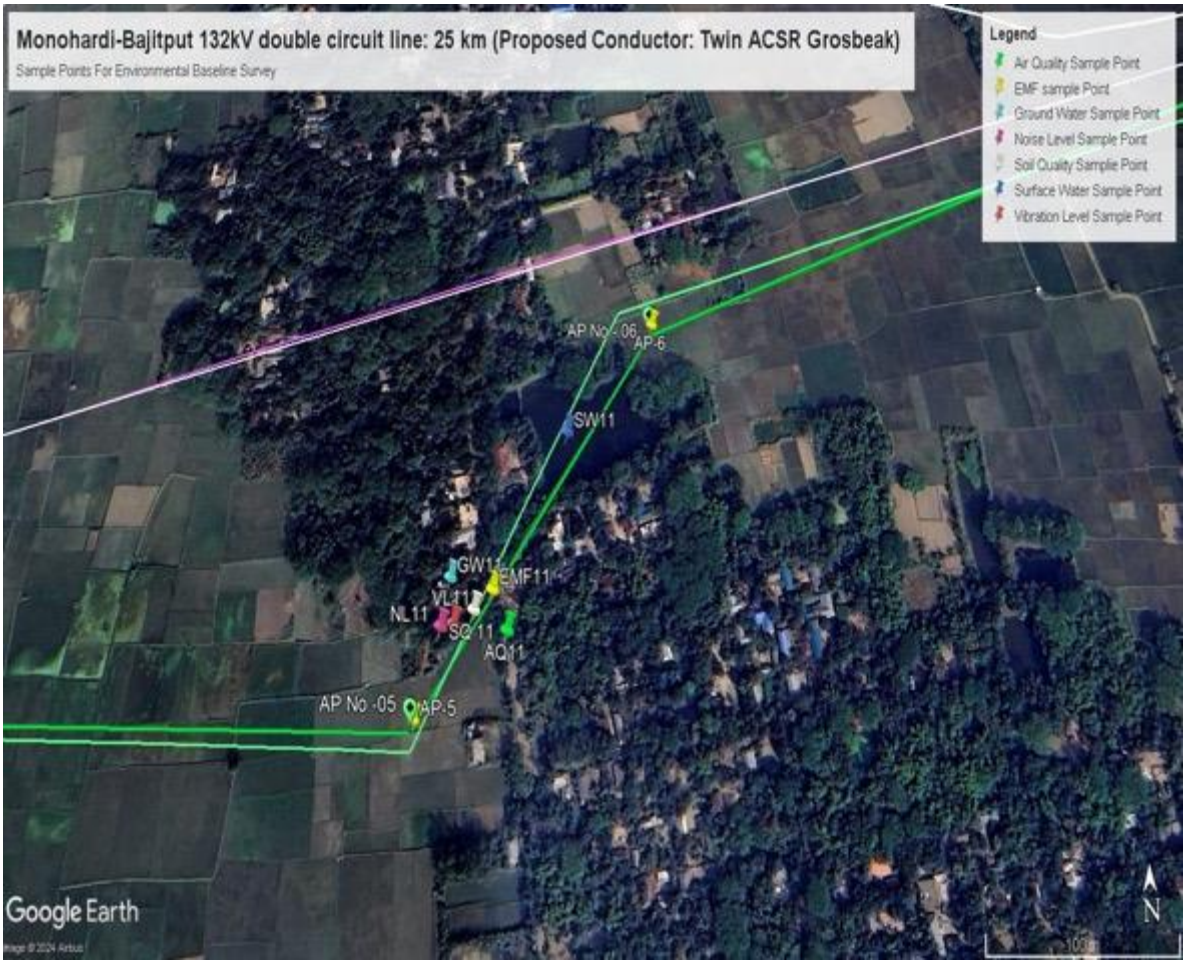
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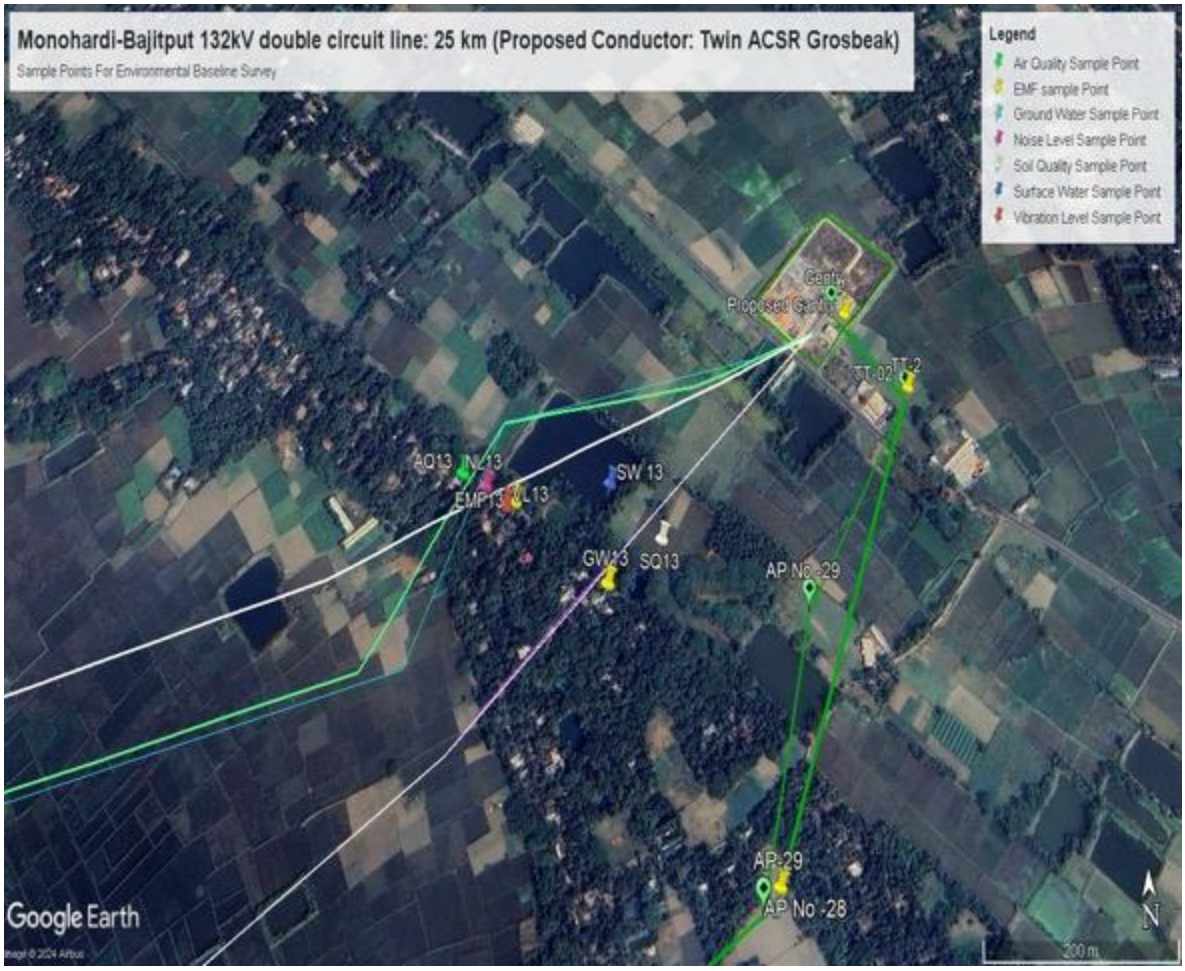
Note: the surveyed site is different to the selected site which is the subject of this IEE (during detailed design the baseline for the selected site about 4.5km distant will be undertaken)

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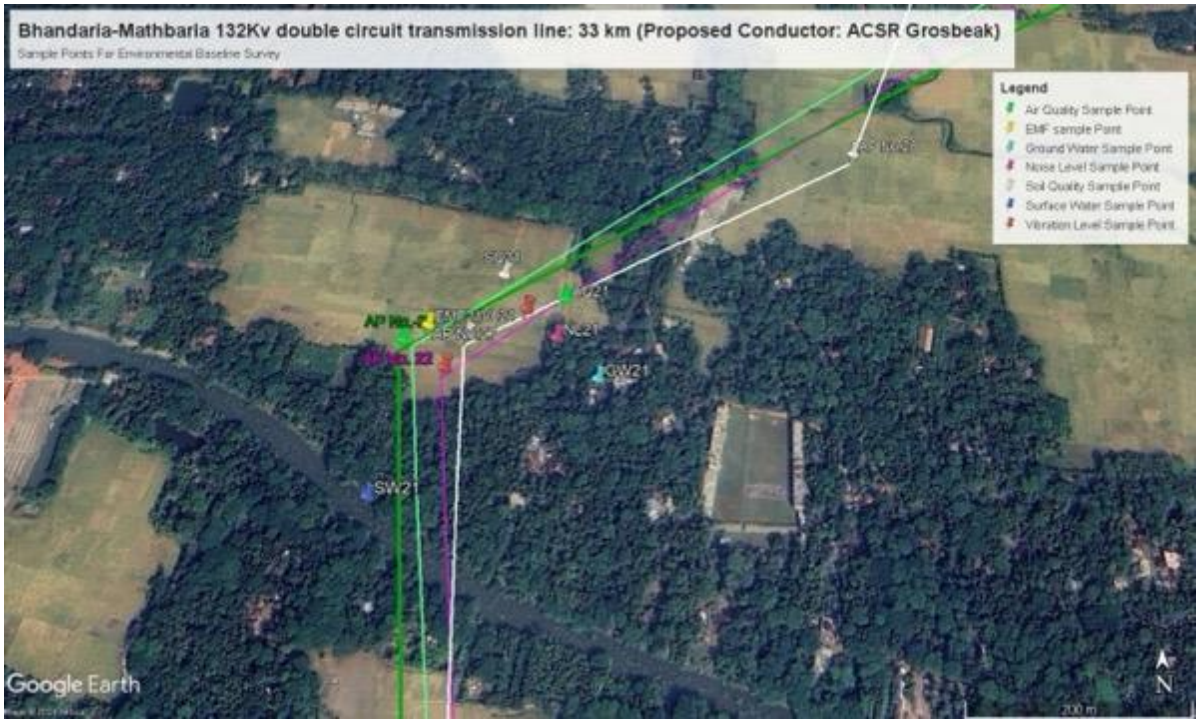
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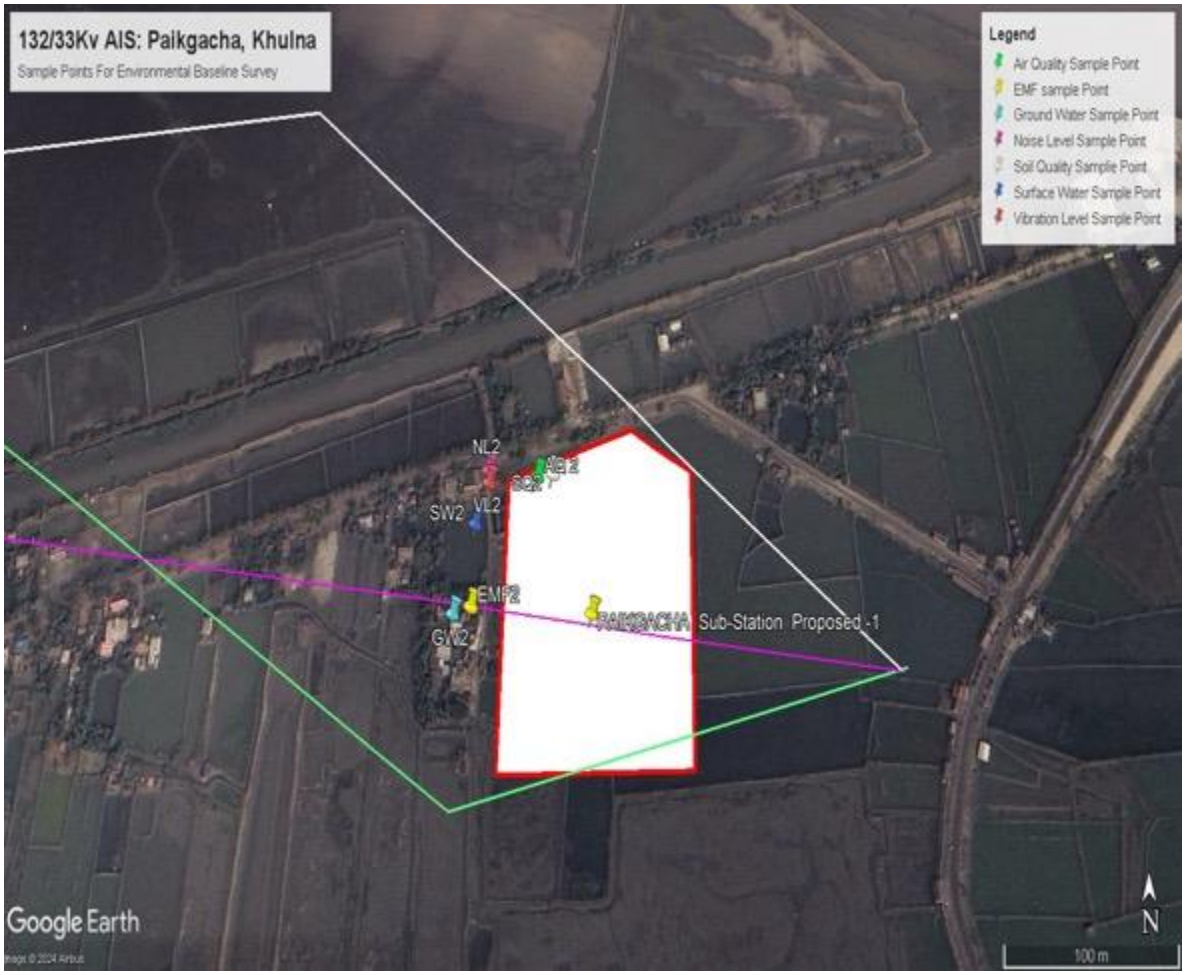


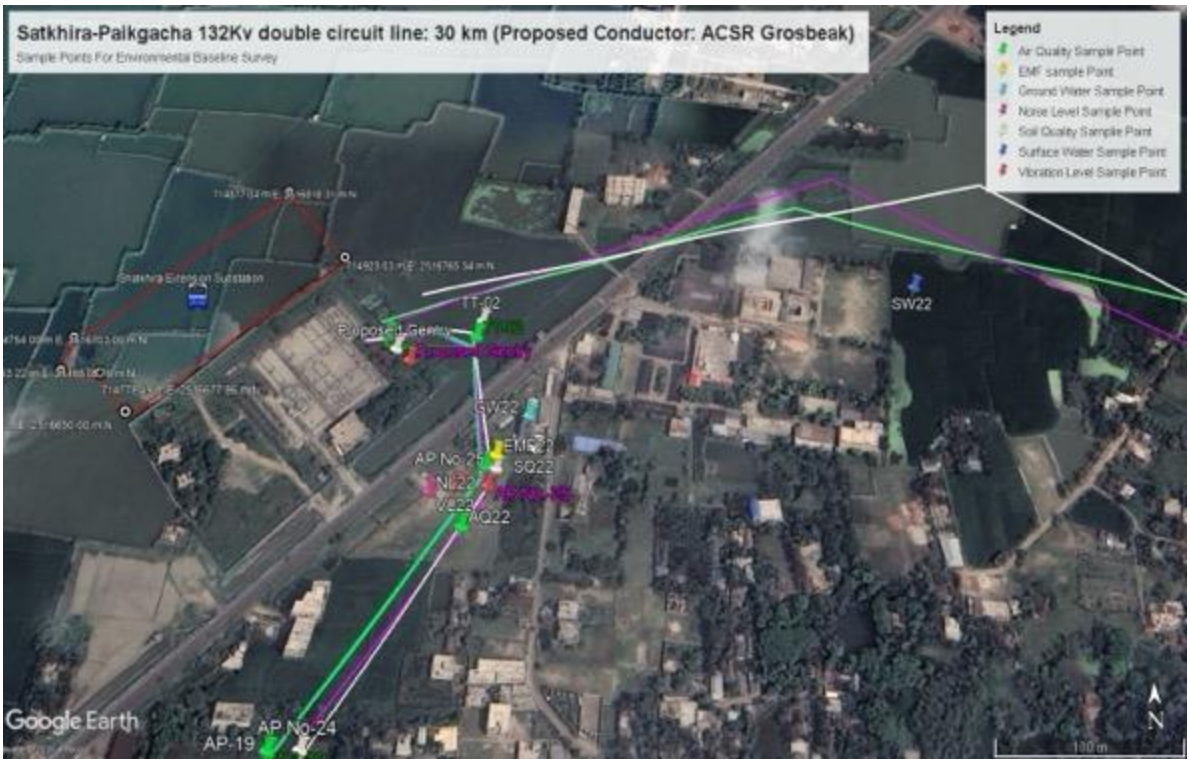
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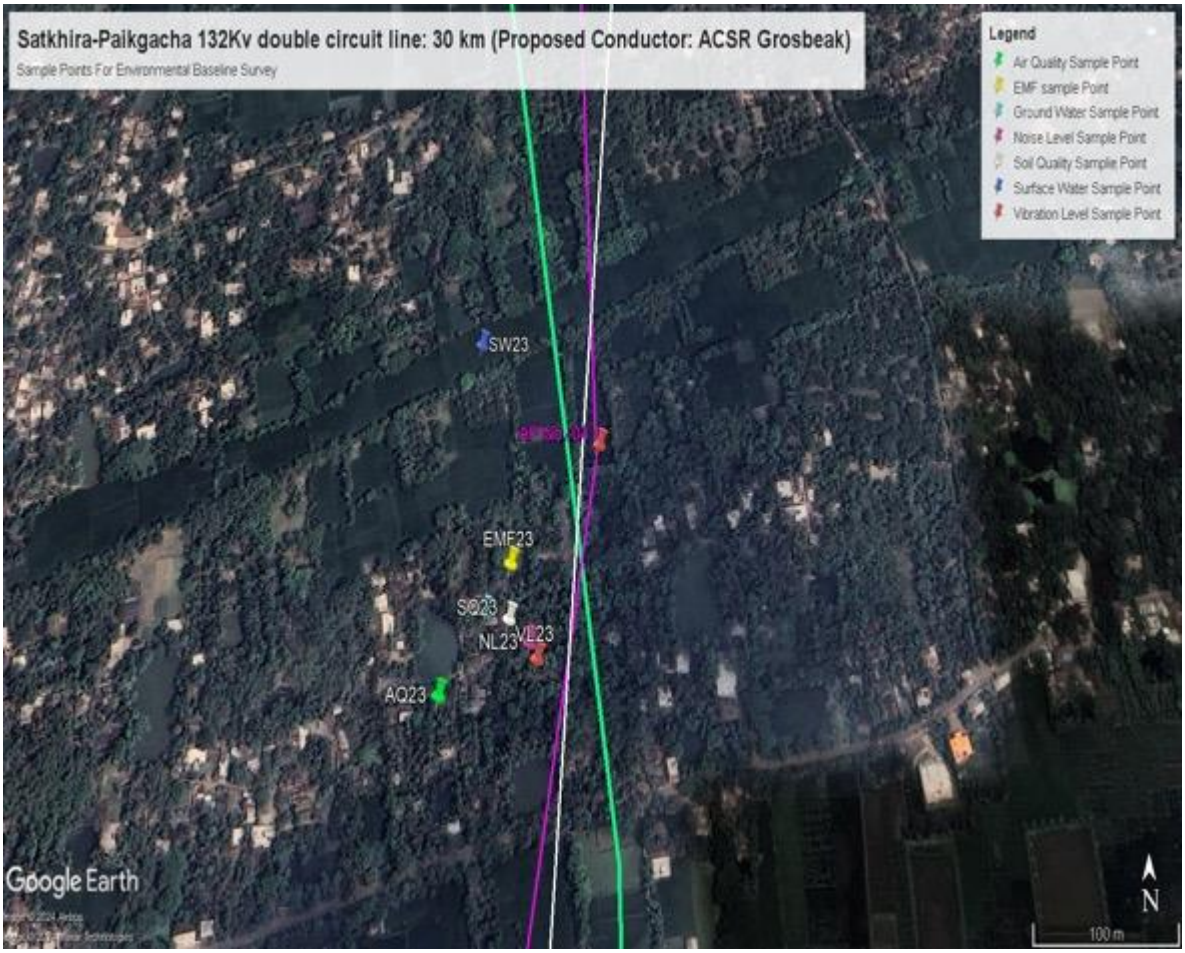


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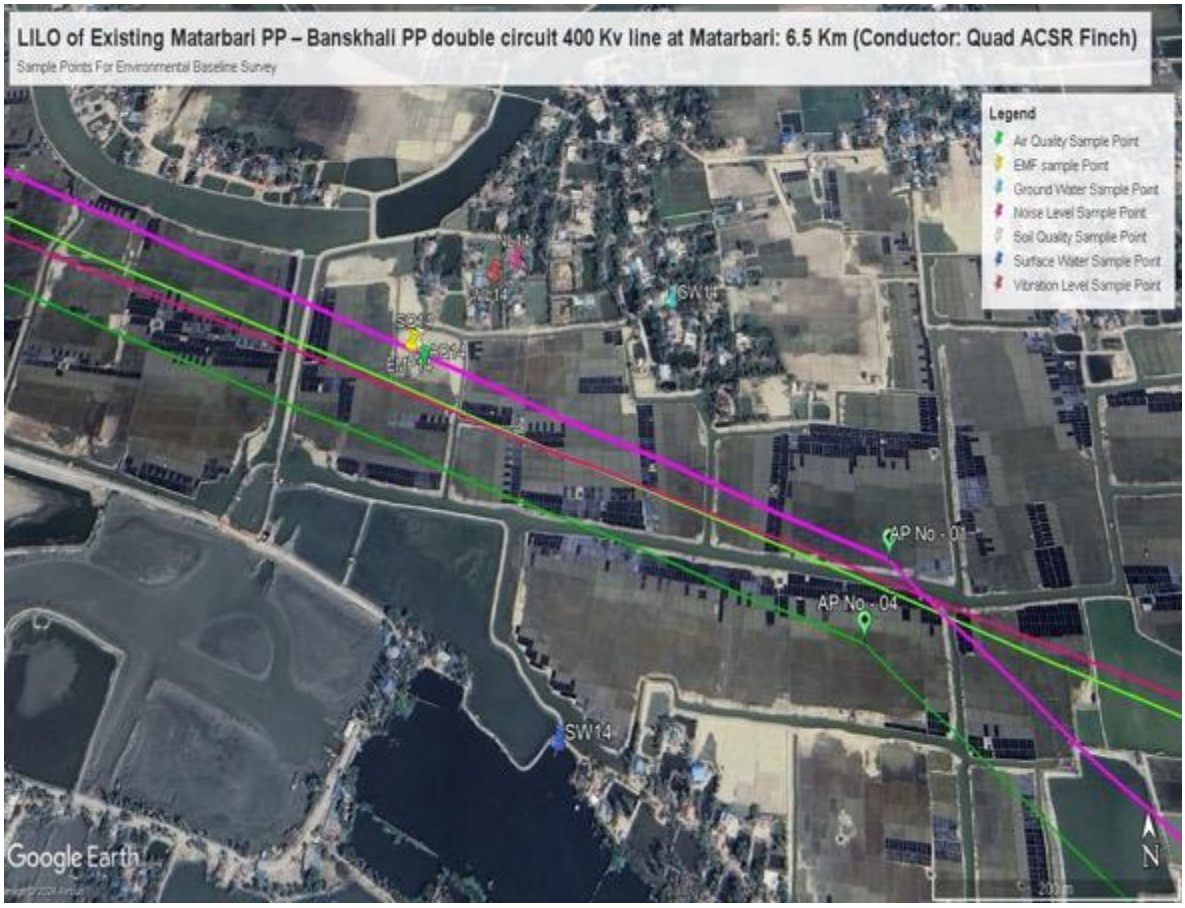


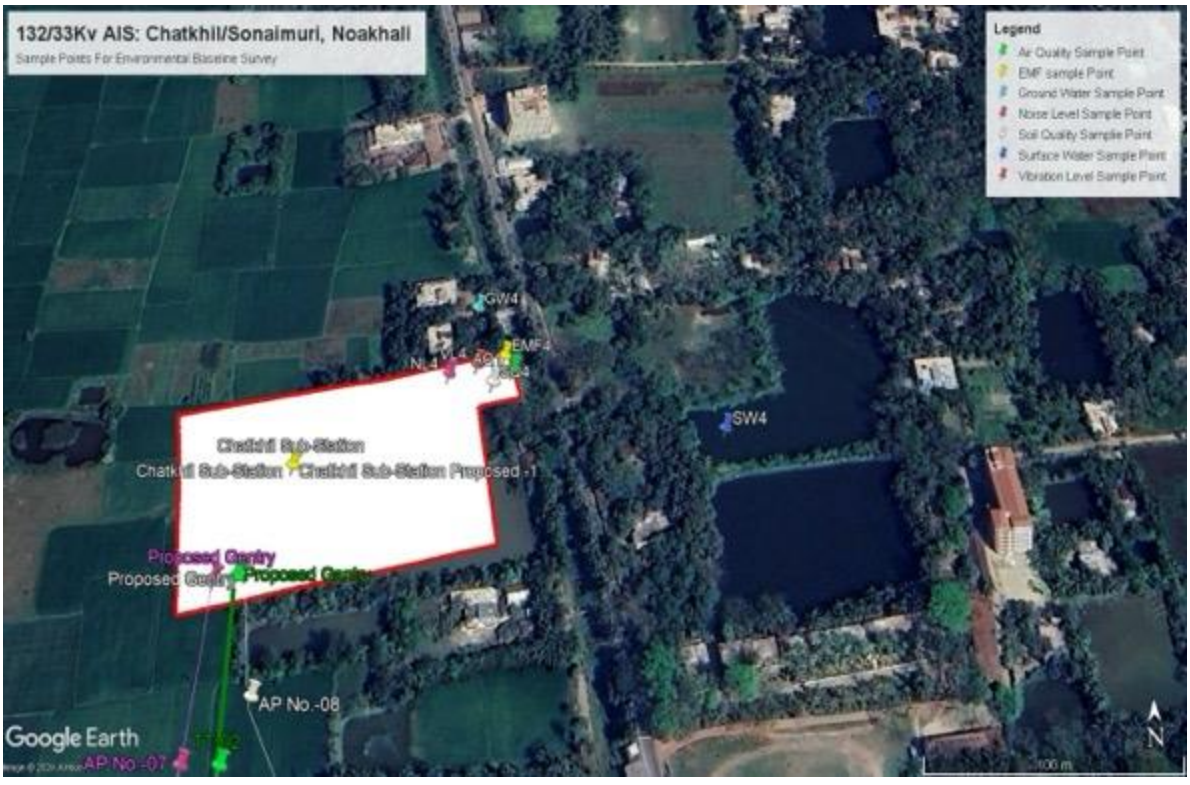
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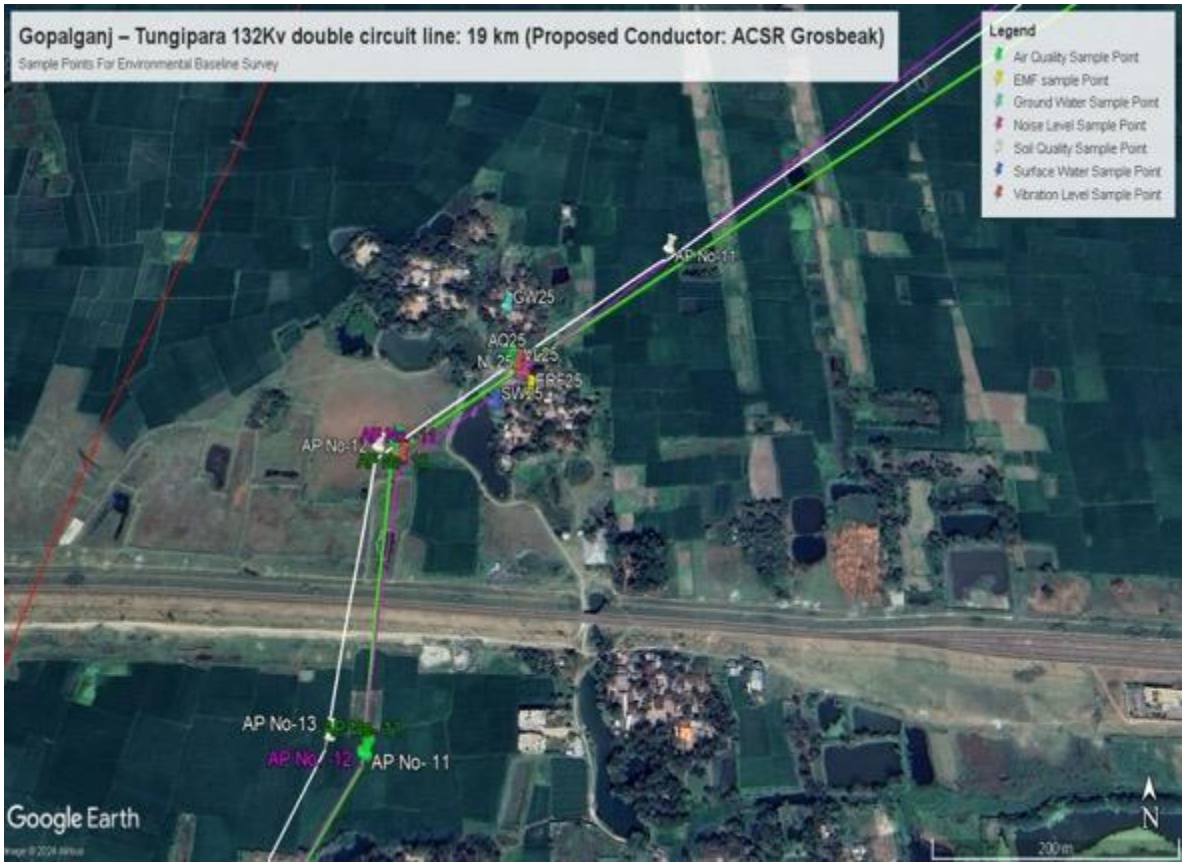


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AII.17: Calibration Certificates of Monitoring Equipment

Air Quality Monitoring Device



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Corporate Office
Raseya Commercial Complex, 33/Kha (5th Floor)
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Cell: +8801712 789 321

Laboratory Location
House # 427, Road # 6/2
Shaheenbagh, Tejgaon, Dhaka-1215
Tel: +88-02-48317267, Cell: 4880 1533 812324, +880 1819 558147-53
E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

Certificate No. 02406058065
Issue Date 06/05/2024

Customer Details:

Name	Envirocare International Ltd.
Address	House No # 09, Road No # 06, Sector # 12, Uttara, Dhaka, Bangladesh.
Tel	+880 1533 904911
E-mail	shorowar088@gmail.com

Details of Unit Under Calibration (UUC):

Description	Air Quality Monitor System
Manufacturer	Henan Oceanus Import & Export co.,Ltd
Model/Type	AQM-03
Serial Number	OC202308267810240
ID No.	EIL/AQM-01
Range/working Range	Ref on Obs
Least Count	Ref on Obs
Accuracy	As Per Instrument
Location of Calibration	Laboratory
Visual Inspection	OK
Date of Calibration	06/05/2024
Suggested Due Date	06/05/2025
Calibration Procedure	The calibration had been performed in accordance with calibration procedure COP/SCS/115 (Procedure based on Comparison Method).
Calibration Result	The details of standard equipment used for calibration & result of calibration are given in page 2 to 4.
Conclusion	For the status of measurements please refer to the guidance notes.

Environment: (certified against calibrated digital temperature & humidity meter)

Temperature (°C)	25±3
Relative Humidity (%RH)	40 to 60

Change in temperature and relative humidity of the Laboratory during the calibration was less than 0.3°C per hour and 5.0% per 4 hours respectively.

This certificate is issued strictly in accordance with the requirements of ISO 17025:2017. All calibration equipments are traceable to the International Standards . Documentary evidence is available upon request.

02406058065

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Corporate Office
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Cell: +8801712 789 321

Laboratory Location
House # 427, Road # 6/2
Shaheenbagh, Tejgaon, Dhaka-1215
Tel: +88-02-48117267, Cell: +880 1601 612324, +880 1919 558147-50
E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

Details of Standard Equipment Used for Calibration:

Sl. No.	Description	Make	Inst. Sl. /ID NO.	Certificate No.	Validity	Calibrated By
01	Carbon Oxide Meter	EXTECH	SCS/COM/01	QSI/1090/23/06	16/06/2024	QSI-INDIA
02	Carbon Monoxide Meter	Smart Sensor	SCS/CMM/01	QSI/1089/23/06	16/06/2024	QSI-INDIA
03	Portable Flue Gas Analyzer	LOOBO	SCS/PFGA/01	QSI/1340/23/02	14/02/2025	QSI-INDIA
04	RTD with Indicator	Eurotherm/ Tempsens	SCS/RTD/01	QSI/1241/23/12	19/12/2024	QSI-INDIA
05	Multi-function Process Calibrator	FLUKE	SCS/MPC/03	QSI /0591/23/12	20/12/2024	QSI-INDIA
06	Thermo Hygrometer(Data Logger)	CEM	SCS/DL/05	QSI/1982/23/10	08/10/2024	QSI-INDIA

Guidance Notes:

Status A The measurement is within tolerance, due allowances having been made for the uncertainty of the measurement.
Status B The measurement may be out of tolerance, due allowances having been made for the uncertainty of the measurement.
Status C The measurement is out of tolerance, due allowances having been made for the uncertainty of the measurement.
Status D No conclusion can be drawn, because the standard(s) do(es) not specify a tolerance for this measurement.

OBSERVATION:

Temperature: (verified against calibrated instruments)

Sl. No.	Standard Value (°C)	U.U.C. Value (°C)	Error (°C)	Tolerance	Status	Uncertainty (°C)
01	-10.08	-10.0	0.08	N/S	D	±0.20
02	0.00	0.0	0.00	N/S	D	±0.20
03	9.91	10.0	0.09	N/S	D	±0.30
04	19.80	20.0	0.20	N/S	D	±0.30
05	29.72	30.0	0.28	N/S	D	±0.30
06	49.65	50.0	0.35	N/S	D	±0.30

Humidity: (verified against calibrated instruments)

Sl. No.	Standard Value (%)	U.U.C. Value (%)	Error (%)	Tolerance	Status	Uncertainty (%)
01	19.9	20.0	0.1	N/S	D	±0.5
02	29.9	30.0	0.1	N/S	D	±0.5
03	39.7	40.0	0.3	N/S	D	±0.5
04	49.5	50.0	0.5	N/S	D	±0.5
05	69.2	70.0	0.8	N/S	D	±0.5
05	89	90.0	1.0	N/S	D	±0.5

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Cell: +8801712 789 321

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House # 427, Road # 5/2
Shaheenbagh, Tejgaon, Dhaka-1215
Tel: +88-02-48117367, Cell: +880 1921 612324, +880 1919 958147-50
E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

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Carbon Monoxide CO :(upto 10 ppm)

Sl. No.	Target Value (ppm)	Actual Value (ppm)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	1	1.0	0.0	N/S	D	±0.05 % of rdg.
03	2	2.1	-0.1	N/S	D	±0.05 % of rdg.
04	5	5.1	-0.1	N/S	D	±0.05 % of rdg.
05	8	8.2	-0.2	N/S	D	±0.05 % of rdg.

Nitrogen Dioxide NO_2 :(upto 500 ppb)

Sl. No.	Target Value (ppb)	Actual Value (ppb)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	100	100.3	-0.3	N/S	D	±0.05 % of rdg.
03	200	200.7	-0.7	N/S	D	±0.05 % of rdg.
04	300	300.9	0.9	N/S	D	±0.05 % of rdg.
05	450	451.3	-1.3	N/S	D	±0.05 % of rdg.

Ozone O_3 :(upto 10 ppm)

Sl. No.	Target Value (ppm)	Actual Value (ppm)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	1	1.0	0.0	N/S	D	±0.05 % of rdg.
03	2	1.9	0.1	N/S	D	±0.05 % of rdg.
04	5	4.9	0.1	N/S	D	±0.05 % of rdg.
05	8	7.8	0.2	N/S	D	±0.05 % of rdg.

Sulfur Dioxide SO_2 :(upto 500 ppb)

Sl. No.	Target Value (ppb)	Actual Value (ppb)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	100	100.2	-0.2	N/S	D	±0.05 % of rdg.
03	200	200.5	-0.5	N/S	D	±0.05 % of rdg.
04	300	301.0	-1.0	N/S	D	±0.05 % of rdg.
05	450	451.2	-1.2	N/S	D	±0.05 % of rdg.

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Laboratory Location
House # 427, Road # 9/2
Shaheenbagh, Tejgaon, Dhaka-1215
Tel: +88-02-48117167, Cell: +880 1921 612324, +880 1919 956147-59
E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

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Particulate Matter (PM2.5) : (0 to 1000) µg/m³ (Verified Against Traceable Sample)

Sl. No.	STD. Readings (µg/m³)	U.U.C. Readings (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty (µg/m³)
01	50.09	50.0	0.09	N/S	D	±0.001
02	100.15	100.0	0.15	N/S	D	±0.001
03	200.29	200.0	0.29	N/S	D	±0.001
04	500.47	500.0	0.47	N/S	D	±0.001
05	900.70	900.0	0.70	N/S	D	±0.001

Particulate Matter (PM10) : (0 to 1000) µg/m³ (Verified Against Traceable Sample)

Sl. No.	STD. Readings (µg/m³)	U.U.C. Readings (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty (µg/m³)
01	50.12	50.0	0.12	N/S	D	±0.001
02	100.25	100.0	0.25	N/S	D	±0.001
03	200.39	200.0	0.39	N/S	D	±0.001
04	500.65	500.0	0.65	N/S	D	±0.001
05	900.51	900.0	0.51	N/S	D	±0.001

TSP (0 to 1000) µg/m³: (Verified Against Traceable Sample)

Sl. No.	Standard Value (µg/m³)	U.U.C Value (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty
01	30.5	30.0	0.5	N/S	D	±0.4% of rdg.
02	52.0	50.0	2.0	N/S	D	±0.4% of rdg.
03	102.5	100.0	2.5	N/S	D	±0.4% of rdg.
04	503.1	500.0	3.1	N/S	D	±0.4% of rdg.
05	903.5	900.0	3.5	N/S	D	±0.4% of rdg.

The overall uncertainty shall be calculated as per ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level.

Notes:
1. The values mentioned above are the mean readings.
2. No adjustment was done during the calibration.
3. Any section marked, "N/A" means Not Applicable, "N/P" means Not Provided, "N/R" means Not Readable, "N/S" means Not Specified.

Calibrated By:
Md. Mobinul Islam
(Calibration Engineer)

Issued By:
M.S. Arman Ahmed Razu
(Technical Manager)

End of Calibration Certificate

02106058065

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Laboratory Location
House # 427, Road # 6/2
Shahuenbagh, Tejgaon, Dhaka-1215
Tel: +88-02-48117267, Cell: +880 1921 612324, +880 1919 958147-50
E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

Certificate No. 02406058064
Issue Date 06/05/2024

Customer Details:

Name	Envirocare International Ltd.
Address	House No # 09, Road No # 06, Sector # 12, Uttara, Dhaka, Bangladesh.
Tel	+880 1533 904911
E-mail	shorove.az.08@gmail.com

Details of Unit Under Calibration (UUC):

Description	Air Quality Monitor System
Manufacturer	Henan Oceanus Import & Export co.,Ltd
Model/Type	AQM-09
Serial Number	OC202203252070031
ID No.	EIL/AQM-02
Range/working Range	Ref on Obs
Least Count	Ref on Obs
Accuracy	As Per Instrument
Location of Calibration	Laboratory
Visual Inspection	OK
Date of Calibration	06/05/2024
Suggested Due Date	05/05/2025
Calibration Procedure	The calibration had been performed in accordance with calibration procedure CCP/SCS/115 (Procedure based on Comparision Method)
Calibration Result	The details of standard equipment used for calibration & result of calibration are given in page 2 to 4.
Conclusion	For the status of measurements please refer to the guidance notes.

Environment: (certified against calibrated digital temperature & humidity meter)

Temperature (°C)	25±3
Relative Humidity (%RH)	40 to 60

Change in temperature and relative humidity of the Laboratory during the calibration was less than 0.3°C per hour and 5.0% per 4 hours respectively.

This certificate is issued strictly in accordance with the requirements of ISO 17025:2017. All calibration equipments are traceable to the International Standards . Documentary evidence is available upon request.

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E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

Details of Standard Equipment Used for Calibration:

Sl. No.	Description	Make	Inst. Sl. /ID NO.	Certificate No.	Validity	Calibrated By
01	Carbon Oxide Meter	EXTECH	SCS/COM/01	QSI/1090/23/06	16/06/2024	QSI-INDIA
02	Carbon Monoxide Meter	Smart Sensor	SCS/CMM/01	QSI/1089/23/06	16/06/2024	QSI-INDIA
03	Portable Flue Gas Analyzer	LOOBO	SCS/PFGA/01	QSI/1340/23/02	14/02/2025	QSI-INDIA
04	RTD with Indicator	Eurotherm/ Tempsens	SCS/RTD/01	QSI/1241/23/12	19/12/2024	QS -INDIA
05	Multi-function Process Calibrator	FLUKE	SCS/MPC/03	QSI /0591/23/12	20/12/2024	QS -INDIA
06	Thermo Hygrometer(Data Logger)	CEM	SCS/DL/05	QSI/1982/23/10	08/10/2024	QSI-INDIA

Guidance Notes:

Status A The measurement is within tolerance, due allowances having been made for the uncertainty of the measurement.
Status B The measurement may be out of tolerance, due allowances having been made for the uncertainty of the measurement.
Status C The measurement is out of tolerance, due allowances having been made for the uncertainty of the measurement.
Status D No conclusion can be drawn, because the standard(s) do(es) not specify a tolerance for this measurement.

OBSERVATION:

Temperature: (verified against calibrated instruments)

Sl. No.	Standard Value (°C)	U.U.C. Value (°C)	Error (°C)	Tolerance	Status	Uncertainty (°C)
01	-10.09	-10.0	0.09	N/S	D	±0.20
02	0.00	0.0	0.00	N/S	D	±0.20
03	9.90	10.0	0.10	N/S	D	±0.30
04	19.82	20.0	0.18	N/S	D	±0.30
05	29.75	30.0	0.25	N/S	D	±0.30
06	49.68	50.0	0.32	N/S	D	±0.30

Humidity: (verified against calibrated instruments)

Sl. No.	Standard Value (%)	U.U.C. Value (%)	Error (%)	Tolerance	Status	Uncertainty (%)
01	20.0	20.0	0.0	N/S	D	±0.5
02	29.9	30.0	0.1	N/S	D	±0.5
03	39.8	40.0	0.2	N/S	D	±0.5
04	49.5	50.0	0.5	N/S	D	±0.5
05	69.3	70.0	0.7	N/S	D	±0.5
06	89.1	90.0	0.9	N/S	D	±0.5

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CERTIFICATE of CALIBRATION

Carbon Monoxide CO :(upto 10 ppm)

Sl. No.	Target Value (ppm)	Actual Value (ppm)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	1	1.0	0.0	N/S	D	±0.05 % of rdg.
03	2	1.9	0.1	N/S	D	±0.05 % of rdg.
04	5	4.8	0.2	N/S	D	±0.05 % of rdg.
05	8	7.8	0.2	N/S	D	±0.05 % of rdg.

Nitrogen Dioxide NO_2 :(upto 500 ppb)

Sl. No.	Target Value (ppb)	Actual Value (ppb)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	100	100.2	-0.2	N/S	D	±0.05 % of rdg.
03	200	200.5	-0.5	N/S	D	±0.05 % of rdg.
04	300	300.8	-0.8	N/S	D	±0.05 % of rdg.
05	450	451.2	-1.2	N/S	D	±0.05 % of rdg.

Ozone O_3 :(upto 10 ppm)

Sl. No.	Target Value (ppm)	Actual Value (ppm)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	1	1.0	0.0	N/S	D	±0.05 % of rdg.
03	2	2.1	-0.1	N/S	D	±0.05 % of rdg.
04	5	5.1	-0.1	N/S	D	±0.05 % of rdg.
05	8	8.3	-0.3	N/S	D	±0.05 % of rdg.

Sulfur Dioxide SO_2 :(upto 500 ppb)

Sl. No.	Target Value (ppb)	Actual Value (ppb)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	100	100.3	-0.3	N/S	D	±0.05 % of rdg.
03	200	200.8	-0.8	N/S	D	±0.05 % of rdg.
04	300	301.1	-1.1	N/S	D	±0.05 % of rdg.
05	450	451.4	-1.4	N/S	D	±0.05 % of rdg.

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CERTIFICATE of CALIBRATION

Particulate Matter (PM2.5) : (0 to 1000) µg/m³ (Verified Against Traceable Sample)

Sl. No.	STD. Readings (µg/m³)	U.U.C. Readings (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty (µg/m³)
01	50.08	50.0	0.08	N/S	D	±0.001
02	100.19	100.0	0.19	N/S	D	±0.001
03	200.27	200.0	0.27	N/S	D	±0.001
04	500.44	500.0	0.44	N/S	D	±0.001
05	900.76	900.0	0.76	N/S	D	±0.001

Particulate Matter (PM10) : (0 to 1000) µg/m³ (Verified Against Traceable Sample)

Sl. No.	STD. Readings (µg/m³)	U.U.C. Readings (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty (µg/m³)
01	50.11	50.0	0.11	N/S	D	±0.001
02	100.24	100.0	0.24	N/S	D	±0.001
03	200.38	200.0	0.38	N/S	D	±0.001
04	500.61	500.0	0.61	N/S	D	±0.001
05	900.84	900.0	0.84	N/S	D	±0.001

TSP (0 to 1000) µg/m³: (Verified Against Traceable Sample)

Sl. No.	Standard Value (µg/m³)	U.U.C Value (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty
01	30.7	30.0	0.7	N/S	D	±0.4% of rdg.
02	52.1	50.0	2.1	N/S	D	±0.4% of rdg.
03	102.6	100.0	2.6	N/S	D	±0.4% of rdg.
04	503.2	500.0	3.2	N/S	D	±0.4% of rdg.
05	904.1	900.0	4.1	N/S	D	±0.4% of rdg.

The overall uncertainty shall be calculated as per ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level.

Notes:
1. The values mentioned above are the mean readings.
2. No adjustment was done during the calibration.
3. Any section marked, "N/A" means Not Applicable, "N/P" means Not Provided, "N/R" means Not Readable, "N/S" means Not Specified.

Calibrated By:
Md. Mollinul Islam
(Calibration Engineer)

Issued By:
Md. Arman Ahmed Razu
(Technical Manager)

End of Calibration Certificate

02406058054

Page 4 of 4

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Calibrate report

Product	Air Quality Monitor System	Model	AQM-09
Quantity	1pcs	Cali date	July.25 . 2023
Product No.	OC202307257440112		
Appearance	☑Clean ☑Non corrosive ☑No damage		
Gas type	NO2:ppb SO2:ppb TVOC:ppm O3:ppb CO:ppm H2S:ppm CO2:ppm PM2.5:ug/m³ PM10:ug/m³ TSP:ug/m³ Wind veloci: m/s Wind direct:° Atmospheric : hpa Noise:dB Temperature and humidity: ℃/%RH Rainfall:mm/min		
Accuracy	±3%F.S		
resolution	0.1ppm 1ppm 1ppb 1ug/m³		
Response time	≤30S		
Survey range	NO2:0-2000ppb SO2:0-2000ppb TVOC:0-50ppm O3:0-2000ppb CO2:0-5000ppm H2S:0-100ppm CO:0-200ppm PM2.5:0-1000ug/m PM10:0-1000ug/m³ TSP : 0-1000ug/m³ Windveloci:0-30m/s Winddirect:0-360° Noise:30-130dB Rainfall:0-4mm/min Atmospheric :600-1100 hpa Temperature: -20-50℃ Humidity:0%-100%RH		
Signal output mode	4G LTE		
Power supply voltage	AC 220V/50Hz		
Power dissipation	≤ 30W		
[illegible]	-20℃-50℃ / 0%RH-100%RH		
Testing condition indoor	Temperature: 25℃ Humidity: 60%RH		
Calibration gas	SO2 O3 NO2 CO2 CO H2S C4H8		
Cali gas test	1.C4H8: Cali gas concentration: 49.7 ppm Inspect concentration: 49.3 ppm 2.SO2: Cali gas concentration: 1500 ppb Inspect concentration: 1498 ppb 3.O3: Cali gas concentration: 1200 ppb Inspect concentration: 1197 ppb 4.NO2: Cali gas concentration: 1200 ppb Inspect concentration: 1196 ppb 5.H2S: Cali gas concentration: 50 ppm Inspect concentration: 49.8 ppm 6.CO2: Cali gas concentration: 4002 ppm Inspect concentration: 4008 ppm 7.CO: Cali gas concentration: 100 ppm Inspect concentration: 99.8 ppm 8.PM2.5:Measured value: 36 ug/m³ PM10:Measured value: 40 ug/m³ 9.TSP:Measured value: 47 ug/m³ Noise:Measured value: 71.1 dB 10. Atmospheric :Measured value: 1000 hpa Rainfall:Measured value: 0.2 mm/min 11.Wind veloci:Measured value: 1.4 m/s Wind direct:Measured value : 319 12.Temperature: Measured value: 22.7 ℃ Humidity:Measured value: 47 %RH		
Test result	Qualified		
Remark			

Quality judgment:

Tester: xiu tai chen

Company: Henan Oceanus Import & Export Co., Ltd.

OQC : chang Yang

Date:July.25, 2023

Auditor: yan hui wang

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CERTIFICATE of CALIBRATION

Certificate No. 02328111741
Issue Date 28/11/2023

Customer Details:

Name	GEM CONSULTANTS LIMITED
Address	H:57/A, R: 4/A, Dhanmondi, Dhaka, Bangladesh.
Tel	+880 1618 856831
E-mail	infogem@gem.com.bd

Details of Unit Under Calibration (UUC):

Description	Air Quality Monitor System
Manufacturer	OCEANUS
Model/Type	AQM-09
Serial Number	OC20211105198822
ID No.	N/P
Range/working Range	Ref. On Obs.
Least Count	Ref. On Obs.
Accuracy	As Per Instrument
Location of Calibration	Laboratory
Visual Inspection	OK
Date of Calibration	28/11/2023
Suggested Due Date	27/11/2024
Calibration Procedure	The calibration had been performed in accordance with calibration procedure COP/SCS/115 (Procedure based on Comparision Method).
Calibration Result	The details of standard equipment used for calibration & result of calibration are given in page 2 to 6.
Conclusion	For the status of measurements please refer to the guidance notes.

Environment: (certified against calibrated digital temperature & humidity meter)

Temperature (°C)	25±3
Relative Humidity (%RH)	40 to 60

Change in temperature and relative humidity of the Laboratory during the calibration was less than 0.3°C per hour and 5.0% per 4 hours respectively.

This certificate is issued strictly in accordance with the requirements of ISO 17025:2017. All calibration equipments are traceable to the International Standards . Documentary evidence is available upon request.

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CERTIFICATE of CALIBRATION

Details of Standard Equipment Used for Calibration:

Sl. No.	Description	Make	Inst. Sl. /ID NO.	Certificate No.	Validity	Calibrated By
01	Sound Level Meter	CEM	SCS/SLM/01	QSI/1229/23/06	16/06/2024	QSI-INDIA
02	Digital Angle Protractor	N/P	SCS/DAP/02	QSI/1351/23/06	16/06/2024	QSI-INDIA
03	Carbon Dioide Meter	EXTECH	SCS/COM/01	QSI/1090/23/06	16/06/2024	QSI-INDIA
04	Carbon Monoxide Meter	Smart Sensor	SCS/CMM/01	QSI/1088/23/06	16/06/2024	QSI-INDIA
05	Digital Barometer	Lutron	SCS/DBM/01	QSI/1551/23/06	21/06/2024	QSI-INDIA
06	RTD with Indicator	Eurotherm/ Tempsens	SCS/RTD/01	QSI/0428/22/12	20/12/2023	QSI-INDIA
07	Portable Flue Gas Analyzer	LOCBO	SCS/PFGA/01	QSI/0253/22/02	15/02/2023	QSI-INDIA
08	Thermal Anemometer	testo	SCS/TAM/01	EMC/230102M	01/02/2024	EMC-CHINA
09	Multi-function Process Calibrator	FLUKE	SCS/MPC/03	QSI /0296/23/12	25/12/2023	QSI-INDIA
10	Thermo Hygrometer(Data Logger)	CEM	SCS/DL/05	QSI/1982/23/10	08/10/2024	QSI-INDIA

Guidance Notes:

Status A The measurement is within tolerance, due allowances having been made for the uncertainty of the measurement.

Status B The measurement may be out of tolerance, due allowances having been made for the uncertainty of the measurement.

Status C The measurement is out of tolerance, due allowances having been made for the uncertainty of the measurement.

Status D No conclusion can be drawn, because the standard(s) do(es) not specify a tolerance for this measurement.

OBSERVATION:

Output Sound: (verified against calibrated master equipment)

Obs. No.	Standard Value (dB)	U.U.C. Value (dB)	Error (dB)	Tolerance (dB)	Status	Uncertainty (dB)
01	49.9	50.0	0.1	N/S	D	±1.2
02	69.8	70.0	0.2	N/S	D	±1.2
03	93.5	94.0	0.5	N/S	D	±1.2
04	113.4	114.0	0.6	N/S	D	±1.2

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Temperature: (verified against calibrated instruments)

Sl. No.	Standard Value (°C)	U.U.C. Value (°C)	Error (°C)	Tolerance	Status	Uncertainty (°C)
01	-10.08	-10.0	0.08	N/S	D	±0.20
02	0.00	0.0	0.00	N/S	D	±0.20
03	9.93	10.0	0.07	N/S	D	±0.30
04	19.87	20.0	0.13	N/S	D	±0.30
05	29.82	30.0	0.18	N/S	D	±0.30
06	49.71	50.0	0.29	N/S	D	±0.30

Humidity: (verified against calibrated instruments)

Sl. No.	Standard Value (%)	U.U.C. Value (%)	Error (%)	Tolerance	Status	Uncertainty (%)
01	19.9	20.0	0.1	N/S	D	±0.5
02	29.8	30.0	0.2	N/S	D	±0.5
03	39.5	40.0	0.5	N/S	D	±0.5
04	49.2	50.0	0.8	N/S	D	±0.5
05	68.9	70.0	1.1	N/S	D	±0.5
06	88.7	90.0	1.3	N/S	D	±0.5

Air Pressure : (verified against calibrated instruments)

Sl. No.	UUC Value (HPa)	STD Avg. Value (HPa)	Error (HPa)	Tolerance	Status	Uncertainty (HPa)
01	0.0	0.0	0.0	N/S	D	---
02	650.0	650.3	-0.3	N/S	D	±0.01
03	700.0	700.5	-0.5	N/S	D	±0.01
04	800.0	801.1	-1.1	N/S	D	±0.01
05	1000.0	1001.5	-1.5	N/S	D	±0.01

Carbon Monoxide CO :(0 to 200 ppm)

Sl. No.	Target Value (ppm)	Actual Value (ppm)	Error (ppm)	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	10	10.1	-0.1	N/S	D	±0.05 % of rdg.
03	50	50.2	-0.2	N/S	D	±0.05 % of rdg.
04	100	100.5	-0.5	N/S	D	±0.05 % of rdg.
05	200	200.9	-0.9	N/S	D	±0.05 % of rdg.

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E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

Nitrogen Dioxide NO_2 :(0 to 2000 ppb)

Sl. No.	Target Value (ppb)	Actual Value (ppb)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	100	100.3	-0.3	N/S	D	±0.05 % of rdg.
03	500	500.5	-0.5	N/S	D	±0.05 % of rdg.
04	1000	1000.8	-0.8	N/S	D	±0.05 % of rdg.
05	1500	1501.4	-1.4	N/S	D	±0.05 % of rdg.

Ozone O_3 :(Upto 20000 ppb)

Sl. No.	Target Value (ppb)	Actual Value (ppb)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	1000	1000.5	-0.5	N/S	D	±0.05 % of rdg.
03	5000	5001.1	-1.1	N/S	D	±0.05 % of rdg.
04	10000	10001.8	-1.8	N/S	D	±0.05 % of rdg.
05	15000	15002.6	-2.6	N/S	D	±0.05 % of rdg.

Sulfur Dioxide SO_2 :(Upto 2000 ppb)

Sl. No.	Target Value (ppb)	Actual Value (ppb)	Error	Tolerance	Status	Uncertainty
01	0	0.0	0.0	N/S	D	---
02	100	100.3	-0.3	N/S	D	±0.05 % of rdg.
03	500	500.7	-0.7	N/S	D	±0.05 % of rdg.
04	1000	1001.2	-1.2	N/S	D	±0.05 % of rdg.
05	1500	1501.6	-1.6	N/S	D	±0.05 % of rdg.

Wind Velocity : (Verified Against Calibrated Instruments)

Sl. No.	U.U.C. Readings (m/s)	STD. Readings (m/s)	Error (m/s)	Tolerance	Status	Uncertainty (m/s)
00	0.00	0.0	0.000	N/S	D	---
01	5.00	5.008	-0.008	N/S	D	±0.002
02	10.00	10.013	-0.013	N/S	D	±0.002
03	20.00	20.018	-0.018	N/S	D	±0.002
04	30.00	30.025	-0.025	N/S	D	±0.002
05	50.00	50.031	-0.031	N/S	D	±0.002

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CERTIFICATE of CALIBRATION

Wind Direction : (Verified Against Calibrated Instruments)

Sl. No.	STD. Readings (°)	U.U.C. Readings (°)	Error (°)	Tolerance	Status	Uncertainty (°)
00	0.0	0.0	0.00	N/S	D	---
01	5.0	5.00	0.00	N/S	D	±0.01
02	10.0	10.00	0.00	N/S	D	±0.01
03	30.0	30.00	0.00	N/S	D	±0.01
04	50.0	50.00	0.00	N/S	D	±0.01
05	90.0	90.05	-0.05	N/S	D	±0.01

TVOC (0 to 50) ppm: (Verified Against Traceable Sample)

Sl. No.	Standard Value (ppm)	U.U.C Value (ppm)	Error (ppm)	Tolerance (ppm)	Status	Uncertainty
01	1.000	0.998	-0.002	N/S	D	±0.4% of rdg.
02	5.000	4.995	-0.005	N/S	D	
03	10.000	9.493	-0.507	N/S	D	
04	20.000	19.990	-0.010	N/S	D	
05	30.000	29.987	-0.013	N/S	D	

TSP (0 to 1000) µg/m³: (Verified Against Traceable Sample)

Sl. No.	Standard Value (µg/m³)	U.U.C Value (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty
01	31	30	1	N/S	D	±0.4% of rdg.
02	52	50	2	N/S	D	
03	102	100	2	N/S	D	
04	505	500	5	N/S	D	

PM 2.5 (0 to 1000) µg/m³: (Verified Against Traceable Sample)

Sl. No.	Standard Value (µg/m³)	U.U.C Value (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty
01	100	99	1	N/S	D	±0.4% of rdg.
02	300	299	1	N/S	D	
03	500	498	2	N/S	D	
04	900	896	4	N/S	D	

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Accredited Laboratory

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E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

PM 10 (0 to 1000) µg/m³: (Verified against traceable sample)

Sl. No.	Standard Value (µg/m³)	U.U.C Value (µg/m³)	Error (µg/m³)	Tolerance (µg/m³)	Status	Uncertainty
01	100	99	1	N/S	D	±0.4% of rdg.
02	300	299	1	N/S	D	
03	500	497	3	N/S	D	
04	900	895	5	N/S	D	

CO_2 Observation (0 to 5000) PPM:

SL No.	Standard Value (PPM)	U.U.C Value (PPM)	Error (PPM)	Tolerance (PPM)	Status	Uncertainty
01	500	498	2	N/S	D	±0.4% of rdg.
02	1000	995	5	N/S	D	
03	2000	1992	8	N/S	D	
04	3000	2988	12	N/S	D	
05	4000	3983	17	N/S	D	
06	4500	4475	25	N/S	D	

The overall uncertainty shall be calculated as per ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level.

Notes:
1. The values mentioned above are the mean readings.
2. No adjustment was done during the calibration.
3. Any section marked, "N/A" means Not Applicable, "N/P" means Not Provided, "N/R" means Not Readable, "N/S" means Not Specified.
4. Temperature, Sound, Angle Comes Under BAB Scope.

Calibrated By:

Md. Mobinul Islam
(Calibration Engineer)

Issued By:

Md. Arman Ahmed Razu
(Technical Manager)

End of Calibration Certificate

02328111741

Page 6 of 6

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Calibrate report

Product	Air Quality Monitor System	**Model**	AQM-09
Quantity	**1pcs**	**Cali date**	**September.19 . 2023**
Product No.	**OC202309180040263**		
Appearance	☑Clean ☑Non corrosive ☑No damage		
Gas type	NO_2:ppb SO_2:ppb TVOC:ppm O_3:ppb CO:ppm CO_2:ppm PM2.5:ug/m³ PM10:ug/m³ TSP:ug/m³ Wind veloci: m/s Wind direct:° Atmospheric : hpa Noise:dB Temperature and humidity: ℃/%RH		
Accuracy	±3%F.S		
resolution	0.1ppm 1ppm 1ppb 1ug/m³		
Response time	≤30S		
Survey range	NO_2:0-2000ppb SO_2:0-2000ppb TVOC:0-50ppm O_3:0-2000ppb CO:0-200ppm CO_2:0-5000ppm PM2.5:0-1000ug/m³ PM10:0-1000ug/m³ TSP : 0-1000ug/m³ Windveloci:0-30m/s Winddirect:0-360° Noise:30-130dB Atmospheric :600-1100 hpa Temperature: -20-50℃ Humidity:0%-100%RH		
Signal output mode	4G LTE		
Power supply voltage	AC 220V/50Hz		
Power dissipation	≤ 30W		
Working temperature and humidity range	-20℃-50℃ / 0%RH-100%RH		
Testing condition indoor	Temperature: 25℃ Humidity: 60%RH		
Calibration gas	SO_2 O_3 NO_2 CO CO_2 C_4H_8		
Cali gas test	1.TVOC: Cali gas concentration: 50 ppm Inspect concentration: 49.9 ppm 2.SO_2: Cali gas concentration: 1500 ppb Inspect concentration: 1499 ppb 3.O_3: Cali gas concentration: 1200 ppb Inspect concentration: 1198 ppb 4.NO_2: Cali gas concentration: 1200 ppb Inspect concentration: 1199 ppb 5.CO_2: Cali gas concentration: 4009 ppm Inspect concentration: 4008 ppm 6.CO: Cali gas concentration: 100 ppm Inspect concentration: 99.8 ppm 7.PM2.5:Measured value: 10 ug/m³ PM10:Measured value: 12 ug/m³ 8.TSP:Measured value: 13 ug/m³ Noise;Measured value: 60 dB 9.Atmospheric :Measured value: 1136 hpa 10.Wind veloci:Measured value: 1-2 m/s Wind direct:Measured value : 319 ° 11.Temperature: Measured value: 26-7 ℃ Humidity:Measured value: 53 %RH		
Test result	**Qualified**		
Remark			

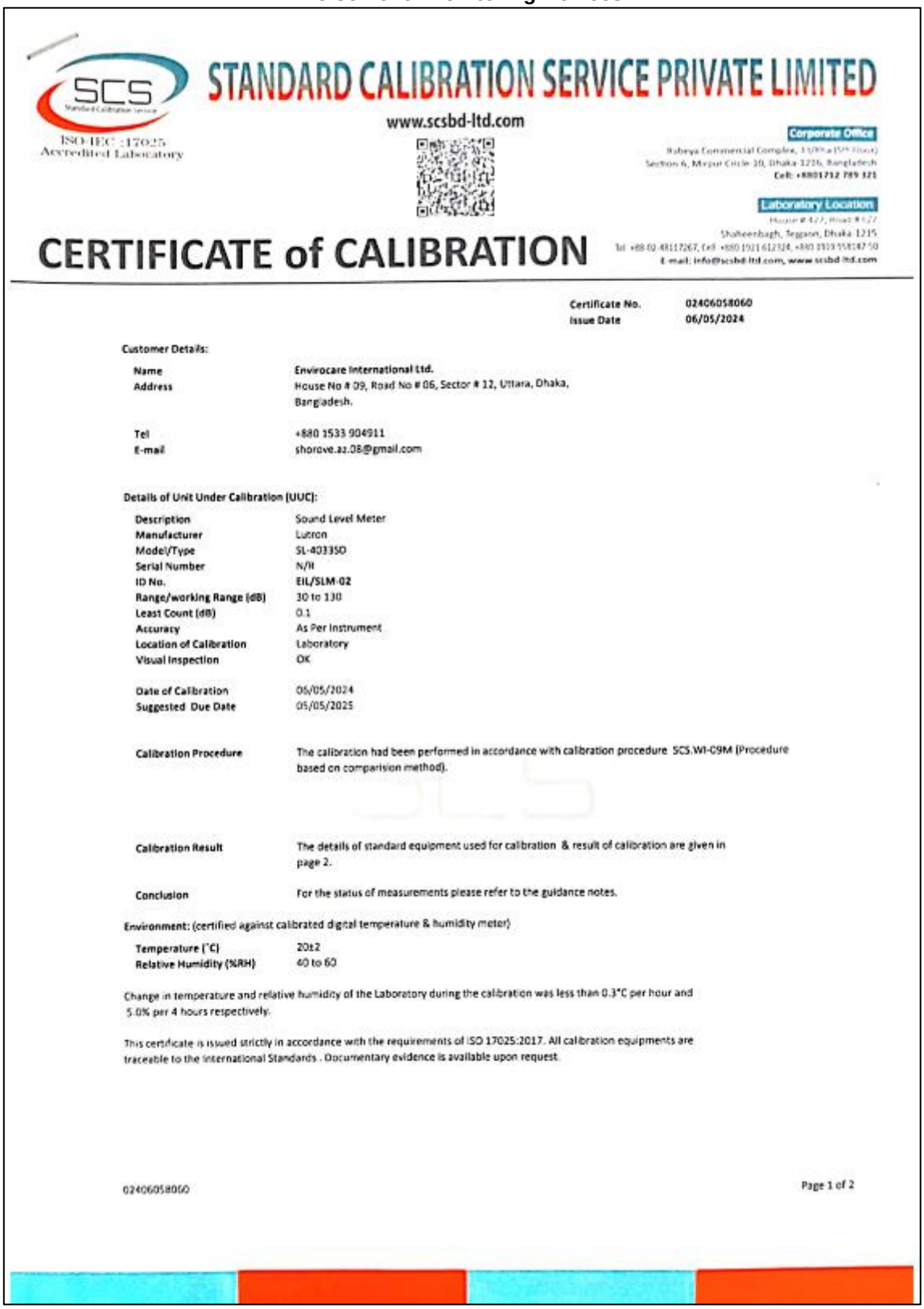
Quality judgment: Tester: xiu tai chen

Company: Henan Oceanus Import & Export Co., Ltd. **OQC : chang Yang**

Date:September,19. 2023 **Auditor: yan hui wang**

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Noise Level Monitoring Devices



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Tel: +88 02 48117267, Cell: +880 1921 612324, +880 1913 558147 50
E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

Certificate No. 02406058060
Issue Date 06/05/2024

Customer Details:

Name	Envirocare International Ltd.
Address	House No # 09, Road No # 06, Sector # 12, Uttara, Dhaka, Bangladesh.
Tel	+880 1533 904911
E-mail	shorove.az.08@gmail.com

Details of Unit Under Calibration (UUC):

Description	Sound Level Meter
Manufacturer	Lutron
Model/Type	SL-4033SD
Serial Number	N/II
ID No.	EIL/SLM-02
Range/working Range (dB)	30 to 130
Least Count (dB)	0.1
Accuracy	As Per Instrument
Location of Calibration	Laboratory
Visual Inspection	OK
Date of Calibration	05/05/2024
Suggested Due Date	05/05/2025
Calibration Procedure	The calibration had been performed in accordance with calibration procedure SCS.WI-09M (Procedure based on comparision method).
Calibration Result	The details of standard equipment used for calibration & result of calibration are given in page 2.
Conclusion	For the status of measurements please refer to the guidance notes.

Environment: (certified against calibrated digital temperature & humidity meter)

Temperature (°C)	20±2
Relative Humidity (%RH)	40 to 60

Change in temperature and relative humidity of the Laboratory during the calibration was less than 0.3°C per hour and 5.0% per 4 hours respectively.

This certificate is issued strictly in accordance with the requirements of ISO 17025:2017. All calibration equipments are traceable to the International Standards . Documentary evidence is available upon request.

02406058060 Page 1 of 2

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CERTIFICATE of CALIBRATION

Details of Standard Equipment Used for Calibration:

Sl. No.	Description	Make	Inst. Sl. /ID NO.	Certificate No.	Validity	Calibrated By
01	Sound Level Meter	CEM	SCS/SLM/01	QSI/1229/23/06	16/06/2024	QSI-INDIA
02	Thermo Hygrometer (Data Logger)	CEM	SCS/DL/05	QSI/1982/23/10	08/10/2024	QSI-INDIA

Guidance Notes:

Status A The measurement is within tolerance, due allowances having been made for the uncertainty of the measurement.

Status B The measurement may be out of tolerance, due allowances having been made for the uncertainty of the measurement.

Status C The measurement is out of tolerance, due allowances having been made for the uncertainty of the measurement.

Status D No conclusion can be drawn, because the standard(s) do(es) not specify a tolerance for this measurement.

OBSERVATION:

Sound Weighting: (verified against calibrated master equipment)

Sl. No.	Description	Standard Value (dB)	U.U.C. Value (dB)	Error (dB)	Tolerance (dB)	Status	Uncertainty (dB)
01	Before Adjustment	94.0	91.5	-2.5	N/S	D	±1.2
02		114.0	109.8	-4.2	N/S	D	
03	After Adjustment	94.0	94.0	0.0	N/S	D	
04		114.0	114.0	0.0	N/S	D	

Sound, "C" Weighting: (verified against calibrated master equipment)

Sl. No.	Description	Standard Value (dB)	U.U.C. Value (dB)	Error (dB)	Tolerance (dB)	Status	Uncertainty (dB)
01	Before Adjustment	94.0	91.6	-2.4	N/S	D	±1.2
02		114.0	108.9	-5.1	N/S	D	
03	After Adjustment	94.0	94.0	0.0	N/S	D	
04		114.0	114.0	0.0	N/S	D	

The overall uncertainty shall be calculated as per ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level.

Notes:

1. The values mentioned above are the mean readings.
2. Adjustment was done during the calibration.
3. Any section marked, "N/A" means Not Applicable, "N/P" means Not Provided, "N/R" means Not Readable, "N/S" means Not Specified.

Calibrated By:
Md. Mobinul Islam
(Calibration Engineer)

Issued By:
Md. Arman Ahmed Razu
(Technical Manager)

End of Calibration Certificate

02406058060

Page 2 of 2

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Certificate

Calibration Certificate No.: EES/24/Cal-16101701 **Issue Date: 05/02/2024** **Page No.: 1 of 2**

Date of Calibration: 03/02/2024 **Recommended Calibration Due On: 02/02/2025**

Calibrated for : **Envirocare International Ltd.**

Address: Uttara, Sector 12, Road 06, House 09 (Level 4)

Description of instrument to be calibrated : **Sound Level Meter**

Make: Lutron
Model: SD
Sl.. No.: 4034
Range: 30 to 130. **L.C:** 0.1.

Identification of Instrument : **EIL/SLM/19**

Calibration Location & Instrument Receipt Date : At Site: (12.5.2024)

Traceability and its reference certificate :

Description	Traceability Certificate No.	Calibration Date	Valid up to	Calibration Agency
Sound Calibrator	CRT-YNJ6-1294	07/03/2024	06/03/2025	ION
Digital Thermo Hygrometer	CEPL/07-06/24/EES/548	07/03/2024	06/03/2025	CASTRO
Traceability: Standards used for calibration are traceable to National Standards through ANAB accredited laboratory				

Environmental conditions : **Temperature:** (25±4)° C **Humidity:** (30 to 80) %RH

Basis of calibration : As Per Work Instruction (EES-TWI-48)

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
Hotline: +88 01715-858277 | E-mail: info@evergreenbd.org | www.evergreenbd.org

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Results

Speed: (verified against calibrated equipment's)

Sl. No.	D.U.C. Value (dB)	Standard Value (dB)	Error (dB)	Uncertainty of Measurement (dB) (at 95% Confidence level)
01	94.0	94.0	0.0	±2
02	98.1	98.0	-0.1	
03	100.1	100.0	-0.1	
04	110.2	110.0	-0.2	
05	114.2	114.0	-0.2	

Notes:

i) DUC: Device under Calibration.

ii) The results in the certificate are valid at the time of measurement under stated conditions.

iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

End of Calibration Certificate

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Calibration Certificate

Calibration Certificate No.: EES/24/Cal-16101700 **Issue Date: 05/02/2024** **Page No.: 1 of 2**

Date of Calibration: 03/02/2024 **Recommended Calibration Due On: 02/02/2025**

Calibrated for : **Envirocare International Ltd.**

Address: Uttara, Sector 12, Road 06, House 09 (Level 4)

Description of instrument to be calibrated : **Sound Level Meter**

Make: Lutron
Model: SD
Sl. No.: 4033
Range: 30 to 130. **L.C:** 0.1.

Identification of Instrument : **EIL/SLM/20**

Calibration Location & Instrument Receipt Date : At Site: (12.5.2024)

Traceability and its reference certificate :

Description	Traceability Certificate No.	Calibration Date	Valid up to	Calibration Agency
Sound Calibrator	CRT-YNJ6-1294	07/03/2024	06/03/2025	ION
Digital Thermo Hygrometer	CEPL/07-06/24/EES/548	07/03/2024	06/03/2025	CASTRO
Traceability: Standards used for calibration are traceable to National Standards through ANAB accredited laboratory				

Environmental conditions : **Temperature:** (25±4)° C **Humidity:** (30 to 80) %RH

Basis of calibration : As Per Work Instruction (EES-TWI-48)

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Results

Speed: (verified against calibrated equipment's)

Sl. No.	D.U.C. Value (dB)	Standard Value (dB)	Error (dB)	Uncertainty of Measurement (dB) (at 95% Confidence level)
01	94.1	94.0	-0.1	±2
02	98.0	98.0	0.0	
03	99.9	100.0	0.1	
04	110.3	110.0	-0.3	
05	113.9	114.0	0.1	

Notes:

i) DUC: Device under Calibration.

ii) The results in the certificate are valid at the time of measurement under stated conditions.

iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

End of Calibration Certificate

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Certificate

Calibration Certificate No.: EES/24/Cal-16101702 **Issue Date: 05/02/2024** **Page No.: 1 of 2**

Date of Calibration: 03/02/2024 **Recommended Calibration Due On: 02/02/2025**

Calibrated for : **Envirocare International Ltd.**

Address: Uttara, Sector 12, Road 06, House 09 (Level 4)

Description of instrument to be calibrated : **Sound Level Meter**

Make: Lutron
Model: SD
Sl. No.: 4035
Range: 30 to 130. **L.C:** 0.1.

Identification of Instrument : **EIL/SLM/21**

Calibration Location & Instrument Receipt Date : At Site: (12.5.2024)

Traceability and its reference certificate :

Description	Traceability Certificate No.	Calibration Date	Valid up to	Calibration Agency
Sound Calibrator	CRT-YNJ6-1294	07/03/2024	06/03/2025	ION
Digital Thermo Hygrometer	CEPL/07-06/24/EES/548	07/03/2024	06/03/2025	CASTRO
Traceability: Standards used for calibration are traceable to National Standards through ANAB accredited laboratory				

Environmental conditions : **Temperature:** (25±4)° C **Humidity:** (30 to 80) %RH

Basis of calibration : As Per Work Instruction (EES-TWI-48)

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Results

Speed: (verified against calibrated equipment's)

Sl. No.	D.U.C. Value (dB)	Standard Value (dB)	Error (dB)	Uncertainty of Measurement (dB) (at 95% Confidence level)
01	94.0	94.0	0.0	±1
02	98.0	98.0	0.0	
03	100.0	100.0	0.0	
04	110.1	110.0	-0.1	
05	114.1	114.0	-0.1	

Notes:

i) DUC: Device under Calibration.

ii) The results in the certificate are valid at the time of measurement under stated conditions.

iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Results

Speed: (verified against calibrated equipment's)

Sl. No.	D.U.C. Value (dB)	Standard Value (dB)	Error (dB)	Uncertainty of Measurement (dB) (at 95% Confidence level)
01	94.0	94.0	0.0	±1
02	98.0	98.0	0.0	
03	100.0	100.0	0.0	
04	110.1	110.0	-0.1	
05	114.1	114.0	-0.1	

Notes:

i) DUC: Device under Calibration.

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iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

End of Calibration Certificate

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Results

Speed: (verified against calibrated equipment's)

Sl. No.	D.U.C. Value (dB)	Standard Value (dB)	Error (dB)	Uncertainty of Measurement (dB) (at 95% Confidence level)
01	90.0	90.0	0.0	±2
02	95.0	95.0	0.0	
03	100.1	100.0	-0.1	
04	110.1	110.0	-0.1	
05	114.2	114.0	-0.2	

Notes:

i) DUC: Device under Calibration.

ii) The results in the certificate are valid at the time of measurement under stated conditions.

iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

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Vibration Meter



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E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

Certificate No. 02406058051
Issue Date 06/05/2024

Customer Details:

Name	**Envirocare International Ltd.**
Address	House No # 09, Road No # 06, Sector # 12, Uttara, Dhaka, Bangladesh.
Tel	+880 1533 904911
E-mail	shorove.ar.08@gmail.com

Details of Unit Under Calibration (UUC):

Description	Vibration Meter
Manufacturer	HTC
Model/Type	VB-8205
Serial Number	N/P
ID No.	**EIL/VM-02**
Range/working Range (mm/s)	Upto 200
Least Count (mm/s)	0.1
Accuracy	As Per Instrument
Location of Calibration	Laboratory
Visual Inspection	OK
Date of Calibration	06/05/2024
Suggested Due Date	05/05/2025
Calibration Procedure	The Calibration has been performed under controlled conditions using SCS Laboratory reference standards, which are periodically referenced to one or more of the primary standards traceable to NPL/NIST or other national physical measures as equivalent to NIST. The Calibration had been performed in accordance with Calibration procedure COP/SCS/130 (Procedure based on Comparison method).
Calibration Result	The details of standard equipment used for Calibration & result of Calibration are given in page 2.
Conclusion	For the status of measurements please refer to the guidance notes.

Environment: (certified against calibrated digital temperature & humidity meter)

Temperature (°C)	20±1
Relative Humidity (%RH)	40 to 60

Change in temperature and relative humidity of the Laboratory during the Calibration was less than ±0.3°C per Hour and ±5.0% per 4 Hours respectively.

This certificate is issued strictly in accordance with the requirements of ISO 17025:2017. All calibration equipments are traceable to the International Standards . Documentary evidence is available upon request.

02406058051 Page 1 of 2

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Shaheenbagh, Tejgaon, Dhaka-1215
Tel: +88 02 48117267, Cell: +880 1921 612324, +880 1919 958147-50
E-mail: info@scsbd-ltd.com, www.scsbd-ltd.com

CERTIFICATE of CALIBRATION

Details of Standard Equipment Used for Calibration:

Sl. No.	Description	Make	Inst. Sl. /ID NO.	Certificate No.	Validity	Calibrated By
01	Vibration Meter	Smart Sensor	SCS/VM/01	QSI/1184/24/02	14/02/2025	QSI-INDIA
02	Thermo Hygrometer (Data Logger)	CEM	SCS/DL/05	QSI/1982/23/10	08/10/2024	QSI-INDIA

Guidance Notes:

Status A The measurement is within tolerance, due allowances having been made for the uncertainty of the measurement.

Status B The measurement may be out of tolerance, due allowances having been made for the uncertainty of the measurement.

Status C The measurement is out of tolerance, due allowances having been made for the uncertainty of the measurement.

Status D No conclusion can be drawn, because the standard(s) do(es) not specify a tolerance for this measurement.

OBSERVATION:

Acceleration : (verified against calibrated master equipments)

Sl. No.	Standard Value (mm/s)	U.U.C. Value (mm/s)	Error (mm/s)	Tolerance (mm/s)	Status	Uncertainty
01	50.5	51.2	0.70	N/S	D	±0.8% of Rdg
02	100.8	102.1	1.30	N/S	D	
03	150.5	152.3	1.80	N/S	D	
04	180.2	182.8	2.60	N/S	D	

The overall uncertainty shall be calculated as per ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level.

1. The values mentioned above are the mean readings & No adjustment was done during the Calibration
2. No adjustment was done during the calibration.
3. Any section marked, "N/A" means Not Applicable, "N/P" means Not Provided, "N/R" means Not Readable, "N/S" means Not Specified.

Calibrated By:

Md. Mobinul Islam
(Calibration Engineer)

Issued By:

Md. Arman Ahmed Razu
(Technical Manager)

End of Calibration Certificate

02406058051

Page 2 of 2

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Certificate

Calibration Certificate No.: EES/24/Cal-16101704 **Issue Date: 05/02/2024** **Page No.: 1 of 2**

Date of Calibration: 03/02/2024 **Recommended Calibration Due On: 02/02/2025**

Calibrated for : **Envirocare International Ltd.**

Address: Uttara, Sector 12, Road 06, House 09 (Level 4)

Description of instrument to be calibrated : **Vibration Meter**

Make: IITC
Model: VB-8205
Sl. No.: /
Range: 200. **L.C:** 0.1.

Identification of Instrument : **EIL/VM/23**

Calibration Location & Instrument Receipt Date : At Site: (12.5.2024)

Traceability and its reference certificate :

Description	Traceability Certificate No.	Calibration Date	Valid up to	Calibration Agency
Vibration Calibrator (Type 4294)	CRT-YNJ6-1297	07/03/2024	06/03/2025	ION
Digital Thermo Hygrometer	CEPL/07-06/24/EES/548	07/03/2024	06/03/2025	CASTRO
Traceability: Standards used for calibration are traceable to National Standards through ANAB accredited laboratory				

Environmental conditions : **Temperature:** (25±4)° C **Humidity:** (30 to 80) %RH

Basis of calibration : As Per Work Instruction (EES-TWI-49)

Calibration Results

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
Hotline: +88 01715-858277 | E-mail: info@evergreenbd.org | www.evergreenbd.org

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

EVERGREEN ENVIRONMENTAL SOLUTION

Vibration: (verified against calibrated equipment's) : **Test Frequency: 159.2 Hz**

Sl. No.	D.U.C. Value (m/s2)	Standard Value (m/s2)	Error (m/s2)	Uncertainty of Measurement (m/s2) (at 95% Confidence level)
01	10.0	10.0	0.0	±3
02	19.9	20.0	0.1	
03	29.9	30.0	0.1	
04	40.2	40.0	-0.2	
05	50.2	50.0	-0.2	

Notes:

i) DUC: Device under Calibration.

ii) The results in the certificate are valid at the time of measurement under stated conditions.

iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

End of Calibration Certificate

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
Hotline: +88 01715-858277 | E-mail: info@evergreenbd.org | www.evergreenbd.org

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Certificate

Calibration Certificate No.: EES/24/Cal-16101705 **Issue Date: 05/02/2024** **Page No.: 1 of 2**

Date of Calibration: 03/02/2024 **Recommended Calibration Due On: 02/02/2025**

Calibrated for : **Envirocare International Ltd.**

Address: Uttara, Sector 12, Road 06, House 09 (Level 4)

Description of instrument to be calibrated : **Vibration Meter**

Make: IITC

Model: VB-8205

Sl.. No.: /

Range: 200. **L.C:** 0.1.

Identification of Instrument : **EIL/VM/24**

Calibration Location & Instrument Receipt Date : At Site: (12.5.2024)

Traceability and its reference certificate :

Description	Traceability Certificate No.	Calibration Date	Valid up to	Calibration Agency
Vibration Calibrator (Type 4294)	CRT-YNJ6-1297	07/03/2024	06/03/2025	ION
Digital Thermo Hygrometer	CEPL/07-06/24/EES/548	07/03/2024	06/03/2025	CASTRO
Traceability: Standards used for calibration are traceable to National Standards through ANAB accredited laboratory				

Environmental conditions : **Temperature:** (25±4)° C **Humidity:** (30 to 80) %RH

Basis of calibration : As Per Work Instruction (EES-TWI-49)

Calibration Results

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
Hotline: +88 01715-858277 | E-mail: info@evergreenbd.org | www.evergreenbd.org

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

EVERGREEN ENVIRONMENTAL SOLUTION

Vibration: (verified against calibrated equipment's) : **Test Frequency: 159.2 Hz**

Sl. No.	D.U.C. Value (m/s2)	Standard Value (m/s2)	Error (m/s2)	Uncertainty of Measurement (m/s2) (at 95% Confidence level)
01	10.0	10.0	0.0	±2
02	20.0	20.0	0.0	
03	30.1	30.0	-0.1	
04	40.1	40.0	-0.1	
05	50.2	50.0	-0.2	

Notes:

i) DUC: Device under Calibration.

ii) The results in the certificate are valid at the time of measurement under stated conditions.

iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

End of Calibration Certificate

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
Hotline: +88 01715-858277 | E-mail: info@evergreenbd.org | www.evergreenbd.org

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Calibration Certificate

Calibration Certificate No.: EES/24/Cal-16101706 **Issue Date: 05/02/2024** **Page No.: 1 of 2**

Date of Calibration: 03/02/2024 **Recommended Calibration Due On: 02/02/2025**

Calibrated for : **Envirocare International Ltd.**

Address: Uttara, Sector 12, Road 06, House 09 (Level 4)

Description of instrument to be calibrated : **Vibration Meter**

Make: IITC
Model: VB-8205
Sl. No.: /
Range: 200. **L.C:** 0.1.

Identification of Instrument : **EIL/VM/25**

Calibration Location & Instrument Receipt Date : At Site: (12.5.2024)

Traceability and its reference certificate :

Description	Traceability Certificate No.	Calibration Date	Valid up to	Calibration Agency
Vibration Calibrator (Type 4294)	CRT-YNJ6-1297	07/03/2024	06/03/2025	ION
Digital Thermo Hygrometer	CEPL/07-06/24/EES/548	07/03/2024	06/03/2025	CASTRO
Traceability: Standards used for calibration are traceable to National Standards through ANAB accredited laboratory				

Environmental conditions : **Temperature:** (25±4)° C **Humidity:** (30 to 80) %RH

Basis of calibration : As Per Work Instruction (EES-TWI-49)

Calibration Results

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EVERGREEN ENVIRONMENTAL SOLUTION

Vibration: (verified against calibrated equipment's) : **Test Frequency: 159.2 Hz**

Sl. No.	D.U.C. Value (m/s2)	Standard Value (m/s2)	Error (m/s2)	Uncertainty of Measurement (m/s2) (at 95% Confidence level)
01	10.0	10.0	0.0	±3
02	20.1	20.0	-0.1	
03	30.1	30.0	-0.1	
04	40.2	40.0	-0.2	
05	50.2	50.0	-0.2	

Notes:

i) DUC: Device under Calibration.

ii) The results in the certificate are valid at the time of measurement under stated conditions.

iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

End of Calibration Certificate

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
Hotline: +88 01715-858277 | E-mail: info@evergreenbd.org | www.evergreenbd.org

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Certificate

Calibration Certificate No.: EES/24/Cal-16101707 **Issue Date: 05/02/2024** **Page No.: 1 of 2**

Date of Calibration: 03/02/2024 **Recommended Calibration Due On: 02/02/2025**

Calibrated for : **Envirocare International Ltd.**

Address: Uttara, Sector 12, Road 06, House 09 (Level 4)

Description of instrument to be calibrated : **Vibration Meter**

Make: IITC

Model: VB-8205

Sl.. No.: /

Range: 200. **L.C:** 0.1.

Identification of Instrument : **EIL/VM/26**

Calibration Location & Instrument Receipt Date : At Site: (12.5.2024)

Traceability and its reference certificate :

Description	Traceability Certificate No.	Calibration Date	Valid up to	Calibration Agency
Vibration Calibrator (Type 4294)	CRT-YNJ6-1297	07/03/2024	06/03/2025	ION
Digital Thermo Hygrometer	CEPL/07-06/24/EES/548	07/03/2024	06/03/2025	CASTRO
Traceability: Standards used for calibration are traceable to National Standards through ANAB accredited laboratory				

Environmental conditions : **Temperature:** (25±4)° C **Humidity:** (30 to 80) %RH

Basis of calibration : As Per Work Instruction (EES-TWI-49)

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Hotline: +88 01715 858277 | E-mail: info@evergreenbd.org | www.evergreenbd.org

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EVERGREEN ENVIRONMENTAL SOLUTION

Calibration Results

Vibration: (verified against calibrated equipment's) : **Test Frequency: 159.2 Hz**

Sl. No.	D.U.C. Value (m/s2)	Standard Value (m/s2)	Error (m/s2)	Uncertainty of Measurement (m/s2) (at 95% Confidence level)
01	10.0	10.0	0.0	±3
02	20.1	20.0	-0.1	
03	30.2	30.0	-0.2	
04	40.2	40.0	-0.2	
05	50.2	50.0	-0.2	

Notes:

i) DUC: Device under Calibration.

ii) The results in the certificate are valid at the time of measurement under stated conditions.

iii) The certificate if produced for any purpose commercial or otherwise should be reproduced in full. Partial of the certificate or an abstract thereof has to be got

This certificate, issued by **Evergreen Environmental Solution** refers only the particular item submitted to calibrate

Calibrated By:

Md. Niamul Islam

Calibration Engineer

Issued By:

Md. Nurul Afsar

Director Operation

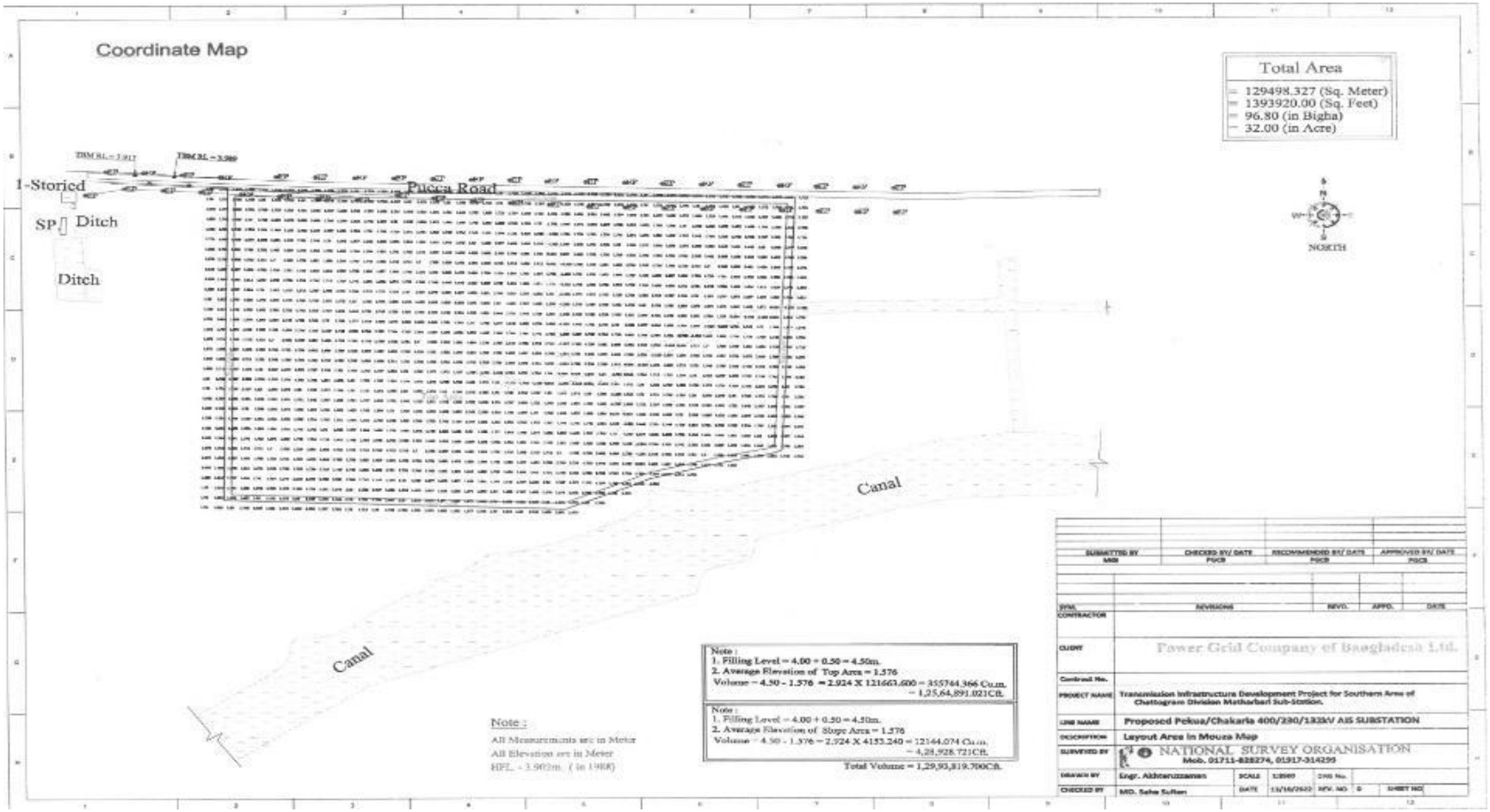
End of Calibration Certificate

Dakhil Madrasa Road, Bhuiyan Tower, Dakshinkhan, Dhaka-1229, Bangladesh.
Hotline: +88 01715 858277 | E-mail: info@evergreenbd.org | www.evergreenbd.org

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Appendix III: Proposed Detailed Land Boundary and Topography of Substations[9]

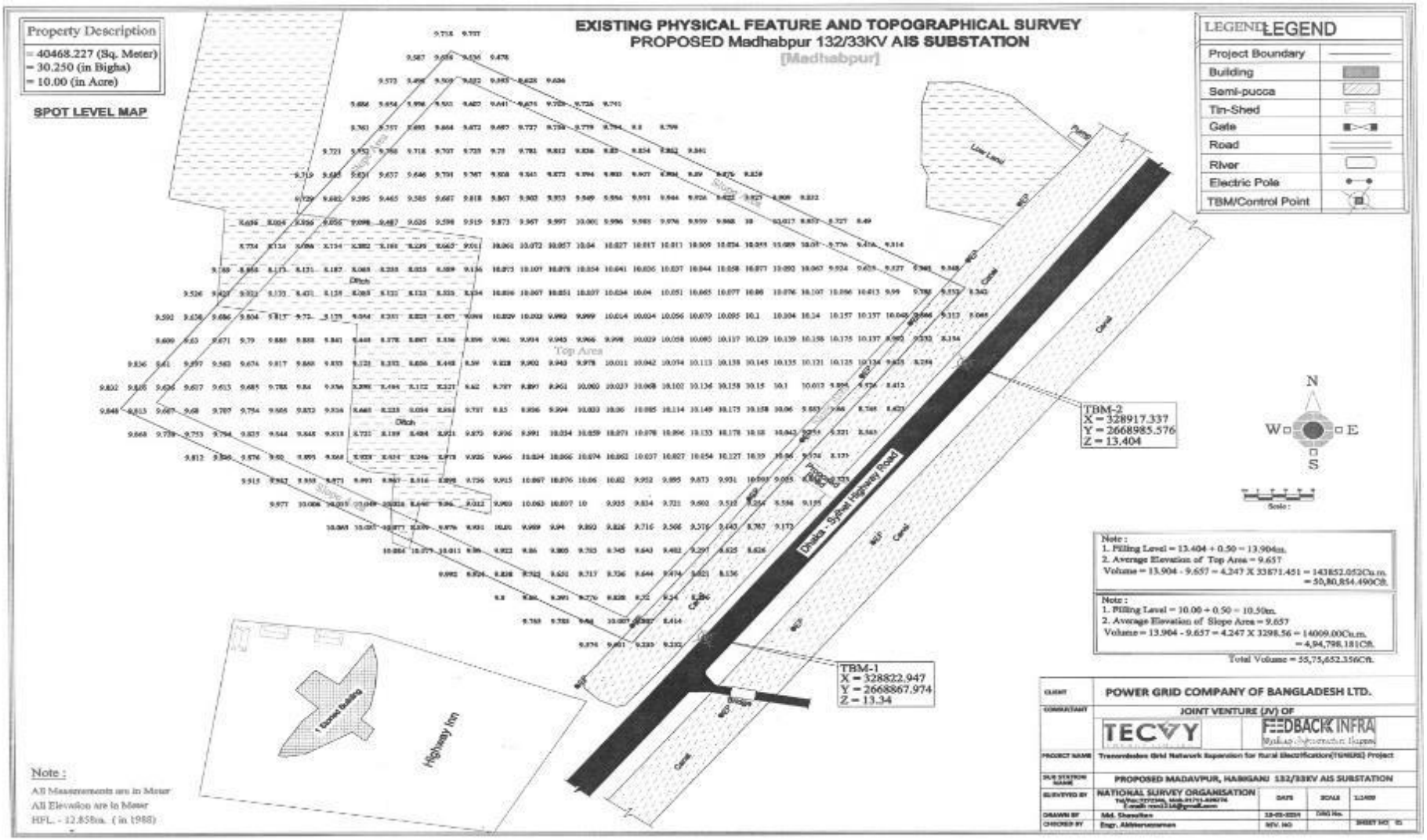
III.1: 400/230/132kV AIS: Pekua/Chakaria, Cox's Bazar



[9] These are initial representative sites for which data was collected by Tecvy, PGCB's IEE contractor, Relevant maps will be prepared by each Contractor for each site at award stage for detailed design to account for if any maps that are required by ADB.

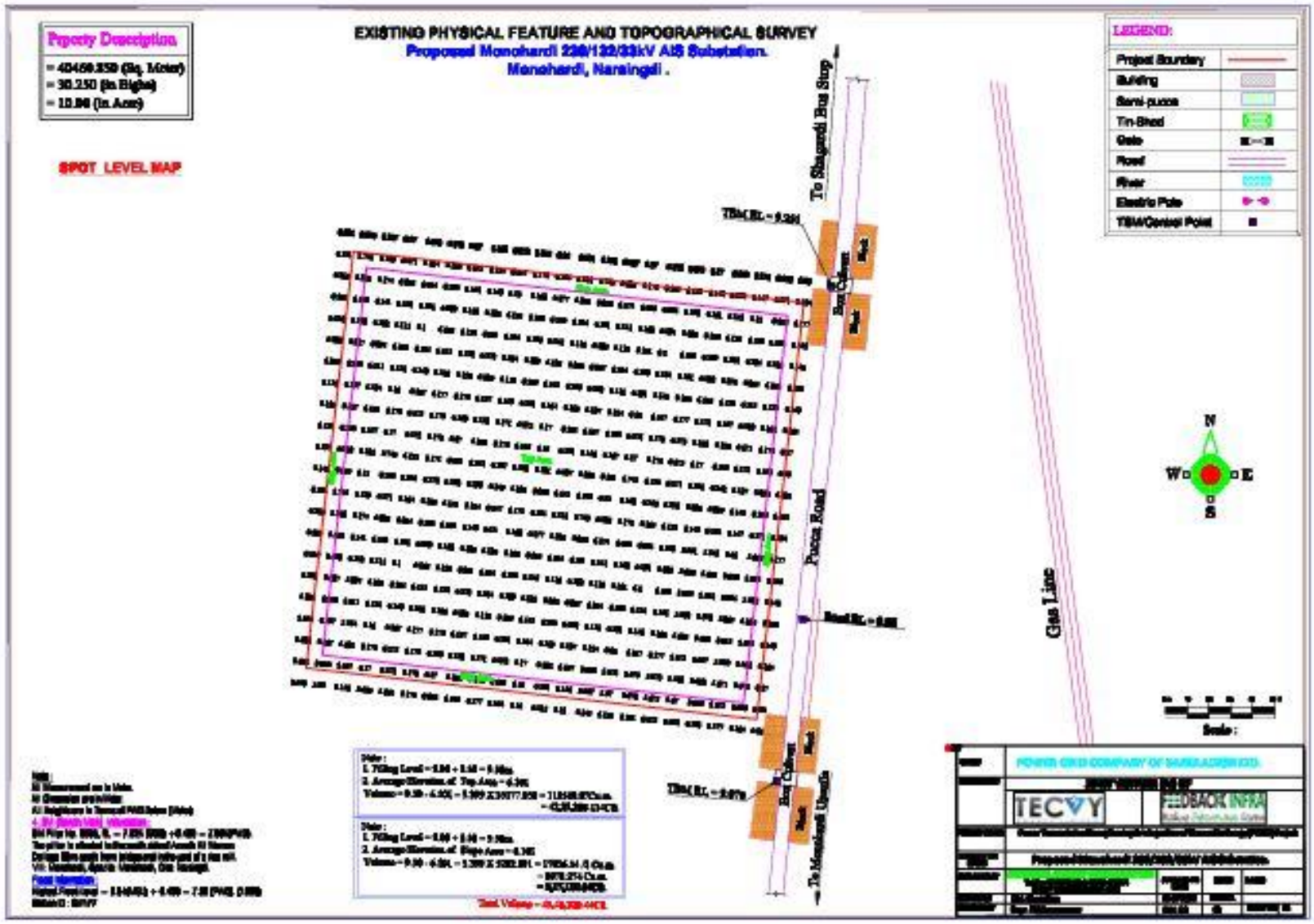
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

III.2: 230/132/33 kV AIS: Madhabpur, Habiganj



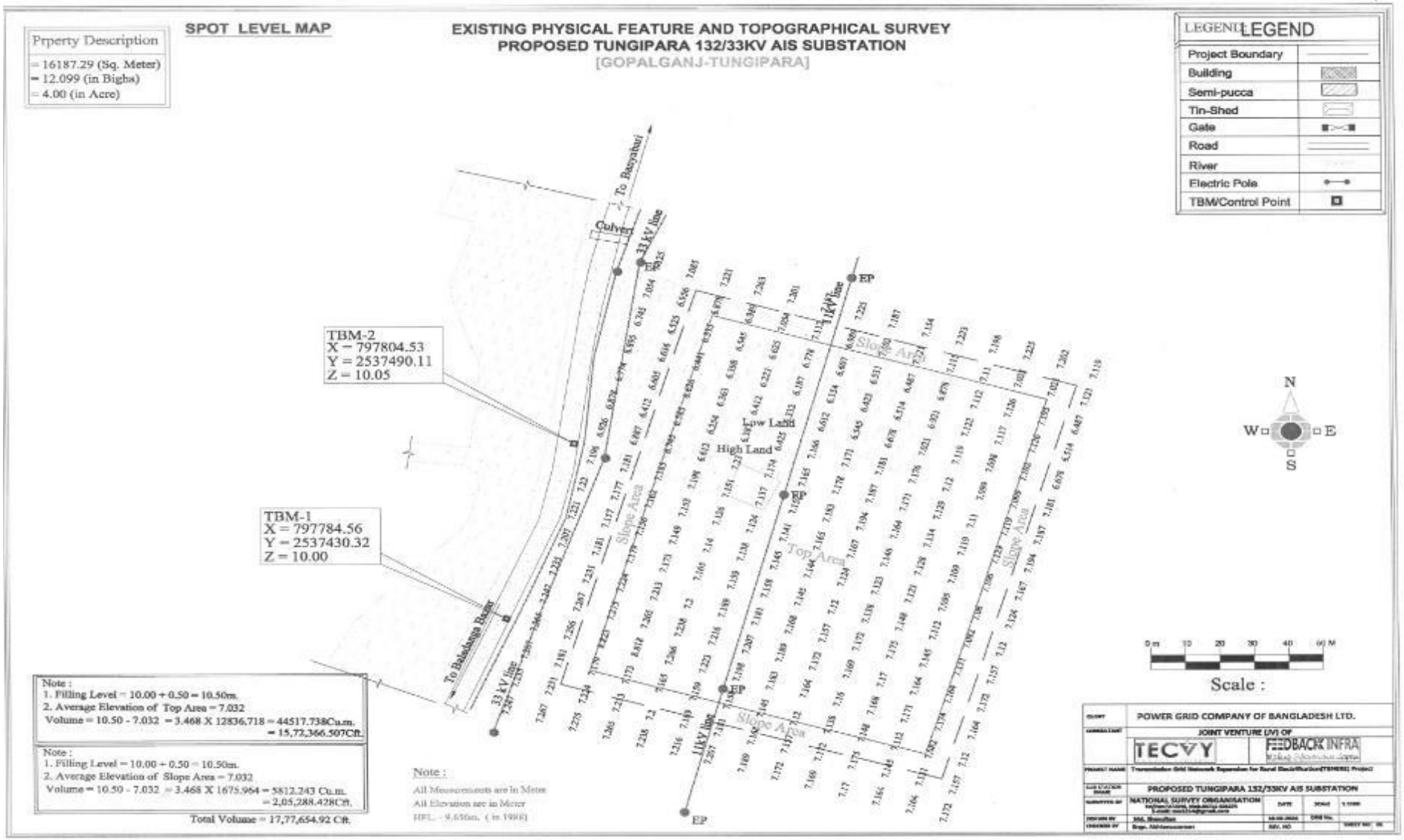
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

III.3: 230/132/33Kv AIS: Monohardi, Narshingdi



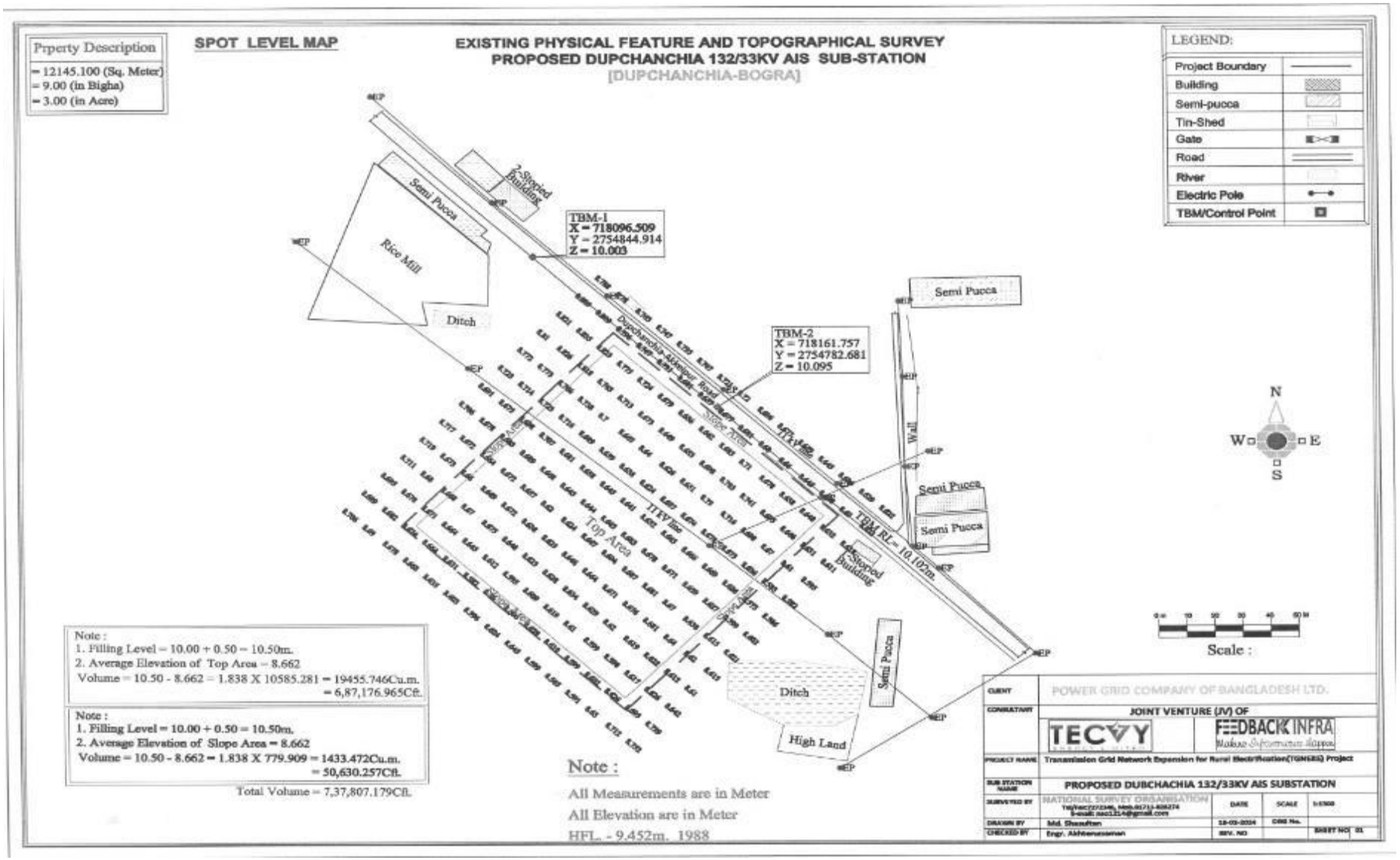
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

III.4: 132/33kv AIS: Tungipara, Gopalganj



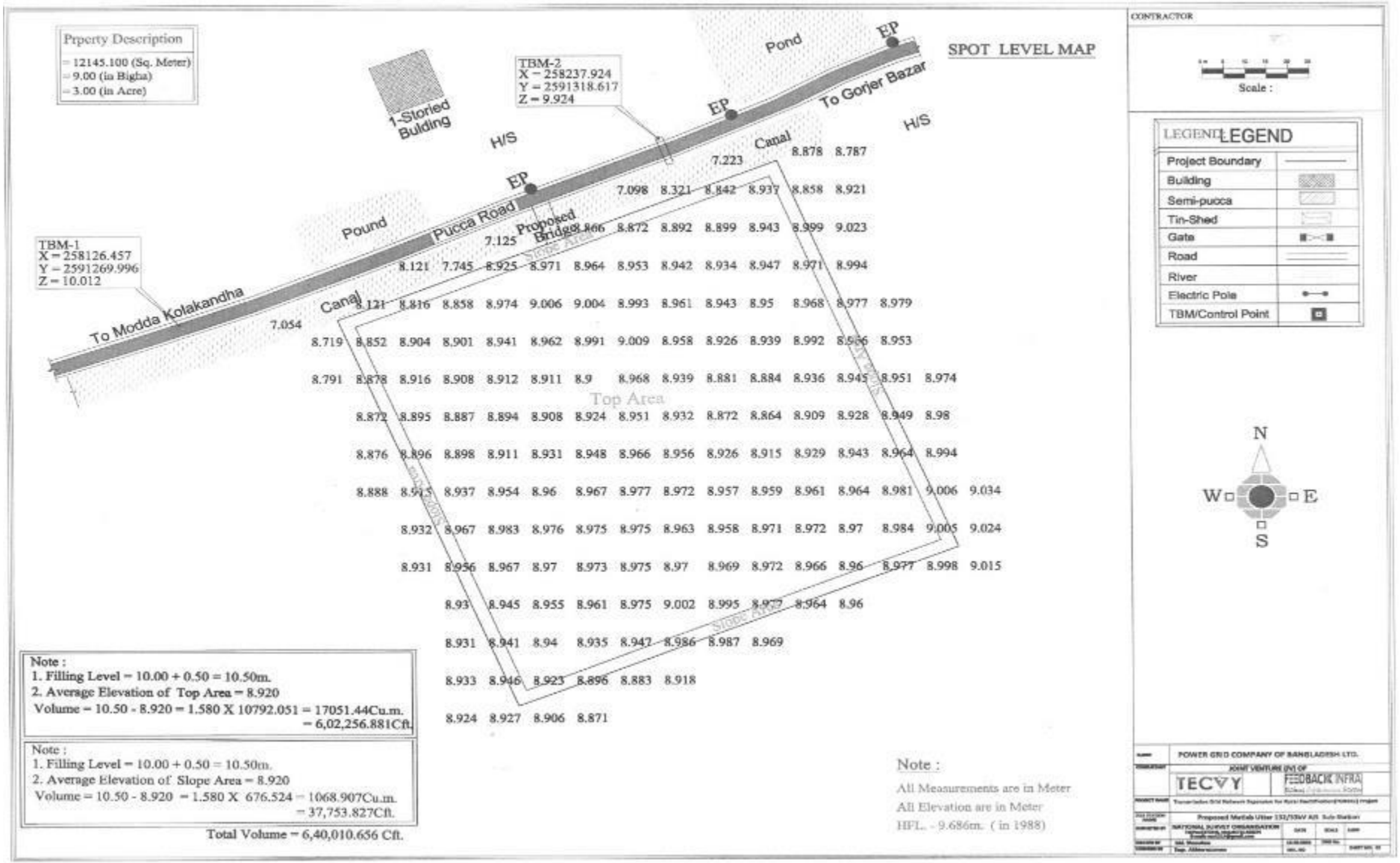
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

III.5: 132/33Kv AIS: Dupchanchia, Bogura



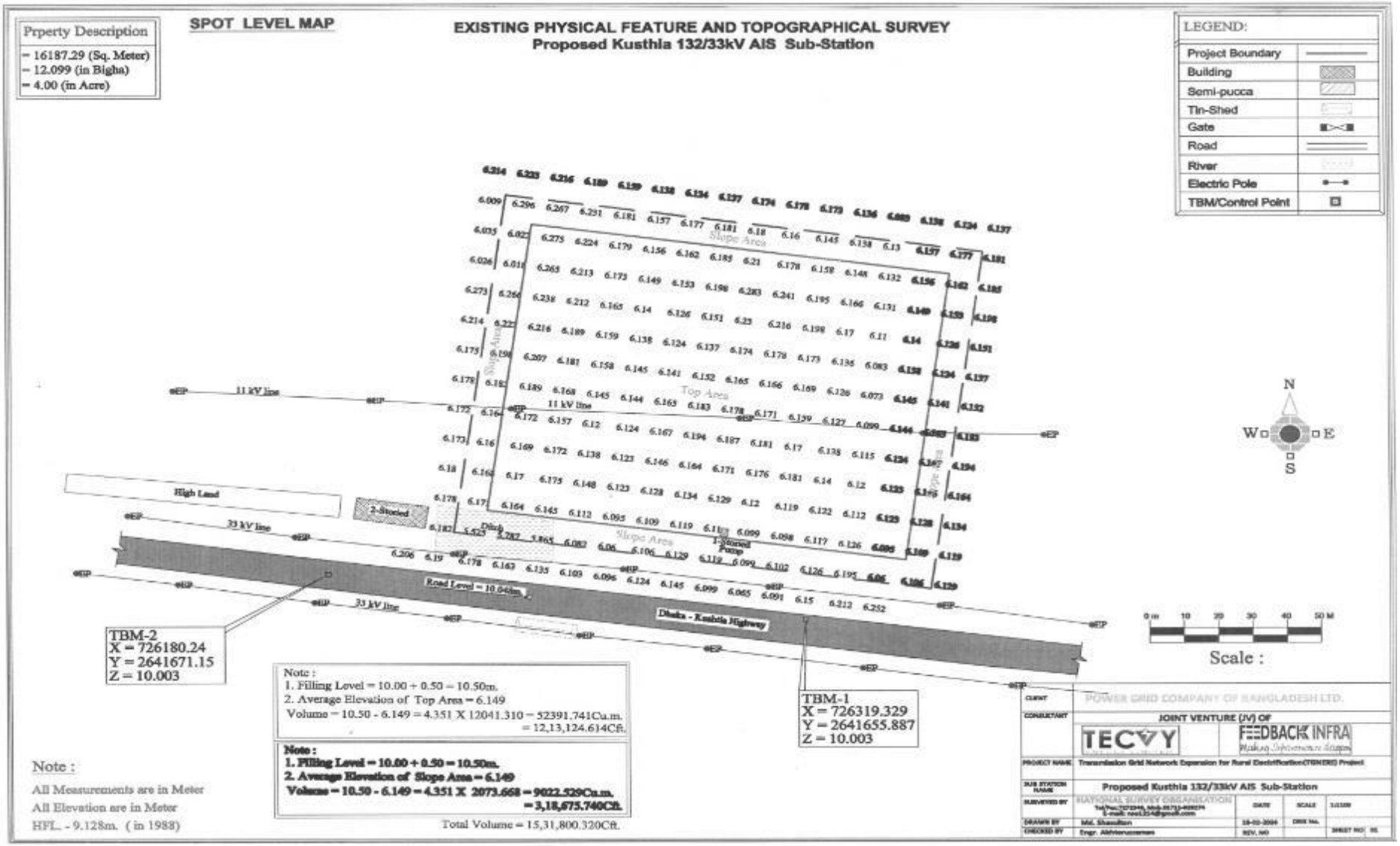
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

III.6: 132/33Kv AIS: Matlab (N), Chandpur



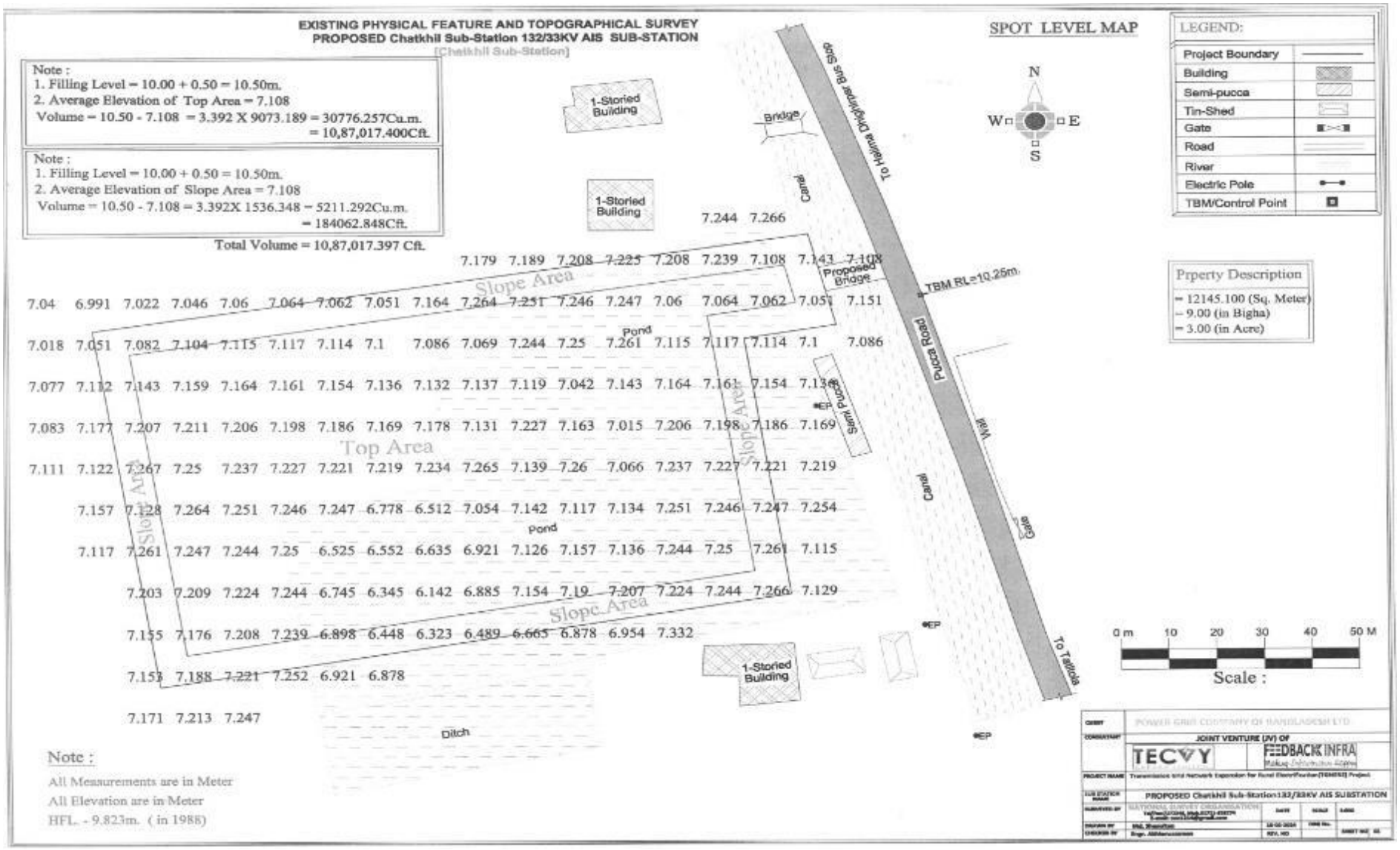
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III.7: 132/33Kv AIS: Kumarkhali, Kushtia



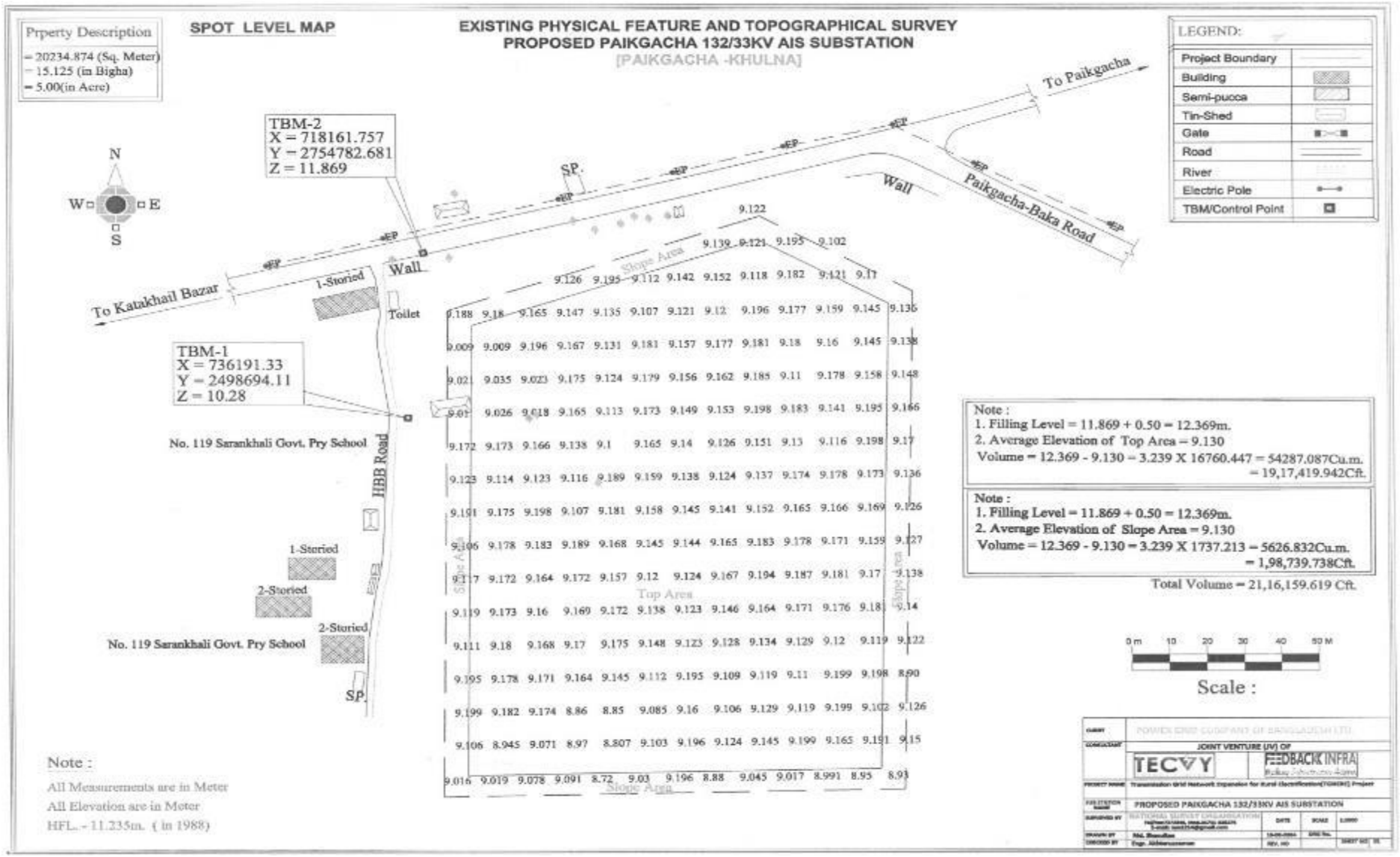
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

III.8: 132/33Kv AIS: Chatkhil, Noakhali



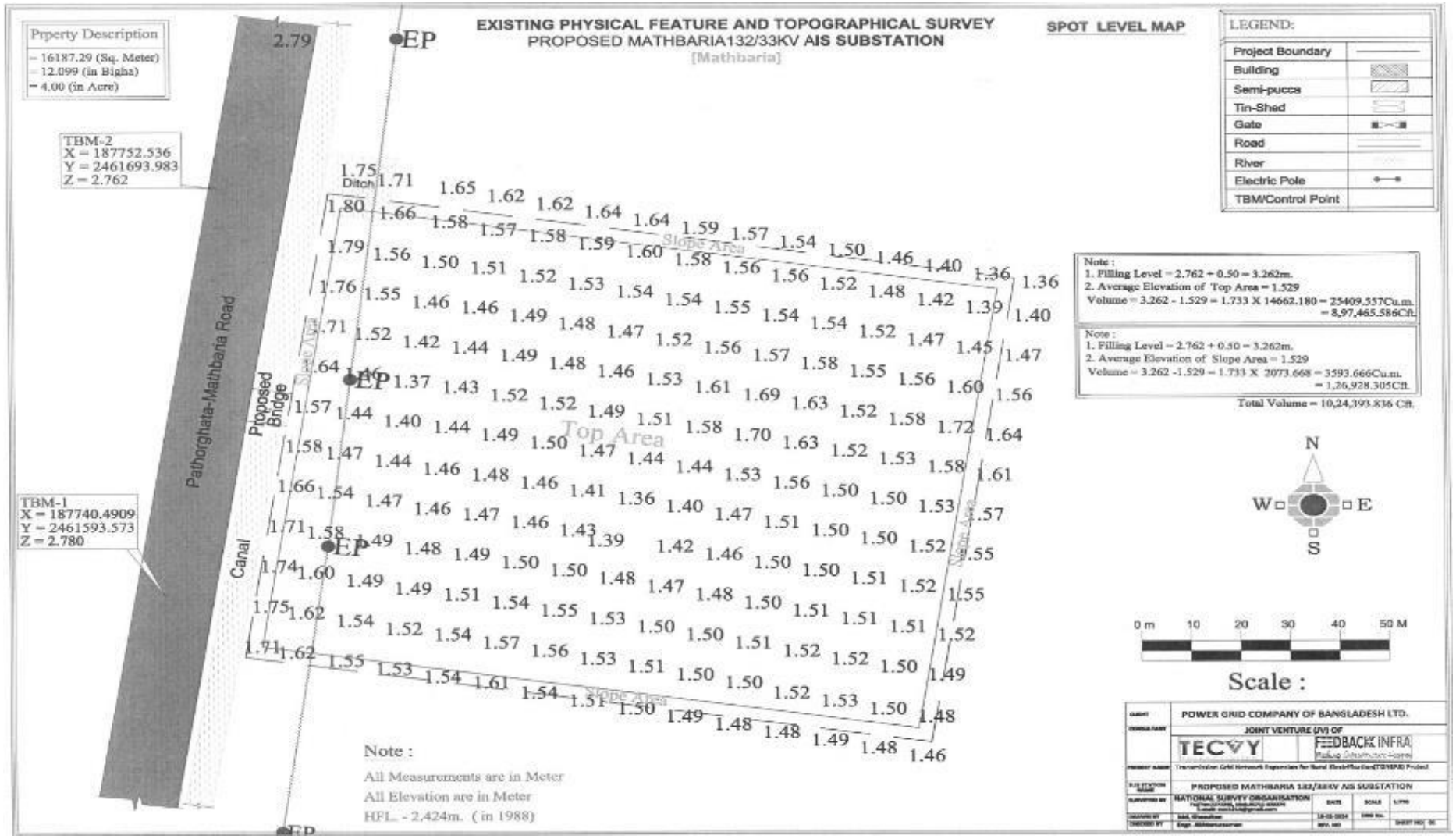
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

III.9: 132/33Kv AIS: Paikgacha, Khulna



INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

III.10: 132/33Kv AIS: Mathbaria, Pirojpur



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Appendix IV: IBAT Analysis of Proposed Substation Locations

AIV.1: Proximity Report Paikgacha SS

IBAT

Integrated Biodiversity Assessment Tool

PROXIMITY REPORT

PAIKGACHA SUB-STATION PROPOSED -1

Country: Bangladesh

Location: [22.6, 89.3]

Date of analysis: 01 May 2024 (GMT)

Buffers applied: 10 km

IUCN Red List Biomes: Marine, Freshwater, Terrestrial

Generated by: Raisin Feroz

Organisation: ADB

Overlaps with:

Protected Areas	0
Key Biodiversity Areas	0
IUCN Red List	52



Displaying project location and buffers: 10 km

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PAIKGACHA Sub-Station Proposed -1 | Page 1 of 8

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IBAT

About this report

This report presents the results of [40149-63322] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 10 km.

This report is one part of a package generated by IBAT on 01 May 2024 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

WARNING: IBAT aims to provide the most up-to-date and accurate information available at the time of analysis. There is however a possibility of incomplete, incorrect or out-of-date information. All findings in this report must be supported by further desktop review, consultation with experts and/or on-the-ground field assessment. Please consult IBAT for any additional disclaimers or recommendations applicable to the information used to generate this report.

Please note, sensitive species data are currently not included in IBAT reports in line with the Sensitive Data Access Restrictions Policy for the IUCN Red List. This relates to sensitive Threatened species and KBAs triggered by sensitive species.

Data used to generate this report

- UNEP-WCMC and IUCN, 2024. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - May 2024.
- BirdLife International (on behalf of the KBA Partnership), 2023. Key Biodiversity Areas - October 2023.
- IUCN, 2024. IUCN Red List of Threatened Species - January 2024.
- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

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Protected Areas

The following protected areas are found within 10 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

No protected areas within buffer distance

Key Biodiversity Areas

The following key biodiversity areas are found within 10 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

No KBAs within buffer distance

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Batagur kachuga	Red-crowned Roofed Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Batagur dhongoka	Three-striped Roofed Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Aythya baeri	Baer's Pochard	AVES	CR	Decreasing	Freshwater
Heliopais personatus	Masked Finfoot	AVES	CR	Decreasing	Terrestrial, Freshwater
Calidris pygmaea	Spoon-billed Sandpiper	AVES	CR	Decreasing	Terrestrial, Marine, Freshwater
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Sarcogyps calvus	Red-headed Vulture	AVES	CR	Decreasing	Terrestrial
Gyps tenuirostris	Slender-billed Vulture	AVES	CR	Decreasing	Terrestrial
Batagur baska	Northern River Terrapin	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Pelochelys cantorii	Asian Giant Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Chelonia mydas	Green Turtle	REPTILIA	EN	Decreasing	Terrestrial, Marine
Geoclemys hamiltonii	Spotted Pond Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Hardella thurjii	Crowned River Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Manis crassicaudata	Indian Pangolin	MAMMALIA	EN	Decreasing	Terrestrial
Morenia petersi	Indian Eyed Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Orcaella brevirostris	Irrawaddy Dolphin	MAMMALIA	EN	Decreasing	Marine, Freshwater
Panthera tigris	Tiger	MAMMALIA	EN	Decreasing	Terrestrial
Varanus flavescens	Yellow Monitor	REPTILIA	EN	Decreasing	Terrestrial
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Nilssonia hurum	Indian Peacock Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Platanista gangetica	Ganges River Dolphin	MAMMALIA	EN	Decreasing	Freshwater
Urogymnus polylepis	Giant Freshwater Whipray	CHONDRICHTHYES	EN	Decreasing	Marine, Freshwater
Tringa guttifer	Spotted Greenshank	AVES	EN	Decreasing	Terrestrial, Marine, Freshwater
Rynchops albicollis	Indian Skimmer	AVES	EN	Decreasing	Terrestrial, Freshwater
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Caretta caretta	Loggerhead Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Dermochelys coriacea	Leatherback Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Prionailurus viverrinus	Fishing Cat	MAMMALIA	VU	Decreasing	Terrestrial, Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Rhinoceros unicornis	Greater One-horned Rhino	MAMMALIA	VU	Increasing	Terrestrial, Freshwater
Cryptocarya ferrarsi		MAGNOLIOPSIDA	VU	Unknown	Terrestrial
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Pangshura tecta	Indian Roofed Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater
Ophiophagus hannah	King Cobra	REPTILIA	VU	Decreasing	Terrestrial
Python bivittatus	Burmese Python	REPTILIA	VU	Decreasing	Terrestrial
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Halcyon pileata	Black-capped Kingfisher	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Sterna aurantia	River Tern	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Aquila heliaca	Eastern Imperial Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Schoenicola striatus	Bristled Grassbird	AVES	VU	Decreasing	Terrestrial, Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Clanga hastata	Indian Spotted Eagle	AVES	VU	Decreasing	Terrestrial
Sousa chinensis	Indo-Pacific Humpback Dolphin	MAMMALIA	VU	Decreasing	Marine, Freshwater
Oryza malampuzhaensis		LILIOPSIDA	VU	Decreasing	Terrestrial
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Xenochrophis cerasogaster	Painted Keelback	REPTILIA	VU	Decreasing	Freshwater
Schizothorax plagiostomus	Snow Trout	ACTINOPTERYGII	VU	Decreasing	Freshwater
Brownlowia elata		MAGNOLIOPSIDA	VU	Unknown	Terrestrial
Bagarius bagarius		ACTINOPTERYGII	VU	Decreasing	Freshwater

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Recommended citation

IBAT Proximity Report. Generated under licence 40149-63322 from the Integrated Biodiversity Assessment Tool on 01 May 2024 (GMT). www.ibat-alliance.org

How to use this report

This report provides an indication of the potential biodiversity-related features - protected areas, key biodiversity areas and species - close to the specified location. It provides an early indication of potential biodiversity concerns, and can provide valuable guidance in making decisions. For example, this information can be helpful when assessing the potential environmental risk and impact of a site, categorising investments/projects, preparing the terms of reference for an impact assessment, focusing attention on key species of conservation concern and sites of known conservation value, and reviewing the results of an impact assessment.

The report does not provide details of potential indirect, downstream or cumulative impacts. Furthermore, the report should be regarded as a "first-step", providing a set of conservation values sourced from global data sets, and is not a substitute for further investigation and due diligence, especially concerning national and/or local conservation priorities.

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AIV.2: Proximity Report Mathbaria SS

IBAT

Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
PROPOSED MATHBARIA SUBSTATION

Country: Bangladesh

Location: [22.2, 90]

Date of analysis: 01 May 2024 (GMT)

Buffers applied: 10 km

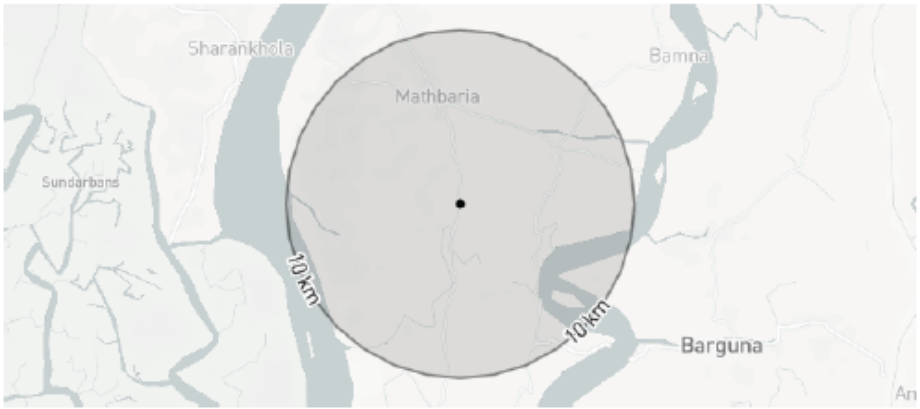
IUCN Red List Biomes: Marine, Freshwater, Terrestrial

Generated by: Raisin Feroz

Organisation: ADB

Overlaps with:

Protected Areas	0
Key Biodiversity Areas	0
IUCN Red List	135



Displaying project location and buffers: 10 km

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INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

About this report

This report presents the results of [40149-63324] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 10 km.

This report is one part of a package generated by IBAT on 01 May 2024 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

WARNING: IBAT aims to provide the most up-to-date and accurate information available at the time of analysis. There is however a possibility of incomplete, incorrect or out-of-date information. All findings in this report must be supported by further desktop review, consultation with experts and/or on-the-ground field assessment. Please consult IBAT for any additional disclaimers or recommendations applicable to the information used to generate this report.

Please note, sensitive species data are currently not included in IBAT reports in line with the Sensitive Data Access Restrictions Policy for the IUCN Red List. This relates to sensitive Threatened species and KBAs triggered by sensitive species.

Data used to generate this report

- UNEP-WCMC and IUCN, 2024. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - May 2024.
- BirdLife International (on behalf of the KBA Partnership), 2023. Key Biodiversity Areas - October 2023.
- IUCN, 2024. IUCN Red List of Threatened Species - January 2024.
- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

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Protected Areas

The following protected areas are found within 10 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

No protected areas within buffer distance

Key Biodiversity Areas

The following key biodiversity areas are found within 10 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

No KBAs within buffer distance

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Eretmochelys imbricata	Hawksbill Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine
Batagur kachuga	Red-crowned Roofed Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Batagur dhongoka	Three-striped Roofed Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Carcharhinus longimanus	Oceanic Whitetip Shark	CHONDRICHTHYES	CR	Decreasing	Marine
Sphyrna lewini	Scalloped Hammerhead	CHONDRICHTHYES	CR	Decreasing	Marine
Sphyrna mokarran	Great Hammerhead	CHONDRICHTHYES	CR	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Anoxypristis cuspidata	Narrow Sawfish	CHONDRICHTHYES	CR	Decreasing	Marine
Pristis zijsron	Green Sawfish	CHONDRICHTHYES	CR	Decreasing	Marine
Rhina ancylostoma	Bowmouth Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Rhynchobatus australiae	Bottlenose Wedgefish	CHONDRICHTHYES	CR	Decreasing	Marine
Rhynchobatus laevis	Smoothnose Wedgefish	CHONDRICHTHYES	CR	Decreasing	Marine
Glaucostegus granulatus	Sharpnose Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Glaucostegus obtusus	Widenose Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Glaucostegus thouin	Clubnose Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Rhinobatos annandalei	Bengal Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Rhinobatos lionotus	Smoothback Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Sonneratia griffithii		MAGNOLIOPSIDA	CR	Decreasing	Terrestrial, Marine
Pristis pristis	Largetooth Sawfish	CHONDRICHTHYES	CR	Decreasing	Marine, Freshwater
Heliopais personatus	Masked Finfoot	AVES	CR	Decreasing	Terrestrial, Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Calidris pygmaea	Spoon-billed Sandpiper	AVES	CR	Decreasing	Terrestrial, Marine, Freshwater
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Batagur baska	Northern River Terrapin	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Glaucostegus typus	Giant Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Maculabatis bineeshi	Shorttail Whipray	CHONDRICHTHYES	CR	Decreasing	Marine
Pelochelys cantorii	Asian Giant Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Glyphis gangeticus	Ganges Shark	CHONDRICHTHYES	CR	Decreasing	Marine, Freshwater
Balaenoptera musculus	Blue Whale	MAMMALIA	EN	Increasing	Marine
Chelonia mydas	Green Turtle	REPTILIA	EN	Decreasing	Terrestrial, Marine
Geoclemys hamiltonii	Spotted Pond Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Hardella thurjii	Crowned River Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Morenia petersi	Indian Eyed Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Orcaella brevirostris	Irrawaddy Dolphin	MAMMALIA	EN	Decreasing	Marine, Freshwater
Panthera tigris	Tiger	MAMMALIA	EN	Decreasing	Terrestrial
Rhincodon typus	Whale Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Varanus flavescens	Yellow Monitor	REPTILIA	EN	Decreasing	Terrestrial
Isurus oxyrinchus	Shortfin Mako	CHONDRICHTHYES	EN	Decreasing	Marine
Carcharhinus amblyrhynchos	Grey Reef Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nilssonia hurum	Indian Peacock Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Platanista gangetica	Ganges River Dolphin	MAMMALIA	EN	Decreasing	Freshwater
Eusphyra blochii	Winghead Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula eregoodoo	Longhorned Pygmy Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Negaprion acutidens	Sharptooth Lemon Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Stegostoma tigrinum	Indo-Pacific Leopard Shark	CHONDRICHTHYES	EN	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Aetomylaeus maculatus	Mottled Eagle Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Rhinoptera javanica	Javanese Cownose Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula tarapacana	Sicklefin Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula thurstoni	Bentfin Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Isurus paucus	Longfin Mako	CHONDRICHTHYES	EN	Decreasing	Marine
Acropora rudis		ANTHOZOA	EN	Decreasing	Marine
Pateobatis uarnacoides	Whitenose Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Maculabatis gerrardi	Whitespotted Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Alopias pelagicus	Pelagic Thresher	CHONDRICHTHYES	EN	Decreasing	Marine
Himantura undulata	Honeycomb Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Heritiera fomes		MAGNOLIOPSIDA	EN	Decreasing	Terrestrial, Marine, Freshwater
Holothuria scabra		HOLOTHUROIDEA	EN	Decreasing	Marine
Holothuria lessoni		HOLOTHUROIDEA	EN	Decreasing	Marine
Thelenota ananas	Pineapple Sea Cucumber	HOLOTHUROIDEA	EN	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Urogymnus polylepis	Giant Freshwater Whipray	CHONDRICHTHYES	EN	Decreasing	Marine, Freshwater
Rhinoptera jayakari	Oman Cownose Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula birostris	Oceanic Manta Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Tringa guttifer	Spotted Greenshank	AVES	EN	Decreasing	Terrestrial, Marine, Freshwater
Calidris tenuirostris	Great Knot	AVES	EN	Decreasing	Terrestrial, Marine
Rynchops albicollis	Indian Skimmer	AVES	EN	Decreasing	Terrestrial, Freshwater
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Telatrygon crozieri	Indian Sharpnose Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Pateobatis bleekeri	Bleeker's Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Pastinachus gracilicaudus	Narrow Cowtail Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula mobular	Spinetail Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Aetobatus flagellum	Longhead Eagle Ray	CHONDRICHTHYES	EN	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Lamiopsis temminckii	Broadfin Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Himantura uarnak	Coach Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Carcharhinus limbatus	Blacktip Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharodon carcharias	White Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Caretta caretta	Loggerhead Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Dermochelys coriacea	Leatherback Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine
Hippocampus histrix	Thorny Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Hippocampus trimaculatus	Three-spot Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Lepidochelys olivacea	Olive Ridley Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Prionailurus viverrinus	Fishing Cat	MAMMALIA	VU	Decreasing	Terrestrial, Freshwater
Hopea odorata		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Carcharhinus amboinensis	Pigeye Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharhinus falciformis	Silky Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharhinus leucas	Bull Shark	CHONDRICHTHYES	VU	Decreasing	Marine, Freshwater
Carcharhinus melanopterus	Blacktip Reef Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Triaenodon obesus	Whitetip Reef Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Urogymnus asperrimus	Porcupine Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharhinus amblyrhynchoides	Graceful Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Hippocampus kelloggi	Great Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Physeter macrocephalus	Sperm Whale	MAMMALIA	VU	Unknown	Marine
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Chiloscyllium indicum	Slender Bamboohark	CHONDRICHTHYES	VU	Decreasing	Marine
Chiloscyllium griseum	Grey Bamboo Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Nebrius ferrugineus	Tawny Nurse Shark	CHONDRICHTHYES	VU	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Rhizoprionodon acutus	Milk Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Henipristis elongata	Snaggletooth Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Pangshura tecta	Indian Roofed Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Gymnura poecilura	Longtail Butterfly Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Taeniurops meyeni	Blotched Fantail Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Heliopora coerulea	Blue Coral	ANTHOZOA	VU	Decreasing	Marine
Narcine timlei	Brown Numbfish	CHONDRICHTHYES	VU	Decreasing	Marine
Narcine lingula	Chinese Numbfish	CHONDRICHTHYES	VU	Decreasing	Marine
Chiloscyllium burmensis	Burmese Bamboohark	CHONDRICHTHYES	VU	Decreasing	Marine
Chaenogaleus macrostoma	Hooktooth Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Alopias superciliosus	Bigeye Thresher	CHONDRICHTHYES	VU	Decreasing	Marine
Brevitrygon imbricata	Bengal Whipray	CHONDRICHTHYES	VU	Decreasing	Marine
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Rastrelliger faughni	Island Mackerel	ACTINOPTERYGII	VU	Decreasing	Marine
Istiophorus platypterus	Sailfish	ACTINOPTERYGII	VU	Decreasing	Marine
Halophila beccarii	Ocean Turf Grass	LILIOPSIDA	VU	Decreasing	Marine
Ophiophagus hannah	King Cobra	REPTILIA	VU	Decreasing	Terrestrial
Stichopus herrmanni		HOLOTHUROIDEA	VU	Decreasing	Marine
Mola mola	Ocean Sunfish	ACTINOPTERYGII	VU	Decreasing	Marine
Python bivittatus	Burmese Python	REPTILIA	VU	Decreasing	Terrestrial
Mobula alfredi	Reef Manta Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Neophocaena phocaenoides	Indo-Pacific Finless Porpoise	MAMMALIA	VU	Decreasing	Marine
Holothuria fuscogilva		HOLOTHUROIDEA	VU	Decreasing	Marine
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Halcyon pileata	Black-capped Kingfisher	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Aquila heliaca	Eastern Imperial Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Schoenicola striatus	Bristled Grassbird	AVES	VU	Decreasing	Terrestrial, Freshwater
Clanga hastata	Indian Spotted Eagle	AVES	VU	Decreasing	Terrestrial
Aetobatus ocellatus	Spotted Eagle Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Ornobranchus smithi		ACTINOPTERYGII	VU	Unknown	Marine
Pastinachus ater	Broad Cowtail Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Sousa chinensis	Indo-Pacific Humpback Dolphin	MAMMALIA	VU	Decreasing	Marine, Freshwater
Aetomylaeus nichofii	Banded Eagle Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Hippocampus spinosissimus	Hedgehog Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Xenochrophis cerasogaster	Painted Keelback	REPTILIA	VU	Decreasing	Freshwater
Bagarius bagarius		ACTINOPTERYGII	VU	Decreasing	Freshwater

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

IBAT

Recommended citation

IBAT Proximity Report. Generated under licence 40149-63324 from the Integrated Biodiversity Assessment Tool on 01 May 2024 (GMT). www.ibat-alliance.org

How to use this report

This report provides an indication of the potential biodiversity-related features - protected areas, key biodiversity areas and species - close to the specified location. It provides an early indication of potential biodiversity concerns, and can provide valuable guidance in making decisions. For example, this information can be helpful when assessing the potential environmental risk and impact of a site, categorising investments/projects, preparing the terms of reference for an impact assessment, focusing attention on key species of conservation concern and sites of known conservation value, and reviewing the results of an impact assessment.

The report does not provide details of potential indirect, downstream or cumulative impacts. Furthermore, the report should be regarded as a "first-step", providing a set of conservation values sourced from global data sets, and is not a substitute for further investigation and due diligence, especially concerning national and/or local conservation priorities.

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AIV.3: Proximity Report Pekua SS

IBAT

Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
PROPOSED PEKUA SUBSTATION

Country: Bangladesh

Location: [21.7, 92]

Date of analysis: 01 May 2024 (GMT)

Buffers applied: 10 km

IUCN Red List Biomes: Marine, Freshwater, Terrestrial

Generated by: Raisin Feroz

Organisation: ADB

Overlaps with:

Protected Areas	1
Key Biodiversity Areas	0
IUCN Red List	156



Displaying project location and buffers: 10 km

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INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

About this report

This report presents the results of [40149-63321] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 10 km.

This report is one part of a package generated by IBAT on 01 May 2024 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

WARNING: IBAT aims to provide the most up-to-date and accurate information available at the time of analysis. There is however a possibility of incomplete, incorrect or out-of-date information. All findings in this report must be supported by further desktop review, consultation with experts and/or on-the-ground field assessment. Please consult IBAT for any additional disclaimers or recommendations applicable to the information used to generate this report.

Please note, sensitive species data are currently not included in IBAT reports in line with the Sensitive Data Access Restrictions Policy for the IUCN Red List. This relates to sensitive Threatened species and KBAs triggered by sensitive species.

Data used to generate this report

- UNEP-WCMC and IUCN, 2024. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - May 2024.
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- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

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Protected Areas

The following protected areas are found within 10 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Within buffer of
Fasiakhali	10 km

Key Biodiversity Areas

The following key biodiversity areas are found within 10 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

No KBAs within buffer distance

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Nilssonia nigricans	Black Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Eretmochelys imbricata	Hawksbill Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine
Indotestudo elongata	Elongated Tortoise	REPTILIA	CR	Decreasing	Terrestrial
Pangshura sylhetensis	Assam Roofed Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Manis pentadactyla	Chinese Pangolin	MAMMALIA	CR	Decreasing	Terrestrial

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Manouria emys	Asian Giant Tortoise	REPTILIA	CR	Decreasing	Terrestrial
Carcharhinus longimanus	Oceanic Whitetip Shark	CHONDRICHTHYES	CR	Decreasing	Marine
Sphyrna lewini	Scalloped Hammerhead	CHONDRICHTHYES	CR	Decreasing	Marine
Sphyrna mokarran	Great Hammerhead	CHONDRICHTHYES	CR	Decreasing	Marine
Anoxypristis cuspidata	Narrow Sawfish	CHONDRICHTHYES	CR	Decreasing	Marine
Pristis zijsron	Green Sawfish	CHONDRICHTHYES	CR	Decreasing	Marine
Heosemys depressa	Arakan Forest Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Rhina ancylostoma	Bowmouth Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Rhynchobatus australiae	Bottlenose Wedgefish	CHONDRICHTHYES	CR	Decreasing	Marine
Glaucostegus granulatus	Sharpnose Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Glaucostegus obtusus	Widenose Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Glaucostegus thouin	Clubnose Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Rhinobatos annandalei	Bengal Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Rhinobatos lionotus	Smoothback Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Sonneratia griffithii		MAGNOLIOPSIDA	CR	Decreasing	Terrestrial, Marine
Pristis pristis	Largetooth Sawfish	CHONDRICHTHYES	CR	Decreasing	Marine, Freshwater
Houbaropsis bengalensis	Bengal Florican	AVES	CR	Decreasing	Terrestrial
Calidris pygmaea	Spoon-billed Sandpiper	AVES	CR	Decreasing	Terrestrial, Marine, Freshwater
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Glaucostegus typus	Giant Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Maculabatis bineeshi	Shorttail Whipray	CHONDRICHTHYES	CR	Decreasing	Marine
Pelochelys cantorii	Asian Giant Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Glyphis gangeticus	Ganges Shark	CHONDRICHTHYES	CR	Decreasing	Marine, Freshwater
Balaenoptera musculus	Blue Whale	MAMMALIA	EN	Increasing	Marine
Chelonia mydas	Green Turtle	REPTILIA	EN	Decreasing	Terrestrial, Marine
Cuon alpinus	Dhole	MAMMALIA	EN	Decreasing	Terrestrial

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Cuora amboinensis	Southeast Asian Box Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Elephas maximus	Asian Elephant	MAMMALIA	EN	Decreasing	Terrestrial
Melanochelys tricarinata	Tricarinate Hill Turtle	REPTILIA	EN	Decreasing	Terrestrial
Orcaella brevirostris	Irrawaddy Dolphin	MAMMALIA	EN	Decreasing	Marine, Freshwater
Panthera tigris	Tiger	MAMMALIA	EN	Decreasing	Terrestrial
Rhincodon typus	Whale Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Isurus oxyrinchus	Shortfin Mako	CHONDRICHTHYES	EN	Decreasing	Marine
Carcharhinus amblyrhynchos	Grey Reef Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Nilssonia hurum	Indian Peacock Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nycticebus bengalensis	Bengal Slow Loris	MAMMALIA	EN	Decreasing	Terrestrial
Hoolock hoolock	Western Hoolock Gibbon	MAMMALIA	EN	Decreasing	Terrestrial
Platanista gangetica	Ganges River Dolphin	MAMMALIA	EN	Decreasing	Freshwater
Eusphyra blochii	Winghead Shark	CHONDRICHTHYES	EN	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Mobula eregoodoo	Longhorned Pygmy Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Negaprion acutidens	Sharptooth Lemon Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Stegostoma tigrinum	Indo-Pacific Leopard Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Aetomylaeus maculatus	Mottled Eagle Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Rhinoptera javanica	Javanese Cownose Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula tarapacana	Sicklefin Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula thurstoni	Bentfin Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Isurus paucus	Longfin Mako	CHONDRICHTHYES	EN	Decreasing	Marine
Acropora rudis		ANTHOZOA	EN	Decreasing	Marine
Trachypithecus phayrei ssp. phayrei		MAMMALIA	EN	Decreasing	Terrestrial
Pateobatis uarnacoides	Whitenose Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Maculabatis gerrardi	Whitespotted Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Alopias pelagicus	Pelagic Thresher	CHONDRICHTHYES	EN	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Himantura undulata	Honeycomb Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Cuora mouhotii	Keeled Box Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Heritiera fomes		MAGNOLIOPSIDA	EN	Decreasing	Terrestrial, Marine, Freshwater
Holothuria scabra		HOLOTHUROIDEA	EN	Decreasing	Marine
Holothuria lessoni		HOLOTHUROIDEA	EN	Decreasing	Marine
Thelenota ananas	Pineapple Sea Cucumber	HOLOTHUROIDEA	EN	Decreasing	Marine
Urogymnus polylepis	Giant Freshwater Whipray	CHONDRICHTHYES	EN	Decreasing	Marine, Freshwater
Rhinoptera jayakari	Oman Cownose Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula birostris	Oceanic Manta Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Perdicula manipurensis	Manipur Bush-quail	AVES	EN	Decreasing	Terrestrial, Freshwater
Asarcornis scutulata	White-winged Duck	AVES	EN	Decreasing	Terrestrial, Freshwater
Calidris tenuirostris	Great Knot	AVES	EN	Decreasing	Terrestrial, Marine
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Telatrygon crozieri	Indian Sharpnose Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Pateobatis bleekeri	Bleeker's Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Pastinachus gracilicaudus	Narrow Cowtail Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula mobular	Spinetail Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Aetobatus flagellum	Longhead Eagle Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Lamiopsis temminckii	Broadfin Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Trachypithecus phayrei	Phayre's Leaf-monkey	MAMMALIA	EN	Decreasing	Terrestrial
Trachypithecus pileatus ssp. pileatus	Blond-bellied Langur	MAMMALIA	EN	Decreasing	Terrestrial
Himantura uarnak	Coach Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Carcharhinus limbatus	Blacktip Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharodon carcharias	White Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Caretta caretta	Loggerhead Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Dermochelys coriacea	Leatherback Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine
Helarctos malayanus	Sun Bear	MAMMALIA	VU	Decreasing	Terrestrial
Hippocampus histrix	Thorny Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Hippocampus trimaculatus	Three-spot Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Lepidochelys olivacea	Olive Ridley Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Neofelis nebulosa	Clouded Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Panthera pardus	Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Prionailurus viverrinus	Fishing Cat	MAMMALIA	VU	Decreasing	Terrestrial, Freshwater
Trachypithecus pileatus	Capped Langur	MAMMALIA	VU	Decreasing	Terrestrial
Ursus thibetanus	Asiatic Black Bear	MAMMALIA	VU	Decreasing	Terrestrial
Dipterocarpus costatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Carcharhinus amboinensis	Pigeye Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharhinus falciformis	Silky Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharhinus leucas	Bull Shark	CHONDRICHTHYES	VU	Decreasing	Marine, Freshwater
Carcharhinus melanopterus	Blacktip Reef Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Triaenodon obesus	Whitetip Reef Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Urogymnus asperrimus	Porcupine Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Macaca leonina	Northern Pig-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Carcharhinus amblyrhynchoides	Graceful Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Hippocampus kelloggi	Great Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Arctictis binturong	Binturong	MAMMALIA	VU	Decreasing	Terrestrial
Physeter macrocephalus	Sperm Whale	MAMMALIA	VU	Unknown	Marine
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Chiloscyllium indicum	Slender Bamboosharк	CHONDRICHTHYES	VU	Decreasing	Marine

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Proposed Pekua Substation | Page 11 of 16

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Chiloscyllium griseum	Grey Bamboo Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Nebrius ferrugineus	Tawny Nurse Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Rhizoprionodon acutus	Milk Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Hemipristis elongata	Snaggletooth Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Aonyx cinereus	Asian Small-clawed Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Gymnura poecilura	Longtail Butterfly Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Taeniurops meyeni	Blotched Fantail Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Narcine brevilabiata	Shortlip Numbfish	CHONDRICHTHYES	VU	Decreasing	Marine
Heliopora coerulea	Blue Coral	ANTHOZOA	VU	Decreasing	Marine
Narcine timlei	Brown Numbfish	CHONDRICHTHYES	VU	Decreasing	Marine
Narcine lingula	Chinese Numbfish	CHONDRICHTHYES	VU	Decreasing	Marine
Narcine maculata	Smallspot Numbfish	CHONDRICHTHYES	VU	Decreasing	Marine
Chiloscyllium burmensis	Burmese Bamboosharks	CHONDRICHTHYES	VU	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Chaenogaleus macrostoma	Hooktooth Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Alopias superciliosus	Bigeye Thresher	CHONDRICHTHYES	VU	Decreasing	Marine
Brevitrygon imbricata	Bengal Whipray	CHONDRICHTHYES	VU	Decreasing	Marine
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater
Devario anomalus		ACTINOPTERYGII	VU	Unknown	Freshwater
Rastrelliger faughni	Island Mackerel	ACTINOPTERYGII	VU	Decreasing	Marine
Istiophorus platypterus	Sailfish	ACTINOPTERYGII	VU	Decreasing	Marine
Halophila beccarii	Ocean Turf Grass	LILIOPSIDA	VU	Decreasing	Marine
Ophiophagus hannah	King Cobra	REPTILIA	VU	Decreasing	Terrestrial
Stichopus herrmanni		HOLOTHUROIDEA	VU	Decreasing	Marine
Mola mola	Ocean Sunfish	ACTINOPTERYGII	VU	Decreasing	Marine
Elaphe taeniura	Cave Racer	REPTILIA	VU	Decreasing	Terrestrial
Python bivittatus	Burmese Python	REPTILIA	VU	Decreasing	Terrestrial
Mobula alfredi	Reef Manta Ray	CHONDRICHTHYES	VU	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Neophocaena phocaenoides	Indo-Pacific Finless Porpoise	MAMMALIA	VU	Decreasing	Marine
Holothuria fuscogilva		HOLOTHUROIDEA	VU	Decreasing	Marine
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Mulleripicus pulverulentus	Great Slaty Woodpecker	AVES	VU	Decreasing	Terrestrial
Buceros bicornis	Great Hornbill	AVES	VU	Decreasing	Terrestrial
Halcyon pileata	Black-capped Kingfisher	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Sterna aurantia	River Tern	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Aetobatus ocellatus	Spotted Eagle Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Omobranchus smithi		ACTINOPTERYGII	VU	Unknown	Marine
Arctonyx collaris	Greater Hog Badger	MAMMALIA	VU	Decreasing	Terrestrial
Pastinachus ater	Broad Cowtail Ray	CHONDRICHTHYES	VU	Decreasing	Marine

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Sousa chinensis	Indo-Pacific Humpback Dolphin	MAMMALIA	VU	Decreasing	Marine, Freshwater
Aetomylaeus nichofii	Banded Eagle Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Tropidophorus assamensis	North-Eastern Waterskink	REPTILIA	VU	Unknown	Terrestrial, Freshwater
Hippocampus spinosissimus	Hedgehog Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Capricornis sumatraensis	Mainland Serow	MAMMALIA	VU	Decreasing	Terrestrial
Hoolock hoolock ssp. hoolock	Western Hoolock Gibbon	MAMMALIA	VU	Decreasing	Terrestrial
Paris polyphylla	Love Apple	LILIOPSIDA	VU	Decreasing	Terrestrial

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Recommended citation

IBAT Proximity Report. Generated under licence 40149-63321 from the Integrated Biodiversity Assessment Tool on 01 May 2024 (GMT). www.ibat-alliance.org

How to use this report

This report provides an indication of the potential biodiversity-related features - protected areas, key biodiversity areas and species - close to the specified location. It provides an early indication of potential biodiversity concerns, and can provide valuable guidance in making decisions. For example, this information can be helpful when assessing the potential environmental risk and impact of a site, categorising investments/projects, preparing the terms of reference for an impact assessment, focusing attention on key species of conservation concern and sites of known conservation value, and reviewing the results of an impact assessment.

The report does not provide details of potential indirect, downstream or cumulative impacts. Furthermore, the report should be regarded as a "first-step", providing a set of conservation values sourced from global data sets, and is not a substitute for further investigation and due diligence, especially concerning national and/or local conservation priorities.

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AIV.4: Proximity Report Multi-site Report for substations

IBAT

Integrated Biodiversity Assessment Tool

MULTI-SITE REPORT
PROPOSED SUBSTATIONS LOCATION

Number of sites selected: 10

Buffer applied: 10.0 km

Date of analysis: 04 July 2024 (GMT)

Generated by: Raisin Feroz

Organisation: ADB

About this report

The Multi-site Report serves to improve the inclusion of biodiversity within annual sustainability reporting. The report enables users to assess the biodiversity-related features of multiple operational sites for corporate disclosure. In particular, this report is relevant for Global Reporting Initiative (GRI) standard GRI 304: Biodiversity. For each operational site chosen by the user, the following biodiversity-related features are provided; counts of protected areas and Key Biodiversity Areas (KBAs) within the selected radius of operational sites, counts of Critically Endangered, Endangered and Vulnerable IUCN Red List species that are potentially found within a 50 km radius. Scores associated with the Species Threat Abatement and Restoration Metric are also provided to allow users to determine the relative opportunities for positive biodiversity action at sites.

Report package contents

This report is part of a package generated by IBAT on 04 July 2024 (GMT) which includes the following files:

1. This PDF report.
2. PDF "README" containing recommended use of IBAT, limitations, and glossary.
3. Compressed CSV file "iucn_red_list" containing the total number of IUCN Red List species by level of extinction risk within 50 km buffer of each operational site.
4. Compressed CSV file "protected_areas" containing names and designations of protected areas found within the selected buffer of each operational site.
5. Compressed CSV file "sites_of_biodiversity_importance" containing names of Key Biodiversity Areas (and details such as biodiversity elements triggering identification of the KBA) found within the selected buffer of each operational site.
6. Compressed CSV file "overlaps" listing the operational sites and the numbers of protected areas and Key Biodiversity Areas that occur within the selected buffer of each operational site.
7. Compressed CSV file "species_threat_abatement_and_restoration_star" listing the total and mean STAR Threat Abatement and STAR Restoration scores for each operational site.

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Data used to generate this report

- UNEP-WCMC and IUCN, 2024. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - July 2024.
- BirdLife International (on behalf of the KBA Partnership), 2023. Key Biodiversity Areas - October 2023.
- IUCN, 2024. IUCN Red List of Threatened Species - January 2024.
- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

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Overlap with protected areas and Key Biodiversity Areas (KBAs)

The following table shows the number of protected areas and KBAs overlapped by a 10.0 km buffer for each operational site where an overlap occurs.

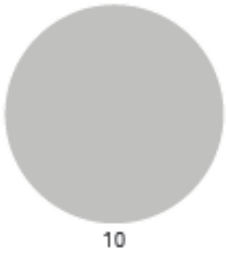
Site	Area (km^2)	Protected Areas	KBAs
Pekua 400-230-132kV AIS Substation	0	1	0

% Summary of protected areas overlap



- 1 (10.00% of sites) are within 10.0 km of a protected area.
- 9 (90.00% of sites) are not within 10.0 km of a protected area.

% Summary of KBAs overlap



- 0 (0.00% of sites) are within 10.0 km of a Key Biodiversity Area.
- 10 (100.00% of sites) are not within 10.0 km of a Key Biodiversity Area.

IUCN Red List of Threatened Species

The following table shows counts of species categorized as Critically Endangered (CR), Endangered (EN) or Vulnerable (VU) under the IUCN Red List of Threatened Species and found within 50 km of each site. For counts of all IUCN Red List species within a 50 km radius of each site please refer to the "iucn_red_list" CSV file located in the download package.

Site	CR	EN	VU	TOTAL
Dubchanchia 132-33kV AIS Substation	5	17	22	44
Kumarkhali 132-33kV AIS Substation	12	28	42	82
Madhabpur 230-132-33kV AIS Substation	10	23	31	64
Mathbaria 132-33kV AIS Substation	26	47	62	135

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Site	CR	EN	VU	TOTAL
Matlab North 132-33kV AIS Substation	12	37	49	98
Monohardi 230-132-33kV AIS Substation	14	34	45	93
Paikgacha 132-33kV AIS Substation	10	16	26	52
Pekua 400-230-132kV AIS Substation	28	52	76	156
Sonaimuril 132-33kV AIS Substation	24	53	74	151
Tungipara 132-33kV AIS Substation	12	32	44	88

STAR Threat Abatement and Restoration Scores

The following table shows Species Threat Abatement and Restoration scores(centiSTAR unit) for the selected sites.

For a more granular understanding of the STAR scores at each Area of Interest, please generate an IBAT STAR report. For information on how STAR is calculated and STAR interpretation please see IBAT's STAR Briefing Note and Business User Guidance.

Site	Total Threat Abatement Score	Total Restoration Score	Mean Threat Abatement Score	Mean Restoration Score
Dubchanchia 132-33kV AIS Substation	0.0	7.059	0.0	7.059
Kumarkhali 132-33kV AIS Substation	0.167	6.191	0.167	6.191
Madhabpur 230-132-33kV AIS Substation	0.0	6.374	0.0	6.374
Mathbaria 132-33kV AIS Substation	0.967	6.993	0.967	6.993
Matlab North 132-33kV AIS Substation	0.054	4.776	0.054	4.776

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Site	Total Threat Abatement Score	Total Restoration Score	Mean Threat Abatement Score	Mean Restoration Score
Monohardi 230-132-33kV AIS Substation	1.171	5.306	1.171	5.306
Paikgacha 132-33kV AIS Substation	1.354	2.14	1.354	2.14
Pekua 400-230-132kV AIS Substation	6.158	27.736	6.158	27.736
Sonaimuril 132-33kV AIS Substation	7.366	1.746	7.366	1.746
Tungipara 132-33kV AIS Substation	1.594	2.729	1.594	2.729

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List of selected operational sites assessed in this report

Dubchanchia 132-33kV AIS Substation, Kumarkhali 132-33kV AIS Substation, Madhabpur 230-132-33kV AIS Substation, Mathbaria 132-33kV AIS Substation, Matlab North 132-33kV AIS Substation, Monohardi 230-132-33kV AIS Substation, Paikgacha 132-33kV AIS Substation, Pekua 400-230-132kV AIS Substation, Sonaimuril 132-33kV AIS Substation, Tungipara 132-33kV AIS Substation

Recommended citation

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Limitations

This report provides an indication of potential biodiversity related features; protected areas, Key Biodiversity Areas and species close to the specified location. While it provides an early indication of potential biodiversity concerns, the report does not provide details of potential direct, indirect, downstream or cumulative impacts. Furthermore, the report provides a set of conservation values sourced from global data sets and is not a substitute for additional investigation and due diligence, especially concerning national and/or local conservation priorities.

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Appendix V: Occupational Health and Safety Risk Assessment

A hazard risk assessment is a critical examination of health and safety hazards at a construction site and operation and maintenance (O/M) work. Performing regular hazard risks assessments can help construction and O/M stakeholders comply with occupational health and safety (OHS) regulations. Hazard risks assessments can help OHS and technical teams implement corrective measures to protect workers from health and safety threats during construction and operation stages.

When referring to risk in relation to safety the common definition is "risk is the likelihood that a person may be harmed or suffers adverse health effects if exposed to a hazard."

Risk = Consequence x Likelihood

A. Likelihood and Consequence

Hazard Risks Assessment Codes (HRACs)[10] require assigning values for likelihood or probability of an outcome occurring and the consequence or severity of a potential outcome. Based on these assigned values, a matrix format is used to place the specific hazard within a specific location of the matrix. This location can then be used to determine an HRAC number for that hazard activity.

The Likelihood or probability Code is considered numerical (1 through 5). These are presented in Table AV.1.

Table AV.1: Likelihood ratings

Likelihood	Definition
Almost certain (5)	It will happen again and soon – recurring event (e.g. daily or weekly).
Likely (4)	It will reoccur, but not as an everyday event.
Moderate (3)	It may occur from time to time in the project.
Unlikely (2)	It is not expected to happen again in the foreseeable future.
Rare (1)	Unlikely that it is not expected to happen again in the project.

Next is the Consequence or severity Code, varies from 1 to 5 and is presented in Table AV.2.

Table AAV.2: Consequence ratings

Consequence	Definition
Insignificant (1)	Injury or illness that resulted in first aid treatment or minimal effects that required no medical treatment, and the worker continued to work.
Minor (2)	Injury or ill health where the worker/person affected is absent or unfit to perform work (i.e. loss work time).
Moderate (3)	Injury or ill health related including bone fractures, a burn or penetrating injury to the eye, any injury or acute illness resulting in unconsciousness, requiring resuscitation or requiring admittance to hospital.
Major (4)	Single fatality or disability (e.g. amputations, loss of sight) resulted from work-related or community-related caused by the impact of the project
Catastrophic (5)	Multiple fatalities resulted from work-related or community-related caused by the impact of the project.

[10] HRACs: The principle behind the Hazard Risks Assessment System and the assignment of Hazard Risks Assessment Codes (HRACs) is to identify and control workplace hazards

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B. Risks Assessment Matrix

The hazard risks level is presented in Table AVI.3. This matrix helps OHS team to prioritize workplace hazards by identifying them as low, Moderate, High and Extreme.

Table AVI.3: Risk Level

Risk Level	Definition	Legend
Low	Will involve the relevant supervisor to review the circumstances of the event and try to learn any lessons which will prevent future occurrences.	Low (1)
Moderate	Will involve an investigation by the relevant supervisor or line manager into the circumstances and determine the immediate, underlying and root causes of the adverse event, to try to prevent a recurrence and to learn any general lessons.	Moderate (2)
High	Will involve a more detailed investigation by site manager/ supervisor/safety officer and look for the immediate causes, the underlying causes and the root causes by using available incident analysis methodologies	High (3)
Extreme	Will involve a team-based investigation, comprising site manager, supervisors, safety officer, worker representatives and external consultants/ specialists (if required). It will look at the immediate causes, the underlying causes and the root causes by using available incident analysis methodologies	Extreme (4)

Those hazards identified as extreme will require the most stringent controls available as well as immediate attention. Specific workplace controls can be applied so that the associated hazards are more effectively controlled and therefore, result in a revised assessment category to a more acceptable level. Using the Risk Ranking Table (Table AVI.4) provided below, the Site Supervisor and Health and Safety Officer will assess the on-site activities and assign risk rank to one of the four risk categories below:

Table AVI.4 Risk ranking table

Consequences / Likelihood	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	Low	Moderate	Extreme	Extreme	Extreme
Likely (4)	Low	Moderate	High	Extreme	Extreme
Moderate (3)	Low	Moderate	High	Extreme	Extreme
Unlikely (2)	Low	Low	Moderate	High	Extreme
Rare (1)	Low	Low	Moderate	High	High

Source: "Incident Reporting and Investigation Guidelines" of South Asia Region published on 22nd June, 2022 by World Bank

C. Summary of Assessed Hazard Risks

The project's potential risks and their significance have been assessed using the methodology described in Chapter 9. A summary of these risks and their significance along with the control measures are presented in Table AVI.5.

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Table AVI.5: Summary of Risks, their Significance and Control Measures

Risk Assessment													
Index	**Activity**	**Hazards**	**Reasons**	**Risk Ranking**			**Fatality Risk?**	**Protective Measures**	**Evaluation after choice of measures**			**Residual justification**	**Responsibility**
				Likelihood	**Consequence**	**Risk**			**Likelihood**	**Consequence**	**Risk**		
Mobilization and Site preparation													
1.	Workforce mobilization/ construction	• Physical injuries • SEA/SH and other GBV	Lack of spaces among workers	3	2	Moderate	Not likely	• First Aid • Worker Welfare Facilities • Camp Management • Plant Construction and Operation • Prohibit religious or political discussion among the workers • Provide trainings on labor code of conduct	2	2	Low	Though enough precaution measures and training will be provided to the workers, still there might have some knowledge limitation among the workers	Site Supervisor/ OHS manager / Security
2.			Social confliction	3	3	High	No		2	2	Low		
3.			Different political and religious views	3	3	High	Single / Multiple		2	3	Moderate		
4.			Lack of awareness	3	3	High	No		2	3	Moderate		
5.	Traffic movement	Knocked over or struck by or run over	Vehicle operations in the area and	3	5	Extreme	Multiple	• Induction Process • Personnel	2	4	High	Largely administration controls. Likelihood	Site Supervisor/ OHS

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
			unauthorized entry					Competency and Training • Check in Check out procedures • Mobile Equipment • Safe Driving. • Traffic Interface Planning. • Barricading and Signage. • Equipment Inspection & Maintenance.				reduced due to lower potential of multiple fatalities	manager
6.	Erection of electrical pole and other heavy structures	• Suppressed death • Physical injuries	• Machine failure • Tear off the rope • Falling object	3	4	High	Single	• Working at Height • Barricading and Signage • Scaffold Erection • Illumination • Equipment Inspections and	2	2	Low	Due to the complexity of controls for working at heights Lapses still possible with the implementation of working at height controls. Could still result in fatality.	Site supervisor / OHS manager

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Risk Assessment													
Index	**Activity**	**Hazards**	**Reasons**	**Risk Ranking**			**Fatality Risk?**	**Protective Measures**	**Evaluation after choice of measures**			**Residual justification**	**Responsibility**
				Likelihood	**Consequence**	**Risk**			**Likelihood**	**Consequence**	**Risk**		
								Maintenance					
7.	General	Pets in working area like dogs, goats	• Due to improper site fencing, lesser awareness in locals.	3	2	Moderate	Not likely	• Barricading and Signage • Safe Driving	1	2	Low	No change to severity but lower likelihood.	Site Supervisor/ OHS manager / Security
8.		Entry of unauthorized personnel in working area	• Locals entering at site without authorization etc.	3	3	High	Multiple	• Induction Process • Personnel Competency and Training • Check in Check out procedures • Barricading and Signage	2	3	Moderate	No change to severity but lower likelihood.	Site Supervisor/ OHS manager / Security
Biological Agent													
9.	Site preparation / construction	Soil Fungus (Biological contamination)	• Breathing the fungus • Lack of protective measures	3	3	High	No	• First Aid • Worker Welfare Facilities • Camp Management • Plant	2	2	Low	Proper use of PPE can reduce the likelihood and consequences	Site Supervisor/ OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								Construction and Operation • Personal Protective Equipment (PPE)					
10.		Viruses including COVID-19 Corona virus	• Highly infectious • Labour influx • Lack of PPE • Lack of emergency medical facilities • Lack of spacious and Adequate accommodation • Indifferent attitude about the severity of COVID-19	4	4	Extreme	Single	• Worker Welfare Facilities • Camp Management • Personal Protective Equipment (PPE) • Maintaining Social Distancing during gathering and intensive hand washing facilities. • Thermal scanning during entrance in the project site • Contractor will	2	4	High	Protective measures might reduce the likelihood but still the chance of fatalities or even death will be same	

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								develop a grievance procedure in place					
11.		Bacteria and its group	Airborne, dirty environment, stagnant water, warm-water systems	3	2	Moderate	Not likely	• Worker Welfare Facilities • Camp Management • Personal Protective Equipment (PPE)	2	2	Low	Proper use of PPE can reduce the risk	
12.		Attack by wild animals like snake, hornets etc.	• Lack of awareness • Lack of safety measures	2	4	High	Single	• Camp Management • Personal Protective Equipment (PPE)	1	3	Moderate	Protective measures and proper awareness will reduce this hazard mostly	
Piling and Construction of substation and other civil works													
13.	Transport of material on access and public	Being struck or run over by moving machines, 3rd party accident	• Due to falling material from the dumpers during	4	5	Extreme	Single / Multiple	• Mobile Equipment. • Barricading and Signage.	2	4	Moderate	If an accident occurs, it may still result in multiple fatalities. None of	Site Supervisor/ OHS manager

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Risk Assessment													
Index	**Activity**	**Hazards**	**Reasons**	**Risk Ranking**			**Fatality Risk?**	**Protective Measures**	**Evaluation after choice of measures**			**Residual justification**	**Responsibility**
				Likelihood	**Consequence**	**Risk**			**Likelihood**	**Consequence**	**Risk**		
	roads	from loose material	transportation when the dumpers are overloaded • Driving at unsafe speed and not to conditions • Fatigue • Equipment failure • Distraction					• Safe Driving. • Material Haulage (Loading and Unloading). • Traffic Interface Planning. • Equipment Inspection & Maintenance.				these controls restricts a truck to only killing one person	
14.		Unsecured loads	During transportation of mucking material filled to the point where it falls out of the truck	2	4	High	Multiple	• Mobile Equipment. • Barricading and Signage. • Safe Driving. • Material Haulage. • Traffic Interface Planning. • Equipment	1	4	Low	Assuming that the trucks are not overfilled, large material is unlikely to fall out of the truck.	Site Supervisor/ OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								Inspection & Maintenance.					
15.		Machine failure	Due to poor maintenance and repair	3	4	Extreme	Multiple	• Safe Driving • Equipment Inspection and Maintenance	2	3	Moderate		Site Supervisor/ OHS manager
16.		Lack of edge protection	• Land sliding • Equipment failure • Wet roads • Fatigue	3	3	High	Single / Multiple	• Mobile Equipment • Barricading and Signage. • Safe Driving. • Traffic Interface Planning.	2	2	Low	If an accident occurs, it may still result in the death of the driver. None of these controls will prevent a driver from driving off the edge but it will reduce the likelihood.	Site Supervisor/ OHS manager
17.	Dewatering	Electric Shock/Electrocution	Due to leakage in power line, machine and improper connections, scattered cables, inadequate	3	4	• Extreme	Single (unlikely to be multiple)	• Electrical Systems • Equipment Inspection & Maintenance.	2	4	Moderate	Electric shock could still result in a fatality unless the voltage can be reduced.	Site Supervisor/ OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
			maintenance (including cable wearing)										
18.		Slip, trip and fall	• Due to scattered cables • Unprotected and uncovered excavated trench • Muddy land at the work site • Lack of proper drainage system • Tools and equipment left on the walkway	5	2	Moderate	Unlikely	• Cables must not be placed over walkways (for example use battery power tools, run the cables at a high level, tie loose cables together, or relocate them off the walking path). Where this is not possible, they must be fixed and appropriate protectors applied to reduce the risk of tripping or damage to the	3	2	Moderate	Unlikely to significantly reduce the likelihood. Slips, trips and falls are common in the construction industry	Site supervisor / OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								cable, • Establish drainage to move water away from walkways and avoid pooling. • Regular cleaning of the walkways from slush, mud. • Maintenance of water pipes, joint, no leakage. • Regular and routine cleanup of the work area removing trip hazards.					
19.	Scaffolding	• Working at height • Open edges • Incomplete scaffolding or	• During scaffold erection, dismantling and working	3	4	Extreme	Single (multiple could occur but	• Working at Height • Barricading and Signage • Scaffold Erection	2	2	Low	Due to the complexity of controls for working at heights Lapses still possible with	Site supervisor / OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
		railings • Unguarded openings • Poorly stored or secured equipment	on scaffold • Collapse of scaffold due to inadequate design, erection, overloading, adverse weather, vehicle collision, inadequate inspection				unlikely)	• Illumination • Equipment Inspections and Maintenance				the implementation of working at height controls. Could still result in fatality.	
20.		Falling material	Improper working platform, gaps in working platform, missing toe boards, missing safety nets or barricading of below working area, and	3	4	Extreme	Single (multiple could occur but unlikely)	• Working at Height • Barricading and Signage • Scaffold Erection • Illumination • Equipment Inspections and Maintenance	2	2	Low	Due to the complexity of controls for working at heights Lapses still possible with the implementation of working at height controls. Could still result in fatality.	Site supervisor / OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
			throwing/dropping material during dismantling										
21.	General working area	Slips, trips and falls,	Improper placement of material, poor housekeeping	5	2	Moderate	Unlikely	• Placement/stacking of all material away from the walkways, access ways. • Housekeeping shall be done prior to commencement of work. • Housekeeping of the site, cleaning of the working area. • Design work areas to have minimal trip and slip hazards. • Establish	3	2	Moderate	Unlikely to significantly reduce the likelihood. Slips, trips and falls are common in the construction industry	Site Supervisor / OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								drainage to move water away from walkways and avoid pooling. • Illuminate walkways. • Maintain clear walkways (ensure the walkways are free of equipment, tools, construction debris and other materials). • Barricading and Signage. • Where work areas are unsafe due to uneven ground the work areas are to be					

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								graded. • Use footwear that provides good slip resistance.					
Batching Plant Operations (not anticipated to be required by the contractors)													
1	Aggregate batching system / Feeding	Pedestrian Loader interaction	• Hit by or struck by machine or bucket or material while feeding aggregate and sand with loader • Distraction • Fatigue • Poor visibility	3	4	Extreme	Single	• Barricading and Signage • Mobile Equipment • Safe Driving • Material Haulage (Loading and Unloading) • Traffic Interface Planning • Illumination • Plant Construction and Operation	2	2	Low	Largely administration controls. Likelihood reduced due to lower potential of multiple fatalities	Site Supervisor/ OHS manager
2		Dust	• Dust due to Dry material	3	3	High	Single	• Hazardous Materials	2	2	Low	Correct application of wetting and	Site Supervisor/

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
			and vehicle movements • Inhaling the fine particles and other fugitive dust					• Plant Construction and Operation				ventilation should lower the likelihood of this	OHS manager
3		Chemical hazards	Injury due to steel fibers and chemical contacts During feeding and physical contact	3	3	High	Unlikely	• Plant Construction and Operation • Hazardous Materials	2	2	Low	Potential still exists for terminal lung disease from inhaling silica or fibrous materials. In addition, the controls are focused on PPE.	Site Supervisor/ OHS manager
4	Conveyor belts	Caught in between	working near conveyor belts with loose clothing and missing barricades	4	4	Extreme	Single	• Plant Construction and Operation • Barricading and Signage • Equipment Inspection and Maintenance • Electrical	2	4	High	These controls reduce the likelihood but won't reduce the consequence	Site Supervisor/ OHS manager

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Risk Assessment													
Index	**Activity**	**Hazards**	**Reasons**	**Risk Ranking**			**Fatality Risk?**	**Protective Measures**	**Evaluation after choice of measures**			**Residual justification**	**Responsibility**
				Likelihood	**Consequence**	**Risk**			**Likelihood**	**Consequence**	**Risk**		
								Systems					
5	Mixer System	Struck by Caught in between	Caught in between or struck by while working /maintenance during operations	3	4	Extreme	Single	• Plant Construction and Operation • Barricading and Signage • Equipment Inspection and Maintenance • Electrical Systems	2	2	Low	These controls reduce the likelihood and the consequence	Site Supervisor/ OHS manager
6	Traffic movement	Knocked over or struck by or run over	Vehicle operations in the area and unauthorized entry	3	5	Extreme	Multiple	• Induction Process • Personnel Competency and Training • Check in Check out procedures • Mobile Equipment • Safe Driving. • Traffic Interface	2	3	Moderate	Largely administration controls. Likelihood reduced due to lower potential of multiple fatalities	Site Supervisor/ OHS manager / Security

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								Planning. • Barricading and Signage. • Equipment Inspection & Maintenance.					
7		Unprotected edges	• Vehicles operations close to the unprotected edges • Equipment failure • Wet roads • Speeding • Falling material • Inadequate visibility • Blind spot • Distraction • Fatigue	3	3	High	Multiple	• Mobile Equipment • Barricading and Signage. • Safe Driving. • Traffic Interface Planning. • Equipment Inspection & Maintenance.	2	2	Low	These controls reduce the likelihood and the consequence	Site Supervisor/ OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
			• Equipment failure (e.g. brakes, steering)										
8	Maintenance operations	Caught in between Struck by Electrocuted	Maintenance work without any lock out and tag out process	2	4	High	Single (unlikely to be multiple)	• Electrical Systems • Equipment Inspection & Maintenance	1	4	Low	Controls rely on behavior. Potential controls are not effectively put in place.	Site Supervisor/ OHS manager
9	Electrical Installations	Electric shock and electrocution	Due to current leakage if the RCCB/ELCB not/properly installed. Poor electrical installations and fittings	3	4	Extreme	Single (unlikely to be multiple)	• Electrical Systems • Equipment Inspection & Maintenance	2	2	Low	Controls rely on behavior. Potential controls are not effectively put in place.	Site Supervisor/ OHS manager
1	General	Slip, trip and fall	• Improper placement of material • Poor housekeeping • Convenience	5	2	Moderate	Unlikely	• Placement of all material away from the walkways, access ways, Housekeeping,	2	2	Low	Controls rely on behavior. Potential controls are not effectively put in place.	Site Supervisor/ OHS manager

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								cleaning of the site • Design work areas to have minimal trip and slip hazards. • Illuminate walkways. • Housekeeping shall be done prior to commencement of work. • Maintain clear walkways (ensure the walkways are free of equipment, tools, construction debris and other materials). • Establish					

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								drainage to move water away from walkways and avoid pooling. • Barricading and Signage. • Where work areas are unsafe due to uneven ground the work areas are to be graded. • Use footwear that provides good slip resistance.					
1		Work near water	Slips and trips Overbalance Bank collapse	2	3	Moderate	Single	• Working Near or Over Water	1	4	Low	No change to severity but lower likelihood.	Site Supervisor/ OHS manager
Natural Hazards													
1	Work	Extreme Heat	Working under	4	3	High	Single	• Severe Weather	2	3	Moderate	Control measures	Site

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Risk Assessment													
Index	**Activity**	**Hazards**	**Reasons**	**Risk Ranking**			**Fatality Risk?**	**Protective Measures**	**Evaluation after choice of measures**			**Residual justification**	**Responsibility**
				Likelihood	**Consequence**	**Risk**			**Likelihood**	**Consequence**	**Risk**		
	during extreme weather	Exposure	direct sunlight for a long time					• Worker Welfare Facilities • Emergency Response Plan • First Aid • Training on heat stroke should be conducted among the workers.				can reduce the likelihood but not reduce the consequences	Supervisor/ OHS manager
2		Extreme Rain, Flood and Near or over water	• Natural • Working under direct rain • Working near water	3	3	High	Single / Multiple	• Severe Weather • Working Near or Over Water • Emergency Response Plan • First Aid	2	3	Moderate	Although humans can do little or nothing to protect the incidence or intensity of most natural phenomena but the control measures can reduce the likelihood of the consequences	
3		Storm and thunderstorm	Natural	3	5	Extreme	Single / Multiple	• Emergency Response Plan	2	4	Moderate	Control measures can reduce the	

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Risk Assessment													
Index	Activity	Hazards	Reasons	Risk Ranking			Fatality Risk?	Protective Measures	Evaluation after choice of measures			Residual justification	Responsibility
				Likelihood	Consequence	Risk			Likelihood	Consequence	Risk		
								• Severe Weather • First Aid				likelihood but not reduce the consequences	
Ergonomic Issues													
4	Construction activities	Physical disorder	• Sedentary work • Heaving lifting • Push or pull • Awkward or prolonged postures • Repetitive activities • Overhead work	4	4	Extreme	Not Likely	• Training needs to be provided to use the right tool in a right way • Lifting capable weight in a right direction • Take break if there is any repeated works like hammering. • Switch the hand periodically	2	2	Low	Likelihood and consequences would be reduce by proper implementation of measures and training	Site Supervisor/ OHS manager

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D. Incident Reporting and Investigation Process

This section has prepared based on the report named "Incident Reporting and Investigation Guidelines" of South Asia Region published on 22nd June, 2022 by World Bank.

All incidents and illnesses must be reported to site supervisor after which investigation shall commence and recorded so that appropriate corrective actions shall be implemented to prevent any re-occurrence and report findings shall be forwarded to management for review. Reporting requirements shall include notification of incident, investigation report, and monthly report. Notification of Incident form shall be developed which shall be filled and submitted to OHS officer or site supervisor for investigation. The PIU is ultimately responsible for all incidents that occur in the project and is required to ensure that all contractors and sub-contractors will comply with the incident reporting and investigation process (Fig: AVI.1) guideline by the World Bank.

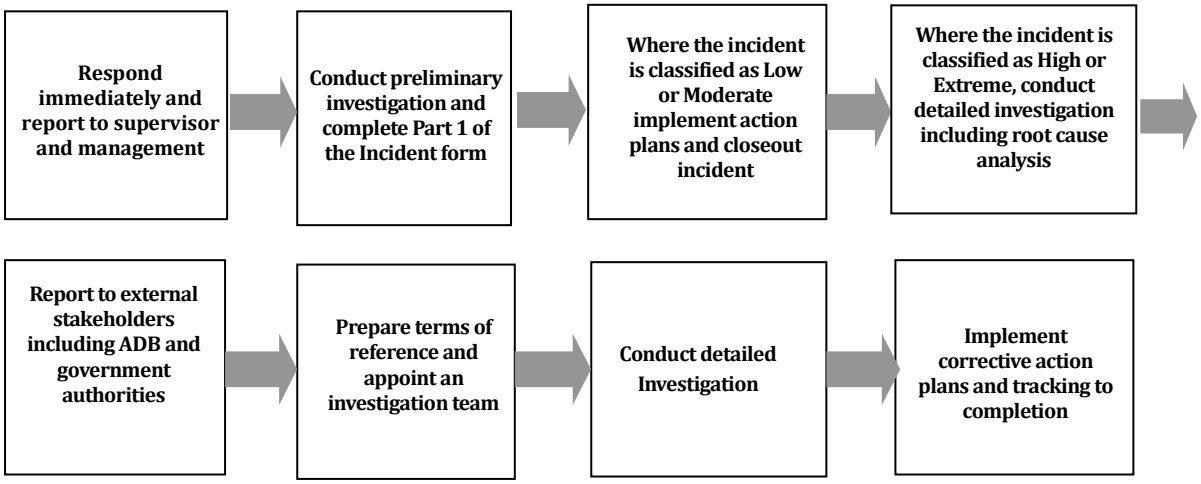


Figure AVI.1: Simplified Incident Reporting & Investigation Process

a. Incident Reporting

- All incidents must be reported:
- All incidents must be immediately notified to the supervisor.
- The supervisor should notify their area manager or site manager.
- All incidents should be reported using the Project Incident form.
- Incident Notification section to be completed by the Supervisor/ Safety Officer by the end of the shift when the incident occurred in.
- Incident Notification to be sent to the Resident Engineer/ Project Director within 24 hours after the incident.

b. External Notification of Incident

Notifiable incidents should be communicated to the ADB, relevant local government/ regulatory department and other stakeholders when required by the project senior management such as the Resident Engineer or Project Director as soon as is reasonably practicable to do so. The project should review incident reporting per country legal requirements as there may be a time requirement for reporting serious injury (fatality), major structural failure/ collapse (building, tower, crane, hoist, construction support system or excavation), or major release of a hazardous substance to the environment.

c. Investigation process

The following process should be considered as a guide for conducting investigations:

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- Inspect the location;
- Gather and record physical evidence including detailed description of the incident;
- Interview witnesses;
- Identify any health and safety breaches that may have contributed to the incident;
- Review relevant documents such as procedures and records;
- Attempt to resolve any conflicts in the evidence;
- Identify missing information;
- Perform data and root cause analysis;
- Identify remedial actions; and
- Prepare an Investigation Report.

d. Investigation Report Preparation

Concentrate on the facts and find out "who, what, where, when, why and how". After obtaining necessary information, the incident investigation report should be completed (Final Incident Report) a copy of which shall be sent to client representative Project Manager or resident engineer. Client or borrower will be responsible to send the copy of the investigation report to ADB project officer, copies will also be included in the EMRs for the period.

E. OHS Plan Documents Structure

Figure AVI.2 Presents the document hierarchy of the OHS Plan.

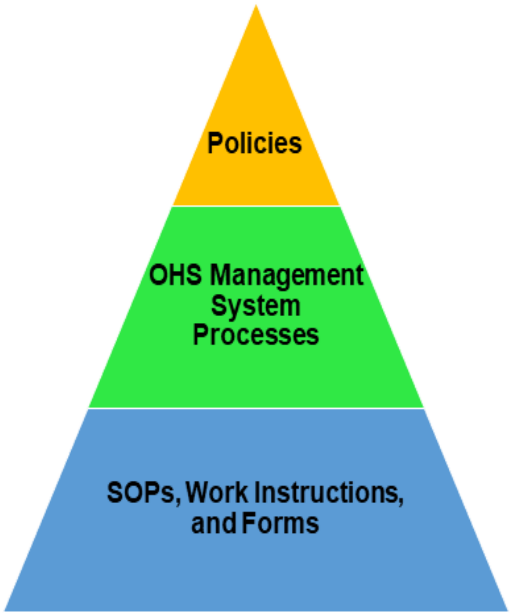


Figure AVI.2: Document hierarchy of the OHS Plan

Policies

Contractor's operating policies are the highest-level document. They provide with direction when the Contractor operates in different geographies of the world. These are based on the Contractor's senior management commitments and they guide in day-to-day operations.

Human Rights Policy

Contractor's human rights policy should have focus on the responsibility to respect human rights and play a positive role among the workers and staffs who will be directly and indirectly involved in this project interventions and also in the communities where the project will be implemented. To this

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end, Contractor should commit to respecting human rights as set out in the United Nations Universal Declaration of Human Rights and the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work, as well as adhere to the United Nations Guiding Principles on Business and Human Rights, and ADB Safeguard Policy Statement (SPS).

The Contractor must continually assess the human rights context of their activities, including impacts that they may cause and those to which they may contribute or be directly linked. This determines the prevention, mitigation and control measures required, including using leverage from their business relationships.

The Contractor should recognize, respect and abide by all project workers, community worker, and employment laws and expect their subcontractors and other third-party companies to meet the same standards. No child or forced labor is allowed under the project/program – by the contractors or sub-contractors or primary suppliers. These include prohibitions on child labor, forced labor and discriminatory behavior.

The Contractor should value and respect the traditions and the culture of the many different communities in the project area where they do business.

The Contractor should believe their business activities contribute to the economic well-being and quality of life. The Contractor should recognize the effect that their activities may have on local communities, and they value and strive to engage in a meaningful way with the communities where they do business to help ensure that they positively contribute to the welfare of the local communities.

The Contractor should endeavor to conduct business with communities who share their values and business principles.

Contractor's Health and Safety Policy

Safety and Environmental Sustainability is not a choice, it's a lifestyle. The Contractor should support a safe work environment and ensuring the safety of all employees and the clients. They should recognize Safety as a Core Value of their business. The Contractor will be responsible for the compliance of OHS/CHS including the compliance for their respective sub-contractors.

Everyone has a role to play. The Contractor's Occupational Health and Safety Plan should be built on best practices and industry leading safety management systems. To be successful, such a plan must start with proper attitudes toward injury and illness prevention on the part of all employees. It also requires cooperation on all Health and Safety matters, not only between management and employees, but also between each employee and his or her co-workers.

Recognize the responsibilities of Health, Safety and Environment

- The Contractor accepts responsibility in leading the Health and Safety program and for its effectiveness and improvement.
- Supervisors, Officers, and Managers should be responsible for developing the positive attitudes towards Health and Safety in themselves and those they supervise. And for ensuring that all activities are performed with the utmost regard for the Safety and Health of those involved.
- Employees are responsible for wholehearted, genuine cooperation with all aspects of the health and safety program.
- Provide education to participating personnel, thus enabling them to understand and share in the responsibility for monitoring and protecting the environment.
- Maintain an effective reporting and communication system, and develop a project action plan commensurate with company standards and regulatory/client requirements.

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- The Contractor should make responsible decisions and should believe in environmental sustainability by applying the core values and upholding the code of conduct. They should protect their employees, the public and the environment.

Alcohol and Drug Policy

The use of alcohol and illegal drugs shall be strictly forbidden on all project sites. All project workers on the project shall comply with the following:

- No project worker shall distribute, possess, consume, or use alcohol or illegal drugs on the work site or in any vehicle or any other equipment.
- No project worker shall report to work or be at work under the influence of any drug, or substance that may cause impairment and/or will affect their ability to work safely.
- No project worker shall misuse prescribed or non-prescribed drugs while at work. If a project worker is taking a prescribed or non-prescribed drug for which there is a potential unsafe side effect, he has an obligation to report such potential to the supervisor.
- Management reserves the right to conduct searches of premises and worksites where there are reasonable grounds to conclude there is or has been use or possession of substances prohibited under this Policy.
- Any person taking medication that can affect or restrict their ability to do their job safely must advise and must discuss with his/her direct supervisor.
- Smoking at work places should be banned except in designated smoking areas which are equipped with the smoking signs and trash cans, and possession of lighters and matches should be prohibited before entering at work areas
- Management at their discretion may conduct 'Reasonable Cause Suspicion Testing' if there are evident reasons to believe that the person in question is impaired.
- Management may also conduct Post Incident Alcohol & Drug testing to rule out if this may be a contributory factor in the incident.

Business Conduct and Ethics Code

The Contractor's Business Conduct and Ethics Code should be built on the core values and highlights the principles that guide their business conduct. Use it for guidance about their ethical standards and where to take worker's questions or concerns

Ethical decision making

Ethical decision making is essential to the success of the Contractor. Some decisions are obvious and easy to make; others are not. By asking questions below can help to make the right ethical decisions.

Four yes answers are required to qualify an action as ethical.

1. Is it legal?
2. Is it consistent with company policies? If the proposed action does not comply with company policy, you should not do it.
3. Is it in the best interests of my co-workers, the company, and the community?
4. If it were made public, would I be comfortable?

   If the answer to any of these questions is "No": STOP. If you're not sure: speak to the Project Manager.

OHS Management System Processes

OHS Management System Process forms a framework of the Contractor OHS management plan (OHS Plan) and these are Contractor's second-tier documents after policies. The Contractor should develop

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the following OHS Management System Processes based on the project design, site requirements, review the layout plan, Nature of construction activities etc.:

Induction Process
Job Hazard Analysis
Meetings
Personnel Competency and Training
Short Service Worker Program (with tools for assessment)
Reward and Recognition
Disciplinary Process
Permit to Work Process
Work Observation Process
Critical Risk Protocols
Personal Protective Equipment (PPE)
Incident Investigation
Measurement - Leading and Lagging Indicators
OHS Compliance Audit
Inspections
Personal Risk Assessment
Risk Management
Document Control

Standard Operating Procedures (SOP), Work Instructions and forms

Standard Operating Procedures and Work Instructions are mostly technical in nature and are third-tier documents in overall risk management approach. forms and checklists provide support for implementing the controls mentioned in these SOPs. The following SOPs should be developed by the project contractors based on project specific risk assessment matrix and be part of the OHS Plan:

Work at Height
Excavation
Mobile Equipment
Barricading and signs
Cell Phone Use
Safe Driving
Material Haulage (Loading and Unloading)
Traffic Interface Planning
Severe Weather
Lifting and Hoisting
Scaffold Erection
Working Near or Over Water
Illumination Ground Support
Water Management
Ventilation
Fire
Electrical Systems
Hazardous Material Management
Equipment Inspection & Maintenance
First Aid
Project Worker Welfare Facilities
Camp Management
Emergency Response Plan
Visitor orientation and escorting on site
Contractor Security Management

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The specific direction of the Contractor is shown through the health and safety policy and the responses to Contractual/applicable laws, regulations, guidelines, and standards as above. These considerations together assist Contractor's continuing contention to provide/develop/apply, and review OHS provision and its consistent application at site.

Roles and Responsibilities

These roles and responsibilities give a holistic understanding pertaining for the implementation of the OHS Plan which comprises multiple processes and SOPs. However, each process and SOP may also have additional specific requirements pertaining to a specific role.

Contractor Project Manager

- Overall accountability for the development, implementation, and maintenance of the OHS Plan.
- Accountable for allocation of sufficient resources for the execution of the plan.
- Ensure that empowered and competent personnel are available for the execution of this plan
- Make sure that Sr. Leadership (all directors, Construction Managers and other line management personnel) are fully aware of their responsibilities as per the Processes and SOPs of the OHS Plan.
- Demonstrate visible leadership, walk to talk behavior to reinforce the implementation of the OHS Plan
- Attend monthly OHS Committee/Progress Review Meeting and monitor the performance through leading and lagging indicators.
- Discourage achievement of operational results at the cost of safety violations
- Develop a conducive culture where Personnel are authorized to *STOP unsafe work without fear of retribution
- Develop a culture where it is safe to speak up and provide the time, people and resources to respond to OHS concerns identified by their workers.
- Ensure that Work Observation program is utilized, and all incidents are fully investigated
- Review Executive Summary of incidents, ensure that Root Causes are being identified and resources are provided for the closure of Preventive and Corrective Actions
- Encourage reward and recognition where personnel demonstrate safe behavior or identify hazards and fairly apply disciplinary process when personnel cut short.

**ILO COP 2.2.12. Where there is an imminent danger to the safety of workers, the employer should take immediate steps to stop the operation.*

Contractor OHS Experts

- Be a Subject Matter Expert of the OHS Plan. Provide training and awareness regarding the implementation of the OHS Plan that includes multiple Processes and SOPs
- To be familiar with all local, national, and international laws that are applicable to Operations.
- Convene and raise concern in the monthly OHS Committee/Progress Review meeting regarding implementation of controls stipulated in the OHS Plan.
- Provide training to staffs on the OHS Plan. Conduct regular sessions for all project team members to inculcate the requirements of the OHS Plan.
- To report to the Contractor's Management Team on implementation progress, monthly KPIs.
- To ensure that sufficient training and induction of all personnel is being provided and maintained.
- To ensure that visit induction is given to all visitors before they are allowed to visit the site.
- To develop the OHS awareness of all personnel employed on the project and ensures their participation in all aspects of the health and OHS program

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- Provide guidance for the purchase of personal protective equipment
- Provide guidance to employees regarding their emergency response responsibilities.
- Decide whether a potential rescue service or team is adequately trained and equipped to perform permit space rescues of the kind needed at the facility and whether such rescuers can respond in a timely manner, and organize drills
- Establish and maintain a professional relationship with subcontractor representatives.
- Establish an audit system that measures the effectiveness of the OHS Plan
- Review of OHS management plan annually.

Contractor Supervisors

- They allocate tasks and check that the project workers are implementing OHS requirements to standard. They provide feedback and guidance on OHS implementation.
- Ensure that the controls stipulated in PTW (Permit to Work) are implemented and STOP the work when critical controls are missing or compromised
- Discuss Job Hazard Analysis (JHA) and conduct effective Tool Box Talk with all project workers. Ask questions to ensure that they have a good understanding.
- Conduct worksite observations, discuss safety concerns with project workers
- Develop a culture where it is safe to speak up and provide the time, people and resources to respond to OHS concerns identified by their workers. They are also responsible for escalating issues that can't be resolved by the project workers or at the supervision level to OHS Team or senior management.
- Responsible for making an incident scene safe and secure and for ensuring that hazards, near misses and incidents are entered into the reporting system.
- Ensure all project workers use appropriate PPEs and train them how to use PPEs.

Workers

- Conduct Personal Risk Assessment Take 5 (Stop, Look, Assess, Control, and Monitor) and do not proceed to work if unsafe to do.
- Use authority to STOP work if observe an unsafe work by fellow worker.
- Report hazards and at-risk behavior as and help the Contractor management to develop a conducive safety culture.
- Use PPE as provided.
- Conduct a visual inspection of equipment in the beginning of the operation and ensure that equipment is de-energized before working on a piece of equipment.
- Ensuring that they wear appropriate PPE for the activity that they undertake.
- Be aware and mindful of hazards related to any work activity; do not undertake a job or task if physically or mentally not fit.
- Seek clarification for uncertainty relating to a task with the Supervisor.
- Do not undertake a job if not competent to do so.
- Raise improvement opportunities.
- Report near misses and actual incidents immediately to the supervisor

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Appendix VI: Community Health and Safety Risk Assessment

A. Likelihood and Consequence

Hazards and Risk Assessment Codes (HRACs) require assigning values for likelihood or probability of an outcome occurring and the consequence or severity of a potential outcome. Based on these assigned values, a matrix is used to place the specific hazard within a specific location of the matrix. This location can then be used to determine an HRAC number for that hazard activity.

The Likelihood or probability Code is considered numerical (1 through 5). These are presented in Table AVI.1.

Table AVI.1: Likelihood ratings

Likelihood	Definition
Almost certain (5)	It will happen again and soon – recurring event (e.g., daily or weekly).
Likely (4)	It will reoccur, but not as an everyday event.
Moderate (3)	It may occur from time to time in the project.
Unlikely (2)	It is not expected to happen again in the foreseeable future.
Rare (1)	Unlikely that it is not expected to happen again in the project.

Next is the Consequence or severity Code, varies from 1 to 5 and is presented in Table AVI.2.

Table AVI.2: Consequence ratings

Consequence	Definition
Insignificant (1)	Injury or illness that resulted in first aid treatment or minimal effects that required no medical treatment, and the worker continued to work.
Minor (2)	Injury or ill health where the worker/person affected is absent or unfit to perform work (i.e. loss work time).
Moderate (3)	Injury or ill health related including bone fractures, a burn or penetrating injury to the eye, any injury or acute illness resulting in unconsciousness, requiring resuscitation or requiring admittance to hospital.
Major (4)	Single fatality or disability (e.g. amputations, loss of sight) resulted from work-related or community-related caused by the impact of the project
Catastrophic (5)	Multiple fatalities resulted from work-related or community-related caused by the impact of the project.

B. Risk Level

The hazard risks level is presented in Table AVI.3. This matrix helps OHS team to prioritize workplace hazards by identifying them as low, Moderate, High and Extreme.

Table AVI.3: Risk Level

Risk Level	Definition	Legend
Low	Will involve the relevant supervisor to review the circumstances of the event and try to learn any lessons which will prevent future occurrences.	Low
Moderate	Will involve an investigation by the relevant supervisor or line manager into the circumstances and determine the immediate, underlying and root causes of the adverse event, to try to prevent a recurrence and to learn any general lessons.	Moderate
High	Will involve a more detailed investigation by site manager/ supervisor/safety officer and look for the immediate causes, the underlying causes and the root causes by using available incident analysis methodologies	High

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Risk Level	Definition	Legend
Extreme	Will involve a team-based investigation, comprising site manager, supervisors, safety officer, worker representatives and external consultants/ specialists (if required). It will look at the immediate causes, the underlying causes and the root causes by using available incident analysis methodologies	Extreme

a. Risk Ranking

Those hazards identified as extreme will require the most stringent controls available as well as immediate attention. They may even demand that such activities be cancelled from the Project. Specific workplace controls can be applied so that the associated hazards are more effectively controlled and therefore, result in a revised assessment category to a more acceptable level. Using the Risk Ranking Table (Table AVI.4) provided below, this has been used to assess the incident and risk rank to one of the four risk categories below:

Table AVI.4: Risk Ranking Table

Consequences / Likelihood	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	Low	Moderate	Extreme	Extreme	Extreme
Likely (4)	Low	Moderate	High	Extreme	Extreme
Moderate (3)	Low	Moderate	High	Extreme	Extreme
Unlikely (2)	Low	Low	Moderate	High	Extreme
Rare (1)	Low	Low	Moderate	High	High

Source: "Incident Reporting and Investigation Guidelines" of South Asia Region published on 22nd June, 2022 by World Bank

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Table AVI.5: Summary of the Community Health and Safety Impacts and Risk

Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
Disruption of power supply	Implementation of power extension work may have restrained the power supply to the community.	4	4	Extreme	• Community people should be notified before the work commenced • Authority should announce among the respective community on the previous day about the power disruption if require.	4	2	Moderate	Contractor
Bribery	Contractor or project personnel may tempt the community people to provide power connection in exchange of money	3	3	High	• PGCB should make aware the Community people about this hazard • Public consultation meeting can be arranged to disseminate the right information about the power connection • Train and aware the project related staff about the punishment of bribery	2	1	Low	Contractor
Vulnerable health services	Breaches of medical ethics, including the potential for direct and indirect discrimination of, and violence against, affected persons, specific communities and subpopulations	3	2	Moderate	Collaborate with local governments and communities to develop or share in third party health data collection and reporting. Contractor will set clear expectations and protocols for the management of medical data to prevent access to, and disclosure of medical data to, non-medical personnel.	2	1	Low	Contractor
	Lack of continued services, especially to the most vulnerable communities	2	2	Low	The health services program will use environmental, social, economic and health data to continually track and evaluate the changing vulnerability of communities within the area of influence so that action can be focused on the most vulnerable communities at any given time.	2	1	Low	Contractor
	Stress on the public healthcare services	4	2	Moderate	The Contractor will engage sufficient number of registered medical doctor and establish health center for its workforces and work with local	2	1	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
					government to identify any necessary follow-up actions if health status is negatively affected by the Project in areas of influence. Possible actions may include supporting provision of affordable health services, including mobile health outreach clinics within the areas of influence.				
Spread of Communicable Disease (Tuberculosis (TB), COVID-19)	Increased workforce (Local and migrated) and crowded accommodation camp may spread these diseases to the community	4	4	Extreme	• Medical screening and proof of vaccination are needed prior to the employment • The Contractor conduct induction training or workshop for all workforce and introduce the basics of these diseases, how they transmit and the preventive measures against them. • Contractor can organize vaccination program in the camp for the non-vaccinated workforce • Any positive cases should be dealt diligently and treated in designated hospital. After emergency care treatment should be continued at worker's home with the family to maintain isolation, the Contractor will bear the cost of treatment.	2	2	Low	Contractor
	COVID-19 and other similar infections can spread by the project workers to the community	4	4	Extreme	Follow all precautions listed above. Working site and labor camp should strictly maintain COVID-19 protocol, if the cases are widespread. Follow all COVID-19 protocol (washing hands, wear mask, maintain 6 feet distance etc.)	3	2	Moderate	Contractor
Vector-borne diseases	Stagnant water and poor sanitation conditions can spread vector-borne diseases Increased burden of disease in workforce, results in	5	4	Extreme	The Contractor will develop program to limit bodies of stagnant water, spray insecticides, develop support in nearby communities, and	2	2	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
• Malaria • Chikungunya • Dengue • Lymphatic filariasis	increased demand on Project health services and reduce productivity.				create community awareness. The Contractor will encourage good sanitation practices, and the use of mosquito nets throughout the area of influence. Provide information for training of workers in Chikungunya and Dengue awareness so they can take knowledge back to communities. Develop educational materials regarding vector-borne disease transmission to the communities Evaluate supporting the community health authorities with lymphatic filariasis eradication programs to ensure adequate coverage of target areas with community directed treatment programs				
Increased incidence of water related disease and food-borne illness	There are potential linkages between health and health impact pathways (e.g., number of bodies of stagnant water, number of people with access to improved sanitation facilities), which is crucial for water related disease and food-borne illness.	3	3	High	• Support the development of improved sanitation and improved water facilities. • Organize focus group discussions with local government, existing communities and in-migrants to help knowledge exchange and establish common expectations for sanitary conditions in the areas of influence. • Disseminate information on the linkages between improved water sources, sanitation conditions and human health, and on good hygiene practices, will promote use of the improved facilities and minimize the increased incidence of water related disease and food-borne illness in the areas of influence.	2	2	Low	Contractor
Vaccine preventable	• Potential increase in outbreaks in the community related to population influx or	3	3	High	Ensure and implement pre-employment medical checkup for the workforce	2	2	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
diseases • Measles • Mumps • Rubella • Chicken pox • Pneumonia • Influenza • Typhoid	the introduction of personnel who are not immunized								
	• Increased burden of disease in community will Increase the demand on local community health services	3	2	Moderate	Implement infectious disease outbreak management program for workers to reduce potential outbreaks to the local communities	2	1	Low	Contractor
	• Diminished quality of health care and treatment for local communities as existing, limited capacity is overwhelmed	3	2	Moderate	• Require active vaccinations program to workforce as necessary if possible • Develop educational materials regarding communicable diseases transmission to the communities	2	2	Low	Contractor
Sexually transmitted diseases and substance use	• The influx of people may bring communicable diseases to the project area, including sexually transmitted diseases (STDs), or the incoming workers may be exposed to diseases to which they have low resistance. • Workers with health concerns relating to substance abuse, mental issues or STDs may not wish to visit the project's medical facility and instead go anonymously to local medical providers, thereby placing	3	3	High	• Establish the construction camps at a distance away from the local community, if possible. If this is not possible due to densely populated project area, strict protocols and restriction should be imposed for interaction with local communities in order to prevent such type of STDs from labor influx. • Camp area should be well protected where the access of the local outsider will be strictly prohibited. • Engagement of skilled trainers to raise	2	2	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
	further stress on local resources.				awareness and provide trainings among project workers about the STDs risks, consequences, prevention, positive behavioral approach to the community etc. It may also be important to raise awareness of the risks among community members and local health authorities and inform them about available grievance mechanisms. • Arrange and support local organizations and/or government initiatives on community STDs education, prevention, and treatment programs.				
Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH)	• Large influx of workers, particularly in dense populated communities, may increase the likelihood of exploitive and coercive sexual relations with community members, particularly minors in exchange for goods or money. • Close proximity without appropriate supervisory and preventative measures may increase the risk of sexual exploitation by project workers of female domestic workers and vendors • Community girls and women may be tempted by the project staff to get a good job in exchange of sexual relationship.	4	3	High	• Workers Code of Conduct (CoC) that will be used in the project will include provisions for addressing SEA and SH risks and also the prohibitions against any illegal sexual activity with anyone • Establish workers' camps separated from local communities with strict protocols for interaction with local communities in order to avoid project impacts from labor influx. • Extensive training for Awareness raising strategy which describes how workers and local communities will be sensitized to SEA and SH risks, and the worker's responsibilities under the CoC	3	2	Moderate	Contractor
Emergency events and lack of preparedness and	Internal and external emergencies may occur which require preparedness by the project authorities and a response procedure commensurate to the level of emergency situation	3	4	High	• Develop an emergency preparedness and response plan (EPRP) to contain emergencies at the project site level • The Contractor will work with local	2	2	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
response					authorities to coordinate with the national emergency response network in the areas of influence and to ensure implementation of the project specific emergencies and make arrangements with external emergency services (Fire, ambulance, etc.), if the resources available with the Contractor is not sufficient to contain the emergency. • Conduct capacity building and train local communities as needed to make sure the communities know what to do during an emergency.				
Use of security forces (e.g., police, Ansar, or private security personnel)	Project will engage security forces to ensure human security of project-affected communities and project workers and assets. There are potential risks that could arise from the use or presence of security personnel to protect the project or related aspects of the use of security personnel	3	3	High	• Adoption/compliance with the World Bank Group's Good Practice Notes on Assessing and Managing the Risks and Impacts of the Use of Security Personnel and a project/contract specific Code of Conduct for the security personnel. • The Contractor will carry out a continuous risk assessment of the security arrangements in place, monitor its security personnel, and identify any necessary corrective or preventive actions for continuing security operations. • Security will be provided in a manner that does not jeopardize the community's safety and security, or the client's relationship with the community. • Security arrangements will follow the	2	2	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
					principle of proportionality, respect for human rights, and good international practice.				
Lack of awareness on health and safety	Awareness on Community Health and Disease Prevention may arise from the interaction of project workers with local communities	4	3	High	Community health and disease prevention awareness campaigns will be applied consistently throughout the Project duration and will include awareness of: • Linkages between improved water sources, sanitation conditions • Common water related disease and food borne illness • Good hygiene practices	3	2	Moderate	Contractor
Traffic and road accident	• Lack of Traffic and Road Safety Awareness • Use of the community road • Careless driving and goods deployment to the project site through the crowded area.	4	4	Extreme	• Engage community consultations and monitoring and management plans to prevent potential negative impacts resulting from poor traffic and road safety culture. • Ensure continuous monitoring of traffic and pedestrian Interface in the project area. • Promote traffic safety awareness in communities in the Direct Area of Influence and along the transportation route. • Driving by the side of schools and colleges should be avoided. If can't be avoided speed limit should be maintained in these roads.	2	3	Moderate	Contractor
Management and safety of hazardous materials	Improper Hazardous Materials Management and lack of Safety Awareness	2	3	Moderate	• Ensure hazardous materials management safety communications to communities' close proximity of the project to deter workers, their families and others from collecting, reusing, recycling or reselling Project	2	2	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
					waste (e.g.; diesel, cement concrete etc.). • Communications will include examples of hazardous materials used in Project construction, operation and rehabilitation, the risks to human health, and appropriate methods of use and disposal.				
Behavioral segmentation of the Security personnel	Misuse of Security Personnel	3	3	High	Engage with communities about the project's impacts on community safety and security, create awareness concerning the Code of Conduct commitment and project grievance mechanism, as outlined in the IEE • Ensure that Security staff coordinate regularly with other departments, such as Community Relations and Human Resources. • Community Relations Officer of the Contractor will share information with communities about security arrangements, the Contractor's security policies, and the expected conduct of security personnel. • Arrange dialogue with communities about security issues to identify potential risks and local concerns, and can serve as an early warning system.	1	2	Low	Contractor
	Lack of Positive Lifestyles concept	3	2	Moderate	Encourage culturally appropriate positive lifestyle choices in an effort to: • Establish good financial management choices with the compensation payment. • Deter an increase in alcohol use,	2	2	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
					substance abuse and tobacco use. • Avoid violence against women, including sexual harassment, sexual exploitation and abuse. • Avoid ethnic- or religious- based violence. Conduct awareness campaigns within the workplace and at religious institutions (e.g., mosque), local governments, schools, and health clinics.				
Poor quality Management Systems to maintain safety of Services	The Construction may pose safety risks on community health and safety, for example, risks associated with: a) Infrastructure construction and heavy equipment movement, such as, struck by moving vehicle. b) Trench construction hazard, such as land sliding, buried, slip, trip and falling communities people due to careless management. c) Water and sanitation services, such as contaminated water or spread of disease. d) Electricity supply, which may result in electric shock from electrical cabinets or cables. e) Service providers, which may use their service for the purpose of financial, sexual, or other exploitation, particularly of vulnerable groups such as women, children, and the elderly.	4	4	Extreme	• The Contractor will establish and implement appropriate quality management systems to anticipate and minimize risks and impacts. • The Contractor will apply hierarchy of controls, such as, eliminate/ substitute, and engineering control of hazards and if hazards are low risk, then introduce administrative controls and as a final resort provide appropriate personal protective equipment.	2	3	Moderate	Contractor
Potential	The project's direct impacts on ecosystem	2	3	Moderate	• Contractor will identify the project's	2	2	Low	Contractor

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Hazards	Reasons	Risk Ranking			Control Measures	Evaluation after measures			Responsibility
		Likelihood	Consequence.	Risk		Likelihood	Consequence	Risk	
Risks and Impacts on Ecosystem Services	services may result in adverse health and safety risks to and impacts on affected communities.				potential risks and impacts on ecosystem services that may be exacerbated by climate change. • Adverse impacts will be avoided, and if they are unavoidable, the Contractor will implement appropriate mitigation measures.				

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C. Community Health and Safety Management Framework

Traffic Management Including Accident

Traffic, particularly the movement of heavy vehicles and other equipment carrier during peak hours in the construction phase of a project may cause road traffic in the highly populated area which may face the deterioration of standard living condition of those localities. School or college going students may face an unfavourable environment for their study and attending into their classes. Fatal injuries even death may be happened due to traffic congestion and unsafe driving of the project vehicles and other public transportations. Project authorities should plan to reduce such type of risks (e.g., by re-routing traffic, adjusting the timing of traffic movements and training staff and/or contractors) and work collaboratively with the Project Affected Communities to develop an appropriate Traffic Management Plan.

Accidental risks during overhead line installation and maintenance

Contractor and PGCB should be cautious while the overhead line maintenance and installation works will be performed in a densely populated area. Hanging equipment, ladder, crane, work at height etc. may pose different types of risks including fatal, minor and near miss accidents and incidents. Near miss incidents should be recorded for the future awareness. Proper protective equipment, working schedule and demarcation of the working site can reduce the hazard significantly.

Health Services Program

The health services program will enhance and monitor effective change in access to health, and any linkage to health status in general and in terms of the area of influence and specific communities and sub-populations (e.g., women, girls, children, in-migrants, visible minorities) within the project area. The health services program will use environmental, social, economic and health data to continually track and evaluate the changing vulnerability of communities within the area of influence so that action can be focused on the most vulnerable communities at any given time.

The Contractor will work with local government to identify any necessary follow-up actions if health status is negatively affected by the Project in the areas of influence. Possible follow up actions may include supporting provision of affordable health services, including mobile health outreach clinics within the areas of influence.

Disease Prevention Program

The Disease Prevention Program will focus on methods to reduce of community exposure of water related disease. The program will be delivered through the active mitigation measures (e.g., limiting bodies of stagnant water) and community awareness. The program will be informed by health monitoring e.g., dengue exposure.

Chikungunya and Dengue

Chikungunya, dengue and other vector borne disease reduction campaigns will be applied consistently throughout the Project period and will include awareness of linkages between stagnant water and dengue, including through poor sanitation conditions. Open water sources are created and/or enlarged, as a result of construction activities and storage of plant, materials and equipment, with the potential for increased mosquito breeding sites. Increased burden of disease in workforce, results in increased demand on Project health services and reduce productivity.

Perform a baseline entomological study to define the most predominant vector species in the Project area, as well as determining the susceptibility of mosquitoes to the different classes of insecticides. The Contractor will encourage good sanitation practices, and the use of mosquito nets throughout the area

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of influence. The Contractor will support development of local knowledge and on the exposure pathways and determinants of exposure in vulnerable communities. The Health Services Program will inform the Disease Prevention Program of the most vulnerable communities (with highest dengue incidence) for prioritized action. Provide information for training of workers in Chikungunya and Dengue awareness so they can take knowledge back to communities. Actions and lessons learned in the areas of influence will regularly inform Occupational Health and Safety training.

Sanitation and Water Supply

The Contractor will support the development of improved sanitation and improved water facilities. Existing drinking water supply must be monitored by the contractor so that the over-use of water by the project workers and project interventions will not make scarcity of the drinking water for the local community. Through stakeholder engagement, the Contractor will encourage people to construct, adopt and properly use improved sanitation and water facilities. Focus groups with local government, existing communities and in-migrants may be implemented to help knowledge exchange and establish common expectations for sanitary conditions in the areas of influence.

The facilitation and dissemination of information on the linkages between improved water sources, sanitation conditions and human health, and on good hygiene practices, will promote use of the improved facilities and minimize the increased incidence of water related disease and food-borne illness in the areas of influence.

On-going monitoring of health and health impact pathways (e.g., number of bodies of stagnant water, number of people with access to improved sanitation facilities) will be implemented by the Contractor with regular feedback to those affected.

Sexually Transmitted Diseases

Stakeholder engagement activities will include culturally specific and gender specific awareness education about incidence of sexually transmitted diseases in the areas of influence, information on pathways of exposure, and any local evidence to aid acceptance of this information and dispel current myths about causes of HIV/AIDS. The Contractor will assist communities in developing education materials such as those using anecdotal epidemiology that would aid increasing acceptance of evidence-based research and facts regarding HIV/AIDS.

Subcontractor Integrity Program

The Contractor will be clear about its expectations of subcontractors during all phases. The Contractor will continually monitor and evaluate companies' performance, including performing spot checks on-site, to ensure that the expected level of safety culture is being adhered to. The subcontractor integrity program will be far reaching and include, but not be limited to the performance regarding the following:

- General traffic safety;
- Hazardous materials management;
- Community health and safety;
- Occupational health and safety; and
- Adherence to construction standards stated in the general and specific conditions of the main contract.

Emergency Preparedness and Response Planning

The Contractor will develop an emergency preparedness and response plan (EPRP) to combat emergencies. The Contractor will work with local authorities to strengthen the national emergency response network in the areas of influence and to ensure implementation of the project specific

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emergencies and make arrangements with external emergency services (e.g., Fire-fighting, ambulance, etc.), if the resources available with the Contractor is not sufficient to contain the emergency.

If an external emergency arises not due to the Project but something where collaboration from the Contractor is needed for both human resources and emergency equipment, contractor can extend collaboration to work with local authorities and communities. The Contractor will develop procedures in the EPRP on actions that need to be taken, when an external emergency event is triggered. The Emergency Response Plan prepared by the contractor will cover both project-specific and emergencies in the communities. The Contractor will conduct capacity building and train local communities as needed to make sure the communities know what to do during an emergency. The Contractor will work with local authorities to make sure they are aware of it and if needed strengthen the emergency response network to be able to coordinate with the Project.

The following aspects of the Emergency Preparedness and Response Plan will be jointly addressed by the Contractor, the community and government representatives:

- Definition of information and notification chain(s) within government/regulatory agencies (who needs to be informed, who has which responsibility and access to/control over resources), following notification of the authorities by the Contractor that an emergency situation has occurred;
- Evacuation procedures for the local affected population;
- Awareness of operations and their risks and preparedness to respond (e.g., sufficient capacity of beds in local hospital);
- Preparedness of state/community emergency response teams (fire brigade) and awareness of risks and potential emergency scenarios, availability of PPE adequate for specific risks such as respirators, full-body harness etc.;
- Knowledge of site plan by ambulance teams (fastest access to critical points such as embankment, explosive storage);
- Training requirements of key people (police, hospitals and local health centers) and alignment of their training plans with the Contractor training plans;
- Commitment to coordinated emergency drills between the Contractor and police, fire fighters, national disaster management authority, etc., and aligned plans for drills; and
- Nomination of community representatives in the preparation of the external plan, and in the planning of and participation in, drills.
- Designated coordinator for EPRP implementation and
- Measures for restoration and cleanup of the environment following any major accident.

D. Community Health and Safety Awareness Program

Awareness on Community Health and Disease Prevention

Where an assessment identifies risks, for example communicable diseases, which may arise from the interaction of project workers with local communities, the EIA for the project will describe such risks and measures to address them. Such measures can include, more generally, the use of skilled trainers to raise awareness among project workers of the risks, expected behaviours, and consequences of violations, communicated through training, and publicized codes of conduct. It is also important to raise awareness of the risks among community members and local health authorities and inform them about available grievance mechanisms. In addition, the Contractor will create awareness of linkages between stagnant water and dengue, including through poor sanitation conditions in the communities' close proximity to the Project. Provide information for training of community representatives in Chikungunya and Dengue awareness so they can take the knowledge back to their respective communities.

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Community health and disease prevention awareness campaigns will be applied consistently throughout the Project duration and will include awareness of:

- Linkages between improved water sources, sanitation conditions and human health;
- Common water related disease and food borne illness rates in the areas of influence;
- Good hygiene practices;
- Benefits to properly using the improved facilities; and
- Evidence of improvement in target communities to encourage adoption in other communities.

Traffic and Road Safety Awareness

Stakeholder engagement activities, a good communication strategy, as well as monitoring and management plans will help the Contractor prevent potential negative impacts resulting from a poor in-country safety culture. These actions include the following:

- Clear expectations regarding road safety culture, road safety behavior and road safety training, provided to workers and contractors;
- On-going monitoring of traffic and Pedestrian Interface in the project area (e.g., near misses, reports from communities, reports from project traffic) with regular feedback to those affected; and
- Knowledge transfer to workers and affected communities regarding road user awareness with advice on strategies for interacting with project traffic.

In addition, the Contractor will promote traffic safety awareness in communities in the Direct Area of Influence and along the transportation route.

Waste and Hazardous Materials Management and Safety Awareness

The Contractor will provide hazardous materials management safety communications to communities in the areas of influence to deter workers, their families and others from collecting, reusing, recycling or reselling Project waste. Communications will include examples of hazardous materials used in Project construction, operation and rehabilitation, the risks to human health, and appropriate methods of use and disposal.

Solid waste as well as the electrical waste collection process and offsite disposal system should be outlined and demarcated accordingly after discussion with the local stakeholder of nearby community. Proper and effective drainage system should be developed before starting of civil and mechanical construction and waste must be collected in a sump for treatment.

Use of Security Personnel

The Contractor will engage with communities about the project's impacts on community safety and security, create awareness concerning the Code of Conduct commitment and project grievance mechanism and disclosure of the project possible outcome including the impacts through the public consultation meeting.

The Contractor will avoid internal operational silos by ensuring that their Security staff coordinate regularly with other departments, such as Community Relations and Human Resources. Through its Community Relations function, the Contractor will share information with communities about security arrangements, the Contractor’s security policies, and the expected conduct of security personnel. Dialogue with communities about security issues can also help the Contractor to identify potential risks and local concerns, and can serve as an early warning system.

Community members will be informed through the awareness program, where to go with complaints about the conduct of security personnel. Can they lodge such complaints through the company’s general

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community grievance mechanism or is there one specifically for security concerns- or even an alternative complaint mechanism (for example, as part of the local justice system)? The Contractor will maintain a clear process and communicate it. The awareness will also provide information on the community members' ability to make complaints without fear of intimidation or reprisal.

Gender considerations are also important, as women often have different experiences and interactions with security personnel. for example, the potential for sexual harassment or sexual violence against women can increase from an expanded presence of private or public security forces in a project area. The Contractor should consider to consult and create awareness separately for the women group, which may offer important perspectives and may help the Contractor to identify a fuller range of potential risks and community concerns. At the same time, security personnel's awareness of and respect for culturally specific gender issues may help the local population accept their presence. The Contractor might consider to recruit female security guards to improve cultural acceptance and reducing tensions, particularly in situations where there are frequent interactions between guards and women from the community.

Positive Lifestyles Program

Through the Community Development Plan, the Contractor will encourage culturally appropriate positive lifestyle choices in an effort to:

- Establish good financial management choices;
- Deter an increase in alcohol use, substance abuse and tobacco use;
- Avoid violence against women, including sexual violence;
- Avoid ethnic- or religious- based violence;
- Adopt good hygiene practices and sanitation; and
- Reduce the potential for STDs.

Awareness campaigns may be conducted within the workplace and at religious institutions, local governments, schools, and health clinics.

SEA/SH awareness program

Apart from the reasons of this hazard indicated in the Risk matrix (Table 10.2), other examples of Sexual Exploitation & Abuse (SEA)/Sexual Harassment (SH) need to be considered but are not limited to:

- A project worker tells women in the community that he can get them jobs related to the work site (cooking and cleaning) in exchange for sex
- A worker that is connecting electricity input to households says that he can connect women headed households to the grid in exchange for sex.
- A project worker gets drunk after being paid and rapes a local woman.
- A project worker denies passage of a woman through the site that he is working on unless she performs a sexual favor.
- A manager tells a woman applying for a job that he will only hire her if she has sex with him.
- Male staff comment on female staffs' appearances (both positive and negative) and sexual desirability.
- When a female staff member complains about comments male staff are making about her appearance, they say she is "asking for it" because of how she dresses.
- A male staff may touch female staff members' buttocks whether in project or in community when she passes her destination.
- School or college girls might get seduced or tempted by the project staff by offering gifts or other financial benefits

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To protect and prevent community SEA/SH Strengthen community engagement and awareness-raising is essential. Critical awareness activities need to be conducted which will include training and awareness-raising sessions with women, girls, boys and men in communities of concern as well as with other stakeholders (including implementing and operational partners, government officials, civil society organizations, and companies in the private sector). To prevent SEA effectively, all staff and project workers must make sure that project Persons of Concern (PoC) are aware of their rights and entitlements. On the other hand, PoC from contractor and project management side should know that they are entitled to assistance that they should never be expected to provide any form of sexual favour, and that demands for such favours are strictly prohibited. Community and project victims should also know how and where to report SEA incidents safely and confidentially when they occur. As part of prevention, trainings and information campaigns should be put in place for all project personnel and PoC. Training and information campaigns may include the distribution of information sheets, posters and videos, or community meetings, focus group discussions, etc.

Beside that the project will include a general Code of Conduct (CoC) as well as a Labor Code of Conduct, covering the Gender-Based Violence (GBV)/SEA/SH related risks for the contractors, sub-contractors, and laborers who will be employed under the project.

Other Measures to Manage CHS Risks

Safety of Services by maintaining quality Management Systems

The Contractor will establish and implement appropriate quality management systems to anticipate and minimize risks and impacts. Projects may provide many kinds of services to communities, such as those relating to education and health, social security and social protection, transport, and utilities, such as electricity and gas, water and sanitation, and waste disposal. Management systems that address the safety of such services are important because without adequate protection measures the provision of such services can present dangers for communities. Such systems address the community health and safety risks posed by project services, for example, risks associated with:

a) Infrastructure construction and heavy equipment movement, such as, struck by moving vehicle;
b) Erection of steel pole for the overhead electricity distribution may cause the minor to fatal injuries.
c) Slip, trip and fall injuries due to wet road and uncovered excavated trench.
d) Waste disposal, such as toxicity, waste dump collapse, or air pollution;
e) Quarries or excavation works, such as rock falls or hazardous equipment;
f) Water and sanitation services, such as contaminated water or spread of disease;
g) Electricity supply, which may result in electric shock from electrical cabinets or cables;
h) Service providers, which may use their service for the purpose of financial, sexual, or other exploitation, particularly of vulnerable groups such as women, children, and the elderly.

In such circumstances, the Contractor will apply hierarchy of controls, such as, eliminate/substitute, and engineering control of hazards and if hazards are low risk, then introduce administrative controls and as a final resort provide appropriate personal protective equipment.

Potential Risks and Impacts on Ecosystem Services

The project's direct impacts on ecosystem services may result in adverse health and safety risks to and impacts on affected communities. Where appropriate and feasible, the Contractor will identify the project's potential risks and impacts on ecosystem services that may be exacerbated by the project interventions. Adverse impacts will be avoided, and if they are unavoidable, the Contractor will implement appropriate mitigation measures.

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Ecosystem services are the benefits that people derive from ecosystems. The provisioning services that ecosystems provide include the products people obtain from the ecosystems, such as food, freshwater, timbers, fibres, and medicinal plants. Regulating services of ecosystems are the benefits people obtain from the regulation of ecosystem processes, such as surface water purification, carbon storage and sequestration, climate regulation, and protection from natural hazards.

Training and Competency

The Contractor will ensure that personnel responsible for the execution of tasks and requirements in this Plan are competent based on education, training, and experience.

Training to be provided to workers who may be exposed to hazards (health, safety or security) associated with Project activities. The training and increase in Project worker awareness associated with health, hygiene and sanitation, communicable disease, sexually transmitted infection (STI) and HIV/AIDS education campaigns are a key component in minimizing health risks to the community posed by activities of the Project.

Training will include, but not be limited to:

- Voluntary Principles for Security and Human Rights training for all Project security guards and security management, including the appropriate use of force and protection of human rights;
- STI and HIV/AIDS prevention and awareness training for all workforces;
- Driver training to improve driver and vehicle safety, as well as systems for monitoring and enforcement;
- Road and traffic safety awareness for school children and the community leaders;
- Sanitation and nutrition awareness and education for all workforces, with a focus on messages which can be taken home to families to encourage good sanitation and nutrition practices in rural settings;
- Respiratory illness and infectious disease management, including TB;
- Vector-borne disease awareness including Chikungunya and Dengue;
- Speed restrictions in populated areas, safe driving in rural areas, safe driving in dusty environments, defensive driving and basic first aid;
- Guidance for all workforces with potential occupational exposures and prevention to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2);
- Benefits of vaccinations and disease prevention; and
- Adverse impacts of Drug and Alcohol usage.

Monitoring and Maintenance

Confidentiality Requirements

The Contractor will ensure health data are handled to an international standard of medical ethics. Health data is confidential to the individual and health professionals only. the Contractor will assure that data is stripped of all personal identifiers before dissemination to other (non-medical) company employees or external bodies, reducing the potential for any internal or external discrimination of employees or community members. Sample size and relative risk of personal identification will need to be taken into account before combined health data is published internally and externally. The Contractor understands that confidentiality of health data overrides any need to demonstrate vulnerability in a population, sub-population or individual.

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Appendix VII: Sample Environment Monitoring Report

Environmental Safeguards Monitoring Report

(ICB-XX)

Project Number:
Reporting Period {From Month Year to Month Year}
Date {Month Year}
Report No.

Project Name

Prepared by xxxxxxx for the Asian Development Bank

This environmental safeguard monitoring report is a document of the borrower and made publicly available in accordance with ADB's Access to Information Policy 2019 and the Safeguard Policy Statement 2009. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff.

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List of Abbreviations {All abbreviations used in the report should be listed here as well as being spelt out in full the first time they appear in the report}

AP	Affected Persons
Dept.	Department
GIS	Gas Insulated Switchgear
GoB	Govt of Bangladesh
GRC	Grievance Redressal Committee
Ha.	Hectare (10,000 sq. m. land)

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4 Compliance to Institutional Arrangements (PAM/EMP)
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7 Environmental Supervision and Monitoring Results
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Annexures

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Executive Summary {Maximum two-page summary following table like the sample below, if necessary cross reference the relevant section of the main report for details to keep summary succinct}

Project Name	
Loan Number	
Executing Agency	
Implementing Agency	
Contact Name and Address (ESO)	
Environment Safeguards Categorization	
Environment Safeguards Documentation	EARF/IEE/Existing Facilities CAP/EMP
Monitoring Period Covered	
Project Stage Obtained	Design/Pre-Construction/Construction/Commissioning/O&M
Detailed Design Required Post-Approval	Yes/No – if yes include remarks on status of design progress (%) and if more than one design package, provide details if any differences between the status
Contract(s) Awarded	Yes/No – if more than one contract package, provide details
Bidding Document(s) Include EMP Cleared by ADB	Yes/No – if more than one contract package, provide details if any difference between the status
Contract(s) Awarded Include EMP Cleared by ADB[11]	Yes/No – if more than one contract package, provide details if any difference between the status
National Environment, Health and Safety Clearance(s) Obtained	Yes/No/NA – provide details if any clearances are outstanding or there is any difference between the status of contract packages, use NA if any clearances not yet required
Contractor(s) Given Access to Site	Yes/No – if more than one contract package, provide details if any difference between the status
Construction Progress (%)	If more than one contract package, provide details if any difference between the status
Unanticipated Impacts including Change of Scope or Design	Yes/No – if yes, provide brief details with how the IEE and EMP updated as required
Number of Site Inspections and Audits Undertaken by Environment Safeguards Staff in Reporting Period	
Corrective Action Required from Previous Reporting Period	Yes/No/NA – use NA if this is the first project reporting period
Outstanding Corrective Action this Reporting Period	Yes/No/NA – if yes, provide bulleted summary of the key actions still required, use NA if the response to above is No or NA
Non-Compliances Recorded this Reporting Period	Yes/No – if yes, provide bulleted summary of the key non-compliances recorded
Corrective Action Required	Yes/No – if yes, provide bulleted summary of the key actions to be taken in response to non-compliances including timeline and budget
Number of Health and Safety Incidents	Provide brief details including how they were responded to
GRM Functional	Yes/No – briefly elaborate on set up if differs to description in IEE/EMP

[11] This refers to the version of the EMP which is included in the IEE disclosed on the ADB website

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Number of Unresolved Grievances from Prior Reporting Period	
Number of Grievances Received in Reporting Period	
Number of Grievances Resolved this Reporting Period	
Number of Grievances Still Outstanding	Provide brief details with timeline for resolution
Number of Grievances referred to Court of Law	Provide brief details
Number of Grievances referred to the Accountability Mechanism	Provide brief details

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1.0 Introduction

1.1 Brief Project Description

{Maximum two pages to succinctly convey who the executing and implementing agencies are, the project outputs, construction works involved, details of contract packages, details of construction camps and other related facilities, national and ADB environmental safeguards project categorizations, and the environment safeguard documents (dates) applicable to the project}

{Include maps and plans showing the project site locations and project area of influence}

{Include table and/or organogram of environmental safeguards staffing and relationships between executing and implementing agencies, consultants, contractors, subcontractors, lenders, etc.}

1.2 Project Progress Status and Implementation Schedule

{Describe the implementation stage reached (design, pre-construction, construction, commissioning or O&M) and the % progress, main project activities and milestones achieved during the reporting period, including bidding documents issued and contracts awarded during the reporting period etc. No need to repeat progress information included in previous monitoring reports if no change, cross reference the previous monitoring reports if needed}

{Highlight any unanticipated impacts in relation to change in the project scope, locations or alignments of components, construction methods, and/or implementation schedule during the reporting period, if none confirm this.}

{Highlight any changes in the project organization and environmental safeguards staffing during the reporting period, if none confirm this}

{Report on any unanticipated impacts and updates to IEE/EMP that were required during the reporting period, status of delivery of documents, required amendments, consultation and disclosure undertaken etc.}

{The project Gantt chart may be included}

{Include a simplified table like the sample below to report progress}

Project Component/Subproject and Stage	**Target Completion Date {Revised Target Date, if delayed}**	**Progress Status {not yet started; ongoing; completed}**	**Percent Completed**	**Remarks**
Component X/Subproject X (construction phase)				
• Contract award	31 Jan 20XX	Completed	100%	Contract awarded to XYZ contractor, copy of EMP included
• Construction (site clearance, earthworks, civil works, installation of equipment, …)	31 Mar 20XX (original target completion was 31 Dec 20XX)	Ongoing	85%	There was a delay in the delivery of equipment…

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Project Component/Subproject and Stage	Target Completion Date {Revised Target Date, if delayed}	Progress Status {not yet started; ongoing; completed}	Percent Completed	Remarks

Detailed Design Environmental Receptors Information

{Once the detailed design is approved include the final environmental receptor information to demonstrate compliance with the EMP requirements in relation to separation distances etc.}

				Minimum distance to…					
Project Component/ Subproject	Date of Detailed Design Approval	Location or Route Variation from IEE (yes/no)	IEE updated (yes/no)	House	School	Temple or Other PCR	Clinic	Waterbody	Protected Area

2.0 Compliance to National Regulations and International Agreements

{Status of compliance and further action to ensure ongoing compliance; if there is partial or no compliance recommendations for corrective action are required. Copies of all clearances/permits to be attached. Provide explanations of any instances where the requirements of regulations or agreements were breached along with details of responses taken to rectify the breach once identified. Include all the applicable National Regulations and International Agreements following the sample table; an indicative list is started but please supplement with all applicable to the project.}

National Regulation or International Agreement	Compliance Requirements under the Regulation or Agreement including any Environmental Clearances Required	Compliance Status {complied; partially complied; not complied; still ongoing or n/a at current stage of the project}	Remarks {provide details (evidence) to show how compliance was achieved; or explain the corrective action to be taken if there was non-compliance including timeline and budget}

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{for forest Clearance and approvals for Government/Public tree cutting elaborate on status of compliance and further action to ensure ongoing compliance; if there is partial or no compliance recommendations for corrective action are required. Copies of all clearances/permits to be attached. Provide explanations of any instances where the requirements of regulations or agreements were breached along with details of responses taken to rectify the breach once identified}

	forest Clearance {attach copy of clearance granted and English translation}	**Compliance Status {complied; partially complied; not complied; still ongoing or n/a at current stage of the project}**	**Remarks {provide details (evidence) to show how compliance was achieved; or explain the corrective action to be taken if there was non-compliance including timeline and budget}**
ROW under forest Area			
Component/Subproject Area: XXXX	Date obtained: XXXX Compliance requirements: XXXX		
…			
Government/Public Trees to be Cut			
Component/Subproject No. Trees: XXXX	Date obtained: XXXX Compliance requirements: XXXX		
…			

{for transmission line works in potential Sunderbans area Bustard area elaborate on status of compliance. Copies of all approvals to be attached. }

	Detailed design approval {attach copy of approval and English translation}	**Compliance Status {complied; partially complied; not complied; still ongoing or n/a at current stage of the project}**	**Remarks {provide details (evidence) to show how compliance was achieved; or explain the corrective action to be taken if there was non-compliance including timeline and budget}**
Component/Subproject	Date obtained:		

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Area: XXXX	XXXX Compliance requirements: XXXX		
…			

3.0 Compliance to Environmental Covenants from the ADB Loan Agreement

{Status of compliance and further action to ensure ongoing compliance; if there is partial or no compliance recommendations for corrective action are required. Provide explanations of any instances where covenants were breached along with details of responses taken to rectify the breach once identified. Include all the applicable Loan Agreement covenants on environment following the sample table below}

Schedule #, Para. #	**Covenant**	**Compliance Status {complied; partially complied; not complied; still ongoing or n/a at current stage of the project}**	**Remarks {provide details (evidence) to show how compliance was achieved; or explain the corrective action to be taken if there was non-compliance including timeline and budget}**

4.0 Compliance to Institutional Arrangement Requirements (PAM/EMP)

{Status of compliance and further action to ensure ongoing compliance; if there is partial or no compliance recommendations for corrective action are required. Provide explanations of any instances where staff or consultants have not been employed or tasks allocated to the executing or implementing agency and any consultants have not been undertaken along with details of responses taken to rectify the situation once identified. Include all applicable organizations with responsibility for environmental safeguards following the sample table below}

Organization	**Institutional Arrangement Requirements (Staff/Consultants)**	**Compliance Status {complied; partially complied; not complied; still ongoing or n/a at current stage of the project}**	**Remarks {provide details (evidence) to show how compliance was achieved; or explain the corrective action to be taken if there was non-compliance including timeline and budget}**

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5.0 Compliance to Contract Provisions for Environment, Health and Safety

{Status of compliance and further action to ensure ongoing compliance; if there is partial or no compliance recommendations for corrective action are required. Provide explanations of any instances where tasks allocated to the contractor have not been undertaken along with details of responses taken to rectify the situation once identified. Include all contract packages and provisions relating to environment, health and safety management following the sample table below}

Contract Package	**Contract Provisions**	**Compliance Status {complied; partially complied; not complied; still ongoing or n/a at current stage of the project}**	**Remarks {provide sufficient details (evidence) to show how compliance was achieved; or explain the corrective action to be taken if there was non-compliance including timeline and budget}**
Package 1			
Package 2			
Package 3…			

6.0 Compliance to Mitigation Plan

{With reference to the EMP of the project, include a table following sample table below with the compliance status during the reporting period, with sufficient details (evidence) to show how compliance was achieved, or corrective action to be taken if there was non-compliance including timeline and budget}
{Flag if previous environmental monitoring report(s) included corrective action plan, if it did details of that corrective action plan should be incorporated into the EMP table and compliance status reported}
{Provide explanations of any instances where performance standards were temporarily exceeded during the reporting period, along with details of any response taken to rectify the exceedance once identified, even if at the end of the reporting period the project is deemed as being compliant}
{Copies of clearances, CEMP, construction method statements, and other documentation produced in accordance with EMP during the reporting period should be included as an appendix}

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Item #	Mitigation Action	Actions during Reporting Period including any Corrective Action Taken within the Period {provide sufficient details (evidence) to show how compliance was or is being achieved}	Cumulative Progress and Compliance Status to Date {complied; partially complied; not complied; still ongoing with indication of when it will be completed or n/a at current stage of the project}	Corrective Action Required in Next Reporting Period {explain the corrective action to be taken if was non-compliance including timeline and budget}	Responsibility {for continued implementation of mitigation and corrective action required}

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Environmental Supervision and Monitoring Results

7.1 Environmental Supervision/Qualitative Environmental Monitoring

{With reference to the EMP capacity development plan summarize trainings for the executing and implementing agencies, contractors, and subcontractors, and other activities completed. Include as appendices the training agenda, attendance sheets, and photos. If no trainings or other activities in reporting period, please confirm. Copies of training records related to EMP during the reporting period should be included as an appendix}

Trainings	Number and Position of Participant/s	Location/s and Date/s	Remarks

{With reference to the EMP budget table summarize details of budget allocated for EMP implementation and the current spend profile}

Activity	Allocated Budget	% Spend	Remarks
TOTAL			

{Site inspections and audits completed – summarize the number and type of site visits, persons involved, the issues covered, and status of compliance with them, the number of non-compliance notices given out to the contractor as a result of the site visit, and the checklists/reporting format used (sample of checklists and reports to be included as an appendix)}

Date	Type and Purpose of Visit	Location/s Visited	EA, IA, Consultant Staff Participating	Remarks

7.2 Quantitative Environmental Monitoring

{Environmental monitoring results – summarize in a table the reporting period's quantitative monitoring activities and data obtained in accordance with the Environmental Monitoring Plan (EMoP) of the project. Provide explanations of any instances where performance standards were exceeded along with details of responses taken to rectify the exceedance once identified}

Typically, this section will include the results of:

- Noise and vibration surveys
- Water quality surveys
- Air quality surveys
- Soil quality surveys
- Flora and fauna surveys
- Birds counts in relevant places

{Indicate the monitoring locations using a map or plan, dates, times, duration of samples as applicable, weather conditions as applicable, parameters measured, equipment used, standards, tests, and limits

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used etc.}

{Corrective actions with timeline and budget are required to ensure any exceedances will be prevented in the future}

{Graphs can be used in this section to show trends; however, large tables of data or multiple graphs should be attached as an appendix.

{Calibration and QA certifications of monitoring equipment and laboratories analyzing samples should be included as an appendix}

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Item #	Parameters to be Monitored	Monitoring Undertaken During Reporting Period {include details of sampling locations, dates and duration monitoring was undertaken etc.}	Results {refer to separate table or annex as appropriate}	Performance Standards[12]	Compliance with Performance Standards {observations on whether performance standards are complied; standards exceeded, note extent of deviation observed}	Corrective Action Required in Next Reporting Period {explain the corrective action to be taken if to rectify any exceedence of performance standards including timeline and budget}	Responsibility {for continued implementation of quantitative monitoring and corrective action required}

[12] The more stringent of the GoI regulations and WHO (IFC/World Bank EHS) guidelines will be followed for monitoring purposes.

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7.3 Biodiversity Monitoring

{Biodiversity monitoring results – summarize biodiversity surveys undertaken and their findings, any wildlife observations, and any biodiversity incidents during the reporting period in accordance with the Environmental Monitoring Plan (EMoP) of the project. Provide explanations of any instances where performance standards were breached along with details of responses taken to rectify the exceedance once identified}

{Corrective actions with timeline and budget are required to ensure any breaches will be prevented in the future}

{for installation of bird divertors elaborate on status of compliance and further action to ensure ongoing compliance; if there is partial or no compliance recommendations for corrective action are required. Copies of photographs of installed divertors showing spacing and arrangement for each component/subproject or line used as biodiversity offset are to be attached.}

	Length requiring installation of bird divertors (100%, see IEE for other requirements)	**Length on which bird diverters have been installed {provide locations of lines as.kmz file}**	**Collision recorded during biodiversity monitoring (priority bird species, other birds)**	**Compliance Status {complied; partially complied; not complied; still ongoing or n/a at current stage of the project}**	**Remarks {provide details (evidence) to show how compliance was achieved; or explain the corrective action to be taken if there was non-compliance including timeline and budget}**
Component/Subproject: XXXX					
…					
Component/Subproject: XXXX					
…					
Transmission Line Name: XXXX					

{Include the biodiversity trainings/inspections conducted by the contractors during the reporting period following the sample table below. Include as appendices the training/inspection agenda, attendance sheets, and photos. If no trainings/inspections, please confirm}

Trainings/ Inspections	Number and Position of Participant/s	Location/s and Date/s	Remarks
Example:	50 Laborers	Substation, 15 Aug	Participants were informed

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Biodiversity Training		20XX	about prohibition on poaching etc…

7.3 Pollution Control Monitoring

{Pollution control monitoring results – summarize any pollution incidents during the reporting period in accordance with the Environmental Monitoring Plan (EMoP) of the project. Provide explanations of any instances where performance standards were exceeded along with details of responses taken to rectify the exceedance once identified}

{Corrective actions with timeline and budget are required to ensure any exceedances will be prevented in the future}

{Include the pollution control trainings/drills/inspections conducted by the contractors during the reporting period following the sample table below. Include as appendices the training/drill/inspection agenda, attendance sheets, and photos. If no trainings/drills/inspections, please confirm}

Trainings/Drills/ Inspections	Number and Position of Participant/s	Location/s and Date/s	Remarks
Example: Oil Spill Drill	50 Laborers	Substation, 15 Aug 20XX	Participants safely controlled simulated spill…

{If there were any materials used, solid or hazardous waste, or wastewater generated in the reporting period report following the sample table below. If no materials used or waste generated, please confirm}

Type of Materials/Waste	Approximate Volume (units)	Source or Destination	Remarks
Material examples: Transformer Oil Sand for Fill			
Waste examples: Sanitary Wastewater Spoil from Earthworks Old Transformers Hazardous Waste			

7.4 Occupational and Community Health and Safety Monitoring

{Health and safety monitoring results – summarize the reporting period's health and safety activities and data obtained in accordance with the Environmental Monitoring Plan (EMoP) of the project. Provide explanations of any instances where performance standards were exceeded along with details of responses taken to rectify the exceedance once identified}

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{Corrective actions with timeline and budget are required to ensure any exceedances will be prevented in the future}

{Include the occupational and community trainings/drills/inspections conducted by the contractors during the reporting period following the sample table below. Include as appendices the training/drill/inspection agenda, attendance sheets, and photos. If no trainings/drills/inspections, please confirm}

Trainings/Drills/ Inspections	Number and Position of Participant/s	Location/s and Date/s	Remarks
Example: Fire Drill	50 Laborers	Construction Camp, 15 Aug 20XX	Participants safely evacuated the site…

{If there was any near-miss or accident, illness, or other occupational or community health and safety related incident during the reporting period (or a previously reported incident with ongoing rectification) report following the sample table below. Include as appendices work safety checklists, incident reports, and other relevant supporting documents. If no incidents, please confirm}

	Number and Position of Person/s Involved	Location/s and Date/s of Incident	Detailed Description of Incident	Time-bound Corrective Action
Fatality				
Non-fatal Injury (Lost Time)				
Non-fatal Injury (Minor)				
Near-miss				
Illness				
Other Incidents				

8.0 Meaningful Consultations and Grievance Redress

{Meaningful consultation – report on any ongoing consultation undertaken, and main issues raised by consultees; detailed consultation records should be included as an appendix. If no ongoing consultation, please confirm}

Date	format/Venue	Participants (Occupation, M/F)	Main Issues Raised

{Include a brief description of the GRM, provide a flowchart, list of grievance redress committee members and any trainings they have received}

{If there was any grievance or complaint, regardless informal or minor, during the reporting period (or previously reported complaint with ongoing rectification) provide the corrective action taken following the sample table below. Detailed grievance records and response reports should be included as an appendix}

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Complainant/s or Affected Persons	Location/s and Date/s of Complaint	Description of Grievance/Complaint	Date or Timeline for Resolution*	Remarks/ Time-bound Corrective Action once Resolved

* To be solved within 2 weeks

8.0 Conclusions and Recommendations

{Summarize the project's environmental performance during the reporting period based on the previous sections and, if any non-compliance identified, provide detailed recommendations including responsibilities, timeliness and budget for the preparation and completion of corrective action}

{If non-compliance is major or not readily addressed then a separate corrective action plan may need to be prepared. for minor and readily addressed non-compliances the corrective action plan can be incorporated into this final section of the environmental monitoring report following the sample table below}

Non-compliance	Corrective Action to be Taken	Responsibility	Timeline	Budget

APPENDICES

Photographs {Include relevant photographs of the project site and project area of influence taken during the reporting period to provide evidence of compliance and/or non-compliance. for each photo, provide a caption with description of what it illustrates, accurate location, and date taken}

Supporting Documents
{E.g. Maps and plans
Sample checklists and reports
Clearances and documentation
Training records
Detailed monitoring data, laboratory results etc.
Biodiversity monitoring reports (of 3rd party)
Calibration and QA certificates
Consultation records
Meeting agendas and attendance records
Grievance records
Environment, health and safety reports}
Hazardous waste management
Accident preparedness

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Appendix VIII: Participants Lists and Photographs of Stakeholder Consultations/KII/PCMs/Gender/FGDs[13]

All photopraphs and Attendance sheets are sourced from SES survey conducted by SSCL, June 2024 and Resettlement Plan

AVIII.1: Stakeholder Consultation and Gender Meeting Photographs& Attendance Sheets - Substations

AVIII.1.1: Near Pekua Substation

Consultation Photographs (Pekua)

<table>
<tr>
<td> 
Public Consultation Meeting</td>
<td> 
Public Consultation Meeting</td>
</tr>
<tr>
<td> 
Gender Consultation Meeting</td>
<td> 
Gender Consultation Meeting</td>
</tr>
</table>

Source: SES Survey, 2024

[13] These are initial representative sites for which data was collected by ADB TA survey team, All consultations will be repeated by each Contractor for each site at award stage for detailed design to account for if any sites are left out.

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Attendent Sheet : Public Consultation (Pekua)

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/~~PGCB~~/BREB:
Name of the TLS/LILO/Substation Pekua VRE Hub station 400/230/132 kV AIS
GPS Location: 21.750740, 91.984324 Date: 12/06/24 Time: 3.00pm

Name of Village: হলিদিয়া Name of Union/Word: ৫ নং
Name of Mouza: বাকিম ৫ নং Name of Sub-District: চকরিয়া
Name of District: কক্সবাজার

LIST OF PARTICIPANTS FOR ~~FOCUS GROUP DISCUSSION (FGD)~~ PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Sabbir hossain	Male	Business	
02	Ofir ahmed	Male	farmer	
03	Sujon mohmad	Male	Business	
04	Sobir ahmed	male	farmer	
05	abu taher	Male	farmer	
06	Md. Selim uddin	Male	farmer	
07	Ali Azmed	Male	Raj mistri	
08	Md. Noyon hossain	Male	Bussiness.	
09	Abdul rashid	male	Bussiness.	
10	Rifat	Male	student.	
11	Forchad	Male	Farmer	
12	Shipon Biswas	Male	Farmer	
13	Monsur	Male	Job	

Source: SES Survey, 2024

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Attendent Sheet: Gender Consultation (Pekua)

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation Pekua VRE Hub station 400/230/132 kV AIS
GPS Location: 21.75873, 92.007074 Date: 13/06/24 Time: 11.00 pm

Name of Village: ইলিশিয়া Name of Union/Word: হেতলা
Name of Mouza: আনিচম বট হেতলা Name of Sub-District: চকরিয়া
Name of District: কক্সবাজার

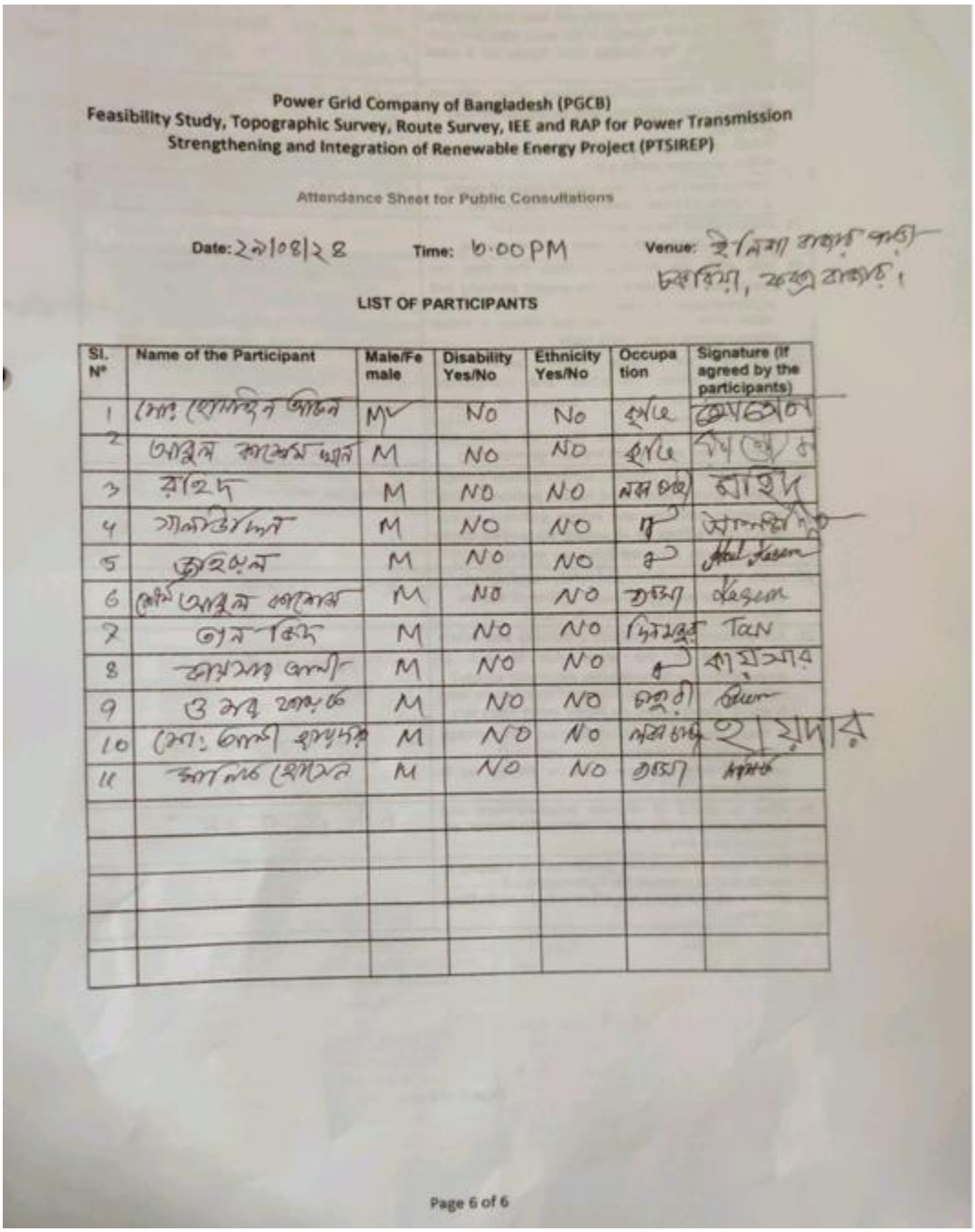
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	মাহেদা বেগম	F	গৃহিনি	মাহেদা
2	বিলকিস	F	〃	বিলকিস
3	রিজিয়া বেগম	F	〃	রিজিয়া
4	আনোয়ারা বেগম	F	〃	আনোয়ারা
5	ফাতেমা বেগম	F	〃	ফাতেমা
6	সাজু বেগম	F	〃	সাজু বেগম
7	সুফিয়া খাতুন	F	〃	সুফিয়া খাতুন

Source: SES Survey, 2024

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List of Participants for Consultation Near Pekua Substation



Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: ২৯/০৪/২৪ Time: ৬.০০ PM Venue: [illegible]

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (if agreed by the participants)
1	[illegible]	M	No	No	[illegible]	[illegible]
2	[illegible]	M	No	No	[illegible]	[illegible]
3	[illegible]	M	No	No	[illegible]	[illegible]
4	[illegible]	M	No	No	[illegible]	[illegible]
5	[illegible]	M	No	No	[illegible]	[illegible]
6	[illegible]	M	No	No	[illegible]	[illegible]
7	[illegible]	M	No	No	[illegible]	[illegible]
8	[illegible]	M	No	No	[illegible]	[illegible]
9	[illegible]	M	No	No	[illegible]	[illegible]
10	[illegible]	M	No	No	[illegible]	[illegible]
11	[illegible]	M	No	No	[illegible]	[illegible]

Page 6 of 6

Source: TA consultant, 2024

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AVIII.1.2: Near Madhabpur Substation
Consultation Photographs

 Public Consultation Meeting-1	 Public Consultation Meeting-1
 Public Consultation Meeting-2	 Public Consultation Meeting-2
 **Gender Consultation Meeting**	 **Gender Consultation Meeting**

Source: SES Survey, 2024

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Attendent Sheet : Public Consultation- 1

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation: Madhabpur 230/132/33/ KV AIS Double Bus
GPS Location: 24.122455, 91.319198 Date: 3/oc/24 Time: 11.00am

Name of Village: বাকশাইল
Name of Union/Word: –
Name of Mouza: বাকশাইল
Name of Sub-District:
Name of District: –

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	বিপন দাস	male	ব্যবসা	
2	উত্তম দাস	"	"	
3	নিরেন্দ্রচন্দ্র	"	কৃষি	
4	আলোতি রানী দাস	Femal	গৃহিনী	
5	অনিমা রানী দাস	"	গৃহিনী	–
6	শক্তিপদ দাস	"	"	
7	আরতি দাস	"	"	
8	টিকেন্দ্র দাস	male	কৃষি	
9	হরিপদ দাস	"	"	
10	অরবিন্দ দাস	"	"	
11	বিধান দাস	"	"	

Source: SES Survey, 2024

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Attendance Sheet: Public Consultation - 2

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation Madhubpur 230/132/33 kV AIS Double Bus
GPS Location: 24.122673, 91.319261 Date: 03/06/24 Time: 10.00 am

Name of Village: Bakshair
Name of Mouza: Bakshair
Name of District: Habigonj
Name of Union/Word: Andiura
Name of Sub-District: Madhobpur

LIST OF PARTICIPANTS FOR ~~FOCUS GROUP DISCUSSION (FGD)~~ PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	Nirendro Das	M	Farmer	
2	Tipendro Das	M	11	
3	Dilip Kumar	M	Business	
4	Bidhan Das	M	Business	
5	Sujon das	M	Teacher	
6	Degendro Das	M	Farmer	
7	Osman Khan	M	11	
8	Amit Hashan	M	11	
9	Shithis Kumar	M	Business	
10	Shima Rani	F	Housewife	
11	Promita Rani	F	11	
12	Purnima	F	11	

Source: SES Survey, 2024

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Attendent Sheet: Gender Consultation

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation: Madhabpur 230/132/33 kV AIS Double Bus
GPS Location: 24.122839, 91.320555 Date: 03/06/24 Time: 2.00pm

Name of Village: বাকলাইর
Name of Union/Word: আনন্দবাজার
Name of Mouza: বাকলাইর
Name of Sub-District: মাধবপুর
Name of District: হবিগঞ্জ

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	লক্ষি রানি দাস	F	Housewife	লক্ষি
2	আরোতি রানি	F	〃	আরোতি
3	সুনিমা	F	〃	সুনিমা
4	আলোরোন রানি	F	〃	আলোরোনরানি
5	সুচিত্রা রানি	F	〃	সুচিত্রা
6	কনাচিতা	F	〃	কনাচিতা

Source: SES Survey, 2024

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List of Participants for Consultation Near Madhabpur Substation

Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

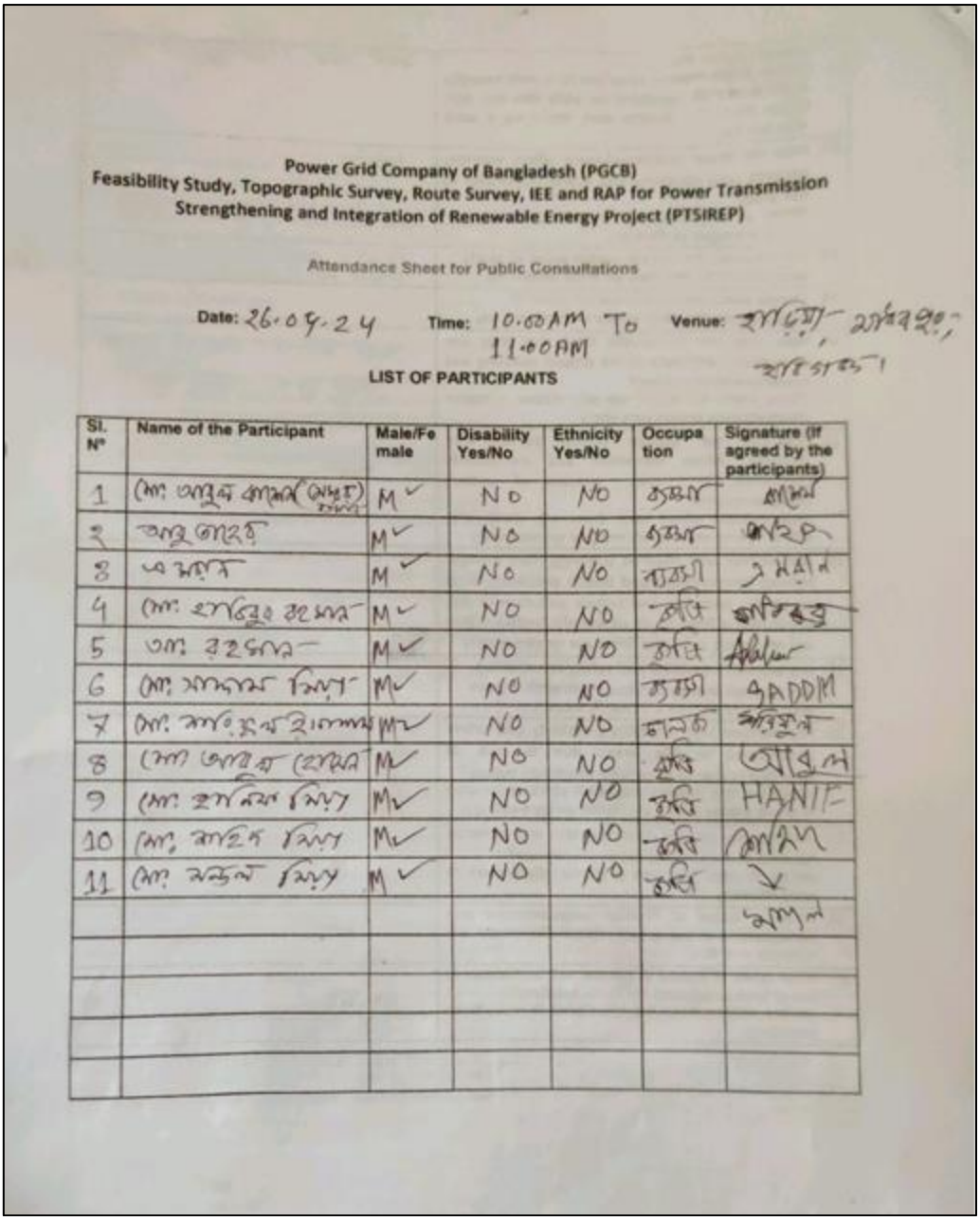
Date: 26.04.24 Time: 4.00PM Venue: বাড়েকুড়ি/ বাসস্ট্যান্ড, মাধবপুর, হবিগঞ্জ।

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
1	অমলেন্দু দাস	M	No	No	কৃষক	
2	দীপেন্দ্র দাস	M	No	No	কৃষি	
3	আরতী	F	No	No	গৃহিণী	
4	রিপেন্দ্র	M	No	No	কৃষি	
5	নিউটন দাস	M	No	No	কৃষি	
6	রিপন দাস	M	No	No	কৃষি	
7	আরতী রানী দাস	F	No	No	গৃহিণী	
8	সবিতা	F	No	No	গৃহিণী	
9	রিপেন্দ্র	M	No	No	কৃষি	

Source: TA consultant, 2024

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Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: 26.05.24 Time: 10.00AM To 11.00AM Venue:

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
1		M	No	No		
2		M	No	No		
3		M	No	No		
4		M	No	No		
5		M	No	No		
6		M	No	No		
7		M	No	No		
8		M	No	No		
9		M	No	No		
10		M	No	No		
11		M	No	No		

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AVIII.1.3: Near Chatkhil Substation

Consultation Photographs



Public Consultation Meeting



Public Consultation Meeting



Picture of Gender Consultation Meeting



Picture of Gender Consultation Meeting

Source: SES Survey, 2024

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Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/~~PGCB~~/BREB:
Name of the TLS/LILO/Substation Sonaimuri 132/33 kV AIS
GPS Location: 23.058038, 91.081224 Date: 10/06/24 Time: 10.30am

Name of Village: কুলুয়াই
Name of Union/Word: ২নং নবোনা
Name of Mouza: কুলুয়াই
Name of Sub-District: সোনাইমুরি
Name of District: নোয়াখালি

LIST OF PARTICIPANTS FOR ~~FOCUS GROUP DISCUSSION (FGD)~~ PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	তোফায়েল আহম্মেদ	M	ব্যবসা	
2	হারাধন চন্দ্রসুত্র দব	M	"	
3	মো: আকিব	M	"	
4	আবদুল রব	M	চাকুরি	
5	জোলিম মিয়া	M	কৃষি	
6	জসিম	M	"	
7	মাহফুজ	M	"	
8	রাহাত	M	ব্যবসা	
9	মোসাদ্দি	F	গৃহিনি	
10	মমতাজ	F	"	
11	ফিলিস্তুবা	F	"	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation Sonaimuri 132/33 kV AIS
GPS Location: 23.057290, 91.076893 Date: 10/06/24 Time: 12.00pm

Name of Village: ~~Shabar Para~~ PACHIM KALUYAI
Name of Union/Word: 2 NO NODONA
Name of Mouza: KALUYAI
Name of Sub-District: SHONAIMURI
Name of District: ~~NOYA~~ NOAKHALI

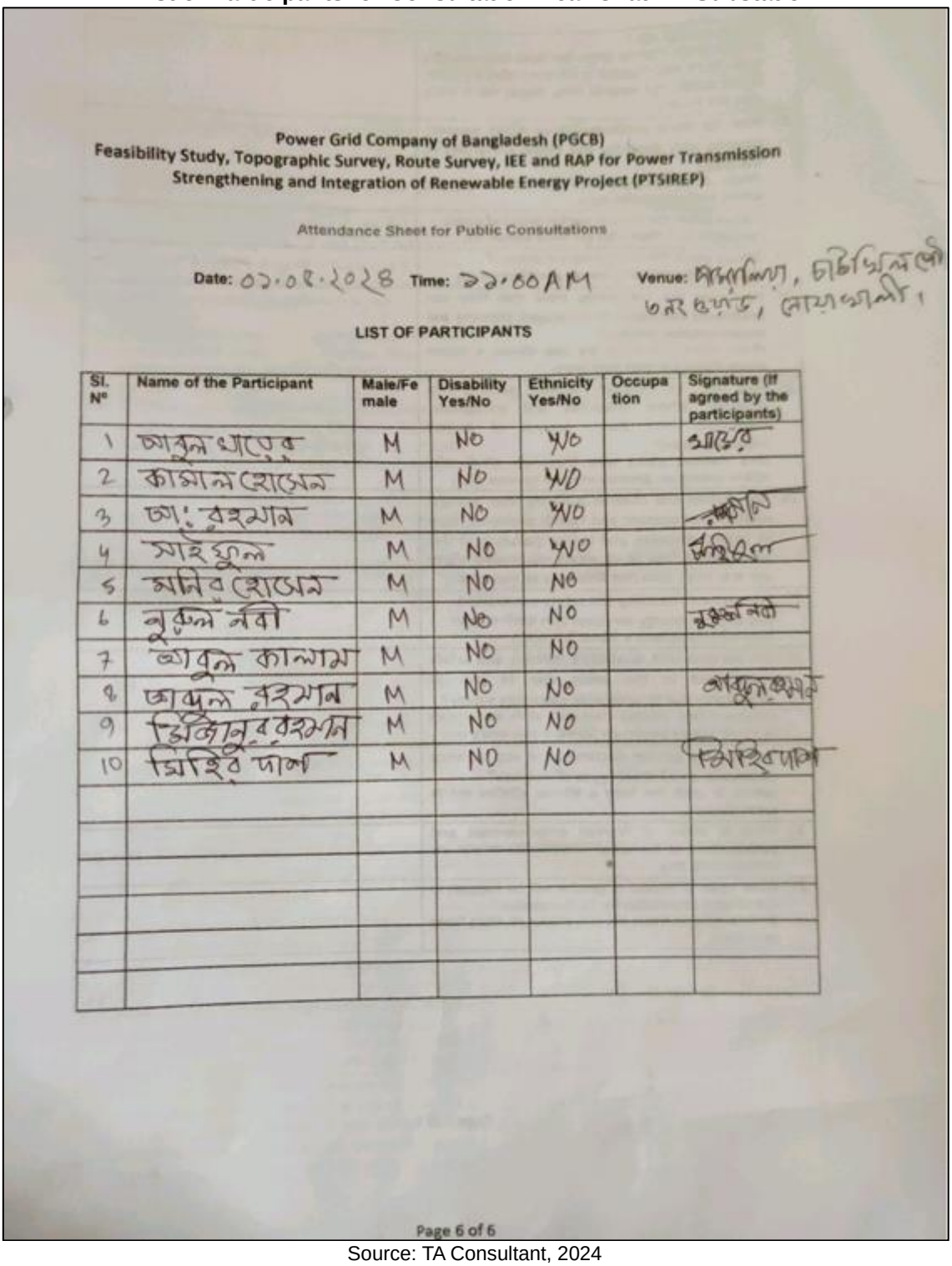
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	KULSUM BEGUM	F	House wife	কুলসুম বেগম
2	SHAMIMA	F	11	শামিমা
3	ϕ SHEFALI	F	11	শেফালি
4	BOKUL	F	11	বকুল
5	ROKSANA	F	11	রোকসানা
6	SHAHINA	F	11	শাহিনা
7	SHAHANARA	F	11	শাহনারা

Source: SES Survey, 2024

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List of Participants for Consultation Near Chatkhil Substation



Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: 02.08.2028 Time: 12.00 AM Venue: চাটখিল, চাটখিল পৌ ওয়ার্ড, নোয়াখালী।

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
1	আবুল খায়ের	M	NO	NO		
2	কামাল হোসেন	M	NO	NO		
3	আ: রহমান	M	NO	NO		
4	সাইফুল	M	NO	NO		
5	মনির হোসেন	M	NO	NO		
6	নুরুল নবী	M	NO	NO		
7	আবুল কালাম	M	NO	NO		
8	আবুল রহমান	M	NO	NO		
9	মিজানুর রহমান	M	NO	NO		
10	মিহির দাস	M	NO	NO		

Page 6 of 6

Source: TA Consultant, 2024

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AVIII.1.4: Near Matlab (N) Substation

Consultation Photographs

 Public Consultation Meeting	 Public Consultation Meeting
 Gender Consultation Meeting	 Gender Consultation Meeting

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendent Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/~~PGCB~~/BREB:
Name of the TLS/LILO/Substation Mollab (N) 132/33 kV AIS
GPS Location: 23.413668, 90.633785 Date: 07-05-24 Time: 5.00 pm
Name of Village: ~~শিলাকান্দি~~ কলাকান্দি Name of Union/Word: ~~চরদোয়ানী~~ চরদোয়ানী
Name of Mouza: ~~শিলাকান্দি~~ চরদোয়ানী Name of Sub-District: মতলব
Name of District: চাঁদপুর

LIST OF PARTICIPANTS FOR ~~FOCUS GROUP DISCUSSION (FGD)~~ PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	মো: বাবুল সিকদার	Male	ব্যবসা	
2.	ইউনুস সরকার	"	"	
3.	বাদল সরকার	"	কৃষি	
4.	মো: মুকুল আলী	"	"	
5.	মো: সুমন	"	নৌকাশ্রমিক	
6.	মো: তফিকুলইসলাম	"	ছাত্র	
7.	মো: আকাশ হোসেন	"	ব্যবসা	
8.	সোলাইমান	"	শিক্ষক	
10	মো: সেলিম	"	ব্যবসা	
(11)	আইচুল	"	"	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendent Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/~~PGCB~~/BREB:
Name of the TLS/LILO/Substation Matlab (N) 132/33 kV AIS
GPS Location: 23.413087, 90.830164 Date: 06/06/24 Time: 11.30am

Name of Village: কলাকান্দি
Name of Union/Word: মেঘনা ৫নং
Name of Mouza: চন্দ্রপালেলাদি
Name of Sub-District: মতলব
Name of District: চাঁদপুর

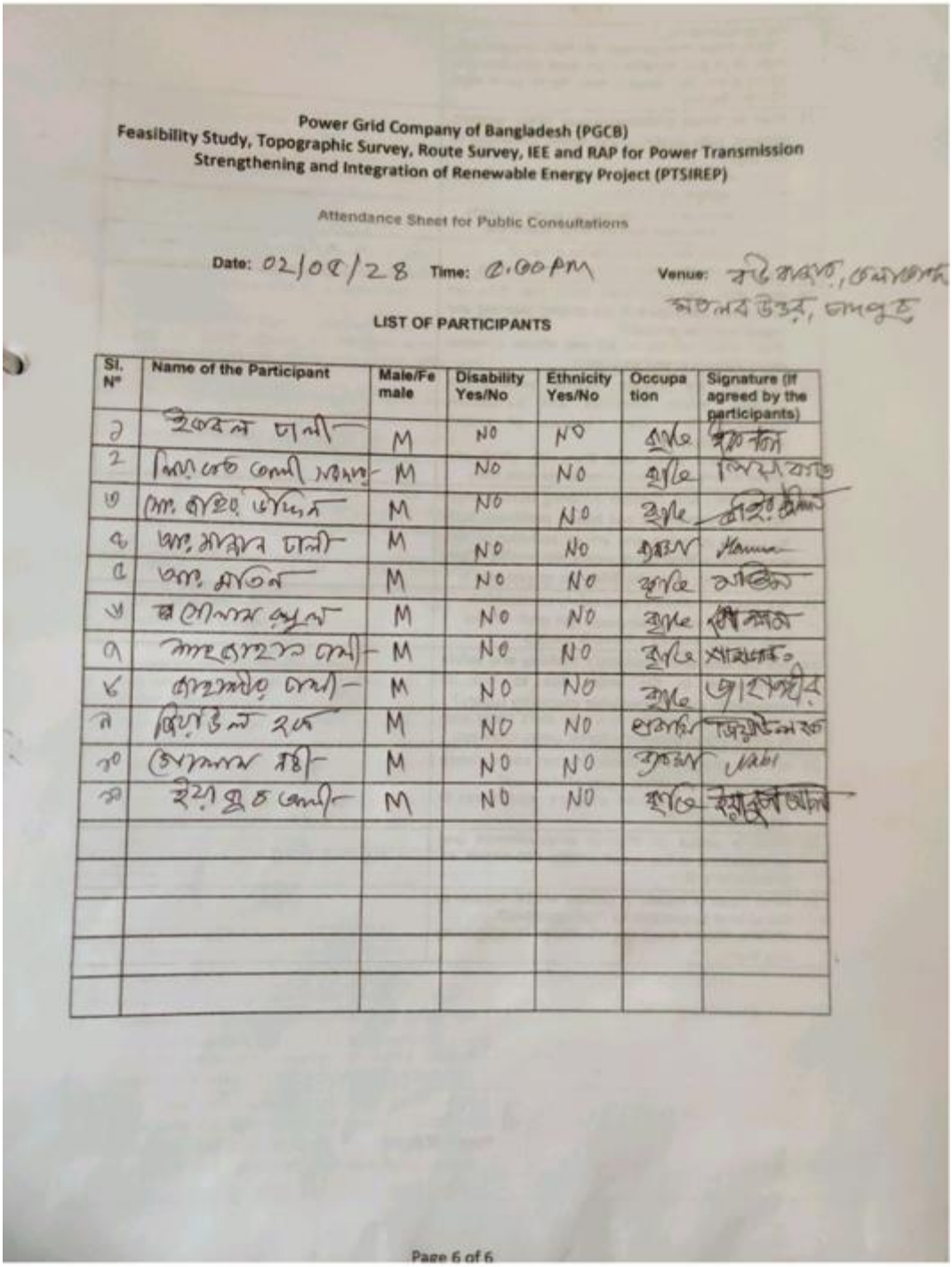
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1.	মোছা: জোসনারেগম	Female	গৃহিনি	জোসনা
2.	" জহুরা বেগম	"	"	জহুরা
3.	মোছা: রাশিদা বেগম	"	"	রাশেদা
4.	মোছা: রসোন আরা	"	"	রসোনআরা
5	" জহুরা বেগম	"	"	জহুরা
6	মোছা: সাইনুর বেগম	"	"	সাইনুর
7	রোকসানা	"	"	রোকসানা
8	ফাকিরা	"	"	ফাকিরা
9	রহিমা	"	"	রহিমা
10	সাবানা	"	"	সাবানা
11	লাকি	"	"	লাকি
12	সাবরিন	"	"	সাবরিন

Source: SES Survey, 2024

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List of Participants for Consultation Near Matlab (N) Substation



Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: 02/09/28 Time: 2.00PM Venue:

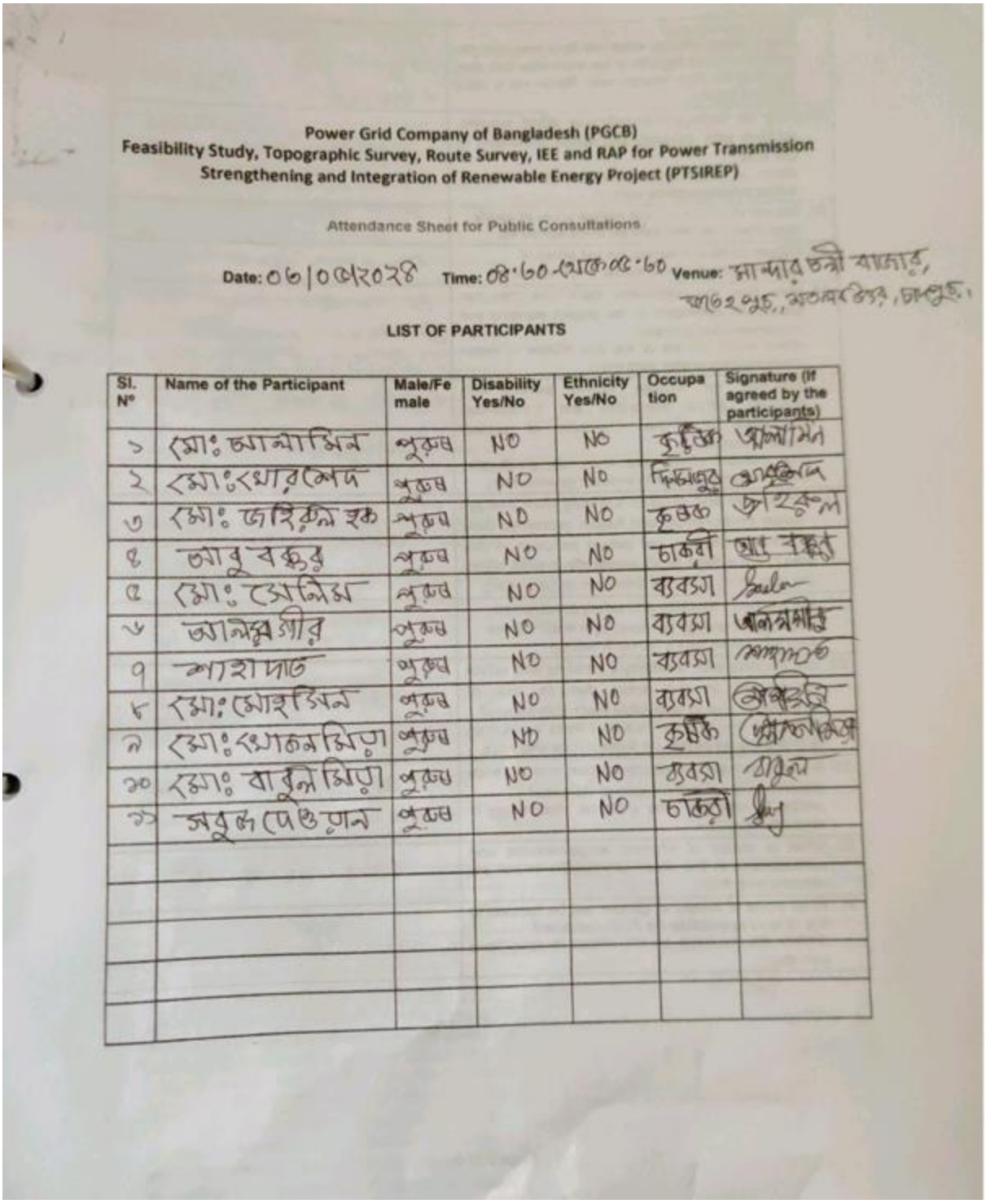
LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (if agreed by the participants)
১		M	NO	NO		
2		M	NO	NO		
৩		M	NO	NO		
৪		M	NO	NO		
৫		M	NO	NO		
৬		M	NO	NO		
৭		M	NO	NO		
৮		M	NO	NO		
৯		M	NO	NO		
১০		M	NO	NO		
১১		M	NO	NO		

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Source: TA Consultant, 2024

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Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: ০৬/০৩/২০২৪ Time: ০৪:৬০ থেকে ০৫:৬০ Venue: সান্দার চন্দ্রী বাজার, [illegible]

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
১	মোঃ আনোয়ার	পুরুষ	NO	NO	কৃষক	
২	মোঃ খায়রুল	পুরুষ	NO	NO	দিনমজুর	
৩	মোঃ জহিরুল হক	পুরুষ	NO	NO	কৃষক	
৪	আবু বক্কর	পুরুষ	NO	NO	চাকরী	
৫	মোঃ সেলিম	পুরুষ	NO	NO	ব্যবসা	
৬	আলমগীর	পুরুষ	NO	NO	ব্যবসা	
৭	শাহাদাত	পুরুষ	NO	NO	ব্যবসা	
৮	মোঃ মোহসিন	পুরুষ	NO	NO	ব্যবসা	
৯	মোঃ খোকন মিঠা	পুরুষ	NO	NO	কৃষক	
১০	মোঃ বাবুল মিঠা	পুরুষ	NO	NO	ব্যবসা	
১১	সবুজ পেওতান	পুরুষ	NO	NO	চাকরী	

Source: TA consultant, 2024

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AVIII.1.5: Near Kushtia (Kumarkhali) Substation

Consultation Photographs

 Picture of public Consultation meeting	 Picture of Public Consultation meeting
 Picture of Female Consultation Meeting	 Picture of Female Consultation Meeting

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Picture of Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation: Kustia Kumarkhali Proposed substation
GPS Location: 23.8705194 89.2222489 Date: 12/04/24 Time: 10.00 Am.
Name of Village: Chonaikul
Name of Mouza: Chonaikul
Name of District: Khustia
Name of Union/Word: Chelaidah
Name of Sub-District: Kumarkhali

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	MD. Ektiar	M	Service	
02	MD. Rustum	M	"	
03	Shimul	M	Job	
04	Sirajul	M	Agriculture	
05	MD. Kamal	M	"	
06	Imam	M	Business	
07	Sumon	M	"	
08	Babu	M	"	
09	Harun	M	Farmar	
10	Muslim	M	"	
11.	Aftab	M	"	
12	Owahed	M	Business	
13.	Rubul	M	"	
14.	Khalil	M	"	
15	Mamun	M	Service	

Source: SES Survey, 2024

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Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation Khustia Kumarkhali proposed substation

GPS Location: 23.87051944 89.22232487
Date 13/06/24 Time: 12.00 Am

Name of Village: Choraikul
Name of Union/Word: Shelaidah.
Name of Mouza: Choraikul
Name of Sub-District: Kumarkhali
Name of District: Khustia

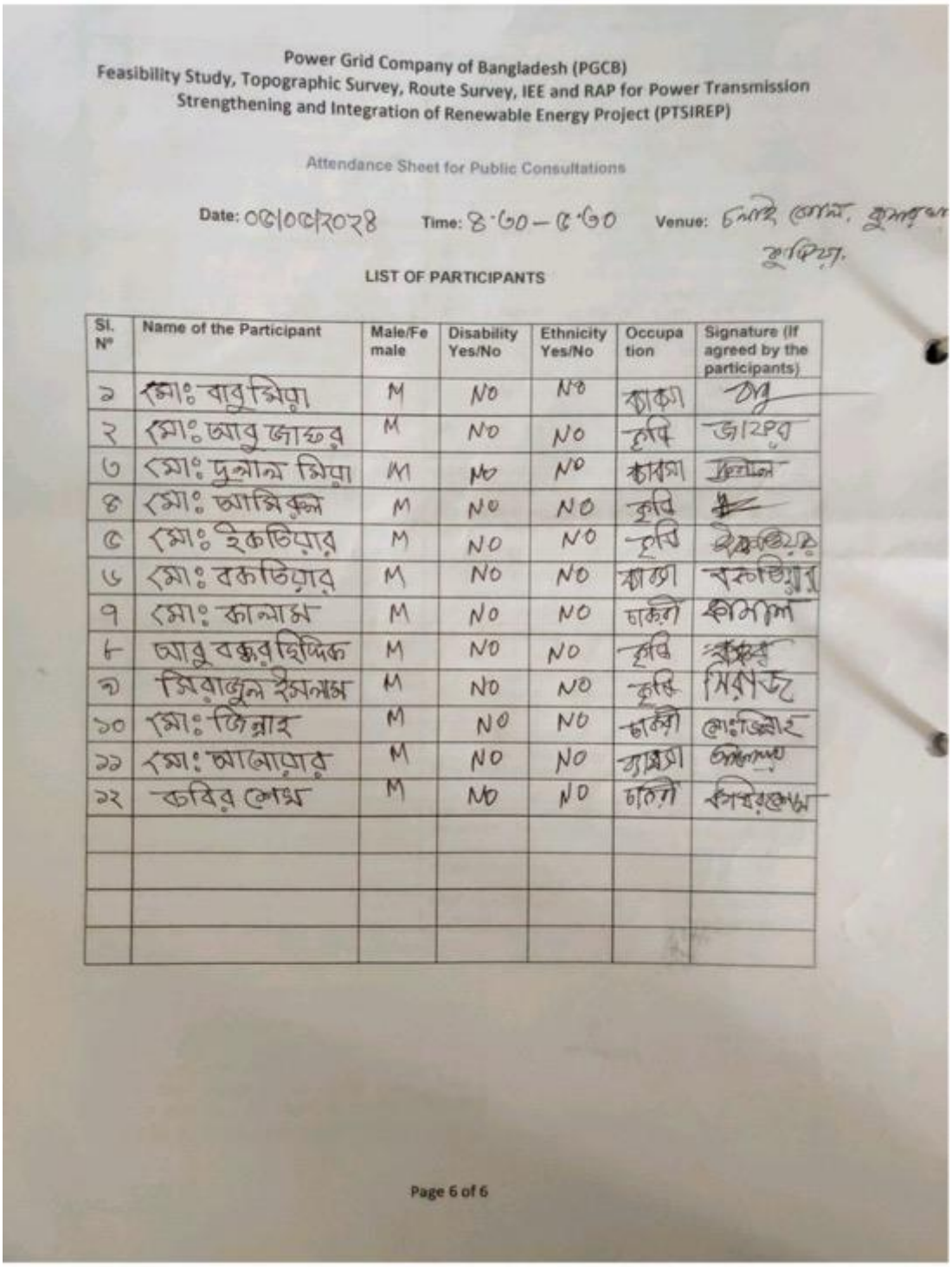
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Mst. Fatema	F	housewife	
02	Mst. Monira	F	4	
03.	Sheikh Shahara	F	4	
04.	Farjana	F	4	
05	Moni	F	4	
06	Asma	F	4	
07	Lima	F	4	
08	Abida	F	4	
09	Shamima	F	4	
10.	Mabiya	F	4	
11.	Shanaj	F	4	
12.	Marium	F	4	
13.	Kulsum	F	4	
14.	Fr Minara	F	4	

Source: SES Survey, 2024

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List of Participants for Consultation Near Kushtia (Kumarkhali) Substation



Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: 06/06/2024 Time: 8:00 – 5:00 Venue: কুমারখালি জোন, কুমারখালি কুষ্টিয়া.

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
১	মোঃ বাবু মিয়া	M	No	No	কৃষক	
২	মোঃ আবু জাফর	M	No	No	কৃষি	
৩	মোঃ দুলাল মিয়া	M	No	No	কৃষক	
৪	মোঃ আমিরুল	M	No	No	কৃষি	
৫	মোঃ ইকতিয়ার	M	No	No	কৃষি	
৬	মোঃ বকতিয়ার	M	No	No	কৃষক	
৭	মোঃ কালাম	M	No	No	চাকরী	
৮	আবু বক্কর সিদ্দিক	M	No	No	কৃষি	
৯	মিরাজুল ইসলাম	M	No	No	কৃষি	
১০	মোঃ জিন্নাহ	M	No	No	চাকরী	
১১	মোঃ আনোয়ার	M	No	No	ব্যবসা	
১২	কবির শেখ	M	No	No	চাকরী	

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Source: TA Consultant, 2024

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AVIII.1.6: Near Dupchachiya Substation

Consultation Photographs

 Picture of Consultation meeting	 Picture of Consultation meeting
 Picture of FGD	 Picture of FGD

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation: Dupchachiya
GPS Location: 24.892866556 89.159309935
Date: 10/06/24 Time: 3.00 pm
Name of Village: Islampur kushara
Name of Mouza: Islampur
Name of District: Bogura
Name of Union/Ward: Dupchachia sadar
Name of Sub-District: Dupchachia

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation / Status	Signature
01	Md. Ab. Matin	M	Business	
02	Belal Sheikh	M	U	
03	Ruhul amin	M	Teacher	
04	Azizul haque	M	Agriculture	
05	Shahed ali	M	U	
06	Gias Uddin	M	U	
07	Luthar Rahman	M	U	
08	Bakul Islam	M	U	
09	Mabiul	M	Business	
10	Arzifu Islam	M	Business	
11.	Liako Mia	M	Agriculture	
12.	Habib Mia	M	U	
13	Sohel Roman	M	SERVICE	

Source: SES Survey, 2024

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Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation : Dupchachia

GPS Location:

Date: 10/06/24 Time: 4.00 Pm.

Name of Village: Islampur Kushoun
Name of Mouza: Islampur
Name of District: Bogura

Name of Union/Ward: Dupchachia sadar
Name of Sub-District: Dupchachia.

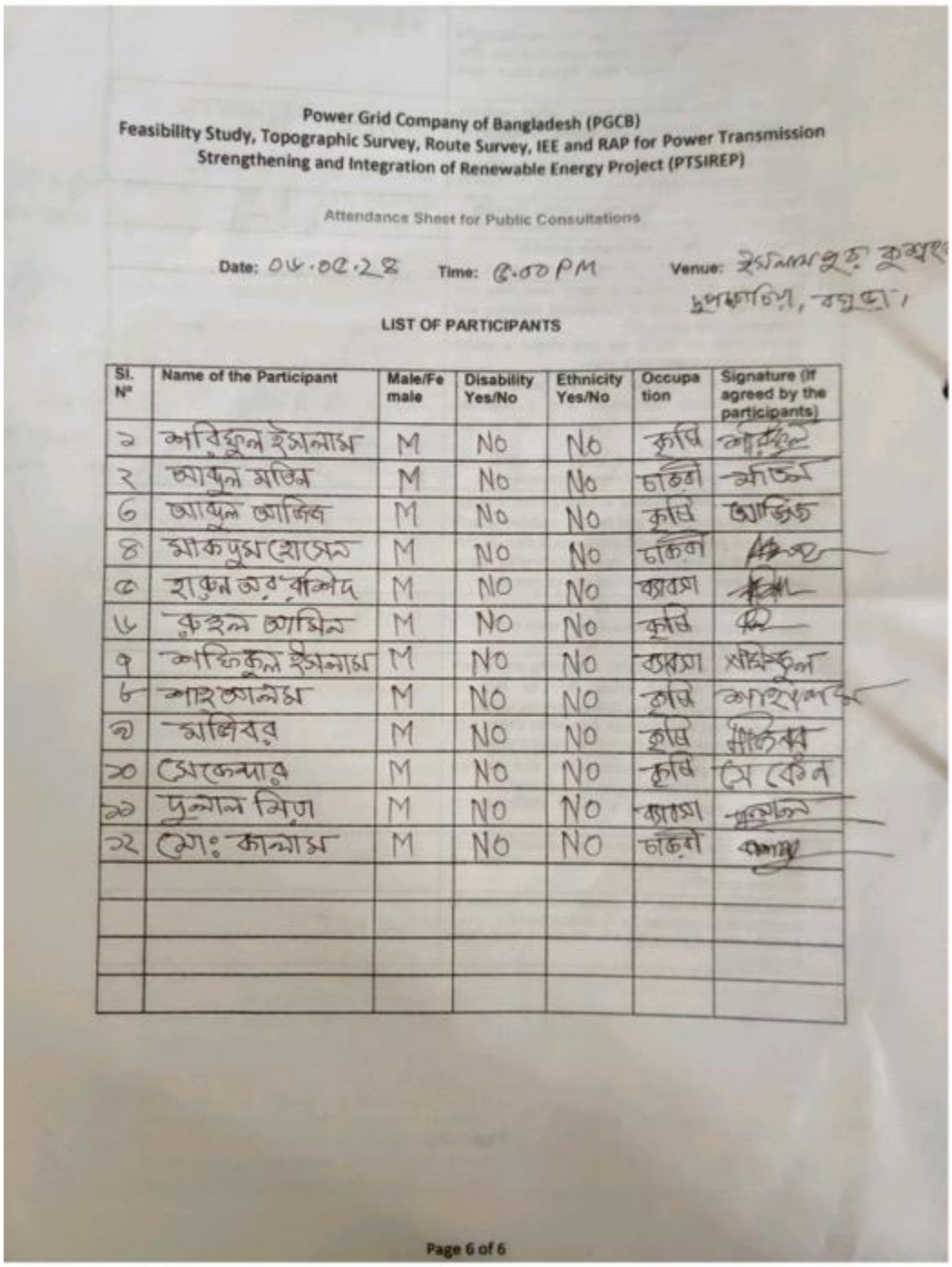
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Shewly akhter	F	Housewife	শিউলী
02	Nadira.	"	"	নাদিরা
03	Shahanara	"	"	শাহানারা
04	Khaleda	"	"	খালেদা
05	Marufa	"	"	মারুফা
06	Mitu akhter	"	"	মিতু
07	Fahmida	"	"	ফাহমিদা
08	Shamima	"	"	Shamima
09	Hasina	"	"	হাসিনা
10.	Lima khatun	"	"	লিমা
11.	Nila	"	"	নিলা
12.	Mosuma khatun	"	"	মাসুমা

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

List of Participants for Consultation Near Dupchachiya Substation



Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: 04.02.24 Time: 2.00 PM Venue: ইউনিয়ন পরিষদ কার্যালয় দুপচাচিয়া, বগুড়া।

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
১	আবিদুল ইসলাম	M	No	No	কৃষি	আবিদুল
২	আব্দুল মতিন	M	No	No	চাকরী	মতিন
৩	আব্দুল আজিজ	M	No	No	কৃষি	আজিজ
৪	মাকসুম হোসেন	M	No	No	চাকরী	
৫	হাকুন অর রশিদ	M	No	No	ব্যবসা	
৬	কুদ্দুস আমিন	M	No	No	কৃষি	
৭	শফিকুল ইসলাম	M	No	No	ব্যবসা	শফিকুল
৮	শাহজালাম	M	No	No	কৃষি	শাহজালাম
৯	মজিবর	M	No	No	কৃষি	মজিবর
১০	মোকেদার	M	No	No	কৃষি	মোকেদার
১১	দুলাল মিঞা	M	No	No	ব্যবসা	দুলাল
১২	মোঃ কাশেম	M	No	No	চাকরী	কাশেম

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Source: TA Consultant, 2024

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AVIII.1.7: Near Tungipara Substation

Consultation Photographs

 Picture of Consultation meeting	 Picture of Consultation meeting
 Picture of FGD	 Picture of FGD

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation : Tungipara 132/33 kV AIS
GPS Location:
Date: 12/6/24 Time: 1.00 pm.

Name of Village: Balagunj
Name of Mouza: Baladanga
Name of District: Gopalganj
Name of Union/Word: Patgati
Name of Sub-District: Tungipara

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	MD. Arif	M	Business	
02	Momin Mia	M	"	
03	Hamel Mia	M	Driver	
04	Anisur Rahman	M	Agriculture	ANISUR
05	Mozamel	M	"	Mozamel
06	Monirul	M	service	
07	Akash khan	M	student	
08	Jubayer	M	Business	
09	Mehidi	M	Service	Mehidi.

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation Tungipara 132/33KV AIS.
GPS Location: Date: 12/6/24 Time: 3.00 pm.

Name of Village: Balagonj
Name of Mouza: Baladanga
Name of District: Gopalganj
Name of Union/Word: Patgati
Name of Sub-District: Tungipara

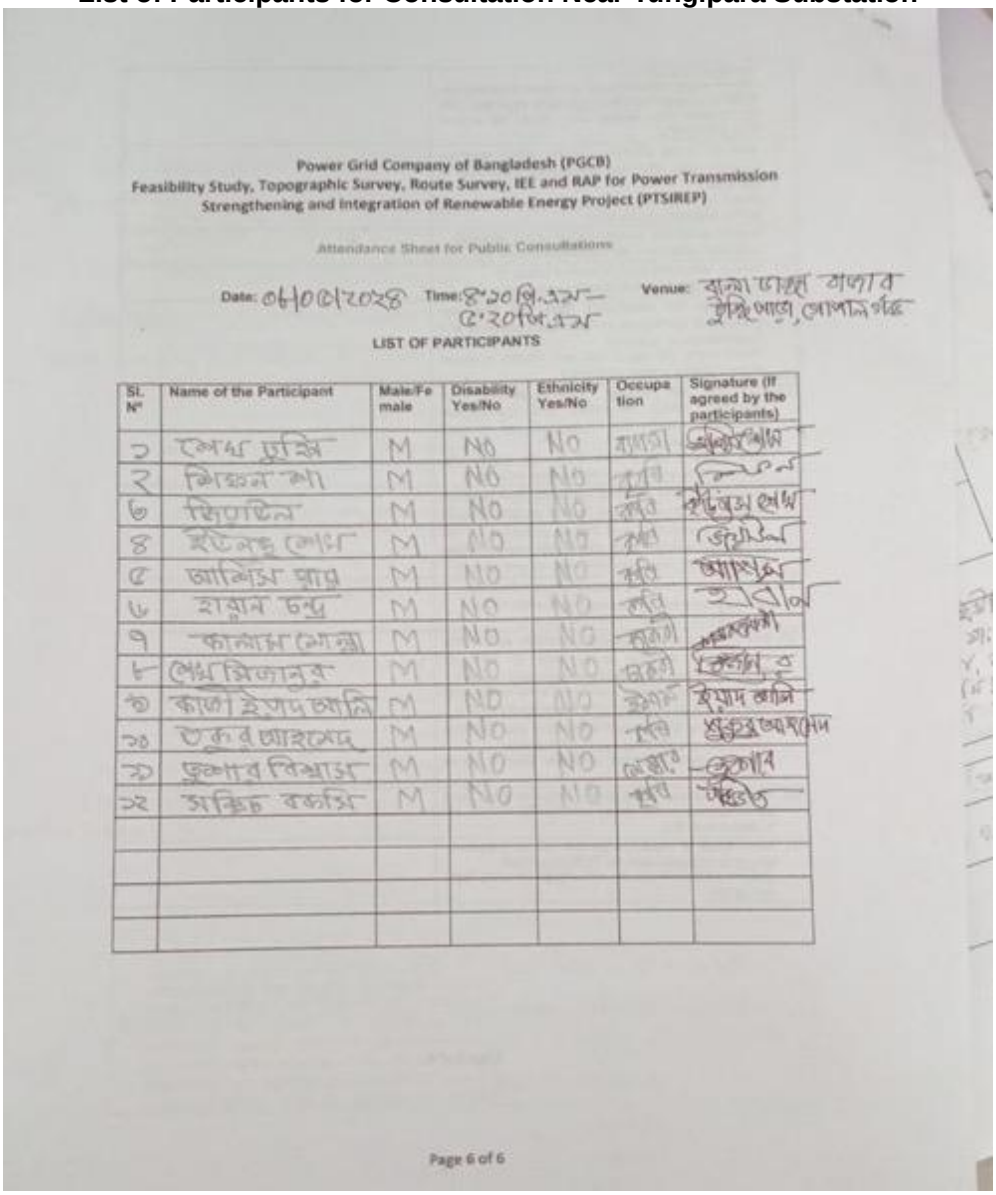
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Mst. Sharifa	F	Housewife	
02	Khadiza	F	"	
03	Manzura	F	"	
04	Sultana	F	Student	
05	Marzia	F	Housewife	
06	Antora	F	"	
07	Afrida	F	Student	
08	Sharmin	F	Housewife	
09	Rubayet	M	Service	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

List of Participants for Consultation Near Tungipara Substation



Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: 06/01/2028 Time: 8:20 পি.এম – 9:20 পি.এম Venue: [illegible]

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
১	[illegible]	M	No	No	[illegible]	[illegible]
২	[illegible]	M	No	No	[illegible]	[illegible]
৩	[illegible]	M	No	No	[illegible]	[illegible]
৪	[illegible]	M	No	No	[illegible]	[illegible]
৫	[illegible]	M	No	No	[illegible]	[illegible]
৬	[illegible]	M	No	No	[illegible]	[illegible]
৭	[illegible]	M	No	No	[illegible]	[illegible]
৮	[illegible]	M	No	No	[illegible]	[illegible]
৯	[illegible]	M	No	No	[illegible]	[illegible]
১০	[illegible]	M	No	No	[illegible]	[illegible]
১১	[illegible]	M	No	No	[illegible]	[illegible]
১২	[illegible]	M	No	No	[illegible]	[illegible]

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Source: TA Consultant, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.1.8: Near Monohardi Substation
Consultation Photographs

 **Public Consultation Meeting**	 **Public Consultation Meeting**
 **Gender Consultation Meeting**	 **Gender Consultation Meeting**

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/DLO/Substation: Monohordi 230/132/33 kV AIS Double Bus
GPS Location: 24.169417, 90.729935 Date: 02/06/24 Time: 11.30 am

Name of Village: Hafizpur
Name of Mouza: Hafizpur
Name of District: Narsindi
Name of Union/Word: Chalakchar
Name of Sub-District: Monohordi

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	আবুল হাই	Male	কৃষি	
2	মজিবুর	"	"	
3	তোফাজ্জল	"	"	
4	হাফিজুদ্দিন	"	"	
5	আমজু খন্দিন	"	"	
6	আবুবক্কার	"	"	
7	মোহাম্মদ	"	"	
8	জাহানারা বেগম	Female	গৃহিনি	
9	নাছিমা বেগম	"	"	
10	মাহানাজ	"	"	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation Meeting

Monohordi- Bojitpur Proposed Substation

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLSA/IEE/Substation Monohordi 230/132/33kV AIS Double Bus
GPS Location: 24.169248, 90.729914 Date: 2/06/24 Time: 12.00pm

Name of Village: Hafizpur Name of Union/Word: Chalakchar
Name of Mouza: Hafizpur Name of Sub-District: Monohordi
Name of District: NORSHINDI

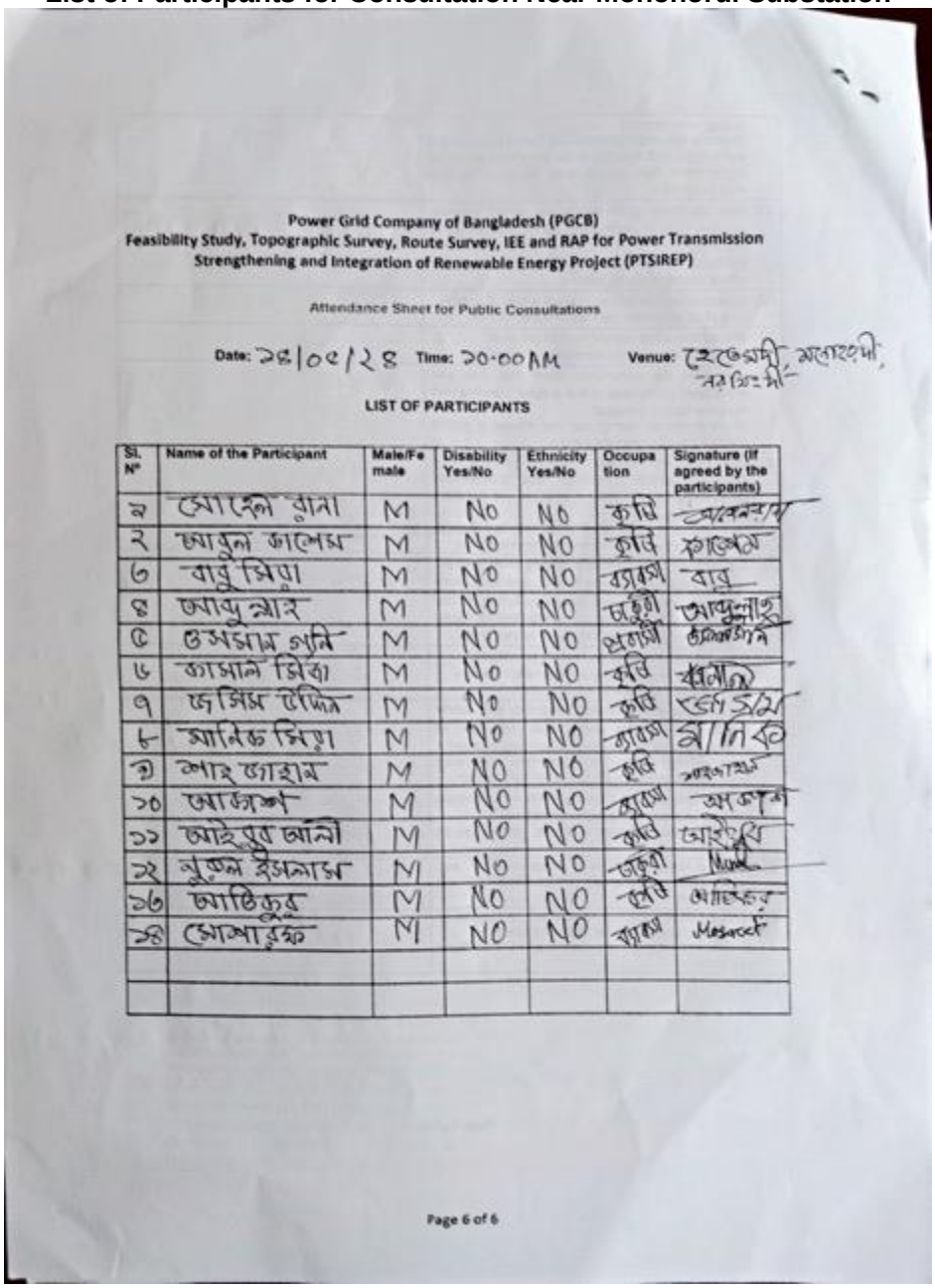
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	Farida	F	Housewife	ফরিদা
②	Shilpi	F	〃	শিল্পী
3	Sejuti	F	〃	
4	Monora	F	〃	মনোয়ারা
5	Nurjahan	F	〃	নূরজাহান
6	Sobikur Nahar	F	〃	শবিকা

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

List of Participants for Consultation Near Monohordi Substation



Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: ২৪/০৫/২৪ Time: ১০:০০AM Venue: মনোহরদী, নরসিংদী

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
১	মোহেল মুন্সী	M	No	No	কৃষি	
২	আবুল কালেম	M	No	No	কৃষি	
৩	বাবু মিয়া	M	No	No	ব্যবসা	
৪	আবু নাহার	M	No	No	চাকুরী	
৫	ওমরাম গনি	M	No	No	প্রবাসী	
৬	কামাল মিয়া	M	No	No	কৃষি	
৭	জেসিম উদ্দিন	M	No	No	কৃষি	
৮	আনিক মিয়া	M	No	No	ব্যবসা	
৯	আব্দুল্লাহ	M	No	No	কৃষি	
১০	আক্কাশ	M	No	No	ব্যবসা	
১১	আইনুল আলী	M	No	No	কৃষি	
১২	নুরুল ইসলাম	M	No	No	চাকুরী	
১৩	আতিকুর	M	No	No	কৃষি	
১৪	মোশারফ	M	NO	NO	ব্যবসা	

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Source: SES Survey, 2024

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AVIII.1.9 : Near Mathbaria Substation

Consultation Photographs

<table>
<tr>
<td> 
Picture of Public Consultation meeting</td>
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Picture of Public Consultation meeting</td>
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<td> 
Picture of Gender Consultation meeting</td>
<td> 
Picture of Gender Consultation meeting</td>
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</table>

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Picture of Public Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: Mathbaria

GPS Location: 22.232129, 89.921724

Date: 11-6-24 Time: 11:40 AM

Name of Village: Gulishakhali
Name of Mouza: Gulishakhali
Name of District: Pirojpur

Name of Union/Word: Halta Gulishakhali
Name of Sub-District: Mathbaria

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	মোস্তাইন উদ্দিন হাং	M	কৃষক	মোস্তাইন
02	কামেল হাওলাদার	M	কৃষক	কামেল
03	মহারাজ খান	M	CNG চালক	মহারাজ
04	জামাল মিন	M	ব্যবসা	জামাল
05	রুস্তম ফকির	M	কৃষক	রুস্তম
06	মোতালেব হোসেন	M	কৃষক	মোতালেব
07	মো: নান্না মিয়া	M	ব্যবসা	নান্না
08	রুস্তম হাওলাদার	M	কৃষক	রুস্তম
09	মো: খলিল	M	ব্যবসা	খলিল
10	মো: আজিজুল	M	চাকুরী	আজিজুল
11	আম্বিয়া মহিদুল	M	শিক্ষক	আম্বিয়া

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation Mathbaria

GPS Location: 22.032129
89.997124

Date: 11-6-24 Time: 2:00 PM

Name of Village:
Name of Mouza:
Name of District:

Name of Union/Word:
Name of Sub-District:

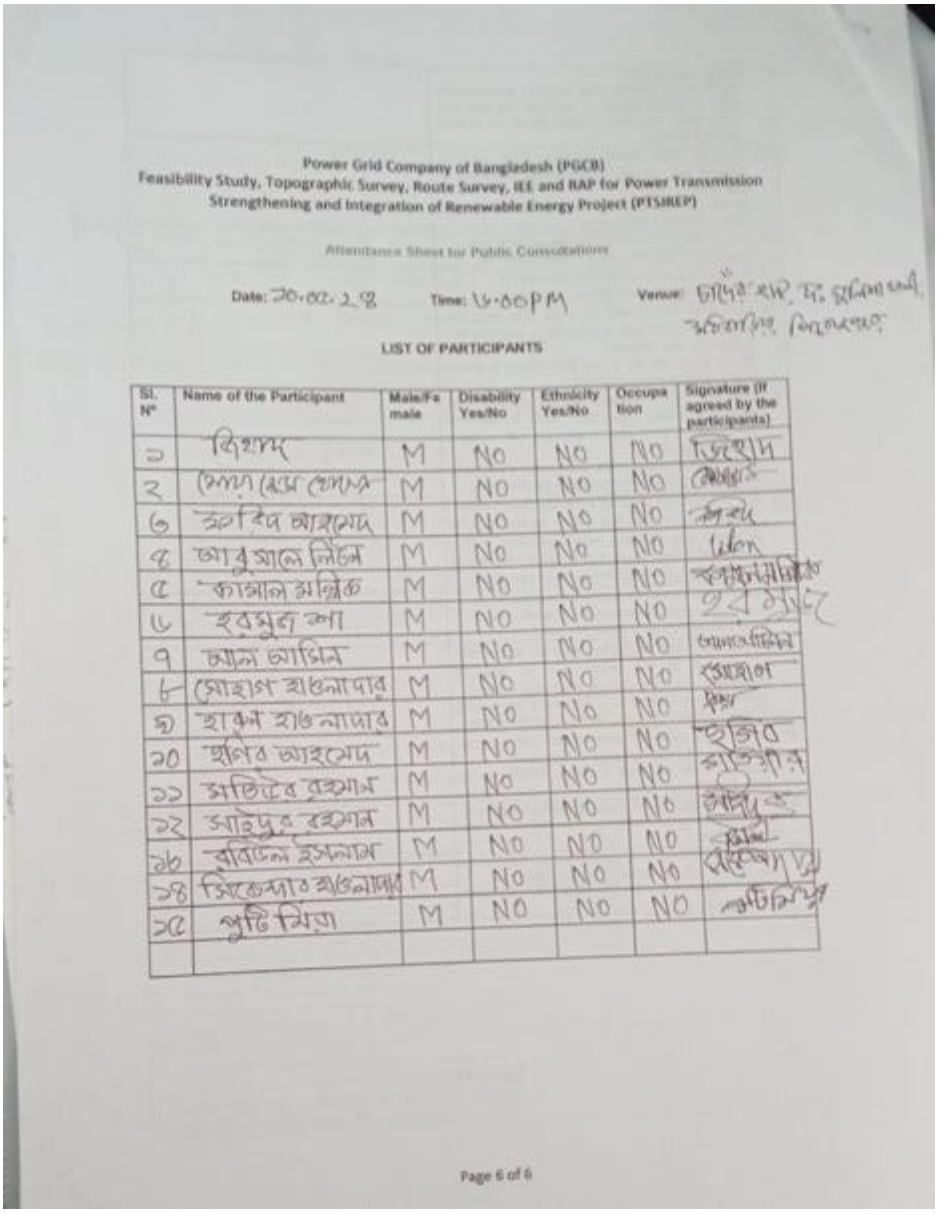
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1		F		
2		F		
3		F		
4		F		
5		F		
6		F		

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

List of Participants for Consultation Near Mathbaria Substation



Power Grid Company of Bangladesh (PGCB)
Feasibility Study, Topographic Survey, Route Survey, IEE and RAP for Power Transmission Strengthening and Integration of Renewable Energy Project (PTSIREP)

Attendance Sheet for Public Consultations

Date: ২০.০৫.২৪ Time: ১১.০০PM Venue: মঠবাড়িয়া পি. জি. সাব-স্টেশন, মঠবাড়িয়া, পিরোজপুর।

LIST OF PARTICIPANTS

Sl. N°	Name of the Participant	Male/Female	Disability Yes/No	Ethnicity Yes/No	Occupation	Signature (If agreed by the participants)
১	দিহাদ	M	No	No	No	
২	সিমা রেজা হোসেন	M	No	No	No	
৩	তারিক আহমেদ	M	No	No	No	
৪	আবু জালে লিটন	M	No	No	No	
৫	কামাল মল্লিক	M	No	No	No	
৬	হবিবুর মা	M	No	No	No	
৭	জামাল আমিন	M	No	No	No	
৮	মোহাম্মদ হাওলাদার	M	No	No	No	
৯	হাকুন হাওলাদার	M	No	No	No	
১০	মুনির আহমেদ	M	No	No	No	
১১	মতিউর রহমান	M	No	No	No	
১২	সাইফুর রহমান	M	No	No	No	
১৩	রবিউল ইসলাম	M	No	No	No	
১৪	সিরাজদার হাওলাদার	M	No	No	No	
১৫	পুতি মিয়া	M	No	No	No	

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Source: TA Consultant, 2024

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AVIII.1.10 : Near Paikgacha Substation

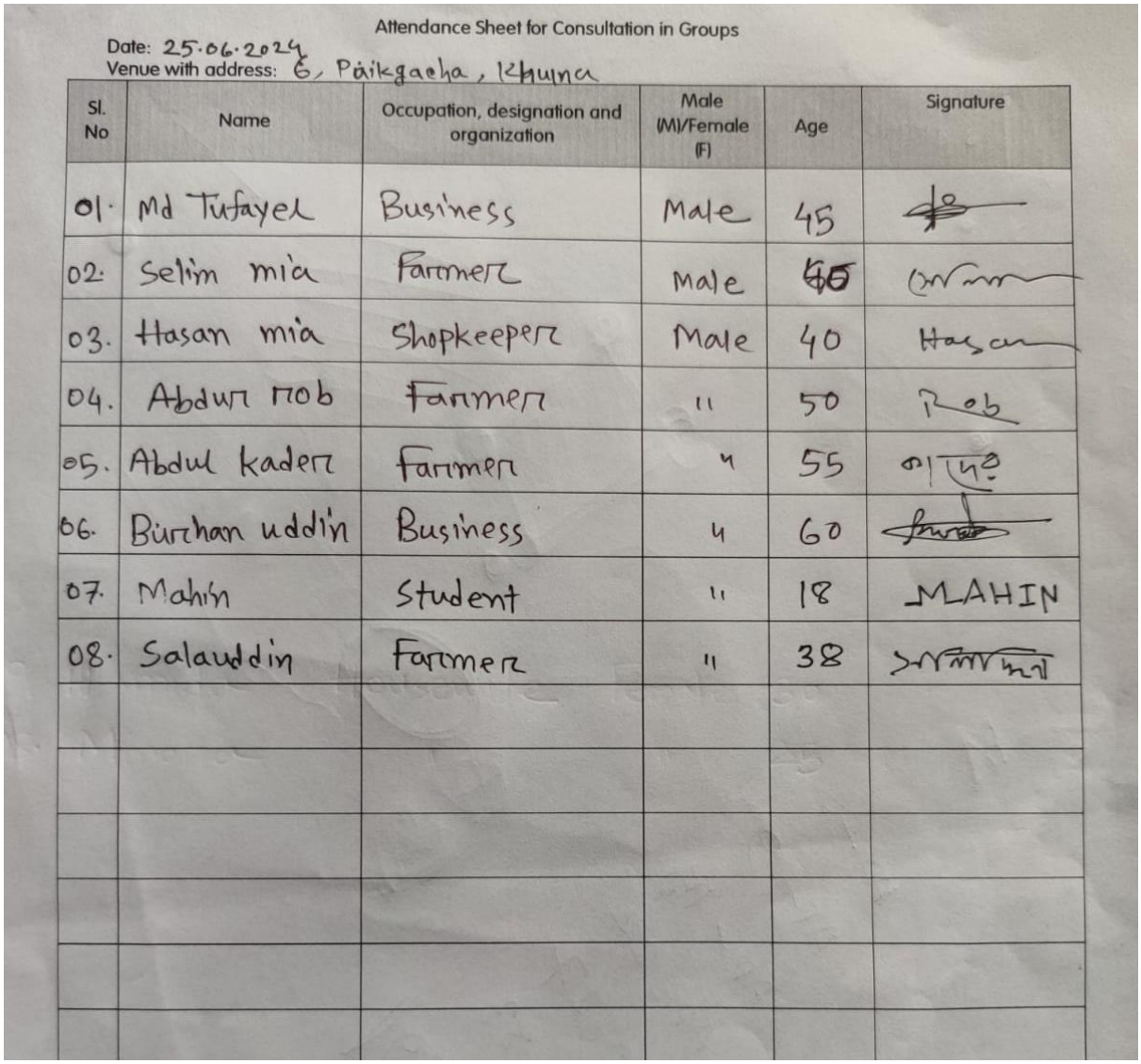
Consultation Photographs

 Picture of Public Consultation meeting	Picture of Public Consultation meeting

Source: SES Survey, 2024

List of Participants for Consultation Near Paikgacha Substation

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



Attendance Sheet for Consultation in Groups

Date: 25.06.2024
Venue with address: 6, Paikgacha, Khulna

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01.	Md Tufayel	Business	Male	45	
02.	Selim mia	Farmer	Male	50	
03.	Hasan mia	Shopkeeper	Male	40	Hasan
04.	Abdur Rob	Farmer	"	50	Rob
05.	Abdul kader	Farmer	"	55	
06.	Burhan uddin	Business	"	60	
07.	Mahin	Student	"	18	MAHIN
08.	Salauddin	Farmer	"	38	

AVIII.2: Stakeholder Consultation and Gender Meeting Photographs& Attendance Sheets - 132kV AIS bay extensions

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.2.1: Near Baljitpur Substation (Existing)

Consultations

 Consultation with PGCB officials	 Consultation with PGCB officials
 Picture of Public Consultation meeting	 Picture of Public Consultation meeting
 Picture of Gender Consultation Meeting	 Picture of Gender Consultation Meeting

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation: Baitpur Substation
GPS Location: 24.234348, 90.888402 Date: 04/06/24 Time: 5.00pm

Name of Village: Dulir Char
Name of Union/Word: Halimpur
Name of Mouza: Dulirchar
Name of Sub-District: Baitpur
Name of District: Kishoreganj

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	আবেজের বেগম	Female	গৃহিণী	
2	তানজিনা বেগম	"	"	
3	রাতিয়া বেগম	"	"	
4	কল্পনা বেগম	"	"	
5	আনুলা আক্তার	"	"	
6	নাসিমা আক্তার	"	"	
7	ইয়াসমিন আক্তার	"	"	
8	নাহনা	"	"	
9	আবেক্কাল্লাহ	"	"	
10	আইনুল	Male	ব্যবসা	
11	কামরুল	"	কৃষি	
12	জোলাদ মিয়া	"	ব্যবসা	
13	হাসন	"	মুদি দোকান	
14	মিনা আক্তার	Female	গৃহিণী	
15	বিলকিস	"	"	
16	জাহাঙ্গির মিয়া	Male	কৃষক	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

(3)

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation Bajitpur Substation
GPS Location: 24.225038, 90.898153 Date: 04/06/24 Time: 4.00pm

Name of Village: Dulichor
Name of Union/Word: Halimpur
Name of Mouza: Dulichor
Name of Sub-District: Bajitpur
Name of District: Kishoreganj

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
(1)	রহিমা আক্তার	F	Housewife	রহিমা
(2)	নবিরুন নেছা	F	"	নবিরুন
(3)	মনোয়ারা	F	"	মনোয়ারা
(4)	আলেমা আক্তার	F	"	আলেমা
(5)	রোকেয়া	F	"	রোকেয়া
(6)	ফাতেমা	F	"	ফাতেমা
(7)	ফোলদি	F	"	ফোলদি
(8)	~~কামিনী~~ সামছুন নাহার	F	"	নাহার

Source: SES Survey, 2024

AVIII.2.2: Near Gopalganj (Old) Substation (Existing)

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Consultations

 Consultation with PGCB officials	 Consultation with PGCB officials
 Picture of Public Consultation meeting	 Picture of Public Consultation meeting
 Picture of Gender Consultation Meeting	 Picture of Gender Consultation Meeting

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation: Gopalganj 132/33 KV Sub-station.
GPS Location: Date: 12/6/24 Time: 11.30 Am.

Name of Village: Kararzyati
Name of Mouza: Kararzyati
Name of District: Gopal Ganj
Name of Union/Word: 01
Name of Sub-District: Gopalganj sadar

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	MD. Hemel	M	Business	
02	Joshim	M	Driver	Joshim
03	Mahidul	M	Service	
04	Mojibur	M	Business	
05	Kajol Sheikh	M	"	
06	Belayet	M	Agriculture	
07	Rubayet	M	service	
08	Sagor	M	Atu Driver	Sagor
09	Joynal	M	Business	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Female Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation : Gopalganj 132/33KV sub-station.
GPS Location:
Date: 12/6/24 Time: 12.00 pm

Name of Village: Kororgati
Name of Mouza: Kororgati
Name of District: Gopalganj
Name of Union/Word: 01
Name of Sub-District: Gopalganj sadar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Mst. Joshna	F	Housewife	
02	Fulbanu	F	"	
03	Marzia	F	"	
04	Halima	F	Student	
05	Romza	F	Housewife	
06	Forida	F	"	
07	Hosna	F	"	
08	Mafuza	F	"	
09	Mehidi	M	Service	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.2.3: Near Kachua 230/132 kV Substation (Existing)

Consultation Photographs



Picture of Public Consultation meeting



Picture of Public Consultation meeting



Picture of Gender Consultation meeting



Picture of Gender Consultation meeting



Consultation with PGCB officials

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: Extension kachua 230/132 kV substation
GPS Location: 23.26452, 90.868146 **Date:** 07/06/24 **Time:** 11.00am

Name of Village: বাদরপুর
Name of Mouza: তোরাবগঞ্জ
Name of District: চাঁদপুর
Name of Union/Word: তোরাবগঞ্জ
Name of Sub-District: হাজীগঞ্জ

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	সাহিনুল ইসলাম	M	~~Job~~ চাকরি	
2	তোফাজ্জেল আহমদ	M	BD ব্যাংক	
3	সুকন	M	কৃষক	
4	মিনহাদ	M	ব্যাংক	
5	আরিফ	M	〃	
6	সাহাদত	M	〃	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation extension kachua 230/132 kV substation
GPS Location: 23.26452, 90.868146 Date: 07/06/24 Time: 12.30 pm

Name of Village: বাদরপুর
Name of Union/Word: তোরাবগর
Name of Mouza: তোরাবগর
Name of Sub-District: হাজীগঞ্জ
Name of District: চাঁদপুর

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	জাহেদা বেগম	F	গৃহিনি	জাহেদা
2	রোকেয়া	F	"	রোকেয়া
3	আছমা	F	"	আছমা
4	জবেদা বেগম	F	"	জবেদা
5	আইদা বেগম	F	"	
6	ভানু	F	"	ভানু
7	হেলেনা	F	"	হেলেনা

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.2.4: Near Satkhira Substation (Existing)

Consultations Photographs

 Consultation with PGCB officials	 Consultation with PGCB officials
 Picture of Public Consultation meeting	 Picture of Public Consultation meeting
 Picture of Gender Consultation Meeting	 Picture of Gender Consultation Meeting

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation: Satkhira Existing substation
GPS Location: 22.7431325 89.0922965
Date 12/06/24 Time: 3.00 PM
Name of Village: Binerputa
Name of Mouza: Binerputa
Name of District: Satkhira
Name of Word: Satkhira
Name of Sub-District: Satkhira Sadar

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	MAZ Naemul Huda	M	Sub-assistant Engr.	
02	Anisur Rahman	M	Sub-assistant Engr.	
03	Makin	M	Business	
04.	Nasim mia	M	"	
05.	Sagor Mia	M	"	
06.	Ripon	M	"	
07.	Johirul	M	Agriculture	
08.	Satter	M	"	
09.	Abdul Ali	M	"	
10.	Moziburr	M	Job	
11.	Faruk Mia	M	"	
12.	Joynal Mia	M	Bussiness	
12.	Yakub	M	Agriculture	
13.	Khalek	M	"	
14.	Saiful	M	Service	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation Satkhira Existing substation.

GPS Location: 22.743132.15
89.092294.65

Date: 12/06/24 Time: 4.00 pm

Name of Village: Binerputa
Name of Mouza: Binerputa
Name of District: satkhira

Name of Union/Word: satkhira
Name of Sub-District: satkhira sadar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Halima	F	Housewife	
02.	Marjia	F	H	
03	Moni	F	H	
04.	Shorifa	F	H	
05.	Lutfa	F	H	
06.	Bithi	F	H	
07.	Shila	F	H	
08.	Shimo	F	H	
09.	Ritu	F	H	
10.	Karima	F	H	
11.	Morsalina	F	H	
12.	Ilma	F	H	
13.	Sadia	F	H	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.2.5: Near Bhandaria Substation (Existing)

Consultations Photographs

 Meeting with officials	 Meeting with officials
 Public Consultation meeting	 Public Consultation meeting
 Picture of Female Consultation Meeting	 Picture of Female Consultation Meeting

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation meeting

REQUIRED INFORMATION

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: ✓
Name of the TLS/LILO/Substation: Bhandaria Existing Sub station.

GPS Location: 22.480878
90.069815

Date: 12-6-24 Time: 10:15 AM

Name of Village: Bhandaria
Name of Mouza: Bhandaria
Name of District: Pirojpur

Name of Union/Word: Pouro shova
Name of Sub-District: Bhandaria

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	বাদল বেপারী	M	ব্যবসা	বাদল
02	সাবেরেক	M	দিনমজুর	সাবেরেক
03	রফিকুল ইসলাম	M	"	রফিকুল
04	আঃ করিম	M	কৃষক	করিম
05	মিজান হাওলাদার	M	"	মিজান
06	বাহাদুর আকাশ	M	"	বাহাদুর আকাশ
07	আঃ মোমিন	M	ব্যবসা	আঃ মোমিন
08	নয়ন	M	কৃষক	নয়ন
09	ফোরকান	M	কৃষক	ফোরকান

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: ✓
Name of the TLS/LILO/Substation Bhandaria Existing Sub station.

GPS Location: 22.480878 90.069815 Date: 12-6-24 Time: 11.50 PM

Name of Village: Bhandaria Name of Union/Word: Pirosthova

Name of Mouza: Bhandaria Name of Sub-District: Bhandaria

Name of District: Pirojpur

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	সাদেকা আক্তার	F	গৃহিনী	সাদেকা আক্তার
02	ফোনিয়ু	F	"	ফোনিয়ু
03	শান্তা বেগম	F	"	শান্তা
04	আফেরুনা	F	"	আফেরুনা
05	শিউলী	F	শিক্ষিকা	শিউলী
06	আফিয়া	F	গৃহিনী	আফিয়া
07	জেবুন	F	"	জেবুন
08	হুফা বেগম	F	"	হুফা
09	লিপি	F	"	লিপি
10	জাকিয়া	F	ছাত্রী	জাকিয়া
11	নিপা	F	গৃহিনী	নিপা

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.3: Stakeholder Consultation and Gender Meeting Photographs & Attendance Sheets - 230/132/33kV Lines

AVIII.3.1: Reconductoring of Shahjibazar – Brahmanbaria - Ashuganj 132kV line: (58+17=75km)

Consultation Photo

<table>
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Transmission Line Picture</td><td> 
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INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

 Transmission Line Picture	 Transmission Line Picture
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INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

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INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

 Affected Structure Picture	 Affected Structure Picture
 Affected Structure Picture	 Affected Structure Picture
 Picture of Public Consultation meeting -1	 Picture of Public Consultation meeting -1
 Picture of Public Consultation meeting -2	 Picture of Public Consultation meeting -2
 Picture of Public Consultation meeting -3	 Picture of Public Consultation meeting -3

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

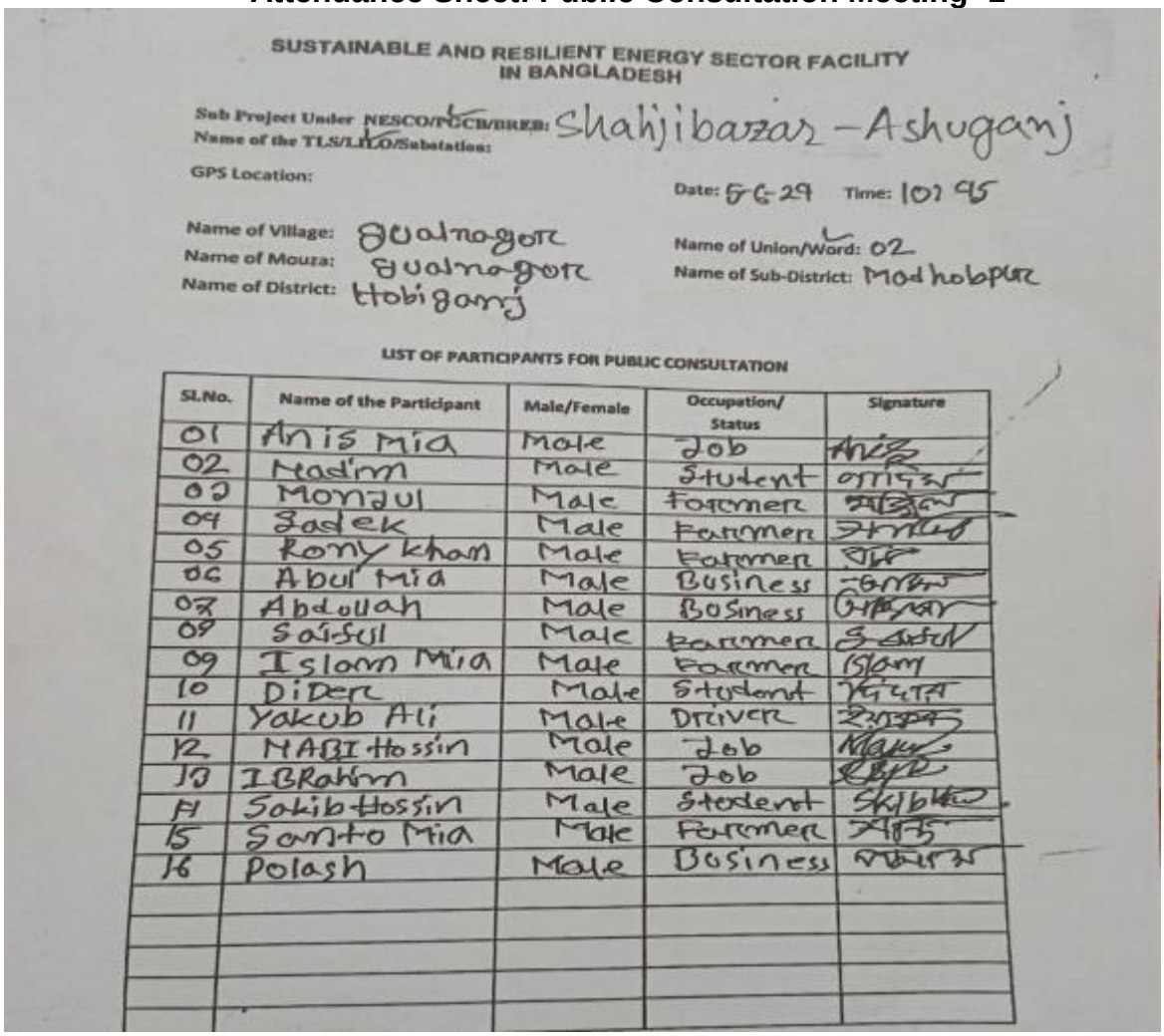
 Picture of Public Consultation meeting -4	 Picture of Public Consultation meeting -4
 Picture of Public Consultation meeting -5	 Picture of Public Consultation meeting -5
 Picture of Gender Consultation meeting -1	 Picture of Gender Consultation meeting -1
 Picture of Gender Consultation meeting -2	 Picture of Gender Consultation meeting -2
 Picture of Gender Consultation meeting -3	 Picture of Gender Consultation meeting -3

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

	
Picture of Gender Consultation meeting -4	Picture of Gender Consultation meeting -4
	
Picture of Gender Consultation meeting -5	Picture of Gender Consultation meeting -5

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting -1



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar – Ashuganj
Name of the TLS/LILO/Substation:

GPS Location:

Date: 5-6-29 Time: 10:45

Name of Village: Gualnagore
Name of Mouza: Gualnagore
Name of District: Habiganj

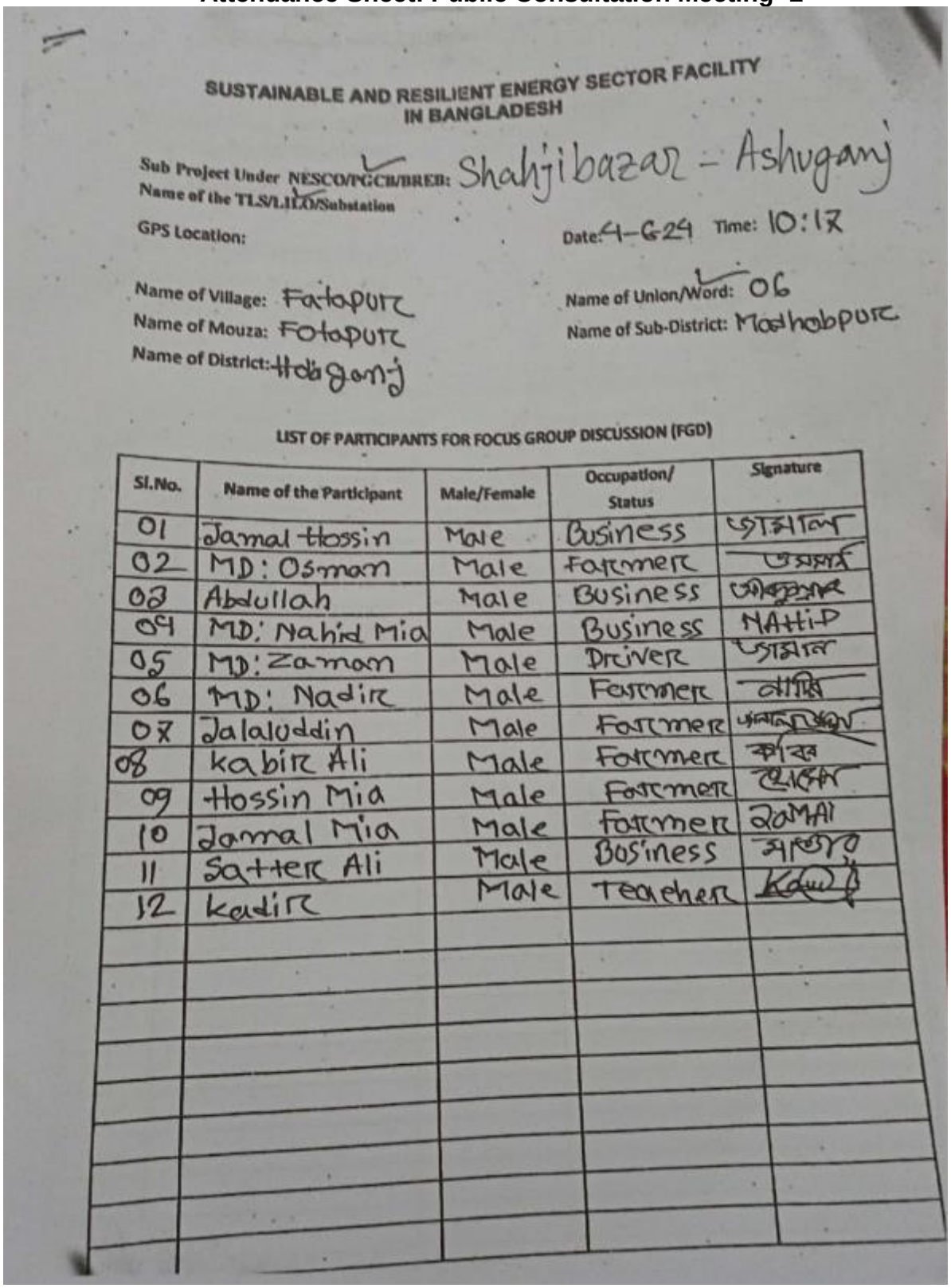
Name of Union/Ward: 02
Name of Sub-District: Madhabpur

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Anis Mia	Male	Job	
02	Madim	Male	Student	
03	Monjul	Male	Farmer	
04	Sadek	Male	Farmer	
05	Rony khan	Male	Farmer	
06	Abul Mia	Male	Business	
07	Abdullah	Male	Business	
08	Saiful	Male	Farmer	
09	Islam Mia	Male	Farmer	
10	Didar	Male	Student	
11	Yakub Ali	Male	Driver	
12	MABI Hossin	Male	Job	
13	IBRahim	Male	Job	
14	Sakib Hossin	Male	Student	
15	Samto Mia	Male	Farmer	
16	Polash	Male	Business	

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation Meeting -2



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BRED: Shahjibazar - Ashuganj
Name of the TLS/LILO/Substation

GPS Location:

Date: 4-6-24 Time: 10:17

Name of Village: Fatapur
Name of Mouza: Fotapur
Name of District: Habiganj

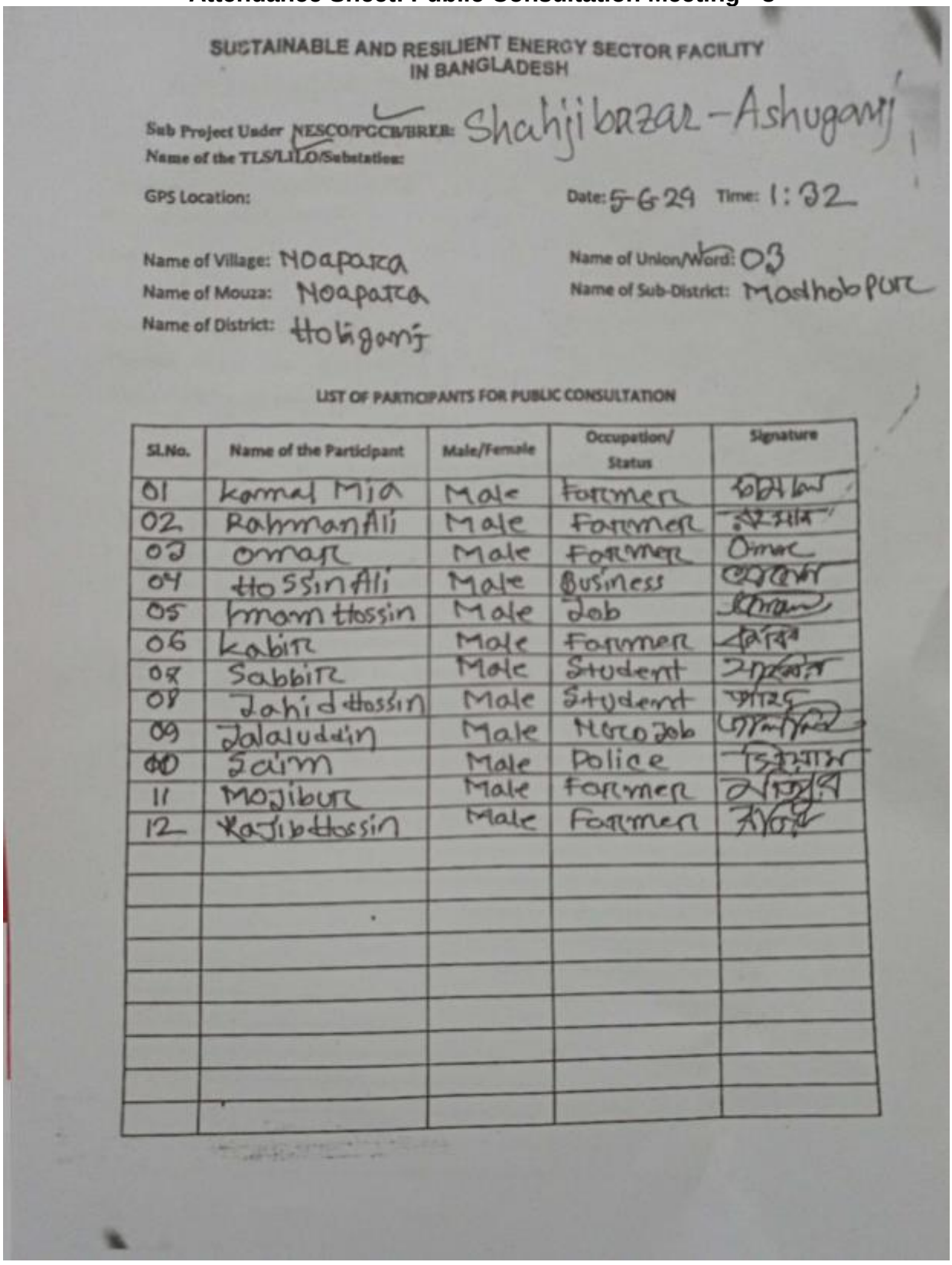
Name of Union/Word: 06
Name of Sub-District: Madhabpur

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Jamal Hossin	Male	Business	
02	MD: Osman	Male	Farmer	
03	Abdullah	Male	Business	
04	MD: Nahid Mia	Male	Business	NAHID
05	MD: Zaman	Male	Driver	
06	MD: Nadir	Male	Farmer	
07	Jalaluddin	Male	Farmer	
08	kabir Ali	Male	Farmer	
09	Hossin Mia	Male	Farmer	
10	Jamal Mia	Male	Farmer	JAMAL
11	Satter Ali	Male	Bosiness	
12	kadir	Male	Teacher	

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation Meeting - 3



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BIRER: Shahjibazar-Ashuganj
Name of the TLS/LILO/Substation:

GPS Location: Date: 5-6-24 Time: 1:32

Name of Village: Noapara
Name of Mouza: Noapara
Name of District: Hobigonj

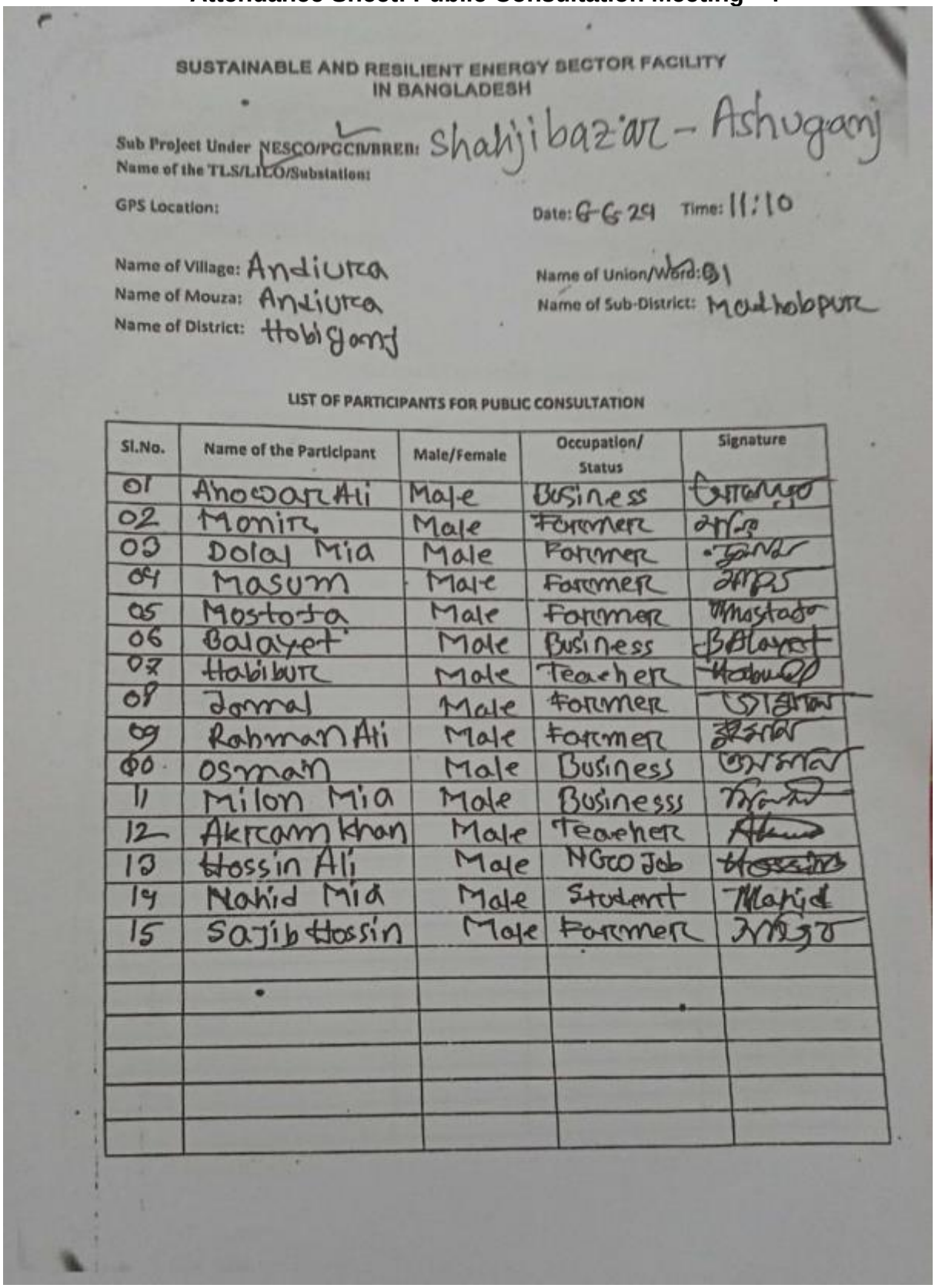
Name of Union/Word: 03
Name of Sub-District: Madhobpur

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Kamal Mia	Male	Farmer	
02	Rahmanali	Male	Farmer	
03	Omar	Male	Farmer	Omar
04	Hossinali	Male	Business	
05	Imam Hossin	Male	Job	
06	Kabir	Male	Farmer	
08	Sabbir	Male	Student	
08	Jahid Hossin	Male	Student	
09	Jalaluddin	Male	Micro Job	
10	Salim	Male	Police	
11	Mojibur	Male	Farmer	
12	Kajib Hossin	Male	Farmer	

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation Meeting - 4



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar – Ashuganj
Name of the TLS/LILO/Substation:

GPS Location: Date: 6-6-24 Time: 11:10

Name of Village: Andiurca
Name of Mouza: Andiurca
Name of District: Hobigonj

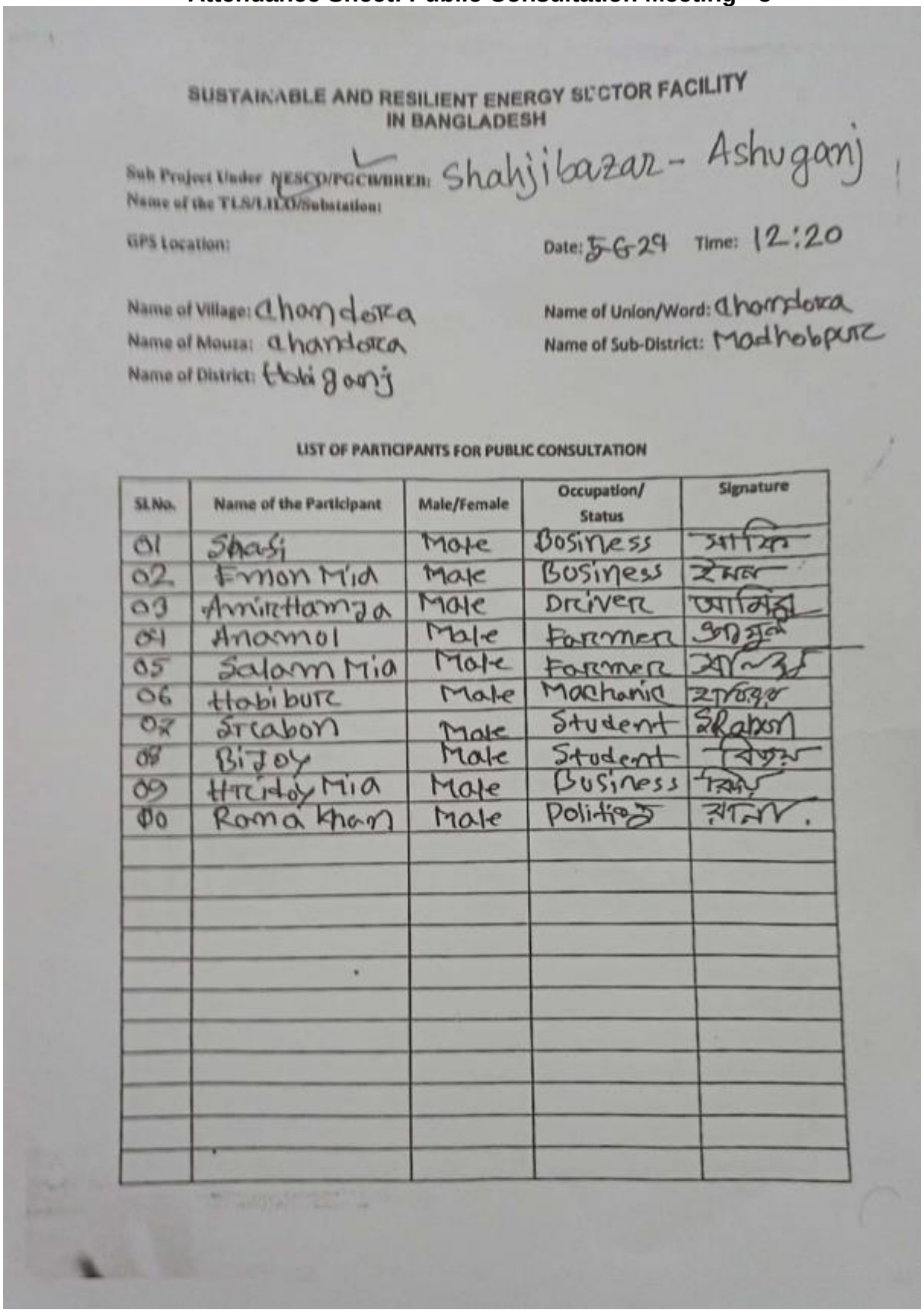
Name of Union/Ward: 01
Name of Sub-District: Madhobpur

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Anowar Ali	Male	Business	
02	Monir	Male	Farmer	
03	Dolal Mia	Male	Farmer	
04	Masum	Male	Farmer	
05	Mostofa	Male	Farmer	
06	Balayet	Male	Business	
07	Habibur	Male	Teacher	
08	Jamal	Male	Farmer	
09	Rahman Ali	Male	Farmer	
10	Osman	Male	Business	
11	Milon Mia	Male	Businesss	
12	Akram khan	Male	Teacher	
13	Hossin Ali	Male	NGO Job	
14	Nahid Mia	Male	Student	
15	Sajib Hossin	Male	Farmer	

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation Meeting - 5



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar - Ashuganj
Name of the TLS/LILO/Substation:

GPS Location: Date: 5-6-24 Time: 12:20

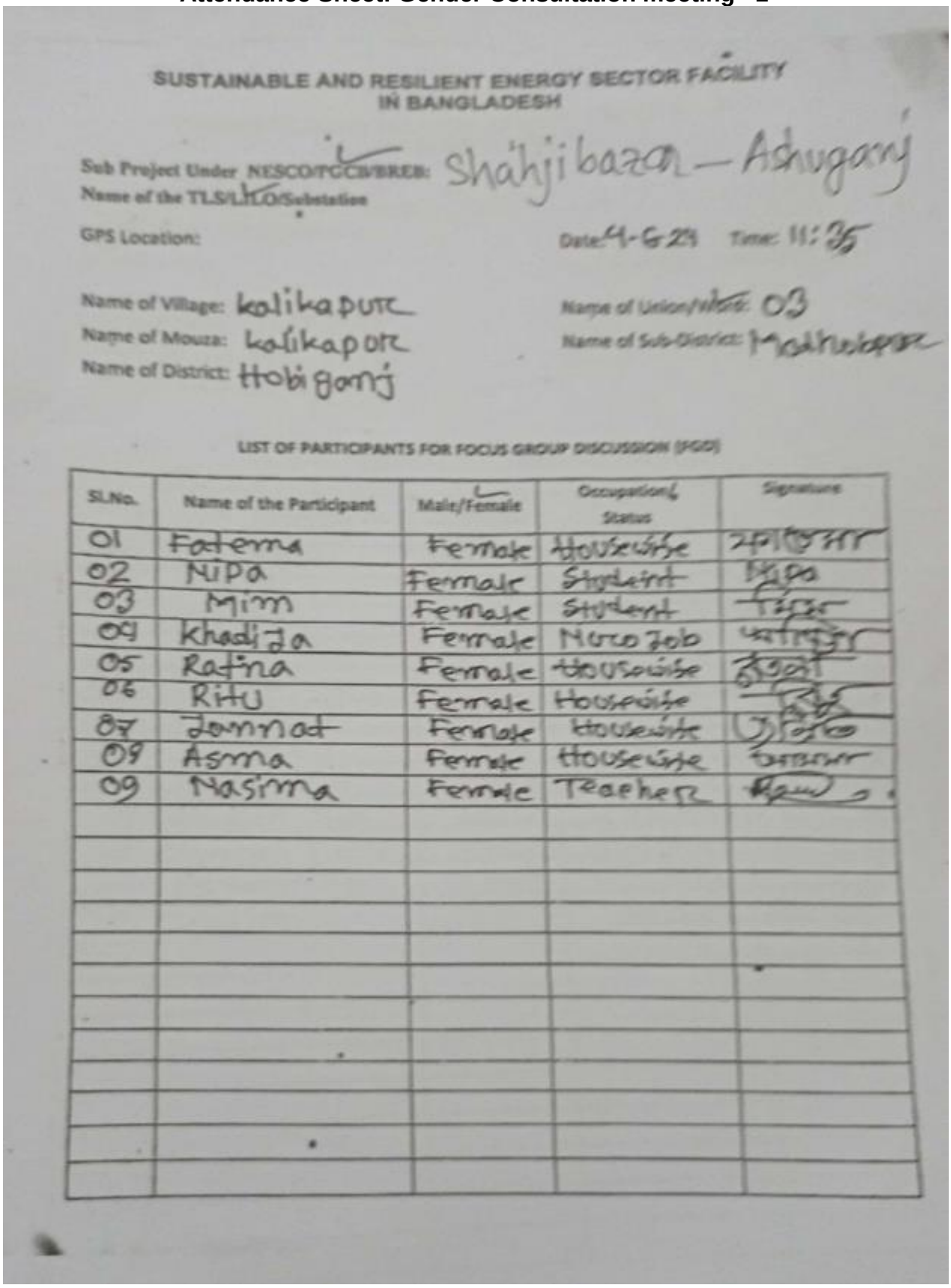
Name of Village: Ahamdara Name of Union/Word: Ahamdara
Name of Mouza: Ahamdara Name of Sub-District: Madhabpur
Name of District: Habiganj

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Shasi	Male	Bosiness	
02	Emon Mia	Male	Business	
03	Amirhamza	Male	Driver	
04	Anamol	Male	Farmer	
05	Salam Mia	Male	Farmer	
06	Habibur	Male	Machanic	
07	Srabon	Male	Student	
08	Bijoy	Male	Student	
09	Hridoy Mia	Male	Business	
10	Rana Khan	Male	Politics	

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation meeting –1



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/TGCB/BREB: Shahjibazar – Ashuganj
Name of the TLS/LILO/Substation

GPS Location: Date: 4-6-24 Time: 11:35

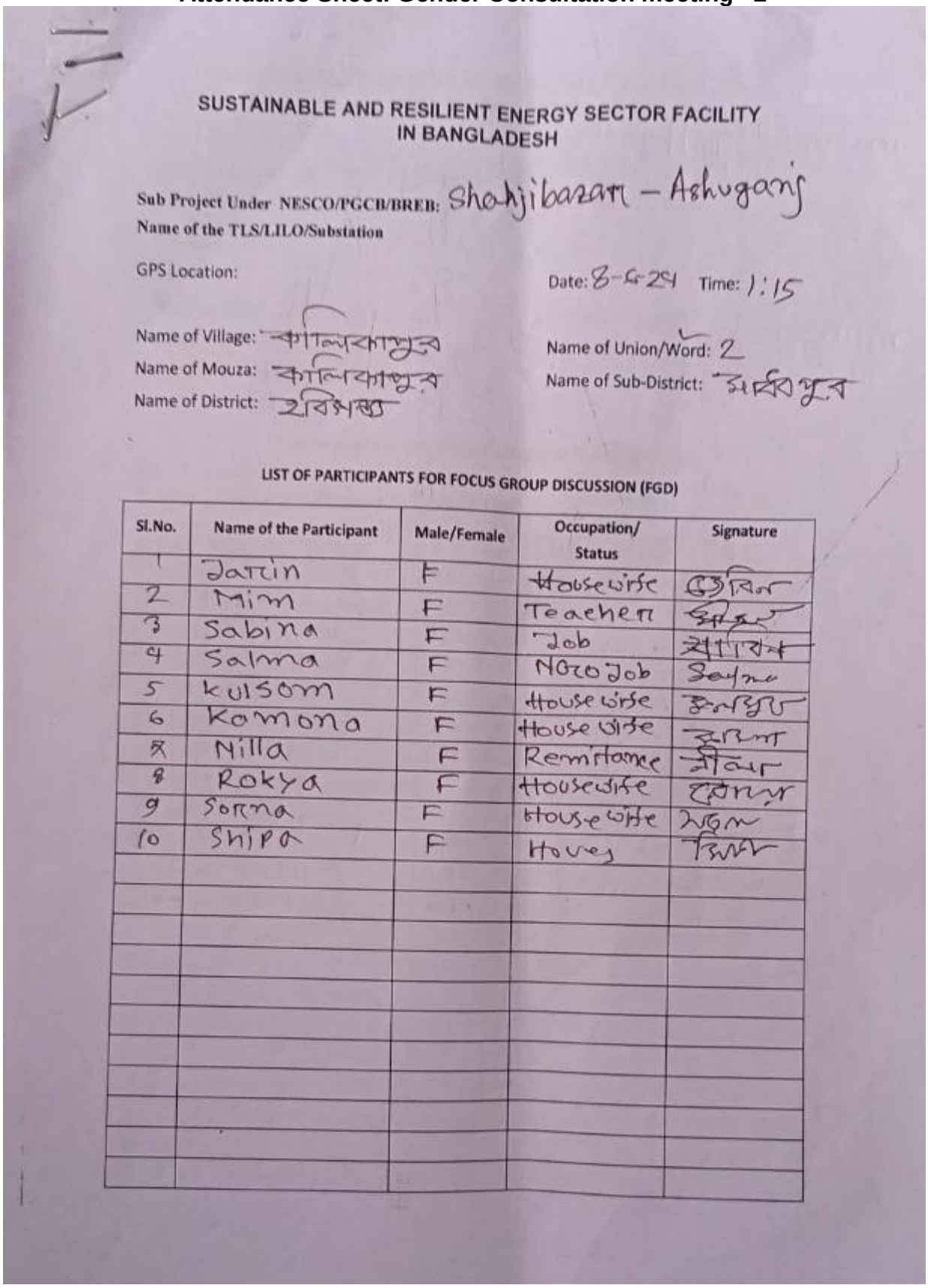
Name of Village: kalikapur Name of Union/Ward: 03
Name of Mouza: kalikapur Name of Sub-District: Madhabpur
Name of District: Hobigonj

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Fatema	Female	Housewife	
02	Nipa	Female	Student	
03	Mim	Female	Student	
04	Khadija	Female	Micro Job	
05	Ratna	Female	Housewife	
06	Ritu	Female	Housewife	
07	Jannat	Female	Housewife	
08	Asma	Female	Housewife	
09	Nasima	Female	Teacher	

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation meeting –2



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar – Ashuganj
Name of the TLS/LILO/Substation

GPS Location:

Date: 8-6-24 Time: 1:15

Name of Village: কালিকাপুর
Name of Mouza: কালিকাপুর
Name of District: হবিগঞ্জ

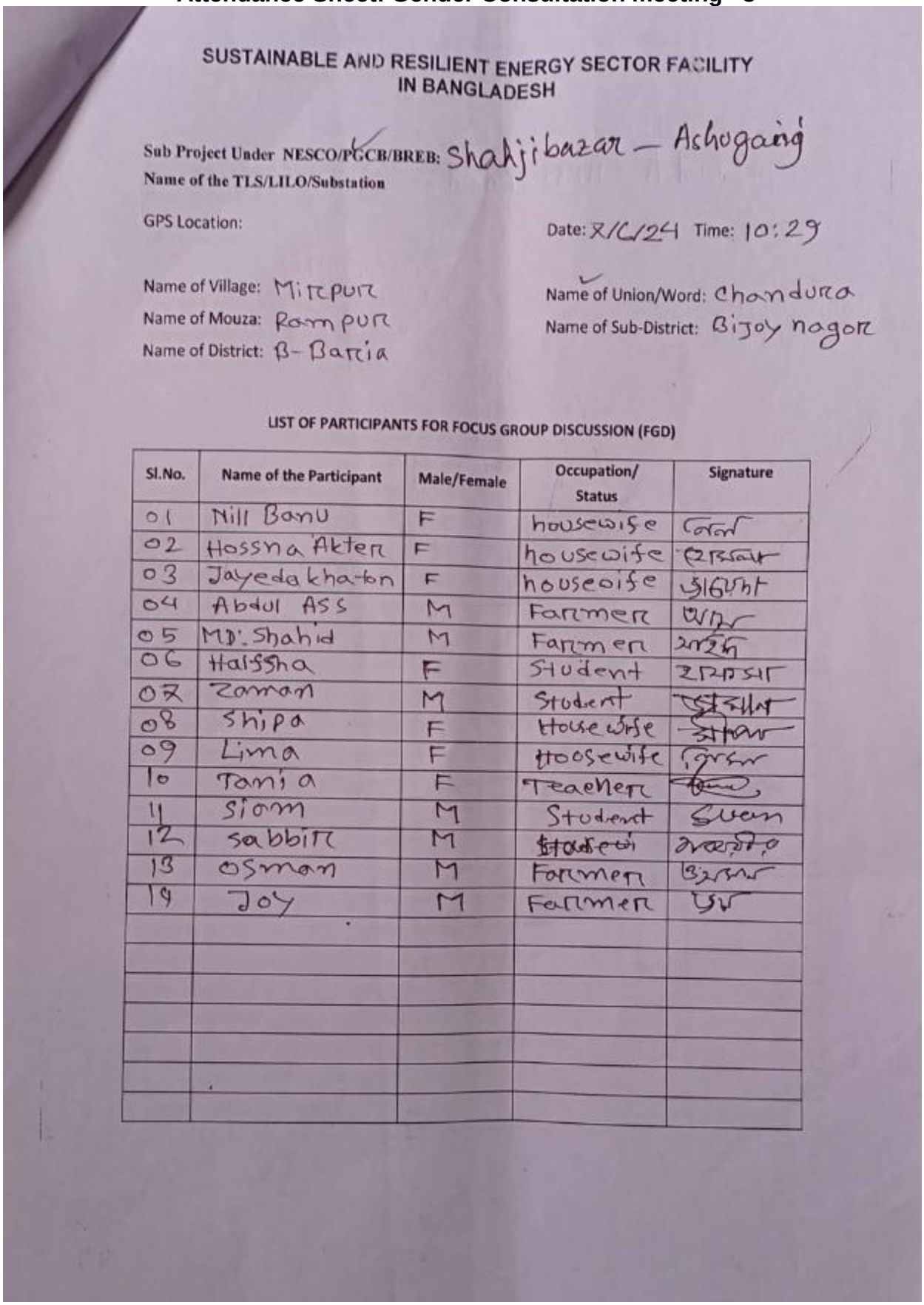
Name of Union/Word: 2
Name of Sub-District: মাধবপুর

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	Jarin	F	Housewife	
2	Mim	F	Teacher	
3	Sabina	F	Job	
4	Salma	F	NGO Job	Salma
5	kulsom	F	Housewife	
6	Komona	F	Housewife	
7	Nilla	F	Remittance	
8	Rokya	F	Housewife	
9	Sorna	F	Housewife	
10	Shipa	F	Housej	

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation meeting –3



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar – Ashugaing
Name of the TLS/LILO/Substation

GPS Location:

Date: 8/6/24 Time: 10:29

Name of Village: Mirepur
Name of Mouza: Rampur
Name of District: B- Barria

Name of Union/Word: Chandura
Name of Sub-District: Bijoy nagor

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Nill Banu	F	housewife	
02	Hossna Akter	F	housewife	
03	Jayeda khaton	F	housewife	
04	Abdul Ass	M	Farmer	
05	MD. Shahid	M	Farmer	
06	Haissha	F	Student	
07	Zaman	M	Student	
08	Shipa	F	Housewife	
09	Lima	F	Housewife	
10	Tania	F	Teacher	
11	Siom	M	Student	
12	Sabbir	M	Student	
13	Osman	M	Farmer	
14	Joy	M	Farmer	

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation meeting –4

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar-Ashuganj
Name of the TLS/LILO/Substation

GPS Location:

Date: 6/6/24 Time: 1.30 Pm

Name of Village: Kalikapur
Name of Union/Word: 02
Name of Mouza: Kalikapur
Name of Sub-District: Madhobpur
Name of District: Hobiganj

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Hosna	F	Housewife	
02	Khaleda	F	U	
03	Afruza	F	U	
04	Manufa	f	Student	
05	Kolsum	F	"	
06	Monium	F	Housewife	
07	Tumnana	F	U	

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Attendance Sheet: Gender Consultation meeting – 5

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: Shahjibazar - Achuganj
GPS Location:
Date: 5-6-24 Time: 12.00 Pm

Name of Village: Kalikapur
Name of Union/Word: 03
Name of Mouza: Kalikapur
Name of Sub-District: Madhobpur.
Name of District: Hobiganj

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Halima	F	Housewife	
02	Masuma (1)	F	4	
03	Masuma (2)	F	4	
04	Jannat	F	student	
05	Morseda	F	Housewife	
06	Joshna	F	4	
07	Moni	F	Teacher	
08	Tanzid	M	senior	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.3.2: Monohardi - Bajitpur 132kV double circuit line

Photo Gallery:

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Transmission Line Picture</td>
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Picture Of Public Consultation meeting -1



Picture of Public Consultation meeting -1



Picture of Public Consultation meeting -2



Picture of public Consultation meeting -2



Picture of Gender Consultation meeting - 1



Picture of Gender Consultation meeting - 1



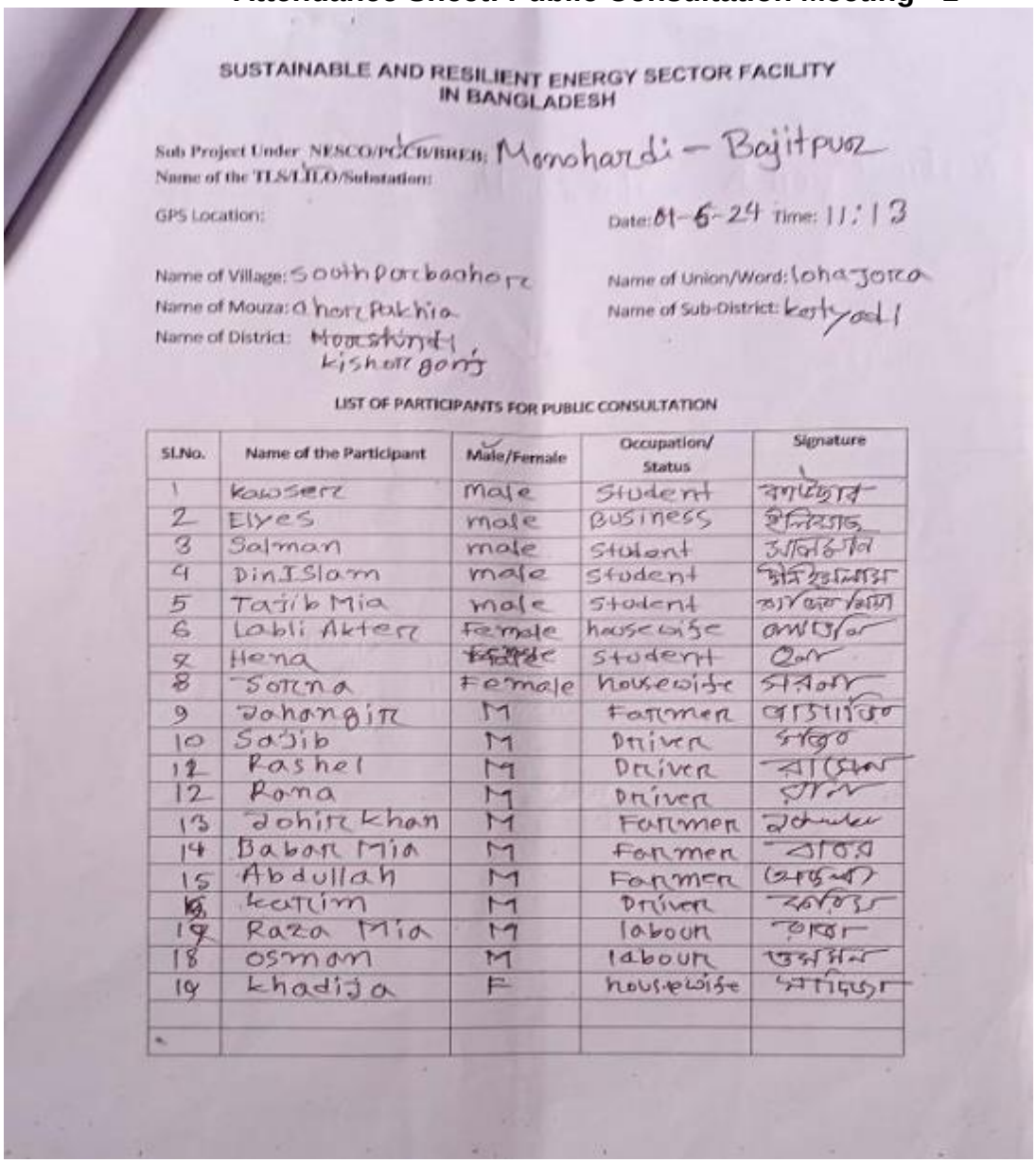


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Picture of Gender Consultation meeting - 2	Picture of Gender Consultation meeting - 2

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting - 1



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under: NESCO/PGCB/BRREB: Monohardi – Bajitpur
Name of the TLS/LILO/Substation:

GPS Location: Date: 01-6-24 Time: 11:13

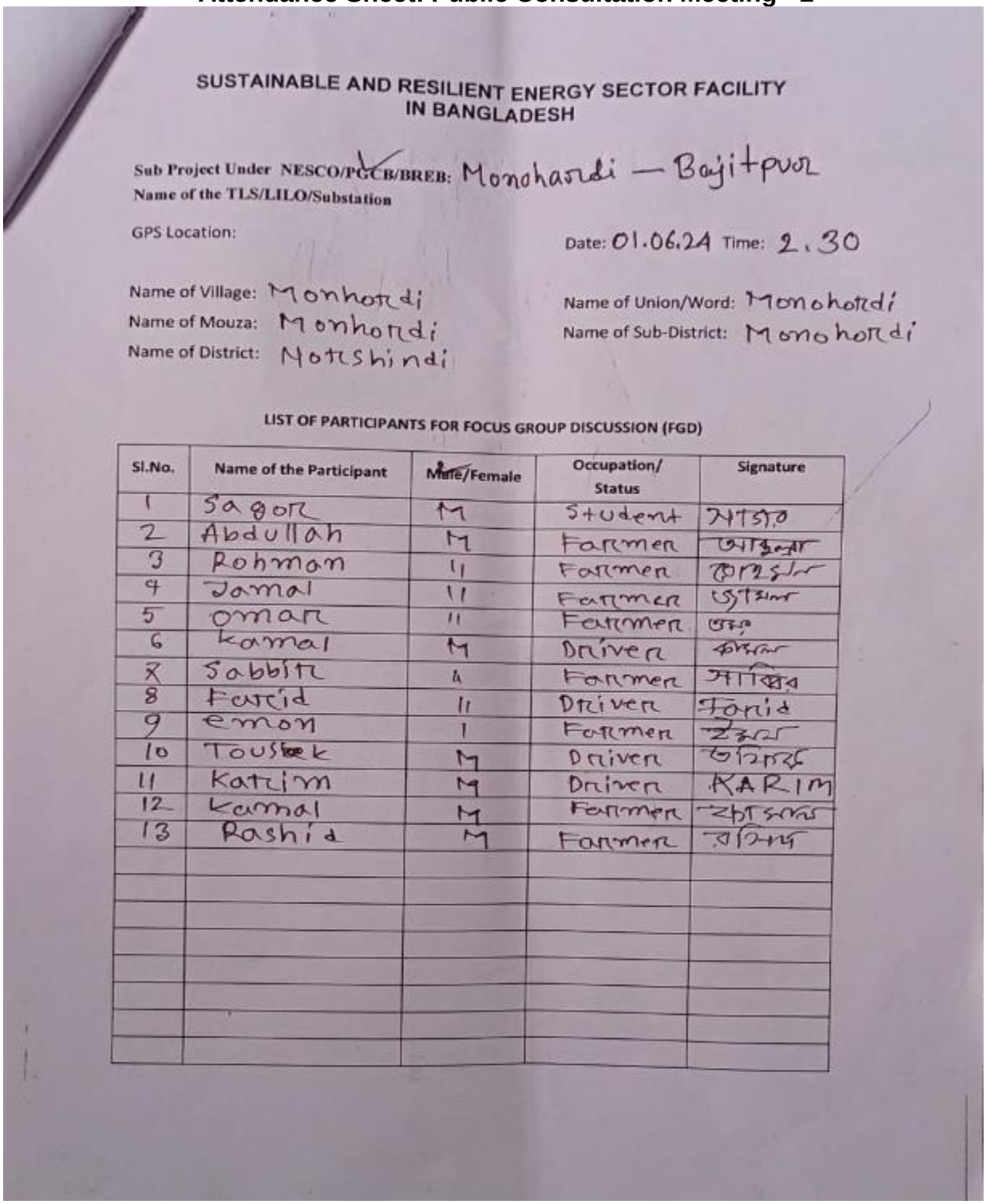
Name of Village: Southparbashore Name of Union/Word: Lohajora
Name of Mouza: Ghorpakhia Name of Sub-District: Kotyadi
Name of District: Moushundi, Kishoregonj

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	Kawser	Male	Student	
2	Elyes	male	Business	
3	Salman	male	Student	
4	DinIslam	male	Student	
5	Tajib Mia	male	Student	
6	Labli Akter	Female	housewife	
7	Hena	~~Female~~	Student	
8	Sorna	Female	housewife	
9	Johangir	M	Farmer	
10	Sajib	M	Driver	
11	Rashel	M	Driver	
12	Rona	M	Driver	
13	Johirkhan	M	Farmer	
14	Babar Mia	M	Farmer	
15	Abdullah	M	Farmer	
16	Karim	M	Driver	
17	Raza Mia	M	labour	
18	Osman	M	labour	
19	Khadija	F	housewife	

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Attendance Sheet: Public Consultation Meeting - 2



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Monohardi – Bajitpur
Name of the TLS/LILO/Substation

GPS Location:

Date: 01.06.24 Time: 2.30

Name of Village: Monhordi
Name of Mouza: Monhordi
Name of District: Notshindi

Name of Union/Word: Monohordi
Name of Sub-District: Monohordi

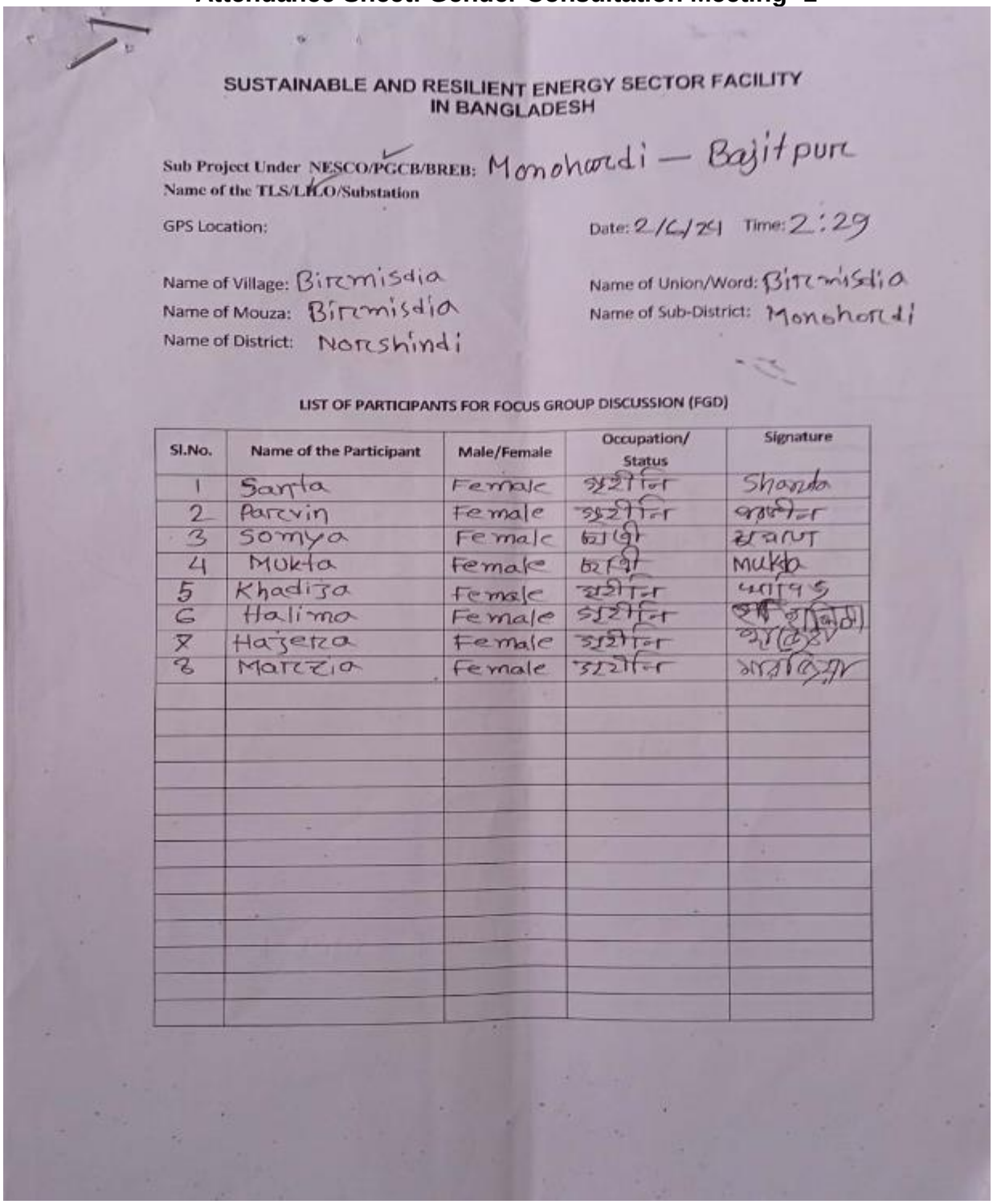
LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	Sagor	M	Student	
2	Abdullah	M	Farmer	
3	Rohman	11	Farmer	
4	Jamal	11	Farmer	
5	Omar	11	Farmer	
6	Kamal	M	Driver	
7	Sabbir	11	Farmer	
8	Farid	11	Driver	Farid
9	emon	1	Farmer	
10	Tousek	M	Driver	
11	Karim	M	Driver	KARIM
12	Kamal	M	Farmer	
13	Rashid	M	Farmer	

Source: SES Survey, 2024

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Attendance Sheet: Gender Consultation Meeting- 1



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Monohordi — Bajitpur
Name of the TLS/LILO/Substation

GPS Location:

Date: 2/6/24 Time: 2:29

Name of Village: Biremisdia
Name of Mouza: Biremisdia
Name of District: Norshindi

Name of Union/Word: Biremisdia
Name of Sub-District: Monohordi

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	Sarla	Female	গৃহিণি	Sharda
2	Parvin	Female	গৃহিণি	পারভীন
3	Somya	Female	ছাত্রী	সমপা
4	Mukta	Female	ছাত্রী	Mukta
5	Khadija	Female	গৃহিণি	খাদিজা
6	Halima	Female	গৃহিণি	হালিমা
7	Hajera	Female	গৃহিণি	হাজেরা
8	Marzia	Female	গৃহিণি	মারজিয়া

Source: SES Survey, 2024

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Attendance Sheet: Gender Consultation Meeting- 2

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: Monohordi – Bajitpur
GPS Location:

Date: 02/5/24 Time: 10.30 Am

Name of Village: Monhordi
Name of Mouza: Monhordi
Name of District: Narshindi

Name of Union/Word: Monohordi
Name of Sub-District: Monohordi

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Jonika	F	Housewife	
02	Lima	F	U	
03	Roksana	F	Student	
04	Rimi	F	Housewife	
05	Asidu	F	Teacher	
06	Choity	F	Housewife	
07	Jannat	F	U	

Source: SES Survey, 2024

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AVIII.3.3: Gopalganj -Tungipara 132kV double circuit line

Photo Gallery:



TLs of Gopalganj -Tungipara Picture



TLs of Gopalganj -Tungipara Picture



TLs of Gopalganj -Tungipara Picture



TLs of Gopalganj -Tungipara Picture



TLs of Gopalganj -Tungipara Picture



TLs of Gopalganj -Tungipara Picture



TLs of Gopalganj -Tungipara Picture



TLs of Gopalganj -Tungipara Picture

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Picture of Public Consultation Meeting



Picture of Public Consultation Meeting



Picture of Gender Consultation Meeting



Picture of Gender Consultation Meeting

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Gopalganj - Tongipara TL.
Name of the TLS/LILO/Substation

GPS Location: **Date:** 13/6/24 **Time:** 10.45 AM.

Name of Village: Balagunj
Name of Mouza: Baladanga
Name of District: Gopalganj

Name of Union/Word: Patgati
Name of Sub-District: Tongipara

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Abbas Ali	M	Business	
02	Motalib Mia	M	Agriculture	Motalib
03	Jahirul	M	4	Jahirul
04	Kasem Mia	M	Driver	
05	Halim	M	Agriculture	Halim
06	Asraful	M	Day labour	Asraful
07	Monsur	M	Business	
08	Foysal	M	Service	
09	Azizul	M	Business	

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Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: Gopalganj–Tungiparа TL

GPS Location:

Date: 13/6/24 Time: 12.30 Pm

Name of Village: Balaganj
Name of Mouza: Baladanga
Name of District: Gopalganj

Name of Union/Word: Patgati
Name of Sub-District: Tungiparа

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Halima	F	Housewife	
02	Monzina	f	4	
03	Hasina	f	4	
04	Shorifa	F	4	
05	Farzana	F	4	
06	Asiya	F	Student	
07	Monira	F	Housewife	
08	Mehidi	M	Service	

Source: SES Survey, 2024

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AVIII.3.4: Kachua- Matlab(N) 132kV double circuit line

Photo Gallery:


TLs of Kachua- Matlab(N) Picture


TLs of Kachua- Matlab(N) Picture


TLs of Kachua- Matlab(N) Picture


TLs of Kachua- Matlab(N) Picture


TLs of Kachua- Matlab(N) Picture


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TLs of Kachua- Matlab(N) Picture

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 TLs of Kachua- Matlab(N) Picture	 TLs of Kachua- Matlab(N) Picture
 Picture of Public Consultation Meeting-1	 Picture of Public Consultation Meeting-1
 Picture of Public Consultation Meeting -2	 Picture of Public Consultation Meeting -2
 Picture of Gender Consultation Meeting -1	 Picture of Gender Consultation Meeting -1

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Picture of Gender Consultation Meeting -2



Picture of Gender Consultation Meeting -2

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting -1

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: Kachua – Matlab (N) 132 kv double circuit line 35 k

GPS Location: 23.264785, 90.858916 Date: 07/06/24 Time: 9.30am

Name of Village: বাচ্চিরমাঠ
Name of Union/Word: কোড়াকর
Name of Mouza: কোড়াকর
Name of Sub-District: হাজিগঞ্জ
Name of District: চাঁদপুর

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	তরিকুল ইসলাম	m	ব্যবসা	তরিকুল
2	আবদুল হান্নান	m	ব্যাবসা	হান্নান
3	বিপ্লব	m	কৃষি	বিপ্লব
4	সাহাবুব সরকার	m	চাকুরি	সাহাবুব সরকার
5	রোহান	m	ব্যাবসা	রোহান
6	রোসালি বেগম	F	গৃহিনি	রোসালি
7	হোসনে আরা	F	গৃহিনি	
8	রোনাকি	F	"	রোনাকি
9	সরনা খাতুন	F	"	সরনা
10	সালমা সিদ্দিকা	F	"	সালমা সিদ্দিকা
(11)	আমালিমা	F	"	আমালিমা

Source: SES Survey, 2024

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SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Kochua – Matlab (N) 132kV ~~Re~~double
Name of the TLS/LILO/Substation ~~Matlab (N) 132/33 kV~~ circuit line 35 km
GPS Location: 23.403086, ~~90.687269~~ 90.687258 Date: 06/06/24 Time: 1.10 pm
Name of Village: Begumpur Name of Union/Word: Ludhya
Name of Mouza: ~~Ludhuya~~ Ludhuya Name of Sub-District: Uttar Matlab
Name of District: Chadpur

LIST OF PARTICIPANTS FOR ~~FOCUS GROUP DISCUSSION (FGD)~~ PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	জাহাঙ্গীর আলম	M	~~কৃষক~~ Farmer	জাহাঙ্গীর
2	জমির হোসেন	M	Farmer	জমির
3	মুকবুল হোসেন	M	Business	মুকবুল
4	জামাল	M	Driver	জামাল
5	কামাল	M	Business	কামাল
6	নাজমুল	M	Farmer	নাজমুল
7	মন্টু	M	Student	মন্টু
8	সিয়াম	M	Job	Siyam
9	রোকসানা বেগম	F	House wife	রোকসানা
10	সালমা বেগম	F	11	সালমা
11	মমতাজ	F	11	মমতাজ
12	রোহিত খাতুন	F	11	রোহিত

Source: SES Survey, 2024

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SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:

Name of the TLS/LILO/Substation: Kachua-Matlab(N) 132 kV double circuit line (35 km)

GPS Location: 23.410976, 90.627055

Date: 7/06/24 Time: 12.30pm

Name of Village: Kolakanda

Name of Union/Word: Gozra

Name of Mouza: Gozra

Name of Sub-District: Matlab (N)

Name of District: ~~Matlab(N)~~ Chodpur

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	JOHORA AKTHER	F	House wife	জোহরা
2	PRIYANKA	F	11	প্রিয়াংকা
3	UMME HABIBA	F	11	হাবিবা
4	MAKSUDA	F	11	মাকসুদা
5	SELINA	F	Business	সেলিনা
6	ALEYA	F	House wife	
7	TANIA	F	11	Tania

Source: SES Survey, 2024

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SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation Kachua - Matlab (N) 132 kV double circuit line 35
GPS Location: 23.917330, 90.647258 Date: 06/06/24 Time: 10.00am

Name of Village: Kashimnagar Name of Union/Word: Gajra
Name of Mouza: Maisdi Name of Sub-District: Matlab
Name of District: Chadpur

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	রোসালি বেগম	F	গৃহিনি	রোসালি
2	সালেহা বেগম	F	〃	সালেহা
3	মেসালি বেগম	F	〃	মেসালি
4	আকলিমা	F	〃	আকলিমা
5	সাহিদা বেগম	F	〃	সাহিদা
6	মনোয়ারা বেগম	F	〃	মনোয়ারা

Source: SES Survey, 2024

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AVIII.3.5: Satkhira - Paikgacha 132kV double circuit line

Photo Gallery:



TLs of Satkhira- Paikgacha Picture



TLs of Satkhira- Paikgacha Picture



TLs of Satkhira- Paikgacha Picture



TLs of Satkhira- Paikgacha Picture



TLs of Satkhira- Paikgacha Picture



TLs of Satkhira- Paikgacha Picture



TLs of Satkhira- Paikgacha Picture



TLs of Satkhira- Paikgacha Picture

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 Picture of Consultation meeting- 1	 Picture of Consultation meeting-1
 Picture of Consultation meeting-2	 Picture of Consultation meeting-2
 Picture of Gender Consultation meeting -1	 Picture of Gender Consultation meeting -1
 Picture of Gender Consultation meeting-2	 Picture of Gender Consultation meeting-2

Source: SES Survey, 2024

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SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation : LILO of Satkhira-Paikgacha double circuit 2nd-
GPS Location:
Date: 12/6/24 Time: 10.50 Am.

Name of Village: Binerpota
Name of Mouza: Poloshpur
Name of District: Satkhira
Name of Union/Word: Sadar Union.
Name of Sub-District: Satkhira Sadar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	MD. Jahirur	M	Service	
02	Mozibur	M	Business	Mozibur
03	Azizul	M	11	
04	Golam Mostofa	M	Driver	
05	Sobuj Mia	M	Farmar	SOBUJ
06	Limon	M	Business	
07	Asadul	M	Farmar	
08	Sajib	M	Business	
09	Halima khatun	F	Housewife.	Halima
10	Monira	F	11	Monira
11	Jubayer	M	Business	
12	Rubayet	M	Service	

Source: SES Survey, 2024

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SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB

Name of the TLS/LILO/Substation: LILO of Satkhira-Paikgacha double circuit line

GPS Location:

Date: 13/6/24 Time: 12.00PM

Name of Village: Sorenkhali

Name of Union/Word: Loskor

Name of Mouza: Chokbogura

Name of Sub-District: Paikgacha

Name of District: Khulna

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	MD. Nahid	M	Business	
02	MD. Sahin	M	U	
03	Mirajul	M	Agriculture	Miraj
04	Niloy	M	Driver	Niloy
05	Asif	M	Business	
06	Shaon	M	Farmer	Shaon
07	Tanzid	M	Job	
08	Yeasin	M	Business	
09	Jubayer	M	U	Jubayer
10	Sonjith	M	Job	Sonjith
11	Lipi Akter	F	Housewife	Lipi
12	Morium	F	U	Morium

Source: SES Survey, 2024

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Attendance Sheet: Gender Consultation Meeting -1

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SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB

Name of the TLS/LILO/Substation : LILO of Satkhira-Paikgacha double circuit line

GPS Location: Date: Time:

Name of Village: Binorputa Name of Union/Word:

Name of Mouza: Polashpur Name of Sub-District:

Name of District: Satkhira

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Mst. Roksana	F	Housewife	
02	Mst. Priya	F	Student	
03	Ovikumahar	F	U	
04	Morshada	F	Housewife	
05	Johora	F	U	
06	Fozila	F	U	
07	Pervin	F	U	
08	Morium	F	U	
09	Kohinor	F	U	
10	Nasrin	F	U	
11	Abdulla	M	service	

Source: SES Survey, 2024

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SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB.

Name of the TLS/LILO/Substation: LILO of Satkhira-Paikgacha double circuit line

GPS Location:

Date: 13/6/24 Time: 2.00 PM

Name of Village: Sorankhali

Name of Union/Word: Loskor

Name of Mouza: Chalkbagura

Name of Sub-District: Paikgacha

Name of District: Khulna

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Bilkis Begum	F	Housewife	
02	Mawda	F	"	
03	Jannat	F	"	
04	Ajmerain	F	"	
05	Mahima	F	Student	
06	Sushmita	F	Housewife	
07	Joshna	F	"	
08	Shahida	F	"	
09	Jonika	F	"	
10	MD. Shofik	M	Service	Shofik

Source: SES Survey, 2024

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AVIII.3.6: Bhandaria - Mathbaria 132kV double circuit transmission line

Photo Gallery:



TLs of Bhandaria –Mathbaria Picture



TLs of Bhandaria –Mathbaria Picture



TLs of Bhandaria –Mathbaria Picture



TLs of Bhandaria –Mathbaria Picture



TLs of Bhandaria –Mathbaria Picture



TLs of Bhandaria –Mathbaria Picture



TLs of Bhandaria –Mathbaria Picture



TLs of Bhandaria –Mathbaria Picture

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TLs of Bhandaria –Mathbaria Picture



TLs of Bhandaria –Mathbaria Picture



Picture of Public Consultation meeting- 1



Picture of public Consultation meeting-1



Picture of Public Consultation meeting-2



Picture of Public Consultation meeting-2



Picture of Gender Consultation meeting -1



Picture of Gender Consultation meeting -1

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Picture of Gender Consultation meeting-2



Picture of Gender Consultation meeting-2

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting-1

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: Bhandaria – Mathbaria TL.

GPS Location: 22. 477253
90. 068861

Date: 12-6-24 Time: 2.00 PM

Name of Village: পূর্ব ভান্ডারিয়া
Name of Mouza: ভান্ডারিয়া
Name of District: Pirojpur

Name of Union/Word: পৌরসভা
Name of Sub-District: ভান্ডারিয়া

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	মোঃ শাহ আলী	M	কৃষক	শাহ আলী
02	কামাল হোসেন	M	ব্যবসা	কামাল হোসেন
03	সুভাষ মেম্বার	M	"	সুভাষ
04	ইলিয়াস	M	কৃষক	ইলিয়াস
05	আঃ রউফ	M	শিক্ষক	আঃ রউফ
06	আল - আমিন	M	কৃষক	আলামিন
07	জাকির হোসেন	M	ড্রাইভার	জাকির
08	মোহাঃ রানা	M	চাকুরী	মোহাঃ রানা
09	সুকুমার	M	কৃষক	সুকুমার
10	রহিম হাওলাদার	M	"	রহিম

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation meeting -2

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: Bhandaria - Mathbaria TL.

GPS Location: 22.359489
90.026306

Date: 12.6.24 Time: 3:45 PM

Name of Village:
Name of Mouza:
Name of District:

Name of Union/Word:
Name of Sub-District:

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01		M		
02		M		
03		M		
04		M		
05		M		

Source: SES Survey, 2024

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Attendance Sheet: Gender Consultation meeting -1

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation Bhandaria - Mathbaria TL.

GPS Location: 22.480844
90.070785

Date: 12-6-24 Time: 2:30 PM

Name of Village: পূর্ব বোয়ালিয়া
Name of Mouza: বোয়ালিয়া
Name of District: Pirojpur

Name of Union/Word: পোড়াগাছা
Name of Sub-District: ভান্ডারিয়া

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	শাহিদা আক্তার	F	গৃহিনী	শাহিদা
02	শারমিন	F	"	শারমিন
03	মাকসুদা বেগম	F	"	মাকসুদা
04	আমিনা	F	"	আমিনা
05	উম্মে কুলসুম	F	শিক্ষিকা	উম্মে কুলসুম
06	নূর মোহাম	F	গৃহিনী	নূর আহম
07	মুকুল বেগম	F	গৃহিনী	মুকুল
08	মুক্তা	F	ছাত্রী	মুক্তা
09	মাহমা বেগম	F	গৃহিনী	মাহমা
10	আনোয়ার হোসেন	M	কৃষক	আনোয়ার
11	শিল্পী	F	গৃহিনী	শিল্পী

Source: SES Survey, 2024

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Attendance Sheet: Gender Consultation Meeting -2

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation Bhandaria – Mathbaria TL

GPS Location: 22.35823 80
90.02828 27

Date: 12.6.24 Time: 4:50 PM

Name of Village: [illegible]
Name of Union/Word: [illegible]
Name of Mouza: [illegible]
Name of Sub-District: [illegible]
Name of District: [illegible]

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	[illegible]	F	[illegible]	[illegible]
02	[illegible]	F	"	[illegible]
03	[illegible]	F	"	[illegible]
04	[illegible]	F	"	[illegible]
05	[illegible]	M	[illegible]	[illegible]

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.4: Stakeholder Consultation and Gender Meeting Photographs& Attendance Sheets - LILO Lines

AVIII.4.1: LILO of Existing Matarbari PP- Danskhat PP double circuit 400kV line at Matarbari (6.78km)

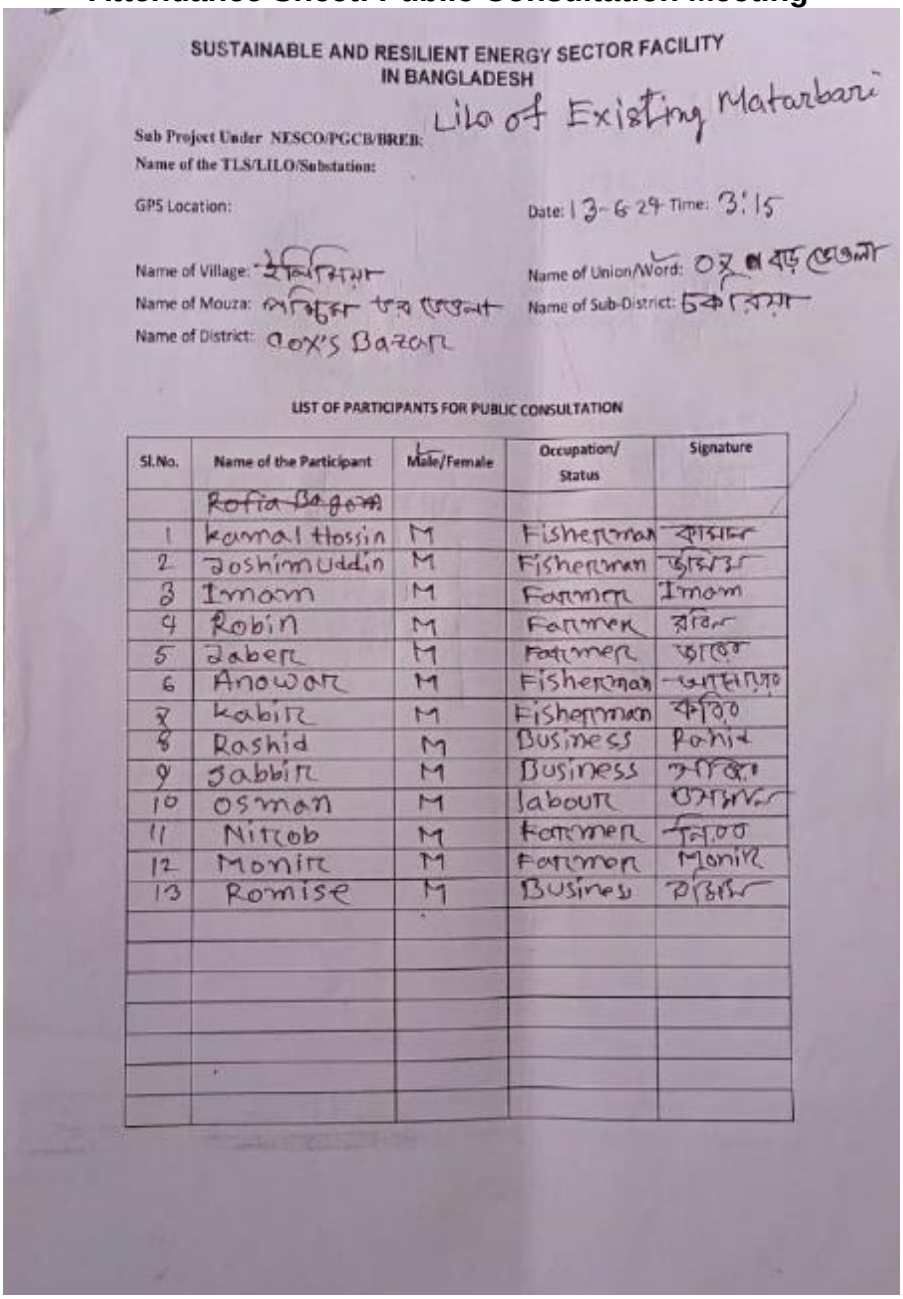
Photo Gallery:

<table>
<tr><td> 
LILO of Matarbari PP- Danskhat PP Picture</td><td> 
LILO of Matarbari PP- Danskhat PP Picture</td></tr>
<tr><td> 
LILO of Matarbari PP- Danskhat PP Picture</td><td> 
LILO of Matarbari PP- Danskhat PP Picture</td></tr>
<tr><td> 
Picture of Public Consultation meeting</td><td> 
Picture of Public Consultation meeting</td></tr>
<tr><td> 
Picture of Female Consultation Meeting</td><td> 
Picture of Female Consultation Meeting</td></tr>
</table>

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Lilo of Existing Matarbari
Name of the TLS/LILO/Substation:

GPS Location: Date: 13-6-24 Time: 3:15

Name of Village: ইদ্দিরিয়া Name of Union/Word: ০২ নং বড় ভেওলা
Name of Mouza: মাতারবাড়ি বড় ভেওলা Name of Sub-District: চকরিয়া
Name of District: Cox's Bazar

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
	~~Rofia Begum~~			
1	kamal Hossin	M	Fisherman	কামাল
2	Joshim Uddin	M	Fisherman	জসিম
3	Imam	M	Farmer	Imam
4	Robin	M	Farmer	রবিন
5	Jaber	M	Farmer	জাবের
6	Anowar	M	Fisherman	আনোয়ার
7	kabir	M	Fisherman	কবির
8	Rashid	M	Business	Rahid
9	Jabbir	M	Business	জাব্বার
10	Osman	M	labour	ওসমান
11	Nitob	M	Farmer	নিতাই
12	Monir	M	Farmer	Monir
13	Romise	M	Business	রমিজ

Source: SES Survey, 2024

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Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB:
Name of the TLS/LILO/Substation: LILO of Existing Matarbari
GPS Location:
Date: 13/6/24 Time: 11.20 Am

Name of Village:
Name of Mouza:
Name of District: COX'S BAZAR
Name of Union/Word:
Name of Sub-District:

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Jonika	F	Housewife	
02	Lima	F	〃	
03	Roksana	F	Student	
04	Rimi	F	Housewife	
05	Afida	F	Teacher	
06	Choity	F	Housewife	
07	Jannat	F	〃	
08.	Halima	F	〃	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.4.2: LILO of Existing Matarbari PP- Danskhat PP double circuit 400kV line at Matarbari (6.85km)

Photo Gallery:



LILO of Matarbari PP- Danskhat PP Picture



LILO of Matarbari PP- Danskhat PP Picture



LILO of Matarbari PP- Danskhat PP Picture



LILO of Matarbari PP- Danskhat PP Picture



Picture of Public Consultation meeting



Picture of Public Consultation meeting



Picture of Gender Consultation meeting

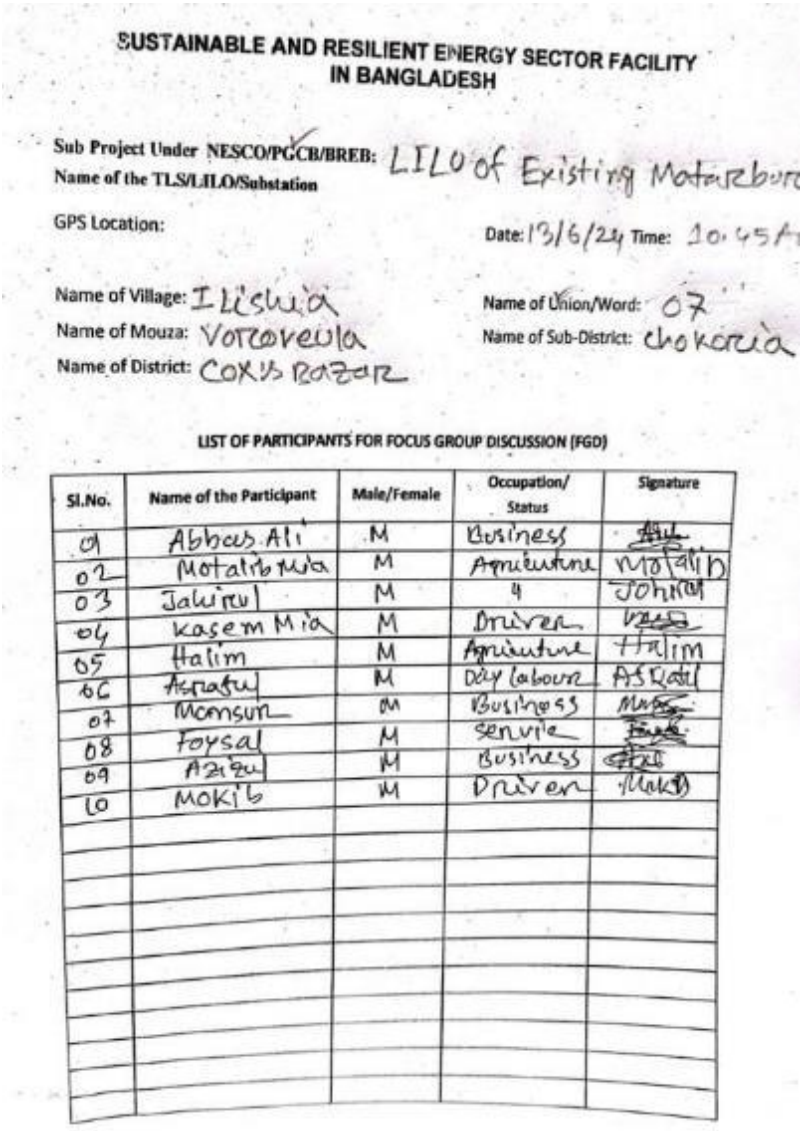


Picture of Gender Consultation meeting

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: LILO of Existing Matarbu
Name of the TLS/LILO/Substation

GPS Location:

Date: 13/6/24 Time: 10.45A

Name of Village: Ilisha
Name of Union/Word: 07
Name of Mouza: Voroveula
Name of Sub-District: Chokoria
Name of District: Cox's Bazar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Abbas Ali	M	Business	
02	Motalib Mia	M	Agriculture	Motalib
03	Jalirul	M	4	Jalirul
04	Kasem Mia	M	Driver	
05	Halim	M	Agriculture	Halim
06	Asraful	M	Day labour	Asraful
07	Monsur	M	Business	
08	Foysal	M	Service	
09	Azizul	M	Business	
10	Mokib	M	Driver	Mokib

Source: SES Survey, 2024

Attendance Sheet: Gender Consultation Meeting

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SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: LILO of Existing Matarbari

Name of the TLS/LILO/Substation

GPS Location: **Date:** 13/6/24 **Time:** 12.30 Pm

Name of Village: Hishia **Name of Union/Word:** 07

Name of Mouza: Vorzoveula **Name of Sub-District:** Chokoria.

Name of District: Cox's Bazar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Halima	F	Housewife	
02	Monzina	f	"	
03	Hasina	f	"	
04	Shorita	F	"	
05	Farzana	F	"	
06	Afiya	F	Student	
07	Monira	F	Housewife	
08	Mehidi	M	Service	
09	Hema	F	Housewife	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.4.3: LILO of Anwara-Cox's Bazar 230Kv line at Matarbari

Photo Gallery:



LILO of Anwara-Cox's Bazar Picture



LILO of Anwara-Cox's Bazar Picture



LILO of Anwara-Cox's Bazar Picture



LILO of Anwara-Cox's Bazar Picture



Picture of Public Consultation meeting



Picture of Public Consultation meeting



Picture of Gender Consultation meeting



Picture of Gender Consultation meeting

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: LILO of Anwara - Cox's Bazar,
Name of the TLS/LILO/Substation

GPS Location:

Date: 13/6/24 Time: 9.40Am.

Name of Village: Iliashia
Name of Union/Word: 02
Name of Mouza: Paschim Voroveula
Name of Sub-District: Chokoria
Name of District: Cox's Bazar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Sojib Mia	M	Service	Sojib
02	Liakot	M	Business	Liakot
03	Hasnat	M	Driver	Hasnat
04	Abul Hasem	M	Business	Abul
05	Sanjith	M	Agriculture	Sanjith
06	Asraful	M	Fish business	Asraful
07	Halim	M	Teacher	Halim
08	Jashim	M	Mechanic	Jashim

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: LILO of Anwara-Cox's Bazar.
Name of the TLS/LILO/Substation

GPS Location: Date: 13-6-24 Time: 2.10 PM

Name of Village: Ilisha Name of Union/Word: 02
Name of Mouza: [illegible] Name of Sub-District: Chokoria
Name of District: Cox's Bazar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Morsheda	F	Housewife	
02	Labli	F	U	
03	Monika	F	U	
04	Mabiya	F	Student	
05	Saima	F	U	
06	Ritu	F	Housewife	
07	Montahin	F	Teacher	
08	Fatema	F	Housewife	
09	Hafiza	F	U	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.4.4: LILO of Existing Matarbari (132/33)-Chakaria 132kV line at Matarbari

Photo Gallery:



LILO of Matarbari (132/33)-Chakaria Picture



LILO of Matarbari (132/33)-Chakaria Picture



LILO of Matarbari (132/33)-Chakaria Picture



LILO of Matarbari (132/33)-Chakaria Picture



Picture of Public Consultation meeting



Picture of Public Consultation meeting



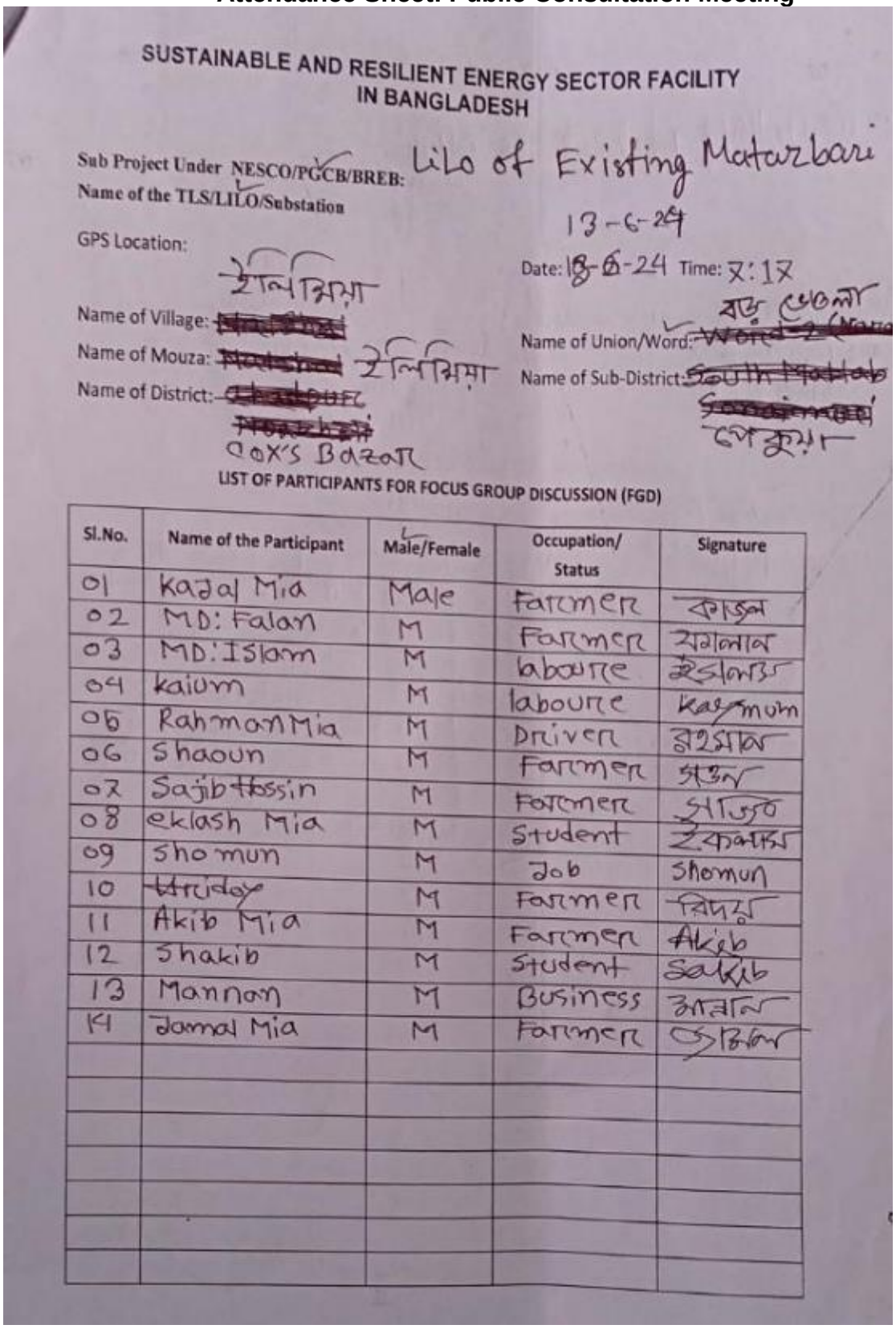
Picture of Female Consultation meeting



Picture of Female Consultation meeting

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Attendance Sheet: Public Consultation Meeting



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: LiLo of Existing Matarbari
Name of the TLS/LILO/Substation

GPS Location:

Date: 13-6-24 Time: 7:17

Name of Village: ইলশিয়া

Name of Union/Word: বড় ফেরুলা

Name of Mouza: ইলশিয়া

Name of District: COX'S BAZAR

Name of Sub-District: পেকুয়া

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Kajal Mia	Male	Farmer	কাজল
02	MD: Falan	M	Farmer	ফালান
03	MD: Islam	M	labourer	ইসলাম
04	kaium	M	labourer	Kaiyum
05	RahmanMia	M	Driver	রহমান
06	Shaoun	M	Farmer	শাওন
07	Sajibhossin	M	Farmer	সাজিব
08	eklash Mia	M	Student	একলাস
09	shomun	M	Job	Shomun
10	Hridoy	M	Farmer	হৃদয়
11	Akib Mia	M	Farmer	Akib
12	Shakib	M	Student	Sakib
13	Mannan	M	Business	মান্নান
14	Jamal Mia	M	Farmer	জামাল

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: LILO of Existing Matarbari.
Name of the TLS/LILO/Substation

GPS Location:

Date: 13.06.24 Time: 1.30

Name of Village: হলিদিয়া
Name of Mouza: হলিদিয়া
Name of District: কক্সবাজার

Name of Union/Word: বড় ভেওলা
Name of Sub-District: চকরিয়া

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
①	মনিয়া	F	গৃহিণী	মনিয়া
②	মরিয়ম	F	〃	মরিয়ম
③	আখী বেগম	F	〃	আখী
④	আছুয়ারা	F	〃	আছু
⑤	লাকি	F	〃	লাকি
⑥	রুপালী	F	〃	রুপালী
⑦	মমতাজ	F	〃	মমতাজ
⑧	আমেনা	F	〃	আমেনা
⑨	কুলসুম	F	〃	কুলসুম

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.4.5: LILO of Cumilla (N) - Shahjibazar PP 230kV double circuit line at Madhabpur

Photo Gallery:

 LILO of Cumilla(N) – Shahjibazar Picture	 LILO of Cumilla(N) – Shahjibazar Picture
 LILO of Cumilla(N) – Shahjibazar Picture	 LILO of Cumilla(N) – Shahjibazar Picture
 Meeting with Officials	 Meeting with Officials
 Picture of Public Consultation Meeting	 Picture of Public Consultation Meeting

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



Picture of Gender Consultation Meeting



Picture of Gender Consultation Meeting

Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar - Ashuganj
Name of the TLS/CILO/Substation

GPS Location: Date: 7/6/24 Time: 4:18

Name of Village: Malihata
Name of Mouza: Malihata
Name of District: B-Baria

Name of Union/Word: 02
Name of Sub-District: B-Baria Sadar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	MD: Idris Mia	M	Farmer	
02	MD: Ohid Mia	M	Farmer	
03	MD: Abdul Aziz	M	Driver	Abdul Aziz
04	Akter hossin	M	Business	
05	Azizul Hoque	M	Driver	
06	Zakir Hossin	M	Remittance	
07	MD: Osman	M	Farmer	
08	Shamsu Mia	M	Farmer	
09	Rahat	M	Farmer	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar – Ashuganj
Name of the TLS/LILO/Substation

GPS Location:

Date: 07/6/24 Time: 2.10PM

Name of Village: Malihata
Name of Mouza: Malihata
Name of District: B. Baria

Name of Union/Word: 02
Name of Sub-District: B. Baria Sadar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Morsheda	F	Housewife	
02	Labli	F	U	
03	Monika	F	U	
04	Mabiya	F	Student	
05	Saima	F	U	
06	Ritu	F	Housewife	
07	Montahin	F	Teacher	
08	Fatema	F	Housewife	
09	Hafiza	F	U	
10	Tanik	M	Service	

Source: SES Survey, 2024

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

AVIII.4.6: LILO of Shahjibazar - Brahmanbaria 132kV double circuit line at Madhabpur

Photo Gallery:

<table>
<tr><td> 
LILO of Shahjibazar – Brahmanbaria Picture</td><td> 
LILO of Shahjibazar – Brahmanbaria Picture</td></tr>
<tr><td> 
LILO of Shahjibazar – Brahmanbaria Picture</td><td> 
LILO of Shahjibazar – Brahmanbaria Picture</td></tr>
<tr><td> 
Picture of public Consultation Meeting</td><td> 
Picture of public Consultation Meeting</td></tr>
</table>

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



Picture of public Consultation Meeting



Picture of public Consultation Meeting

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting -1

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shahjibazar – Ashuganj
Name of the TLS/LILO/Substation

GPS Location:

Date: 7/6/24 Time: 3:15

Name of Village: Malihata
Name of Mouza: Malihata
Name of District: B-Bania

Name of Union/Word: 02
Name of Sub-District: B-Bania Sadar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01.	Liakot ali	M	Farmer	
02.	Md. Sultan Uddin	M	Driver	
03.	Md. Mostofa	M	Driver	
04.	Jahirul Islam	M	Farmer	
05.	Md. Manaruddin	M	Farmer	
06.	Jahangir	M	Farmer	
07.	Jomiruddin	M	Business	
08.	Jamal	M	Business	
09.	Sujon	M	Driver	Sujon
10.	Jahangir	M	Farmer	

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Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Shajibazar - B. Baria
Name of the TLS/LILO/Substation

GPS Location: **Date:** 7/6/24 **Time:** 4.00 PM

Name of Village: Malihata **Name of Union/Word:** 02
Name of Mouza: Malihata **Name of Sub-District:** B. Baria.
Name of District: B. Baria

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Jonika	F	Housewife	
02	Lima	F	"	
03	Roksana	F	Student	
04	Rimi	F	Housewife	
05	Afida	F	Teacher	
06	Choity	F	Housewife	
07	Jannat	F	"	
08.	Halima	F	"	
09.	Asma	F	Tailor	
10.	Tanzid	M	Service	

Source: SES Survey, 2024

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AVIII.4.7: LILO of Sripur -Ashuganja 230kV double circuit line at Monohardi

Photo Gallery:



LILO of Sripur -Ashuganja Picture



LILO of Sripur -Ashuganja Picture



LILO of Sripur -Ashuganja Picture



LILO of Sripur -Ashuganja Picture



LILO of Sripur -Ashuganja Picture



LILO of Sripur -Ashuganja Picture



Picture of Public Consultation meeting



Picture of Public Consultation meeting

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Picture of Gender Consultation meeting



Picture of Gender Consultation meeting

Source: SES Survey, 2024

Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Monohardi – Bajitpur
Name of the TLS/LILO/Substation:

GPS Location: Date: 3-6-24 Time: 11:00

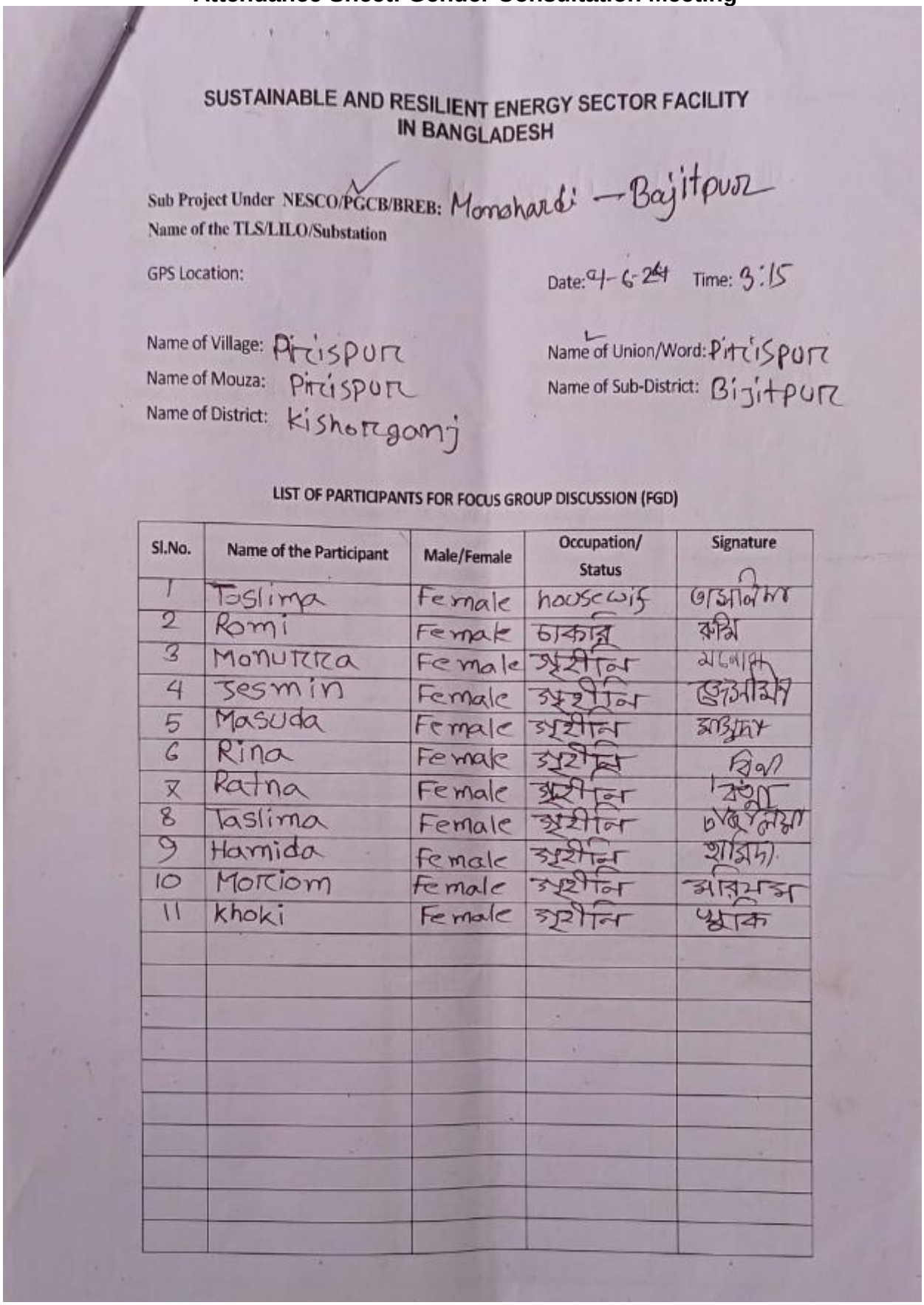
Name of Village: Southpurbochor Name of Union/Word: 06
Name of Mouza: Chorpokia Name of Sub-District: Kotyadi
Name of District: Kishorganj

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	MD. Rosiful	Male	কৃষি	
2	Abulhasim	Male	কৃষি	
3	Suroj Ali	Male	কৃষি	
4	Kamrul Islam	Male	ব্যবসায়ী	
5	Robul	Male	ব্যবসায়ী	Robel
6	Manik Mia	Male	কৃষি	
7	Nilay	Male	ছাত্র	Nilay
8	Faisal	Male	ছাত্র	
9	Rohim	Male	Farmer	
11	Kamal	Male	Farmer	
12	Jamal	Male	Farmer	
13	Islam	Male	Farmer	
14	Tajuddin	Male	Farmer	

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Attendance Sheet: Gender Consultation Meeting



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Monohardi – Bajitpur
Name of the TLS/LILO/Substation

GPS Location:

Date: 9-6-24 Time: 3:15

Name of Village: Pirispur
Name of Union/Word: Pirispur
Name of Mouza: Pirispur
Name of Sub-District: Bijitpur
Name of District: Kishorgonj

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
1	Taslima	Female	housewife	তাসলিমা
2	Romi	Female	চাকরি	রুমি
3	Monurica	Female	গৃহিনি	মনোয়ারা
4	Sesmin	Female	গৃহিনি	ছেসমিন
5	Masuda	Female	গৃহিনি	মাসুদা
6	Rina	Female	গৃহিনি	রিনা
7	Ratna	Female	গৃহিনি	রত্না
8	Taslima	Female	গৃহিনি	তাছলিমা
9	Hamida	Female	গৃহিনি	হামিদা
10	Morciom	Female	গৃহিনি	মরিয়ম
11	khoki	Female	গৃহিনি	খুকি

Source: SES Survey, 2024

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AVIII.4.8: LILO of Bogura(S) -Naogaon 132kV line at Dupchanchia

Photo Gallery:

<table>
<tr>
<td>  LILO of Bogura(S) –Naogaon Picture</td>
<td>  LILO of Bogura(S) –Naogaon Picture</td>
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<td>  LILO of Bogura(S) –Naogaon Picture</td>
<td>  LILO of Bogura(S) –Naogaon Picture</td>
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<tr>
<td>  Picture of Public Consultation meeting</td>
<td>  Picture of Public Consultation meeting</td>
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<tr>
<td>  Picture of Gender Consultation meeting</td>
<td>  Picture of Gender Consultation meeting</td>
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Attendance Sheet: Public Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation : LILO of Bogura(s)-Naogaon 132 kV line at Dupchachia
GPS Location:
Date: 13/6/24 Time: 11.00 Am.

Name of Village: Koshohor
Name of Union/Word: Dupchachia
Name of Mouza: Islampur
Name of Sub-District: Dupchachia Sadar
Name of District: Bogura

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Kabir Sheikh	M	Business	
02	Masum	M	Driver	Masum
03	Shamim	M	Business	Shamim
04	Harun	M	farmar	Harun
65	Nazmul	M	van puller	Nazmul
06	Jahirul	M	Business	
07	kaium	M	u	
08	Biajit	M	farmar	Biajit
09	Alamgir	M	Business	
10	Joshna	F	Housewife	JOSHNA
11	Mennon	F	Housewife	MUNNOR

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Attendance Sheet: Gender Consultation meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB
Name of the TLS/LILO/Substation: LILO of Bogura(S)-Naogaon 132KV line at Dupchachia
GPS Location: Date: 13/6/24 Time:

Name of Village: Kdshohor
Name of Mouza: Islampur
Name of District: Bogura

Name of Union/Word: Dupchachia
Name of Sub-District: Dupchachia Sadar

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Morzina	F	Housewife	
02	Shobita	F	〃	
03	Sintuya	F	〃	
04	Shamima	F	〃	
05	Halima	F	〃	
06	Ferdusi	F	〃	
07	Mili	F	Student	
08	Shimo	F	Housewife	
09	Monira	F	〃	
10	Hira	F	〃	
11	MD. Tanzim	M	service	

Source: SES Survey, 2024

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AVIII.4.9: LILO of Bheramara - Rajbari, 132 kV line at Kushtia

Photo Gallery:



LILO of Bheramara – Rajbari Picture



LILO of Bheramara - Rajbari Picture



LILO of Bheramara-Rajbari Picture



LILO of Bheramara-Rajbari Picture



Picture of Public Consultation meeting



Picture of Public Consultation meeting



Picture of Gender Consultation Meeting



Picture of Gender Consultation Meeting

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Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB

Name of the TLS/LILO/Substation: LILO of Bheramara-Rajbari 132kV line at Kushtia.

GPS Location:

Date: 12/6/24 Time: 11.00 Am.

Name of Village: Chorzaikul

Name of Mouza: Chorzaikul

Name of District: Khustia.

Name of Union/Word: 02

Name of Sub-District: Kumarkhali

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Mehidi	M	Business	Mehidi
02	Azizul	M	Atu Driver	Azizul
03	Jaman	M	Driver	JAMAN
04	Rofikul	M	Farmar	Rofikul
05	Romij	M	Driver	Romij
06	Masum	M	Business	[illegible]
07	Faruk	M	Job	[illegible]
08	Urzima	F	Housewife	Urzima
09	Sadikul	M	Business	Sheedul
10	Sumaiya	F	Housewife	Sumiya
11	Monir	M	Farmer	Monir

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Attendance Sheet: Gender Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: PGCB

Name of the TLS/LILO/Substation: LILO of Bheramara-Rajbari 132kv line at Khustia

GPS Location: Date: 12/6/24 Time: 12.00 Pm

Name of Village: Chorpaikul Name of Union/Word: 02

Name of Mouza: Chorpaikul Name of Sub-District: Kumarkhali

Name of District: Khustia

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Halima	F	Housewife	
02	Johura	F	〃	
03	Anisa	F	〃	
04	Hanufa	F	〃	
05	Nena	F	Student	
06	Salma	F	Housewife	
07	Srabony	F	〃	
08	Mahmuda	F	〃	
09	Mamen	M	Service	

Source: SES Survey, 2024

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AVIII.4.10: LILO of Chowmuhani - Ramganj 132kV double circuit line at Chatkhil

Photo Gallery:

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<tr>
<td> 
LILO of Chowmuhani – Ramganj Picture</td>
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Picture of Public Consultation meeting</td>
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</table>

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



Picture of Gender Consultation meeting



Picture of Gender Consultation meeting

Attendance Sheet: Public Consultation Meeting

SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: LiLo of Chowmuhani - Parogoj - 132KV
Name of the TLS/LILO/Substation: double circuit line of Sonaimuri

GPS Location:

Date: 11-06-24 Time: 10.30

Name of Village: হরলুপাই
Name of Mouza: হরলুপাই
Name of District: নোয়াখালী

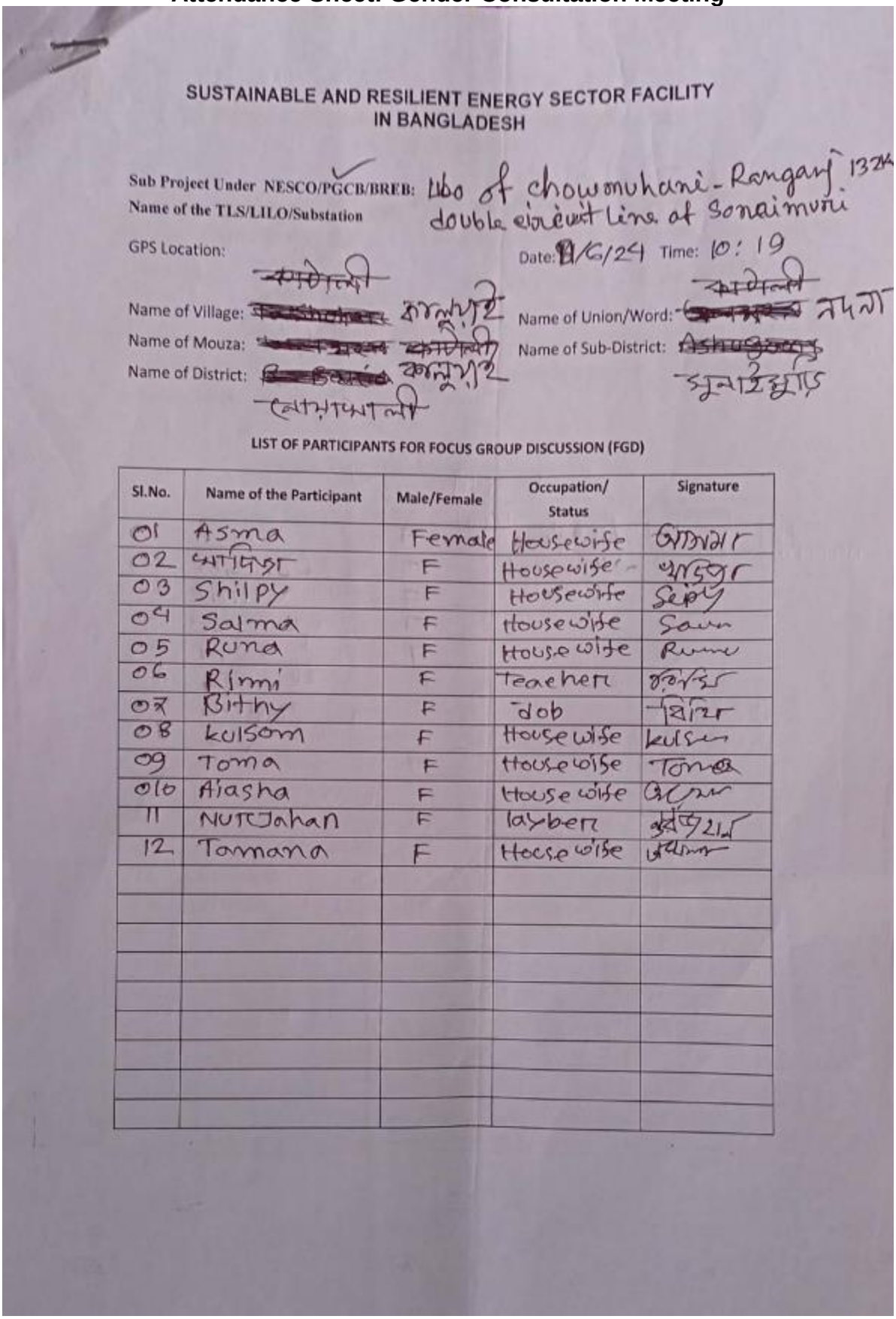
Name of Union/Word: নবনা
Name of Sub-District: সোনাইমুড়ি

LIST OF PARTICIPANTS FOR PUBLIC CONSULTATION

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
①	মো: খালেক	M	কৃষি	খালেক
②	আনোয়ারা বেগম	F	গৃহিনী	আনোয়ারা
③	মো: খালেদ	M	চাকরি	খালেদ
④	সাইফুল ইসলাম	M	ব্যবসা	সাইফুল
⑤	তাসির হোসেন	M	শিক্ষার্থী	তাসির
⑥	সালেহা বেগম	F	গৃহিনী	সালেহা
⑦	মরিয়ম বেগম	F	গৃহিনী	মরিয়ম
⑧	কামাল	M	ব্যবসা	কামাল
⑨	মনির	M	কৃষি	মনির
⑩	আলমগীর	M	ব্যবসা	আলমগীর
⑪	সালেহার মিয়া	M	শিক্ষক	
⑫	জিল্লু	M	ব্যবসা	জিল্লু

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Attendance Sheet: Gender Consultation Meeting



SUSTAINABLE AND RESILIENT ENERGY SECTOR FACILITY
IN BANGLADESH

Sub Project Under NESCO/PGCB/BREB: Lilo of chowmuhani-Rangamati 132kV double circuit line at Sonaimuri
Name of the TLS/LILO/Substation

GPS Location:

Date: 8/6/24 Time: 10:19

Name of Village: [illegible] Name of Union/Word: [illegible]

Name of Mouza: [illegible] Name of Sub-District: [illegible]

Name of District: [illegible]

LIST OF PARTICIPANTS FOR FOCUS GROUP DISCUSSION (FGD)

Sl.No.	Name of the Participant	Male/Female	Occupation/ Status	Signature
01	Asma	Female	Housewife	
02	[illegible]	F	Housewife	
03	Shilpy	F	Housewife	Silpy
04	Salma	F	Housewife	Salma
05	Runa	F	Housewife	Runa
06	Rimi	F	Teacher	
07	Bithy	F	dob	
08	kulsom	F	Housewife	kulsom
09	Toma	F	Housewife	Toma
010	Aiasha	F	Housewife	
11	NUTJahan	F	laybert	
12	Tamana	F	Hocsewife	

Source: SES Survey, 2024

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AVIII.5: Public Consultation Meeting Photographs & Attendance Sheets

AVIII.5.1: PGCB HQ Dhaka

Photographs of Public Consultation Meeting at PGCB



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Source: TA Consultant, 2024

List of Participants for Public Consultation Meeting at PGCB Head Office

Meeting Attendance Record

Power Transmission Strengthening and Integration of Renewable Energy Project
Stakeholder Consultation Meeting

Venue: PGCB Training Room, Date: 01 July 2024

Sl.	Name & Address	Contact No.	Signature
1.	Syed Abdullah Haider Ali Project Director, PGCB	01730016092	
2.	Md. Samsuzzaman Sarwar Deputy Director Dept. of Environment, HQ, Dhaka.	01716861848	
3.	Md. Humayun Kabir Akand SE, Contract, PGCB	01730041333	
4.	NAFISA SHER Manager (ESU), PGCB	01709977865	
5.	Md. Sohel Rana. Executive Engineer, Project-2	01787687436	
6.	Didarul Islam Executive Engineer	01707645579	
7.	Shamsena Sultana SDE, PPL, PGCB	01707693582	
8.	Md. Zubayer Alvi SDE, SPL, PGCB	01713875087	
9.	Taqui Tajwar SDE, FPL, PGCB	01709643585	
10.	Sumaiya Tabassom XEN, Contract, PGCB	01718850548	
11.	Sm Hasanuzzaman SDE, Project Monitoring	01713-850368	
12.	Md Rifat Sharif Baladanga, Targhara, Gopalganj	01738957880 Student	
13.	Md. Abdullah Dhupchachia, Bogura	01728955587 Teacher	
14.	Md. Mustafizur Rahman Chorpalokdi, Matlab Uttar Dist- Chandpur	01715-306812 Teacher	

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Meeting Attendance Record

Power Transmission Strengthening and Integration of Renewable Energy Project
Stakeholder Consultation Meeting

Venue: PGCB Training Room, Date: 01 July 2024

Sl.	Name & Address	Contact No.	Signature
15.	[illegible]	01814-374444 BVSI M/S IS	
16.	Abdul Rahim vill: Hatia, P.O. Baga - Sam, Madappur,	01983225225 Business	
17.	[illegible]	01715759859 [illegible]	
18.	HARSH SAXENA 477, Lane no-8, DOHS, Baridhara, Dhaka.	01713178553 Manager, KEC International Ltd.	
19.	Atikur Rahman Riyal SDE, Contract, PGCB	01714031379	
20.	Shariful [illegible] KEC Engineering Com.	Business 01777 510150 Project implimation	
21.	[illegible]	01402314376 [illegible]	
22.	Saiful Islam, Vismot, Soraikandi, Mohonpur, Nawabganj	01778750913 Politician	
23.	Abdullah Al Mamun SDE, Planning, PGCB	01727310275	
24.	Md. Ziaur Rahman vill: Chadkhali, Thana: Paikgacha Dist: Khulna	01308500142 Service Holder	
25.	Md. Karim vill: Babugarj; Th: Airport Dist: Barisal	01752836872 [illegible]	
26.	Nahid Hasan Manager Teevy E.Ltd.	01679383984 Manager	
27.	Md. Arafat Hossain SDE, Planning	01713850534	
28.	Noor Jamal, Executive Engineer, SSD, PGCB	01713850385	

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Meeting Attendance Record

Power Transmission Strengthening and Integration of Renewable Energy Project
Stakeholder Consultation Meeting

Venue: PGCB Training Room, Date: 01 July 2024

Sl.	Name & Address	Contact No.	Signature
29.	Tareque Ahmed Bhuiyan DM, ESU, PGCB	01709643596	
30.	Tabassum Hasan Tanisha AE, ESU, PGCB	01769458708	Tanisha
31.	Md. Ferdous Ahmed Opu XEN(A/C), PGCB	01709695583	
32.	Md. Nabi Newaz Khan AE (PPL), PGCB	01769458793	Newaz
33.	Md. Anifur Rahman SAE. ICT. PGCB	01734-926455	
34.	Md. Emdadul Haque XEN. PLD. PGCB	01713850305	
35.	Rabia Akhter Feroz ADB TA Consultant	01712-555517	
36.	Mahafuzur Rahman Narsingdi, Monoharadi	01715033847	
37.	MD. Mamunur Rashid Shanto Director, Teevy Energy Ltd	01723013011	
38.	Dr. Abdullah Al Arafin Nadim Director, CEO, Teevy Energy Ltd	01715313040	
39.	MD. JAMAIL BASIR Environment Specialist	01913121204	
40.	MD NUR ALAM ZIKU SAE, ESU. PGCB	01727-805600	Nur Alam
41.	MD RABBI HOSSAIN SAE. ICT, PGCB.	01718-316091	
42.	Md Omar Faruk Vill: Poschim Boro Beola Thana: Chakaria; Dist.: Cox's	01822781558 care taker	Omar

Source: TA Consultant, 2024

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AVIII.6: KII Photographs & Attendance Sheets
AVIII.6.1: KII

Photographs of Key Informant Interviews

	
Consultation with Chairman of Local Union Parishad; House Owner near the Substation Site; and Environmental Specialist of Matarbari Ultra Super Critical Coal Fired Project	Consultation with Senior Fisheries Officer, Chakaria Upazila, Cox's Bazar
	
Consultation with Agriculture Officer, Chakaria Upazila, Cox's Bazar	Consultation with Mr. Samiul Mohsanin, Vice President, Bangladesh Bird Club Coordinator (CWT) Terrestrial Conservation Program Wildlife Conservation Society (WCS), Bangladesh
	
Consultation with Mr. Mohammad Foysal Member, Bangladesh Bird Club Avian Researcher & Senior Research Officer	Consultation with Mr. Ashrafuzzaman Ashu Member of Parliament, Satkhira-2

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Bangladesh Spoon-Billed Sandpiper Conservation Project	
	
Consultation with Mr. Md Mashiur Rahman Chairman, Satkhira Sadar Upazila	Consultation with Md Shafiqul Islam Senior Upazila Fisheris Officer, Satkhira Sadar
	
Consultation with Mr. Protab kumar Barman Sub Assistant Agricultural Officer, Satkhira sadar	Consultation with Mr. Debashis Bachar Senior Upazila Fisheris Officer, Tungipara
	
Consultation with Md Rakibul Islam Upazila Agricultural Officer, Tungipara	Consultation with Md Rabiul Islam Field Assistant Fisheries Officer, Tungipara

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Consultation with Mr. Sayed Nazrul Islam Senior Upazila Fisheries Officer, Bhandaria	Consultation with Md Rezaul Karim Additional Upazila Agricultural Officer, Bhandaria
	
Consultation with Mst. Fatematuz Zohura Information Officer, Sunaimuri Upazila	Consultation with Md. Anowar Hossain Agriculture Assistant Officer, Sunaimuri Upazila
	
Consultation with Md. Monir Hossain Sub- Assistant Fisheries Officer Sunaimuri Upazila	

Source: TA Consultant, 2024

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AVIII.6: FGD Photographs & Attendance Sheets
AVIII.6.1: FGD
Photographs of Focus Group Discussion (FGD)

	
Chalarkandi, Monohardi, Narsingdi	Jararpur, Kotiadi, Kishoreganj
	
Chandanpur, Monohardi, Narsingdi	South Purbachar, Kotiadi, Kishoreganj
	
Bir Miazdia, Monohardi, Narsingdi	South Purbochar, Kotiadi, Kishoreganj

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Hakimpur, Bajutpur, Kishorganj	Chandura, Bijoynagar, Brahmanbaria
	
Malihata, Sadar, Brahmanbaria	Putai, Sadar, Brahmanbaria
	
Talsohor, Ashuganj, Brahmanbaria	Malihata, Sadar, Brahmanbaria

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Dakkhin Matlab, Chandpur	Upazila More, **Chatkhil**, Noakhali
	
Dakkhin Ajgor, Matarbari, Cox's Bazar	Gopalganj Pourasova, Gopalganj
	
Karalghati, Durgapur, Gopalganj	Patghati, Tungipara, Gopalganj
	

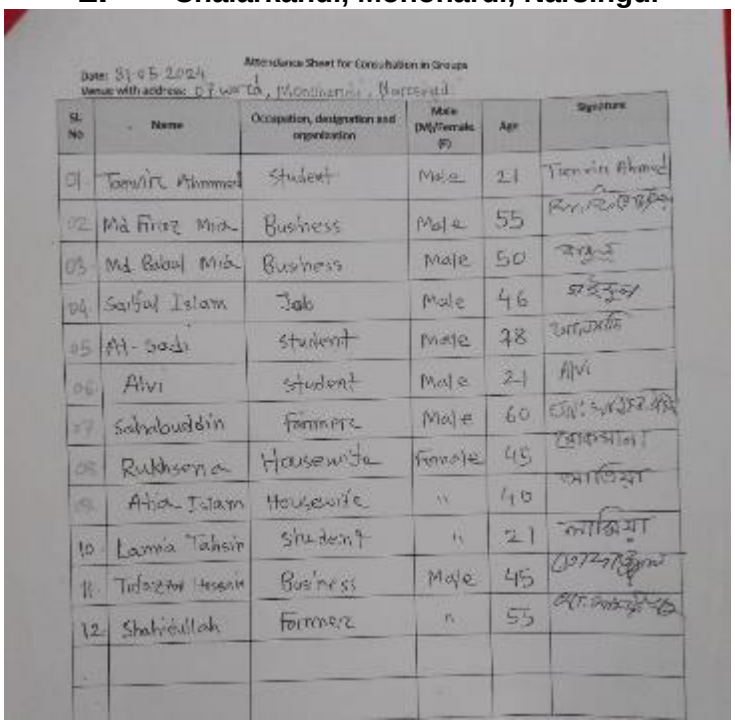
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Borokania, Bhandaria, Pirojpur	Nauga, Tala, Satkhira
	
Kailkapur, Tala, Satkhira	Paikgacha, Khulna
	
Charikul, Kumarkhali, Kustia	Islampur, Dhupchanchia, Bagura

Source: TA Consultant, 2024

Attendance Sheet

1. Chalarkandi, Monohardi, Narsingdi



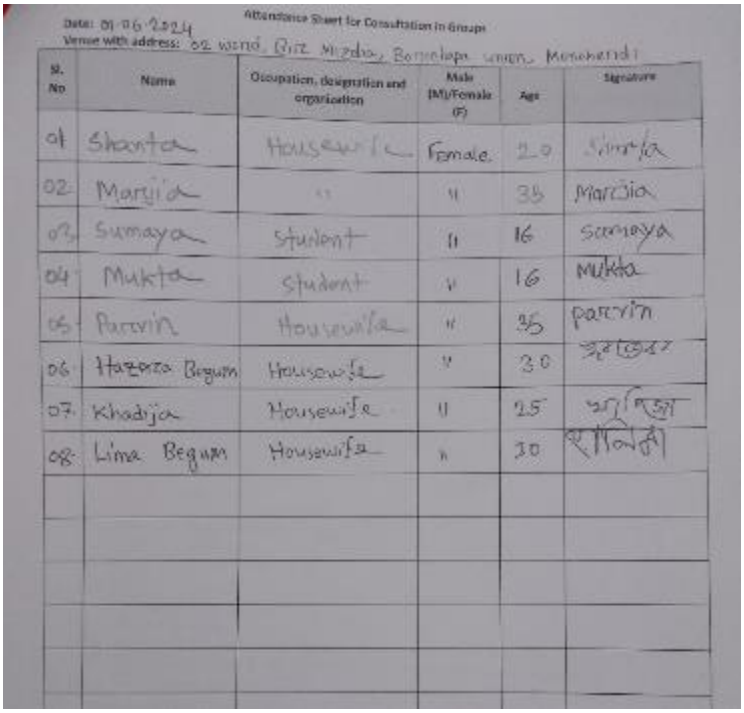
Attendance Sheet for Consultation in Groups

Date: 31-05-2024

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Tanvir Ahmmed	Student	Male	21	
02	Md Firoz Mia	Business	Male	55	
03	Md Babul Mia	Business	Male	50	
04	Saiful Islam	Job	Male	46	
05	Al- Sadi	student	male	48	
06	Alvi	student	Male	21	Alvi
07	Sahabuddin	Farmers	Male	60	
08	Rukhsana	Housewife	Female	45	
09	Atia Islam	Housewife	"	40	
10	Lamia Tahsin	student	"	21	
11	Tafazzal Hossain	Business	Male	45	
12	Shahidullah	Farmers	"	55	

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3. Bir Miazdia, Monohardi, Narsingdi



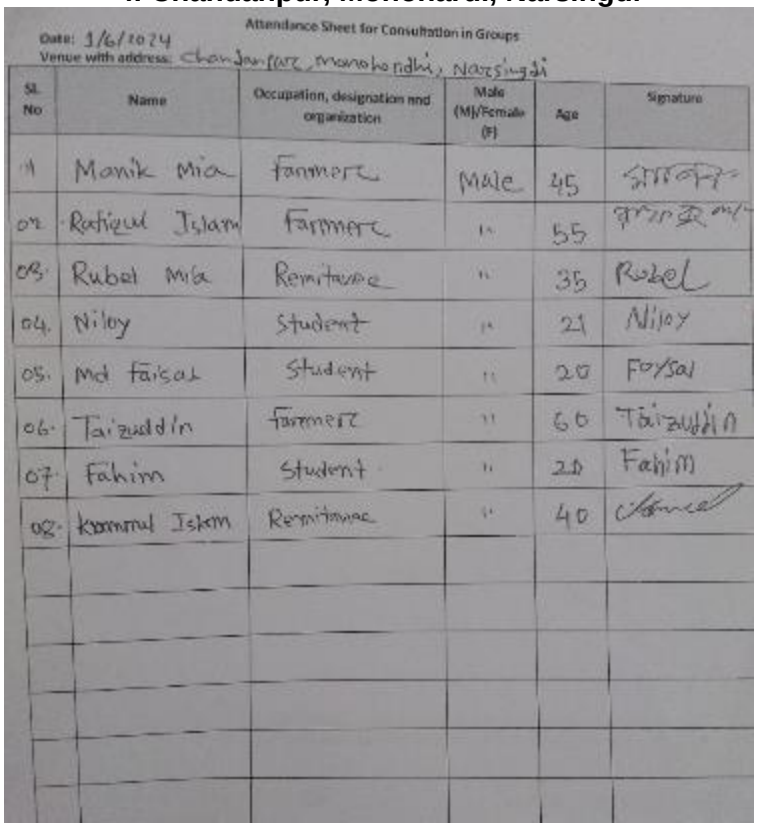
Attendance Sheet for Consultation in Groups

Date: 01-06-2024

Venue with address: 02 ward, Bir Miazdia, Bamalapa union, Monohardi

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Shanta	Housewife	Female	20	Shanta
02	Marjia	"	"	35	Marjia
03	Sumaya	Student	"	16	Sumaya
04	Mukta	Student	"	16	Mukta
05	Parvin	Housewife	"	35	parvin
06	Hazera Begum	Housewife	"	30	
07	Khadija	Housewife	"	25	
08	Lima Begum	Housewife	"	30	

4. Chandanpur, Monohardi, Narsingdi



Attendance Sheet for Consultation in Groups

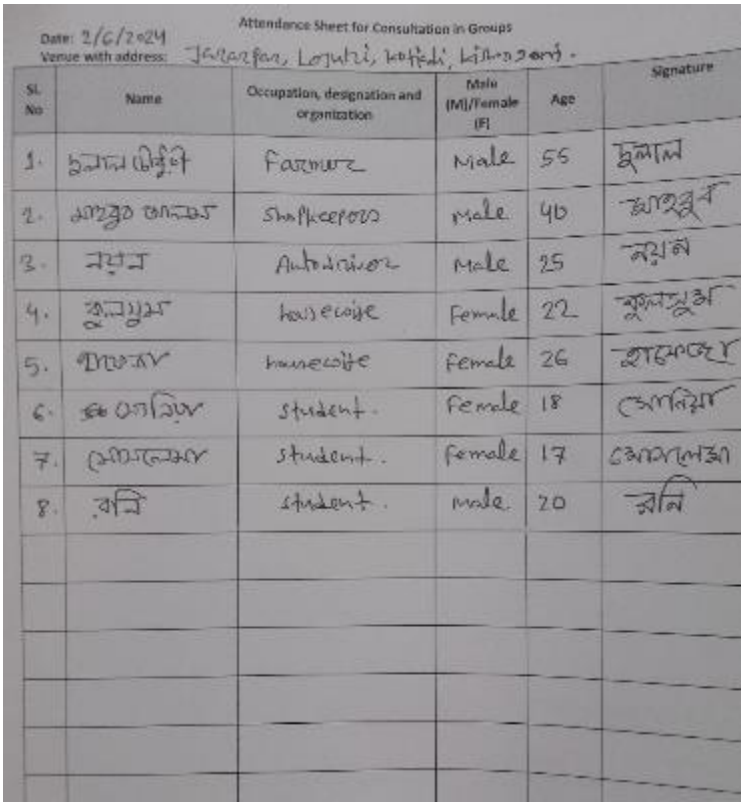
Date: 1/6/2024

Venue with address: Chandanpur, Monohardhi, Narsingdi

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Manik Mia	Farmers	Male	45	
02	Rafiqul Islam	Farmers	"	55	
03	Rubel Mia	Remittance	"	35	Rubel
04	Niloy	Student	"	21	Niloy
05	Md Faisal	Student	"	20	Foysal
06	Taizuddin	Farmers	"	60	Taizuddin
07	Fahim	Student	"	20	Fahim
08	Kamrul Islam	Remittance	"	40	

5. Jararpur, Kotiadi, Kishorganj

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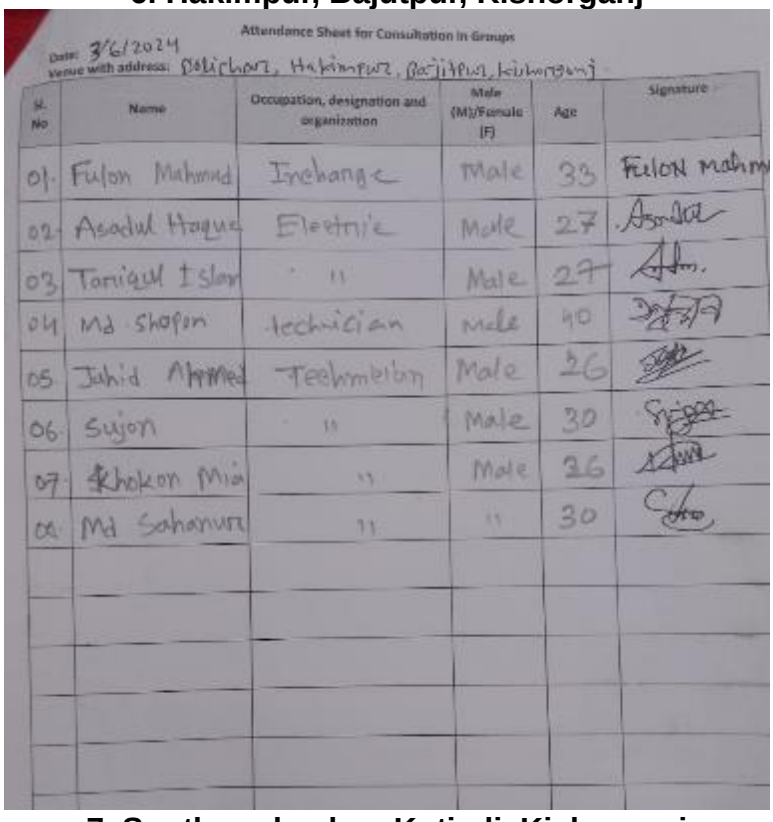


Attendance Sheet for Consultation in Groups

Date: 2/6/2024
Venue with address: Jafarpur, Loyuti, kotiadi, kishorganj.

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
1.	[illegible]	Farmer	Male	55	[illegible]
2.	[illegible]	Shopkeeper	male	40	[illegible]
3.	[illegible]	Autodriver	Male	25	[illegible]
4.	[illegible]	housewife	Female	22	[illegible]
5.	[illegible]	housewife	female	26	[illegible]
6.	[illegible]	student.	Female	18	[illegible]
7.	[illegible]	student.	female	17	[illegible]
8.	[illegible]	student.	male	20	[illegible]

6. Hakimpur, Bajutpur, Kishorganj



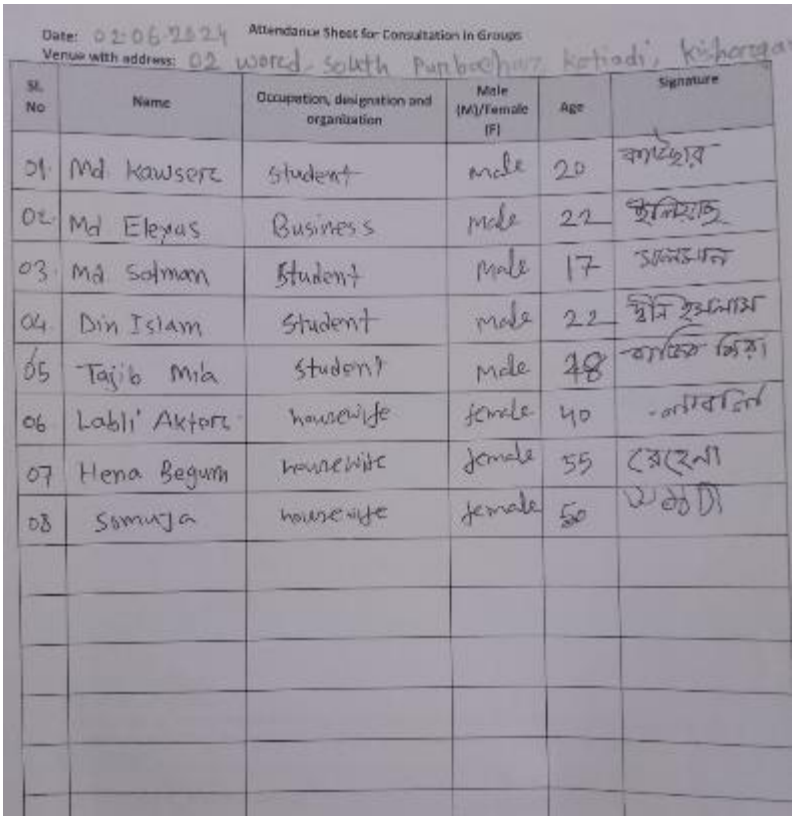
Attendance Sheet for Consultation in Groups

Date: 3/6/2024
Venue with address: Bolichar, Hakimpur, Bajitpur, kishorganj

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01.	Fulon Mahmud	Incharge	Male	33	Fulon Mahm
02.	Asadul Haque	Electric	Male	27	Asadul
03	Tariqul Islam	"	Male	27	[illegible]
04	Md Shopon	Technician	male	40	[illegible]
05	Jahid Ahmed	Technician	Male	26	[illegible]
06	Sujon	"	Male	30	[illegible]
07	Khokon Mia	"	Male	36	[illegible]
08	Md Sahanur	"	"	30	[illegible]

7. South purbachar, Kotiadi, Kishorganj

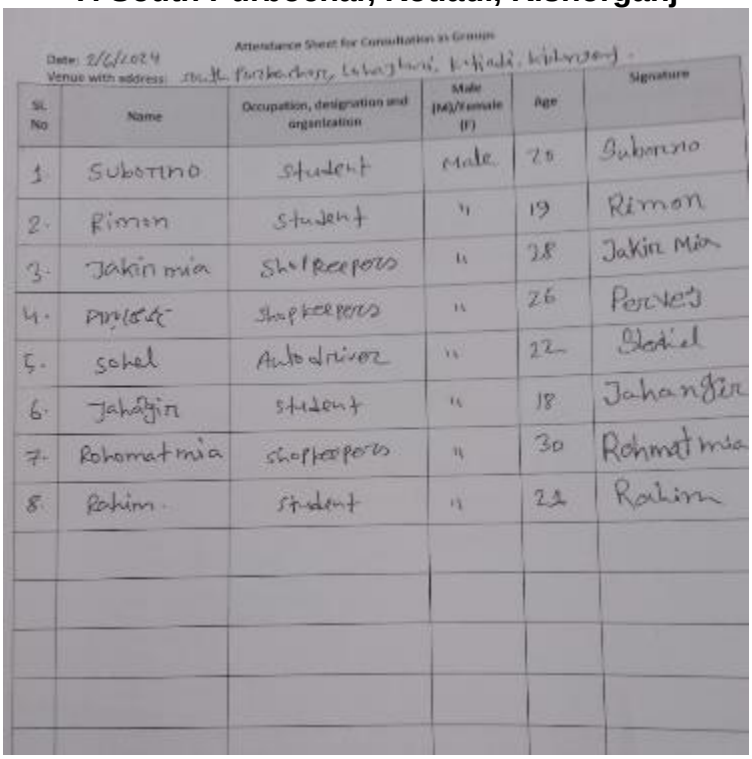
INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



Date: 02.06.2024 Attendance Sheet for Consultation in Groups
Venue with address: 02 ward. South Purbochar Kotiadi, Kishorga

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Md Kawsere	Student	male	20	
02	Md Eleyas	Business	male	22	
03	Md Salman	Student	Male	17	
04	Din Islam	Student	male	22	
05	Tajib Mia	Student	male	48	
06	Labli Akter	housewife	female	40	
07	Hena Begum	housewife	female	55	
08	Samuja	housewife	female	50	

7. South Purbochar, Kotiadi, Kishorganj

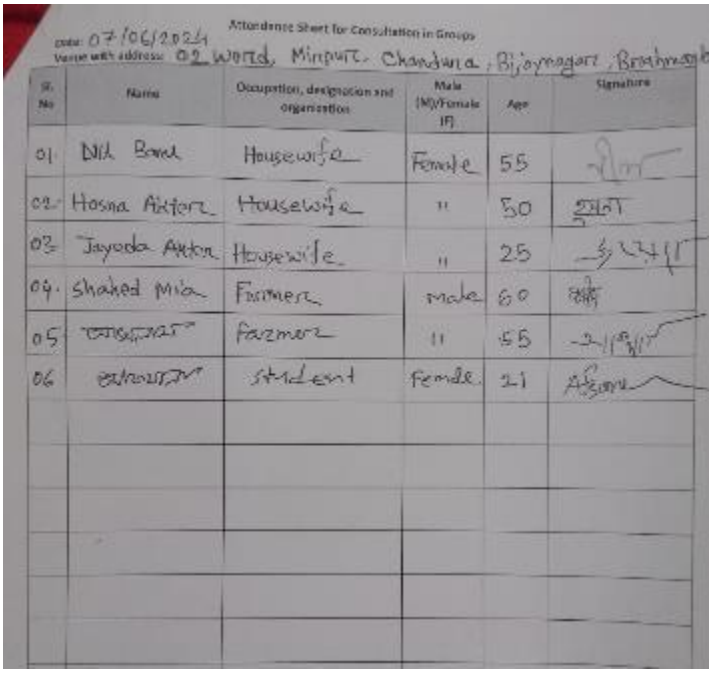


Attendance Sheet for Consultation in Groups
Date: 2/6/2024
Venue with address: South Purbochar, Lohajuri, Kotiadi, Kishorganj.

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
1.	Subotino	student	male	20	Subonno
2.	Rimon	student	"	19	Rimon
3.	Jakin mia	Shopkeepers	"	28	Jakin Mia
4.	Parvez	shopkeepers	"	26	Parvez
5.	sohel	Auto driver	"	22	Sohel
6.	Jahangir	student	"	18	Jahangir
7.	Rohomat mia	shopkeepers	"	30	Rohmat mia
8.	Rohim	student	"	22	Rohim

10. Chandura, Bijoynagar, Brahmanbaria

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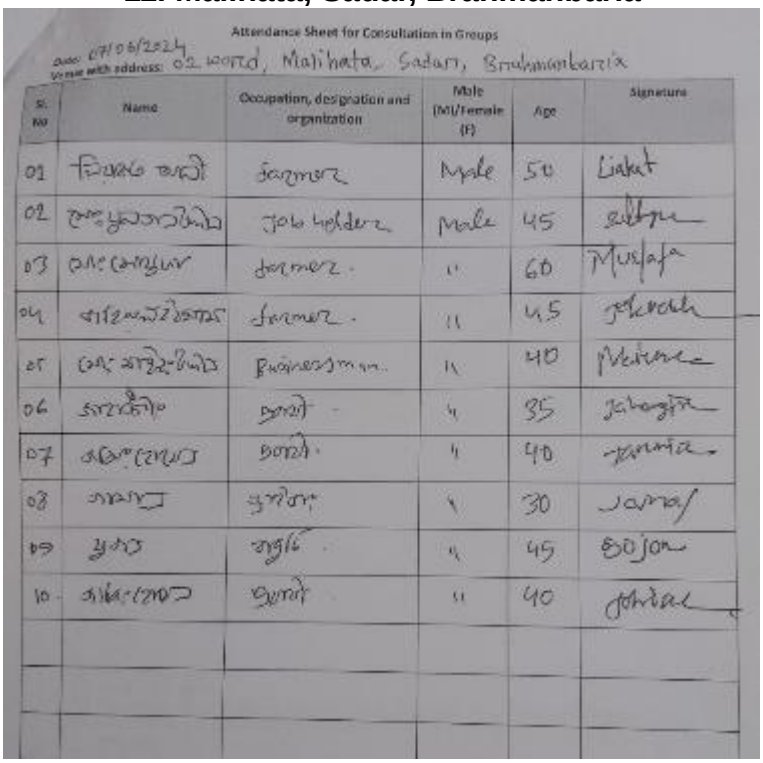
Attendance Sheet for Consultation in Groups

Date: 07/06/2024

Venue with address: 02 word, Mirpur, Chandura, Bijoynagar, Brahmanbaria

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Nil Bowl	Housewife	Female	55	
02	Hosna Akter	Housewife	"	50	
03	Jayeda Akter	Housewife	"	25	
04	Shahed Mia	Farmer	male	60	
05		farmer	"	55	
06		student	female	21	

11. Malihata, Sadar, Brahmanbaria



Attendance Sheet for Consultation in Groups

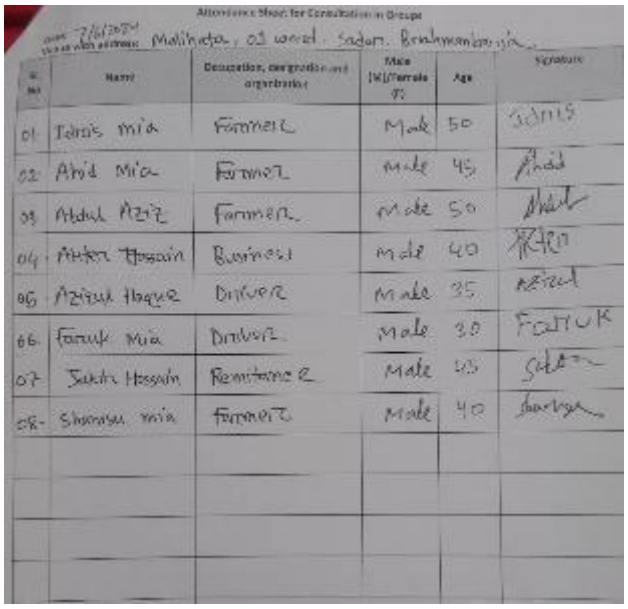
Date: 07/06/2024

Venue with address: 02 word, Malihata, Sadar, Brahmanbaria

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01		farmer	Male	50	Liakat
02		job holder	Male	45	
03		farmer	"	60	Mustafa
04		farmer	"	45	
05		Businessman	"	40	
06			"	35	
07			"	40	
08			"	30	
09			"	45	
10			"	40	

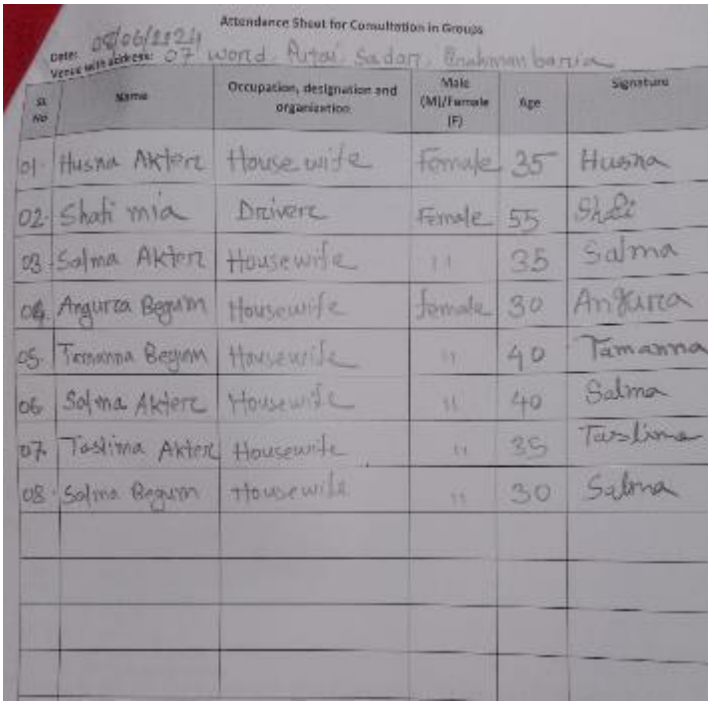
11. Malihata, Sadar, Brahmanbaria

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Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Idris mia	Farmer	Male	50	Idris
02	Abid Mia	Farmer	male	45	Abid
03	Abdul Aziz	Farmer	male	50	Abdul
04	Akter Hossain	Business	male	40	Akter
05	Azizul Haque	Driver	Male	35	Azizul
06	Faruk Mia	Driver	Male	30	Faruk
07	Sakib Hossain	Remittance	Male	45	Sakib
08	Shamsu mia	Farmer	Male	40	Shamsu

12. Putai, Sadar, Brahmanbaria



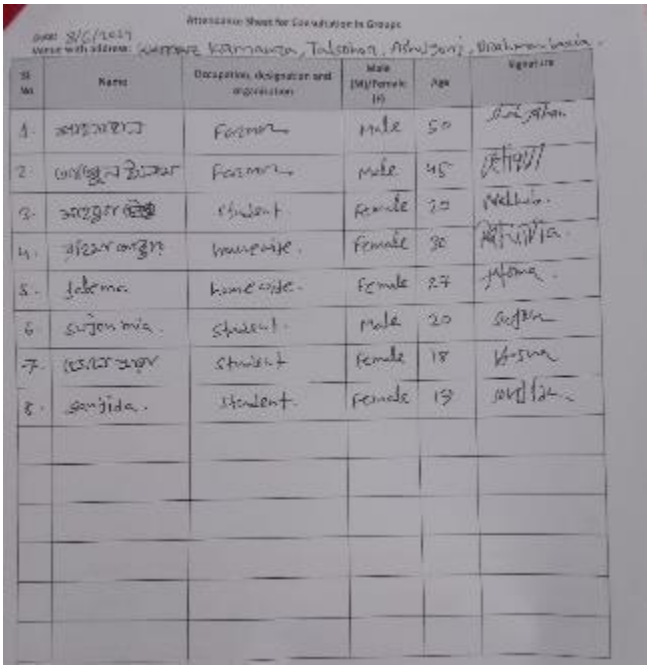
Attendance Sheet for Consultation in Groups

Date: 08/06/2021 Venue with address: 07 world, Putai, Sadar, Brahmanbaria

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Husna Akter	House wife	Female	35	Husna
02	Shati mia	Driver	Female	55	Shati
03	Salma Akter	Housewife	"	35	Salma
04	Anjuara Begum	Housewife	female	30	Anjuara
05	Tamanna Begum	Housewife	"	40	Tamanna
06	Salma Akter	Housewife	"	40	Salma
07	Taslima Akter	Housewife	"	35	Taslima
08	Salma Begum	Housewife	"	30	Salma

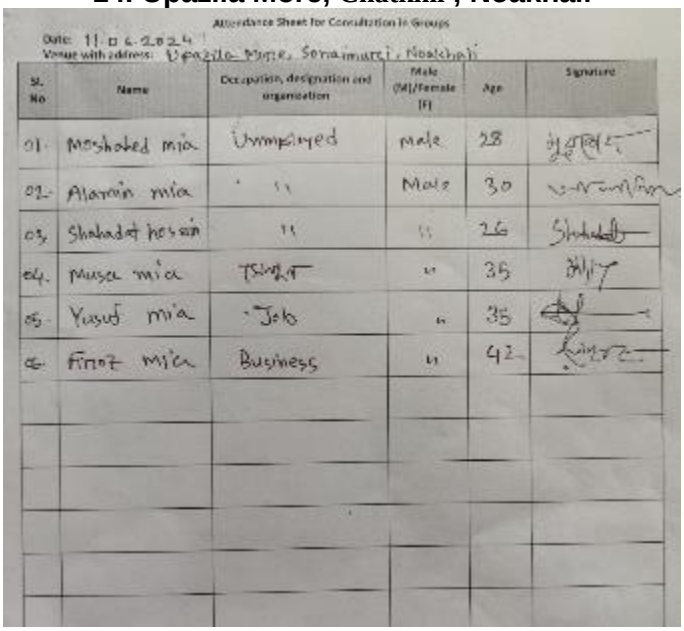
13. Talsohor, Ashuganj, Brahmanbaria

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Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
1.	[illegible]	Farmer	male	50	[illegible]
2.	[illegible]	Farmer	male	45	[illegible]
3.	[illegible]	student	female	20	[illegible]
4.	[illegible]	housewife	female	30	[illegible]
5.	[illegible]	housewife	female	27	[illegible]
6	[illegible]	student	male	20	[illegible]
7.	[illegible]	student	female	18	[illegible]
8.	[illegible]	student	female	19	[illegible]

14. Upazila More, Chatkhil , Noakhali



Attendance Sheet for Consultation in Groups

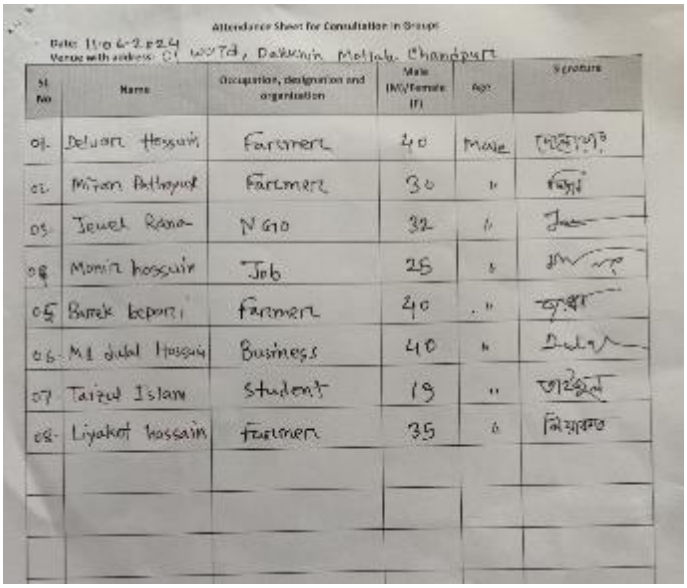
Date: 11.06.2024

Venue with address: Upazila More, Sonaimuri, Noakhali

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01.	Moshaked mia	Unemployed	male	28	[illegible]
02.	Alamin mia	"	Male	30	[illegible]
03.	Shahadat hossain	"	"	26	[illegible]
04.	Musa mia	Tailor	"	35	[illegible]
05.	Yusuf mia	Job	"	35	[illegible]
06.	Firoz mia	Business	"	42	[illegible]

15. Dakkhin Matlab, Chandpur

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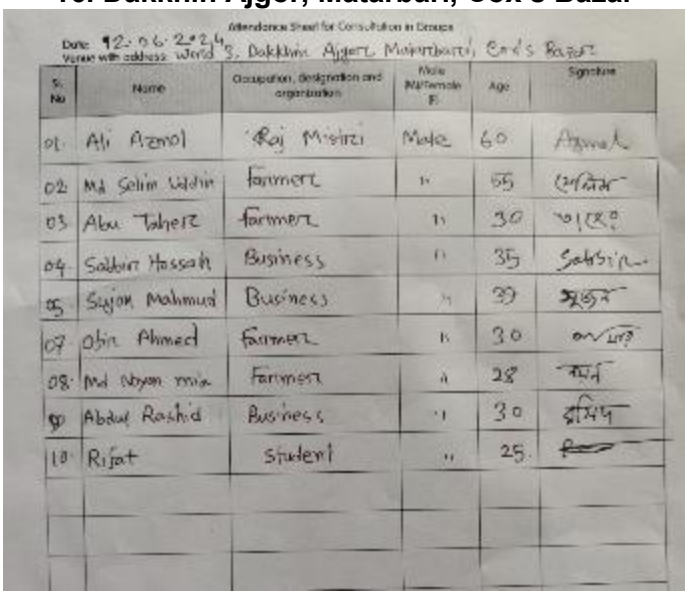


Attendance Sheet for Consultation in Groups

Date: 11.06.2024
Venue with address: Ward, Dakkhin Mohalla, Chandpur

Sl No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Delwar Hossain	Farmer	40	Male	
02	Mitan Pathayat	Farmer	30	"	
03	Jewel Rana	NGO	32	"	
04	Monir hossain	Job	25	"	
05	Barek Bepari	farmer	40	"	
06	Md Jubal Hossain	Business	40	"	
07	Taizul Islam	student	19	"	
08	Liyakat hossain	farmer	35	"	

16. Dakkhin Ajgor, Matarbari, Cox's Bazar



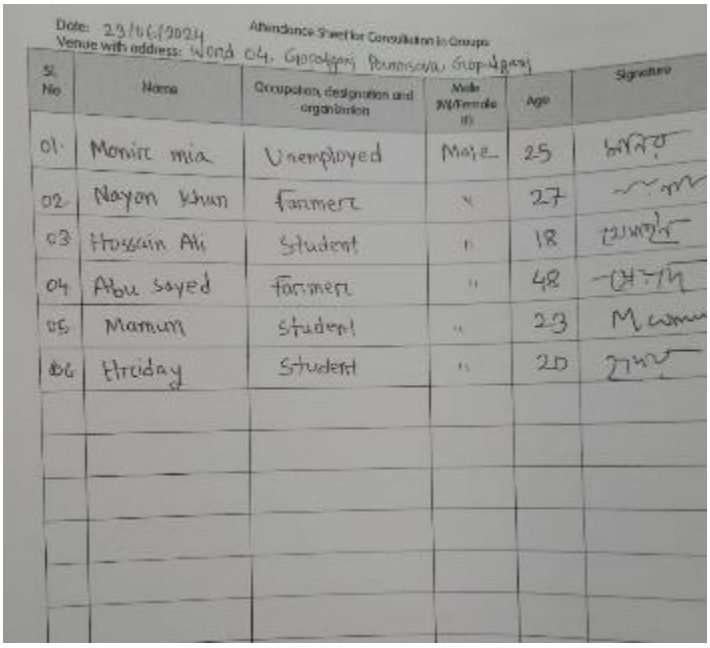
Attendance Sheet for Consultation in Groups

Date: 12.06.2024
Venue with address: Ward 3, Dakkhin Ajgor, Matarbari, Cox's Bazar

S. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Ali Azmol	Raj Mistri	Male	60	
02	Md Selim Uddin	farmer	"	55	
03	Abu Taher	farmer	"	30	
04	Sabbir Hossain	Business	"	35	
05	Sujon Mahmud	Business	"	39	
07	Obin Ahmed	farmer	"	30	
08	Md Noyon mia	Farmer	"	28	
09	Abdul Rashid	Business	"	30	
10	Rifat	Student	"	25	

17. Gopalganj Pourosova, Gopalganj

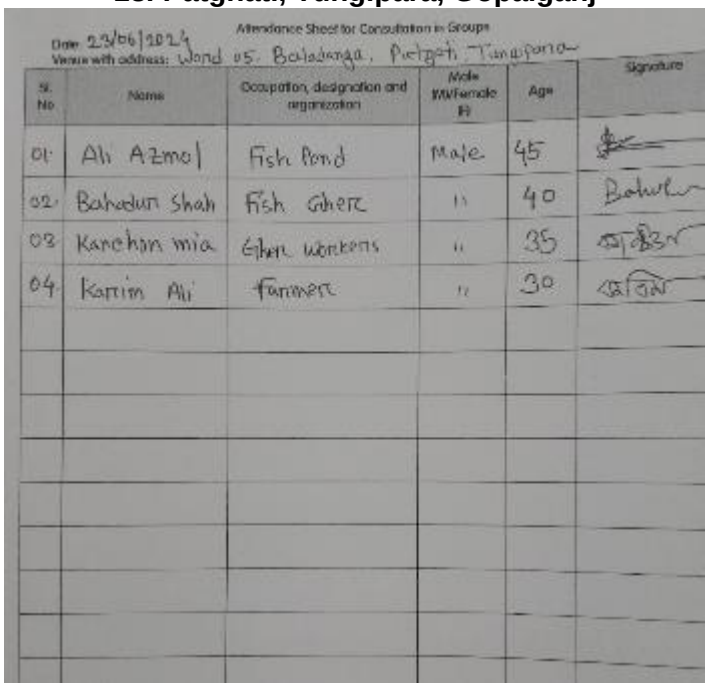
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Date: 23/06/2024 Attendance Sheet for Consultation in Groups
Venue with address: Word 04, Gopalganj Pourosava, Gopalganj

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Monir mia	Unemployed	Male	25	
02	Nayon Khan	Farmers	"	27	
03	Hossain Ali	Student	"	18	
04	Abu sayed	Farmers	"	48	
05	Mamun	Student	"	23	
06	Hridoy	Student	"	20	

18. Patghati, Tungipara, Gopalganj

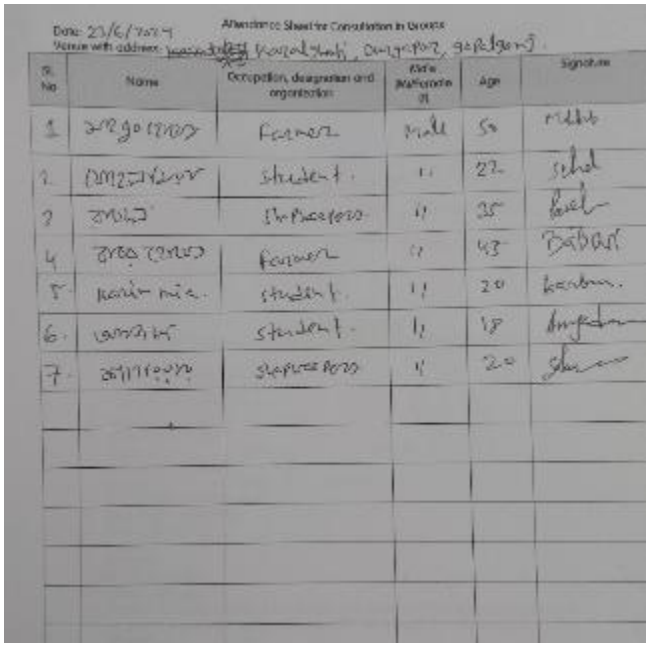


Date 23/06/2024 Attendance Sheet for Consultation in Groups
Venue with address: Word 05, Baladanga, Patgati, Tungipara

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Ali Azmol	Fish Pond	Male	45	
02	Bahadur Shah	Fish Ghere	"	40	
03	Karchan mia	Ghere workers	"	35	
04	Karim Ali	Farmers	"	30	

19. Karalghati, Durgapur, Gopalganj

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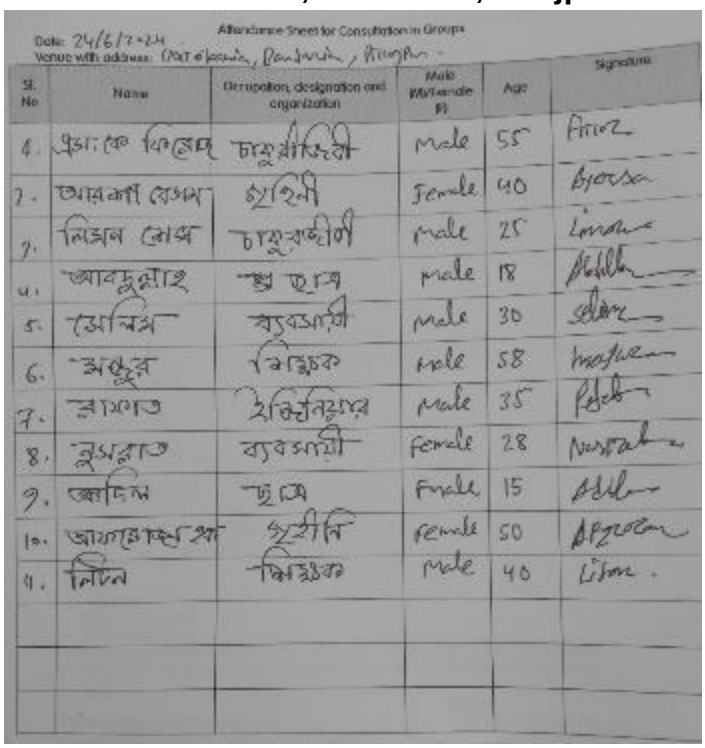


Attendance Sheet for Consultation in Groups

Date: 21/6/2024

Sl. No	Name	Occupation, designation and organization	Male/Female (F)	Age	Signature
1	[illegible]	Farmer	Male	58	[illegible]
2	[illegible]	student	"	22	[illegible]
3	[illegible]	[illegible]	"	35	[illegible]
4	[illegible]	farmer	"	43	[illegible]
5	[illegible]	student	"	20	[illegible]
6	[illegible]	student	"	18	[illegible]
7	[illegible]	[illegible]	"	20	[illegible]

20. Borokania, Bhandaria, Pirojpur



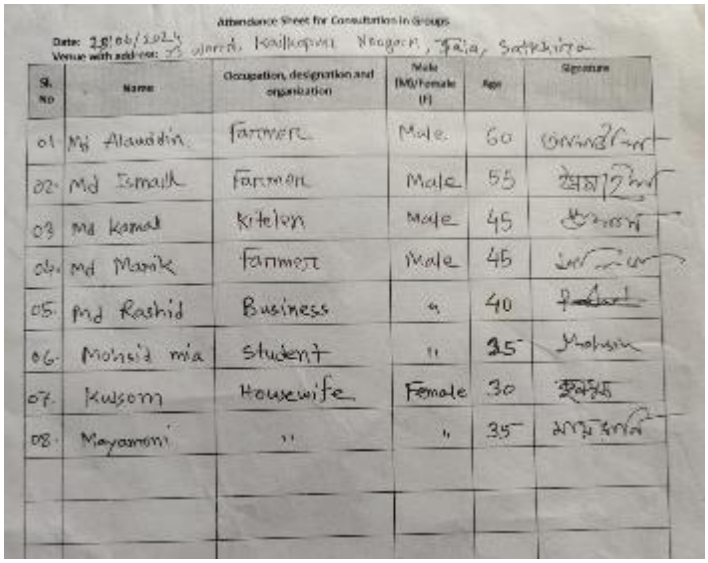
Attendance Sheet for Consultation in Groups

Date: 24/6/2024

Sl. No	Name	Occupation, designation and organization	Male/Female (F)	Age	Signature
4.	[illegible]	[illegible]	male	55	[illegible]
7.	[illegible]	[illegible]	female	40	[illegible]
9.	[illegible]	[illegible]	male	25	[illegible]
11.	[illegible]	[illegible]	male	18	[illegible]
5.	[illegible]	[illegible]	male	30	[illegible]
6.	[illegible]	[illegible]	male	58	[illegible]
7.	[illegible]	[illegible]	male	35	[illegible]
8.	[illegible]	[illegible]	female	28	[illegible]
9.	[illegible]	[illegible]	Female	15	[illegible]
10.	[illegible]	[illegible]	female	50	[illegible]
11.	[illegible]	[illegible]	male	40	[illegible]

21. Kailkapur, Tala, Satkhira

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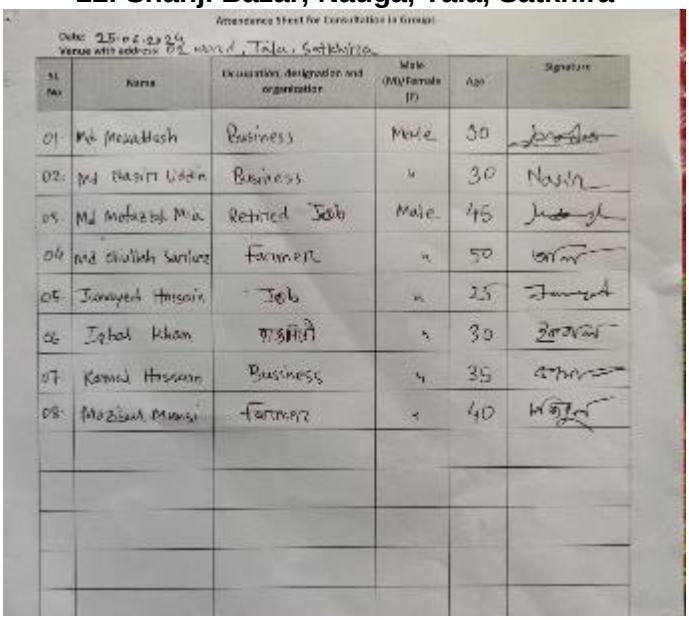


Attendance Sheet for Consultation in Groups

Date: 28/06/2024
Venue with address: 22 ward, Kaikapur Nagar, Tala, Satkhira

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Md Alauddin	Farmer	Male	60	
02	Md Ismail	Farmer	Male	55	
03	Md Kamal	Kirtoin	Male	45	
04	Md Manik	Farmer	Male	45	
05	Md Rashid	Business	"	40	
06	Mohsin mia	student	"	25	
07	Kulsom	Housewife	Female	30	
08	Mayamoni	"	"	35	

22. Shahji Bazar, Nauga, Tala, Satkhira



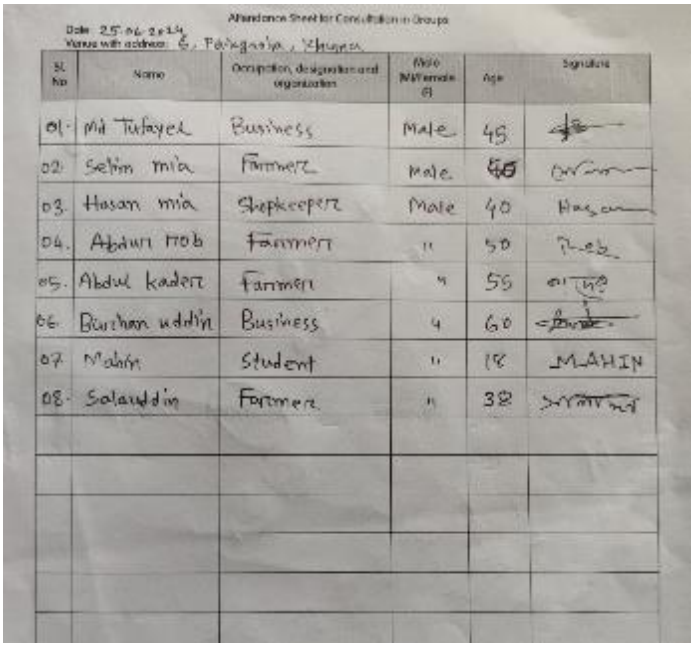
Attendance Sheet for Consultation in Groups

Date: 25/06/2024
Venue with address: 02 ward, Tala, Satkhira

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Md Mosaddek	Business	Male	30	
02	Md Nasir Uddin	Business	"	30	
03	Md Mobarak Mia	Retired Job	Male	45	
04	Md Giasuddin Sardar	Farmer	"	50	
05	Jamayet Hosain	Job	"	25	
06	Iqbal Khan	ব্যবসা	"	30	
07	Kamal Hossain	Business	"	35	
08	Mozibar Munsi	Farmer	"	40	

23. Paikgacha, Khulna

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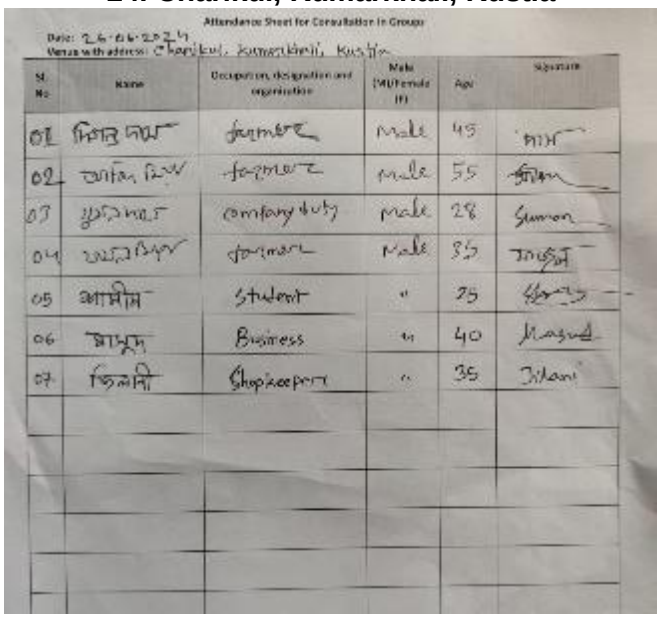


Attendance Sheet for Consultation in Groups

Date: 25.06.2024
Venue with address: E. Pangasia, Khagra

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Md Tufayel	Business	Male	45	
02	Selim mia	Farmer	Male	60	
03	Hasan mia	Shopkeeper	Male	40	
04	Abdur Rob	Farmer	"	50	
05	Abdul kader	Farmer	"	55	
06	Burhan uddin	Business	"	60	
07	Mahin	Student	"	18	MAHIN
08	Salauddin	Farmer	"	32	

24. Charikul, Kumarkhali, Kustia



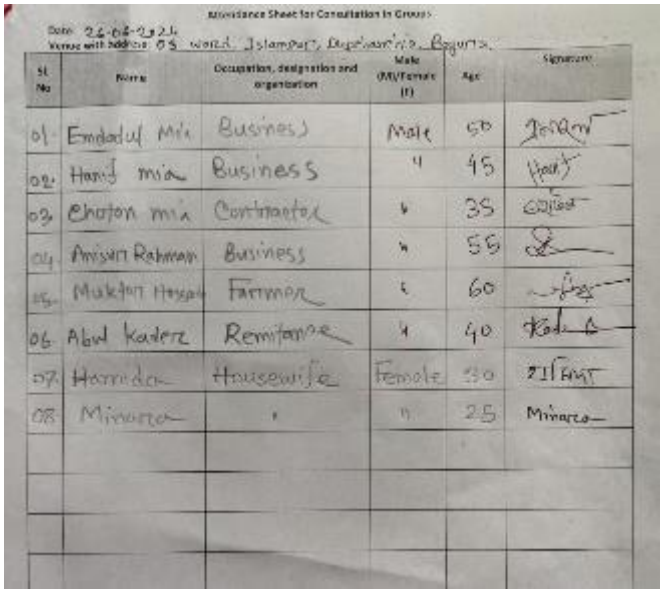
Attendance Sheet for Consultation in Groups

Date: 26.06.2024
Venue with address: Charikul, Kumarkhali, Kushtia

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	[illegible]	farmer	Male	45	
02	[illegible]	farmer	male	55	
03	[illegible]	company duty	male	28	Sumon
04	[illegible]	farmer	Male	35	
05	আমীন	Student	"	25	
06	[illegible]	Business	"	40	Masud
07	[illegible]	Shopkeeper	"	35	Jilani

25. Islampur, Dhupchanchia, Bagura

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Attendance Sheet for Consultation in Groups

Date: 26-02-2024
Venue with address: 05 ward, Islampur, Dapdapari, Begunia

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature
01	Emdadul Mia	Business	Male	50	
02	Hanif mia	Business	"	45	
03	Chaton mia	Contractor	"	35	
04	Anisur Rahman	Business	"	55	
05	Muktar Hosen	Farmer	"	60	
06	Abul Kader	Remittance	"	40	
07	Hamida	Housewife	Female	30	
08	Minara	"	"	25	Minara

Source: TA consultant, 2024

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Appendix IIX: Environmental Codes of Practice (ECPs)[14]

Introduction

The objective of the Environmental Codes of Practice (ECPs) is to address all potential general construction related impacts during implementation of the Project. The ECPs provide guidelines for international good practices and environmental management guidelines to be followed by the contractors for management of all environmental issues. These ECPs as part of the EMP will be annexed to the general conditions of all the contracts, including subcontracts, carried out under the Project.

The list of ECPs prepared for the Project is:

- ECP 1: Waste Management
- ECP 2: Fuels, Oils and Other Hazardous Substances Management
- ECP 3: Water Resources Management
- ECP 4: Drainage Management
- ECP 5: Soil Quality Management
- ECP 6: Erosion and Sediment Control
- ECP 7: Top Soil Management
- ECP 8: Topography and Landscaping
- ECP 9: Borrow Areas Management (note that borrow areas and dredging not permitted, only existing licensed sources are to be used)
- ECP 10: Air Quality Management
- ECP 11: Noise and Vibration Management
- ECP 12: Protection of Flora
- ECP 13: Protection of Fauna
- ECP 14: Protection of Fisheries
- ECP 15: Road Transport and Road Traffic Management
- ECP 16: Construction Camp Management
- ECP 17: Cultural and Religious Issues
- ECP 18: Workers Health and Safety
- ECP 19: SF6 Management
- ECP 20: Construction Management in Ecologically Sensitive, Salt Pan, Fish Ponds and Waterlogged Areas

Contractors will prepare Construction Environmental and Social Management Plans (CESMPs), H&S Plans and Biodiversity Management Plans (BMPs) with sub-plans for each contract/construction site in compliance with ADB and Government of Bangladesh requirements as set out in the EMP and EC respectively and based on the guidance given in the ECPs. The contractors' implementation of the CESMPs, H&S and BMP Plans will be supervised and monitored by PGCB along with implementation of the EMP and EC requirements. It is mandatory for the contractors procured directly by the Project to include these ECPs in their subcontracts along with the requirements from the EMP and EC applicable to subcontractor activities. Non-compliance by the contractors procured directly by the Project or their subcontractors will require corrective action to be taken or penalties being imposed on the contractors.

[14]These are initial representative ECPs developed by Tecvy, PGCB's IEE consultant and appended by ADB TA consultants. ECPs can be revised and reviewed by PGCB, SIC and contractors for each site as relevant at detailed design to account for any additional requirements. any updates will be subject to review and clearance of ADB.

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ECP 1: Waste Management

Project Activity/Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Solid Waste and Wastewater Generation	Health hazards and soil and water pollution from the improper management of excess materials including inert spoil from any earthworks, solid wastes and wastewater	The Contractor will: • Prepare and follow the site-specific waste management plan covering all waste streams (e.g., reusable and recyclable waste, flammable waste, construction debris, food waste, e-waste etc.) submitted to PIU and SIC for approval • Organize disposal of all wastes generated during construction in the designated disposal sites. • Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. • Segregate and reuse or recycle all the wastes, wherever practical. • Vehicles transporting loose materials and solid waste will be covered with tarpaulins or nets to prevent spilling waste along the route. • Train and instruct all personnel in waste management practices and procedures as a component of the environment management induction process. • Request suppliers to minimize packaging where practicable. • Place a high emphasis on good housekeeping practices. • Maintain all construction sites in a clean, tidy and safe condition. • Provide refuse containers at each worksite. • Provide and maintain appropriate waste management facilities for the temporary storage of all waste types before transportation and final disposal. • Plastic bag and container use to be avoided. • Potable water imported to be supplied in bulk containers to reduce the quantity of plastic waste (plastic bottles).
Hazardous Waste Generation	Health hazards and soil and water pollution from the improper management of excess hazardous materials and hazardous waste	The Contractor will • Collect chemical wastes in 200-liter drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot. • Store, transport and handle all chemicals avoiding potential environmental pollution. • Store all hazardous wastes appropriately in bunded areas away from water courses. • Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. • Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at approved locations. • Construct 110% volume of storage bunded impermeable platform made of concrete or other impermeable flooring to prevent seepage in case of spills.

ECP 2: Fuels, Oils and Other Hazardous Substances Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Use of fuels, oils, chemicals and other hazardous substances	Materials used in construction have the potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on-site, and potential spills from these goods may harm the environment or health of construction workers and/or communities in the vicinity.	The Contractor will: • Prepare and follow spill control procedures and submit them for PIU and SIC approval. • Train the relevant construction personnel in handling of fuels, oils (such as transformer oils) and spill control procedures. • Store dangerous goods in bunded areas on top of a sealed plastic sheet away from watercourses. • Refueling will occur only within bunded areas. • Store and use fuels in accordance with material safety data sheets (MSDS). • Make available MSDS for chemicals and dangerous goods on-site. • Transport hazardous which cannot be recycled, to a suitably licensed and designed hazardous waste facility for disposal. • Provide absorbent and containment material (e.g., absorbent matting) where hazardous materials are used and stored; and ensure personnel trained in the correct use. • Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use. • Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur. • Store all liquid fuels in fully bunded storage containers, with appropriate volumes, a roof, a collection point and appropriate filling/decanting point. • Store hazardous materials above flood level considered for construction purposes • Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area will preferably have slope or drain so that the fuels or hazardous lubricants can be safely collected in an event of a spill. • Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. • Avoid the use of materials with greater potential for contamination by substituting them with more environmentally friendly materials.

ECP 3: Water Resources Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Hazardous	Water pollution from the	The Contractor will

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
material and waste	storage, handling and disposal of hazardous materials and general construction waste, and accidental spillage	• Follow the management guidelines proposed in ECPs 1 and 2. • Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways or storm water systems.
Discharge from construction sites	Construction activities, sewerage from construction sites and work camps may affect the surface water quality. The construction works will modify the groundcover and topography changing the surface water drainage patterns of the area. These changes in hydrological regime may lead to an increased rate of runoff, increase in sediment and contaminant loading, increased flooding, and affect habitat of fish and other aquatic biology.	The Contractor will • Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials. • Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site. • Divert runoff from undisturbed areas around the construction site. • Stockpile materials away from drainage lines • Prevent all solid and liquid wastes entering waterways by collecting solid waste, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting where possible and transport to an approved waste disposal site or recycling depot. • Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved bunded areas on site. Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This should be done in every exit of each construction vehicle to ensure the local roads are kept clean. • Sewerage and grey water from portable toilets on the construction site and labor camps is to be collected and tankered off for offsite treatment and disposal. • Dewater sites by pumping water to a sediment basin prior to release off site – do not pump directly off site. • Protect water bodies from sediment loads by silt screen or other barriers.
Soil erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	The Contractor will • Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface treatments as soon as practicable following earthwork to minimize erosion. • Ensure that roads used by construction vehicles are swept regularly to remove dust and sediment. • Spray water regularly to reduce air borne particles after cleaning. • Spray water on the loose material stockpiles, access roads and bare soils on an as required

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		basis to minimize dust. Increase the watering frequency during periods of high risk (e.g., high winds).
Construction activities in water bodies	Construction works in the water bodies will increase sediment and contaminant loading, and effect habitat of fish and other aquatic biology	The Contractor will • Dewater sites by pumping water to a sediment basin prior to release off site – and should not pump directly off site into fields or canals and ditches. • Protect water bodies from sediment loads by silt screen or other barriers. • Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways or storm water systems • Do not discharge cement and curing water used for cement concrete directly into water courses and drainage inlets. • Monitor the water quality in the runoff from the site or areas affected by dredge plumes, and improve work practices as necessary • Use environment friendly and nontoxic slurry during construction of piles and avoid discharge into the river. • Reduce infiltration of contaminated drainage through storm water management design
Drinking water	Untreated surface water is not suitable for drinking purposes due to presence of suspended solids and E. coli.	The Contractor will • Provide drinking water according to peak construction labor/O&M staff deployed at site that meets national and WBG EHS Guidelines. • Pumping of groundwater shall be from deep aquifers of more than 300 m to supply arsenic free water. Safe and sustainable discharges are to be ascertained prior to selection of pumps. • Tube wells will be installed with due regard for the surface environment, protection of groundwater from surface contaminants, and protection of aquifer cross contamination • All tube wells, test holes, monitoring wells that are no longer in use or needed shall be properly decommissioned •
	Depletion and pollution of groundwater resources	The Contractor will • Install monitoring wells both upstream and downstream areas near construction yards and construction camps to regularly monitor the water quality and water levels. • Protect groundwater supplies of adjacent lands

ECP 4: Drainage Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Excavation and earth work, and	Lack of proper drainage for rainwater/liquid waste or	The Contractor will • Prepare and follow drainage management

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
construction yards	wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.	procedures submitted to PIU and SIC approval. • Prepare a program to prevent/avoid standing waters, which PIU and CSC will verify in advance and confirm during implementation. • Provide alternative drainage for rainwater if the construction works/earth-filling cut the established drainage line. • Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there. • Rehabilitate road drainage structures immediately if damaged by contractors' road transports. • Build new drainage as appropriate with oil interceptors connecting to the available nearby recipient water bodies. • Ensure wastewater quality conforms to national and WBG EHS Guidelines before it is being discharged into the recipient water bodies. • Ensure that there will be no water stagnation at the construction sites and camps. • Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion. • Protect natural slopes of drainage channels to ensure adequate storm water drains. • Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem. • Reduce infiltration of contaminated drainage through storm water management design
Ponding of water	Health hazards due to mosquito breeding	The contractor will • Not allow ponding of water especially near the waste storage areas and construction camps. • Discard all the storage containers that are capable of storing of water, after use or store them in inverted position.

ECP 5: Soil Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Filling of Sites with dredge spoils	Soil contamination will occur from drainage of dredged spoils	The Contractor shall • Ensure that dredged sand used for land filling shall be free of pollutants. Prior to filling, sand quality shall be tested to confirm whether soil is pollution free. Sediments shall be properly compacted. Top layer shall be the 0.5 m thick clay on the surface and boundary slopes along with grass. Side Slope of Filled Land of 1:2 shall be constructed by suitable soils with proper

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		compaction as per design. Slope surface shall be covered by top soils/ cladding materials (0.5m thick) and grass turfing with suitable grass. • Leaching from the sediments shall be contained to seep into the subsoil or shall be discharged into settling lagoons before final disposal. • No sediment laden water in the adjacent lands near the construction sites, and/or wastewater of suspended materials excessive of 200mg/l from dredge spoil storage/use area in the adjacent agricultural lands • Ensure sand and gravel sourcing/selection of government licensed sand and gravel suppliers from legally permitted sites i.e. ensure no illegally extracted sand and gravel is used for the project which may negatively impact any sensitive aquatic life and hydrology of the adjoining river systems at the sites.
Storage of hazardous and toxic chemicals	Spillage of hazardous and toxic chemicals will contaminate the soils	The Contractor will • Strictly manage the wastes management plans proposed in ECP1 and storage of materials in ECP2. • Construct appropriate spill contaminant facilities for all fuel storage areas. • Establish and maintain a hazardous material register detailing the location and quantities of hazardous substances including the storage, and their disposals. • Train personnel and implement safe work practices for minimizing the risk of spillage. • Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site. • Store all hazardous and chemical in a 110% volume of bunded impermeable concrete platform and clearly demarcate the area • Remediate the contaminated land using the most appropriate available method.
Construction material stockpiles	Erosion from construction material stockpiles may contaminate waterbodies	The Contractor will • Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds.

ECP 6: Erosion and Sediment Control

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Clearing of construction sites	Cleared areas and slopes are susceptible for erosion of topsoils, which affects the growth of vegetation and causes ecological imbalance.	The Contractor will • Prepare and follow site specific erosion and sediment control measures and submit them for PIU and SIC approval. • Reinstate and protect cleared areas as soon as possible in timeframe approved by PIU/SIC.

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Cover unused areas of disturbed or exposed surfaces immediately with mulch/grass turf/tree plantations.
Construction activities and material stockpiles	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	The Contractor will • Locate stockpiles away from drainage lines. • Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds. • Remove debris from drainage paths and sediment control structures. • Cover the loose sediments of construction material and water them if required. • Divert natural runoff around construction areas prior to any site disturbance. • Install protective measures on site prior to construction, for example, sediment traps. • Install 'cut off drains' on large cut/fill batter slopes to control water runoff speed and hence erosion. • Observe the performance of drainage structures and erosion controls during rain and modify as required.
Soil erosion and siltation	The impacts of soil erosion are (i) increased run off and sedimentation causing a greater flood hazard to the downstream, and (ii) destruction of aquatic environment by erosion and/or deposition of sediment damaging the spawning grounds of fish and avifauna feeding areas	The Contractor will: • stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion. • Ensure that roads used by construction vehicles are swept regularly to remove sediment. • Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds). • Remove any sediment that deposits in spawning areas from the drains from the construction site after every inspection every month.

ECP 7: Top Soil Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development.	The Contractor will • Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. • Remove unwanted materials from top soil like grass, roots of trees and etc. and mulch and dry compost if possible • Stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		percolation through the mass of stored soil. • Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. • Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. • Spread the topsoil to maintain the physico-chemical and biological activity of the soil. • Stored top soil will be utilized for covering all disturbed area and plantation sites. • Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the binding of the soil layers, water penetration and revegetation
Transport	Vehicular movement outside RoW or temporary access roads will affect the soil fertility of the agricultural lands	The contractor will: • Limit equipment and vehicular movements to within the approved construction zone. • Construct temporary access tracks/culverts to cross concentrated water flow lines at right angles • Plan construction access to make use, if possible, of the final road alignment • Use vehicle-cleaning devices, for example, ramps or wash down areas and ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This should be done on every exit of each construction vehicle to ensure the local roads are kept clean.

ECP 8: Topography and Landscaping

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Construction activities especially earthworks will change the topography and disturb the natural rainwater/flood water drainage as well as changing the local landscape.	The Contractor will • Prepare a landscaping and tree plantation plan and submit the plan for PIU and SIC approval. • Ensure the topography of the final surface of all raised lands (construction sites, access roads, etc.) are conducive to enhance natural draining of rainwater/flood water. • Keep the final or finished surface of all the raised lands free from any kind of depression that causes water logging. • Undertake erosion control/prevention by grass-turfing and tree plantation, where there is a possibility of rain-cut that will change the shape of topography. • Cover immediately the uncovered open

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		surface that has no use of construction activities with grass-cover and tree plantation to prevent soil erosion and bring improved landscaping. • Reinstate the natural landscape of the temporary construction sites after completion of works.

ECP 9: Borrow Areas Management
(note that borrow areas and dredging not permitted, only existing licensed sources are to be used)

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Development and operation of borrow areas	Borrow areas will have impacts on local topography, landscaping and natural drainage.	The Contractor will – Use only approved quarry and borrow sites as specified in ECP 5: Soil Quality Management – Reuse excavated material available from the project to the maximum extent possible. – Store top soil for reinstatement and landscaping. New borrow areas and quarries will not be used unless the IEE has been updated to assess the impact of them – Identify new borrow and quarry areas in consultation with PMU, if required. – Undertake ecology survey, physical baseline surveys, and inventorization of receptors to inform IEE update prior to selection – Not use agriculture areas or ecologically sensitive areas as borrow sites – Develop surface water collection and drainage systems, anti-erosion measures (berms, revegetation etc.) and retaining walls and gabions where required. – Implement mitigation measures in ECP 3: Water Resources Management, ECP 6: Erosion and Sediment Control – The use of explosive should be used in as much minimum quantity as possible to reduce noise, vibration and dust. – Control dust and air quality deterioration by application of watering and implementing mitigation measures proposed in ECP 10: Air Quality Management – Noise and vibration control by ECP 11: Noise and Vibration Management. – Maintain record of all sand or gravel extraction (quantities, location shown on map, timing, any sighting of key species).
Dredging from the rivers	Increased turbidity, loss of transparency and increased suspended sediment concentrations. Impact on benthic habitats	The Contractor will – Use sand and gravel only from existing licensed dredging sources as specified in ECP 5: Soil Quality Management – Reuse excavated material available from the project to the maximum extent possible. – Store top soil for reinstatement and landscaping. Dredging by the contractor will not be used unless the IEE has been updated to assess the impact of this – Identify dredging areas in consultation with PMU, if required. – Undertake ecology survey, physical baseline surveys, and inventorization of receptors to inform IEE update prior to selection – Avoid destruction or alteration of habitats which may result in a reduction of biodiversity for the ecosystem and may potentially lead to changes in water quality parameters. – Not use ecologically sensitive areas as dredging sites – Select dredging equipment (e.g. Cutter Suction Dredger) which are

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		known to have a low risk of sediment dispersal. The suction action inside the Cutter Suction Dredger means that most of the sediment removed by the cutter is captured. As high dredging efficiency and low turbidity at the cutter head are closely linked, it is uncommon for turbidity generated by the cutter head to cause environmental concern. – Monitor the dredging operation and, if necessary, modify operations, e.g. restrict the amount of material being dredged (or the number of dredgers allowed to operate) at any one time – Maintain record of all sand or sediment extraction (quantities, location shown on map, timing, any sighting of key species).
Sand placement at temporary locations prior to shifting or direct placement on the proposed site for filling	Dispersion of sediments and release of high sediment laden runoff from the placement sites.	The Contractor will – To the extent possible, shall directly place the sediments for filling the proposed disposal areas. – If pipeline is required for filling then the IEE will need to be updated to reflect the impact of the route. – Prior to filling commencing, the areas being filled will be subdivided into compartments by construction of temporary containment bunds of suitable material (e.g. sheet piles or earthen bund, dredged sand is not suitable). – Filling will be achieved by progressively pumping a slurry of sand and water into the bunded areas, allowing the surplus water to drain away to artificial and natural waterways in a controlled manner through the pipeline, without affecting floodplains. – Control the discharge of site runoff, including excess dredge water, by the installation and correct use of containment walls, bunds and weirs. – Monitor the quality of water (e.g. sediment content) in site runoff to confirm that the design and operation of the containment walls, bunds and weirs, and the retention time for dredge waters which facilitates the settlement out of fine sediments prior to discharge off site, is adequate. – If required, additional siltation ponds are to be provided to divert the runoff water and allow further settlement before discharge to that there is no sediment laden runoff. – Ensure adjacent land and waterbodies do not experience sedimentation and waterlogging.

ECP 10: Air Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	The Contractor will • Prepare air quality management plan (under the Pollution Prevention Plan) and submit the plan for PIU and SIC approval. • Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. • Operate the vehicles in a fuel-efficient manner. • Cover haul vehicles carrying dusty materials moving outside the construction site. • Impose speed limits on all vehicle movement at the worksite to reduce dust emissions. • Control the movement of construction traffic. • Water construction materials prior to loading and transport. • Service all vehicles regularly to minimize emissions.

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Limit the idling time of vehicles to not more than 2 minutes.
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	The Contractor will • Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register will be required by the equipment suppliers and contractors. • Focus special attention on containing the emissions from generators. • Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites. • Service all equipment regularly to minimize emissions. • Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to any concrete batching and mixing plant to control the particle emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery.
Construction activities	Dust generation from construction sites, material stockpiles and access roads is not only a nuisance for local people, it aggravates the environment and can bring forth multiple health hazards, and can also affect the local crops	The Contractor will • Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g., high winds). • Stored materials such as gravel and sand will be covered and confined to avoid them being wind-drifted. • Minimize the extent and period of exposure of the bare surfaces. • Restore disturbed areas as soon as practicable by vegetation/grass-turfing. • Store the cement in silos and minimize the emissions from silos by equipping them with filters. • Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations. • Water must not be used as a means of dust suppression on potentially contaminated areas. • Crushing of rocky and aggregate materials will be wet-crushed or performed with particle emission control systems. • Not permit the burning of solid waste. • Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		bring the dust particles to the ground.
Air Pollution Monitoring at construction site	Ambient dust in air at construction site causes health issues among workers, adjoining community as well as negatively ecologically sensitive areas	The contractor will • Monitor regularly air emissions (as mandated by PIU/SIC) at site by application of national legislated standards, or WHO Air Quality Guidelines 2005 or other internationally recognized sources (whichever is stringent) to ensure pollutant concentrations at site do not reach or exceed relevant ambient quality guidelines and standards • Ensure suitable mitigation measures that include suppression of particulate matter at site, reduction in exhaust from mobile sources through use of cleaner fuels/technologies and/or use of properly maintained equipment, besides application of comprehensive pollution control measures at site.

ECP 11: Noise and Vibration Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Noise quality will deteriorate due to vehicular traffic	The Contractor will • Prepare a noise and vibration management plan (under the Pollution Prevention Plan) and submit the plan for PIU and SIC approval. • Reduce project traffic routing through community areas wherever possible • Maintain all vehicles in order to keep them in good working order in accordance with manufactures maintenance procedures. • Make sure all drivers comply with the traffic codes concerning maximum speed limit, driving hours, etc. • Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site.
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor will • Appropriately site all noise generating activities to avoid noise pollution to local residents. • Use the equipment with lower sound power levels. i.e. the quietest available plant and equipment. • Installing silencers for fans • Installing vibration isolation for mechanical equipment • Fit high efficiency mufflers to appropriate construction equipment such as on engine exhausts and compressor components • Maintain all equipment in order to keep those in good working condition in accordance with manufactures maintenance procedures. Equipment suppliers and contractors will present proof of maintenance register of their equipment. • Install acoustic enclosures around generators to reduce noise levels. • Install acoustic barriers without gaps and with a

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		continuous minimum surface density of 10 kg/m2 in order to minimize the transmission of sound through the barrier. • Avoid the unnecessary use of alarms, horns and sirens.
Construction activity	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor will • Notify adjacent landholders prior to any typical noise events outside of daylight hours. • Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas • Locate barriers should be close to the source or to the receptor location to be effective • Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions. • Employ best available work practices on-site to minimize occupational noise levels. • Install temporary noise control barriers where appropriate. • Notify potentially affected people if major noise generation activities will be undertaken, e.g. blasting. • Plan activities on site and deliveries to and from site to minimize impact. • Monitor and analyze noise and vibration results and adjust construction practices as required. • Avoid undertaking the high noise generating activities, where possible, when working at night near the residential areas.
Noise Monitoring at construction site	Noise at construction site causes health issues among workers, adjoining community as well as negatively ecologically sensitive areas that have birds	The contractor will: Monitor regularly Noise emissions (as mandated by PIU/SIC) at site by application of national legislated standards, or Guidelines for Community Noise, World Health Organization (WHO), 1999 (adopted as standard by World Bank EHS guidelines 2007 or other internationally recognized sources (whichever is stringent) to ensure Noise impacts should not exceed the prescribed levels or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site. Implement noise reduction options that include: o Re-locating noise sources to less sensitive areas to take advantage of distance and shielding o Siting permanent facilities away from community areas if possible o Taking advantage of the natural topography as a noise buffer during facility design o Developing a mechanism to record and respond to complaints

ECP 12: Protection of Flora

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Vegetation clearance	Local flora is important to provide shelter for the birds and small animals, offer fruits and/or timber/firewood, and protect soil erosion. As such damage to flora can have adverse environmental impacts.	The Contractor will • Prepare a plan for protection of flora and submit the plan for PIU and SIC approval. • Minimize disturbance to surrounding vegetation. • Use appropriate type and minimum size of machine to avoid disturbance to adjacent vegetation. • Get approval from PIU and SIC for clearance of vegetation. • Undertake selective and careful pruning of trees where possible to reduce need of tree removal. • Control noxious weeds by disposing of at a suitably licensed waste management facility. • Clear only the vegetation that needs to be cleared in accordance with the engineering plans and designs. • Not burn off of cleared vegetation – where feasible, chip or mulch and reuse it for the rehabilitation of affected areas, temporary access tracks or landscaping. Mulch provides a seed source, can limit erosion, retains soil moisture and nutrients, and encourages re-growth and protection from weeds. • Return topsoil and mulched vegetation (in areas of native vegetation) to approximately the same area it came from. • Avoid work within the drip-line of trees to prevent damage to the tree roots and compacting the soil. • Minimize the length of time the ground is exposed or excavation left open by clearing and re-vegetate the area at the earliest practically possible. • Ensure excavation works occur progressively and re-vegetation is done at the earliest. • Provide adequate knowledge to the workers regarding nature protection and the need to avoid felling trees during construction. • Supply appropriate fuel in the work camps to prevent fuel wood collection. • These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles, disposal of fill, etc..
Cutting of Trees/Lopping of trees	Loss of trees along the Right of way and substations	The Contractor will Prepare a plan for cutting and trimming of trees at substation and lines and submit the plan for PIU and SIC approval. Minimize the number of trees can by using flexible tower placement and increasing conductor height. Ensure species-specific tree retention as approved by statutory authorities (average and maximum tree height at maturity, in metres)

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		Felled trees and other cleared or pruned vegetation to be disposed of by authorized agents/forest department. Trees allowed growing up to a height within the RoW by maintaining required clearance between the top of tree and the conductor as per the Electricity Rules. Regular pruning is required. Any tree species that is protected by law, religious beliefs or is an endangered/critical or vulnerable variety should only be cut after obtaining proper approvals.

ECP 13: Protection of Fauna

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities	The location of construction activities can result in the loss of wildlife habitat and habitat quality,	The Contractor will • Prepare a plan for protection of fauna and submit the plan for PIU and SIC approval. • Limit the construction works within the designated sites allocated to the contractors. • Check the site for animals trapped in, or in danger from site works and use a qualified person (ecologist or veterinary) to relocate the animal.
	Impact on birds, their habitat and their active nests	The Contractor will • Not be permitted to destruct active nests or eggs of birds. • Minimize the tree removal during the bird breeding season. If work must be continued during the bird breeding season, a nest survey will be conducted by a qualified biologist prior to commencing works to identify and locate active nests. • If bird nests are located/detected within the trees or on ledges or the ground, then those areas must be avoided. • Petroleum products must not come in contact with sensitive ecosystems. • Minimize the release of oil, oil wastes or any other substances harmful to birds' habitats, to any waters, wetlands or any areas frequented by birds.
Vegetation clearance	Clearance of vegetation may impact shelter, feeding and/or breeding and/or physical destruction and severing of habitat areas	The Contractor will • Restrict the tree removal to the minimum numbers required. • Fell the trees in a manner which reduces the potential for fauna mortality. • Retain tree hollows on site, or relocate hollows, where appropriate • Leave dead trees where possible as habitat for fauna • Felled trees will be inspected before felling for fauna

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		and if identified and readily accessible will be removed and relocated or rendered assistance if injured. After felling, hollow bearing trees will remain unmoved overnight to allow any animals to move of their own volition.
Night time lighting	Lighting from construction sites and construction camps may affect the visibility of night time migratory birds that use the moon and stars for navigation during their migrations.	The Contractor will • Use lower wattage flat lens fixtures that direct light down and reduce glare, thus reducing light pollution, • Avoid flood lights unless those are absolutely required. • Use motion sensitive lighting to minimize needless lighting. • Use, if possible, green lights that are considered as bird friendly lighting instead of white or red colored lights. • Install light shades or plan the direction of lights to reduce light spilling outside the construction area.
Construction camps	Illegal poaching	The Contractor will • Provide adequate knowledge to the workers regarding protection of flora and fauna including avifauna that is notified as endangered/ critical/vulnerable species by relevant biodiversity related international agencies such as IUCN etc. • Implement relevant government regulations and enforcements for illegal poaching. • Ensure that staff and subcontractors are trained and empowered to identify, address and report potential environmental problems to these threatened species.

ECP 14: Protection of Fisheries

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities in River	The main potential impacts to aquatic flora and fauna are increased suspended solids from earthworks erosion, sanitary discharge from work camps, and hydrocarbon spills and also potential impacts to fisheries are hydrocarbon spills and leaks from riverine transport and disposal of wastes into the river	The Contractor will Prepare procedures for protection of fish and other aquatic life and submit those for PIU and SIC for approval. Ensure the riverine transports, vessels and ships are well maintained and do not have oil leakage to contaminate river water. Contain oil immediately on river in case of accidental spillage from equipment; make an emergency oil spill containment plan (under the Fuels and Other Hazardous Substances Management Plan) to be supported with enough equipment, materials and human resources. Not dump wastes, be it hazardous or non-hazardous into the nearby water bodies or in the river. Follow proper mitigation for acquiring dredged of sand from river for site filling in proposed ECP 9: Borrow Management Areas
Construction activities on the land	The main potential impacts to aquatic flora and fauna are increased	The Contractor will • Follow mitigation measures proposed in ECP 3: Water Resources Management and EC4: Drainage Management.

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	suspended solids from earthworks erosion, sanitary discharge from work camps, and hydrocarbon spills	

ECP 15: Road Transport and Road Traffic Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Increased traffic use of road by construction vehicles will affect the movement of normal road traffic and the safety of the road-users.	The Contractor will • Prepare a traffic management plan and submit the plan for PIU and SIC approval at least 30 days before commencing work on any project component involved in traffic diversion and management. • Include in the traffic management plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs / lights, and road signs. Updating it as needed if additional traffic routes or traffic diversion and management required. • Strictly follow the traffic management plan and work in close coordination with the local authorities. • Provide signs at strategic locations of the roads complying with the schedules of signs contained in the national traffic regulations. • A designated person, traffic controller, wearing colored vest will be engaged for traffic management. • Install and maintain a display board at each important road intersection on the roads to be used during construction, which shall clearly show the following information in Bangla: o Location: chainage and village name o Duration of construction period o Period of proposed detour / alternative route o Suggested detour route map o Name and contact address/telephone number of the concerned personnel o Name and contact address / telephone number of the Contractor o Inconvenience due to ongoing work is sincerely regretted.
Pollution incidents	Accidents and spillage of fuels and chemicals	The Contractor will • Restrict truck deliveries, where practicable, to day time working hours. • Restrict the transport of oversize loads. • Operate vehicles, if possible, to non-peak periods to minimize traffic disruptions. • Enforce off- and on-site speed limit.
Parking nuisance	Parking of construction vehicles or truck trailer bring in	The Contractor will Restrain any truck containing deliveries/construction material to park on the main or access roads for the project. Demarcate a designated loading/unloading area for the above

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	construction material/equipment for erection parked outside on main road and unloading operations at main road	category Designate the delivery times to particular time of day and any night deliveries should not be encouraged.

ECP 16: Construction Site and Labor Camp Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Siting and location of construction camps	Labor campsites for construction workers can impact health and safety and disrupt nearby communities.	The Contractor will • Prepare a construction camp management plan and submit the plan for PIU and SIC approval. • Build the construction camps within the designed construction sites or at areas which are acceptable from environmental, cultural or social point of view; and approved by the PIU and SIC. • Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. • Submit to the PIU and SIC for approval a detailed layout plan for the development of the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, fuel storage areas (for use in power supply generators), solid waste management and dumping locations, and drainage facilities, prior to the development of the construction camps. • Local authorities responsible for health, conducting religious rituals and security will be duly informed on the set up of camp facilities to maintain effective surveillance over public health, social and security matters.
Construction Camp Facilities	Lack of proper infrastructure facilities, such as water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards for construction workers.	Contractor will provide the following facilities in the campsites • Adequate housing for all workers. • Safe and reliable water supply, which should meet the national and WBG EHS guidelines. • Water supply from deep tube wells of 300 m depth. Drinking water to be chlorinated at source, and ensure presence of residual chlorine with 0.1 ~ 0.25 ppm as minimum after 30 minutes of chlorine contact time (WHO guideline). • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females workers with total isolation by location. The minimum number of toilet facilities required is one toilet for every six persons. • Treatment facilities for sewerage of wastewater. • Storm water drainage facilities. Both sides of roads are to be provided with shallow v drains to drain off storm water to a silt retention pond which shall be sized to provide a minimum

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		of 20 minutes retention of storm water flow from the whole site. Channel all discharge from the silt retention pond to natural drainage via a grassed swale at least 20 meters in length with suitable longitudinal gradient. • Paved internal roads. Ensure with grass/vegetation coverage to be made of the use of top soil that there is no dust generation from the loose/exposed sandy surface. Pave the internal roads of at least haring-bond bricks to suppress dusts and to work against possible muddy surface during monsoon. • Provide child crèches for women working construction site. The crèche shall have facilities for dormitory, kitchen, indoor and outdoor play area. Schools shall be attached to these crèches so that children are not deprived of education whose mothers are construction workers • Provide in-house community/common entertainment facilities. dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible. • Labor Camp will be constructed by maintaining all the safety issues to fight against COVID 19 and following COVID-19 Protocol of DG Health, Bangladesh. (https://old.dghs.gov.bd/images/docs/Guideline/Concise_Covid-19_guideline.pdf)
Disposal of waste	Management of wastes is crucial to minimize negative impacts on the environment	The Contractor will • Ensure the collection and disposal of solid wastes from the labor camps with disposal to suitably licensed waste management facilities • Insist on waste separation by source; organic wastes in one container and inorganic wastes in another container at household level. • Store inorganic wastes in a safe place within the household and clear organic wastes on a daily basis to waste collector. • Establish waste collection, transportation and disposal systems with the manpower and equipment/vehicles needed. • Dispose organic wastes in a designated safe place on daily basis. At the end of the day cover the organic wastes with a thin layer of sand so that flies, mosquitoes, dogs, cats, rats, are not attracted. One may dig a large hole to put organic wastes in it; take care to protect groundwater from contamination by leachate formed due to decomposition of wastes. Cover the bed of the pit with impervious layer of materials (clayey or thin concrete) to protect groundwater from contamination. • Locate the garbage pit/waste disposal site min 500 m away from the residence so that peoples are not disturbed with the odor likely to be produced from anaerobic decomposition of wastes at the waste dumping places. Encompass the waste dumping place by fencing and tree plantation to prevent children to enter and play with. • Do not establish site specific landfill sites. solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Fuel supplies for cooking purposes	Illegal sourcing of fuel wood by construction workers will impact the local flora and fauna	The Contractor will • Provide fuel to the construction camps for their domestic purpose, in order to discourage them to use fuel wood or other biomass. • Make available alternative fuels like natural gas or kerosene on ration to the workforce to prevent it from using biomass for cooking. • Conduct awareness campaigns to educate workers on preserving and protecting the biodiversity and wildlife of the project area, and relevant government regulations and enforcements on wildlife protection.
Health and Hygiene	There will be a potential for diseases to be transmitted including malaria, exacerbated by inadequate health and safety practices. There will be an increased risk of construction workers spreading sexually transmitted infections and HIV/AIDS.	The Contractor will • Provide adequate health care facilities within the construction sites. • Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. • Provide ambulance facility for the labors during emergency to be transported to nearest hospitals. • Carry out initial health screening of the labors coming from outside areas. • Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work. • Provide HIV awareness programming, including STI (sexually transmitted infections) and HIV information, education and communication for all workers on a regular basis. • Provide complement educational interventions with easy access to condoms at campsites as well as voluntary counseling and testing • Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form anywhere near the site. • Regular mosquito repellant sprays (not pesticides subject to bans) are used during rainy season in offices and construction camps and yards. • Do not dispose food waste openly as that will attract rats, cockroaches and other insects, and stray dogs. • Carry out short training sessions on best hygiene practices to be mandatorily participated by all workers. • Place display boards at strategic locations within the camps containing messages on best hygienic practices.
Safety	Inadequate safety facilities to the construction camps may create security problems and fire hazards	The Contractor will • Provide appropriate security personnel (police or private security guards) and enclosures to prevent unauthorized entry into the camp area. • Maintain a register to keep a track on a head count of persons present in the camp at any given time. • Use flameproof material for the construction of labor housing / site office. Also, ensure that these houses/rooms are of sound construction and capable of withstanding wind storms/cyclones.

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Provide firefighting equipment at the labor camps • Display emergency contact numbers clearly and prominently at strategic places in camps. • Communicate the roles and responsibilities of labors in case of emergency in the monthly meetings with contractors.
Site Restoration	Restoration of the construction camps to original condition requires demolition of construction camps.	The Contractor will • Dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates at the completion of the construction work. • Dismantle camps in phases as certain work gets done/decreased and not wait for the entire work to be completed. • Give prior notice to the labors before demolishing their camps/units. • Maintain the noise levels within the applicable noise levels during demolition activities. • Different subcontractors must be hired to demolish different structures to promote recycling or reuse of demolished materials. • Reuse the demolition debris to a maximum extent. • Dispose remaining debris at the suitably licensed waste management facility. • Restore the site to its condition prior to commencement of the works or to an agreed condition with the landowner.

ECP 17: Cultural and Religious Issues

Project Activity/	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities near religious and cultural sites	Disturbance from construction works to the cultural, religious and educational sites, and construction workers lack of knowledge on cultural issues causes social disturbances.	The Contractor will • Communicate to the public through community consultation regarding the scope and schedule of construction, as well as certain construction activities causing disruptions or access restriction. • Not block access to cultural and religious sites, wherever possible. • Restrict all construction activities to within the footprints of the construction sites. • Stop construction works that produce noise (particularly during prayer time and school hours) if there are any mosque/religious/educational institutions close to the construction sites and users make objections. • Provide separate prayer facilities to the construction workers. • Allow the workers to participate in praying during construction time. • Show appropriate and decent behavior with all construction workers especially women and elderly people. • Resolve cultural issues in consultation with local leaders, PIU and SIC. • Establish a mechanism that allows local people to raise grievances arising from the construction process.

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Project Activity/	Environmental Impacts	Mitigation Measures/ Management Guidelines
		• Inform the local authorities responsible for health, religious and security before commencement of construction works so as to maintain effective surveillance over public health, social and security matters.
Construction activities near archaeological, burial sites	Disturbance from construction works to the archaeological or burial sites and construction workers lack of knowledge on these issues causes social disturbances	• Take special care and use appropriate equipment when working next to cultural/religious institutions. • Develop a Chance Find Procedure for archaeological remains. This procedure will require stopping work immediately and notify the site manager if, during construction, an archaeological or burial site is discovered. It is an offence to recommence work in the vicinity of the site until approval to continue is given. • Stop work immediately and notify the site manager if, during construction, an archaeological or burial site is discovered. It is an offence to recommence work in the vicinity of the site until approval to continue is given by the SIC/PMU.

ECP 18: Worker's Health and Safety (including COVID-19 Prevention and Protection)

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Best practices	Construction works may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. The population in the proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector transmitted diseases etc.), (ii) risk factors resulting from human behavior (e.g. STD, HIV etc.) and (iii) road accidents from construction traffic.	The Contractor will • Prepare an Occupational Health and Safety plan (including COVID management measures) and submit the plan for PIU and SIC approval. • Implement suitable safety standards for all workers and site visitors which must not be less than those laid down in international good practice guidelines (e.g., International Labor Organization guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guidelines') and the contractor's own national standards or statutory regulations, in addition to complying with national requirements. • Appoint an environment, health and safety manager to look after the health and safety of the workers. • Provide the workers with a safe and healthy work environment, considering inherent risks in its particular construction activity and specific classes of hazards in the work areas. • Provide personal protection equipment (PPE) for workers, such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields, and ear protection. Maintain the PPE properly by cleaning dirty ones and replacing the damaged ones. • Safety procedures to include provision of information, training and protective clothing to workers involved in hazardous operations and ensuring safe performance in their job. • Inform the local authorities responsible for health, religious rituals and security before commencement of construction works and establishment of labor camps so as to maintain effective surveillance over public health, social and security

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		matters.
	Child and pregnant labor	The Contractor shall not hire children of less than 14 years of age and pregnant women or women who delivered a child within 8 preceding weeks, in accordance with the Bangladesh Labor Code, 2006
Incident Management	Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of the victims	The Contractor will • Ensure health care facilities and first aid facilities are readily available; appropriately equipped first-aid stations to be easily accessible throughout the place of work. • Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, as far as reasonably practicable, the causes of hazards, in a manner consistent with good international industry practice. • Identify potential hazards to workers, particularly those that may be life-threatening and provide necessary preventive and protective measures. • Document and report occupational accidents, diseases, and incidents. • Provide awareness raising to the construction drivers to strictly follow the driving rules. • Provide adequate lighting in the construction area.
Construction Camps	Lack of proper infrastructure facilities, such as water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards for construction workers.	The Contractor will provide the following facilities in the labor campsites or other accommodation being provided to improve health and hygienic conditions as mentioned in ECP 16 Construction Camp Management • Construction Camps will be constructed by maintaining all the safety issues to fight against COVID 19 and following COVID-19 Protocol of DG Health, Bangladesh (https://old.dghs.gov.bd/images/docs/Guideline/Concise_Covid-19_guideline.pdf) • Adequate ventilation facilities • Safe and reliable water supply meeting drinking water standards • Hygienic sanitary facilities and sewerage system. • Treatment facilities for sewerage • Storm water drainage facilities. • Safe storage facilities for petroleum and other chemicals in accordance with ECP 2 • Solid waste collection and disposal system in accordance with ECP1. • Arrangements for trainings • Recreational and social facilities • Sick bay and first aid facilities • Paved internal roads. • Security fence at least 2 m height.
Water and sanitation facilities at the construction sites	Lack of water and sanitation facilities at construction sites causes inconvenience to the construction workers	The Contractor will • Provide portable toilets at construction sites. • The location of portable toilets should be at least 6 m away from the storm drain system and surface waters. • Portable toilets must be cleaned once a day and all the sewerage pumped from the collection tank once a day and

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	and affects their personal hygiene.	brought to a common septic tank for further treatment. • Provide safe and reliable drinking water facilities meeting drinking water standards to the construction workers at all the construction sites and accommodation provided for them
Other ECPs	Potential risks to health of construction workers (and general public)	• The Contractor will follow the following ECPs to reduce health risks to the construction workers and nearby communities • ECP 2: Fuels, Oils and Other Hazardous Substances Management • ECP 4: Drainage Management • ECP 9: Air Quality Management • ECP 10: Noise and Vibration Management • ECP 15: Road Transport and Road Traffic Management
Training and Awareness Raising	Lack of awareness and basic knowledge in health and safety among the construction workforce, increases the risk of an incident or contracting of diseases	The Contractor will • Train all construction workers in general health and safety matters, and on the specific hazards of their work. Training should consist of basic hazard awareness, site specific hazard awareness, safe work practices, and emergency procedures for fire, natural hazards, and evacuation, as appropriate. • Train all construction workers in basic sanitation and health care issues (e.g., hand washing etc.) • Keep up to date on the latest COVID Prevention and Protection Measures and provide training to the construction workers on them (https://old.dghs.gov.bd/images/docs/Guideline/Concise_Covid-19_guideline.pdf) • Implement malaria, HIV/AIDS and STI education campaign targeting all workers hired by contractor and subcontractors, international and national, female and male, skilled, semi- and unskilled occupations, at the time of recruitment and thereafter pursued throughout the construction phase on an ongoing and regular basis. This should be complemented by easy access to condoms at the workplace as well as to voluntary counseling and testing.

ECP 19: SF6 Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
SF6 emissions and leakages	SF6, a potent greenhouse gas, will be contained within GIS and in gas insulated circuit breakers and other equipment, improper handling of SF6 tanks and	The Contractor will • Prepare an SF6 emergency response plan for construction. • Prepare policies, protocols, and standard operating procedures: Understanding emissions sources is the first step to better managing SF6 gas in electric power systems. • Train and instruct all personnel in SF6 management practices and procedures as a component of the environment management induction process. • Store and handle SF6 tanks and gas insulated equipment with care to avoid any leakages of SF6.

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	equipment can cause rupture and leakage to the atmosphere thus contributing to climate change.	• Ensure that GIS and other gas insulated equipment are hermetically pressure sealed "sealed for life" units, tested and guaranteed by the supplier at less than 0.1% leakage rate. • Prepare gas inventory, accounting, and tracking procedures and systems: Procedures and systems for gas accounting, tracking, and management can monitor all SF6 activities, such as purchases, cylinder rentals, recycling, and disbursals. It is imperative that any residual SF6 gas from cylinders be accounted for either by physical removal of SF6 from a facility or by removal from inventory when the cylinders are returned to the suppliers. • Conduct training: Training is a vital ingredient for successfully managing SF6 emissions at all phases of the life- cycle. Training raises awareness of emissions, environmental and health impacts of SF6 and by-products, and potential reduction options, but training also enables employees to follow procedures and protocols properly. • Arrange a facility for Recycling of SF6 gas: Recycling of SF6 gas allows utilities to capture used gas that otherwise would be vented to the atmosphere. • Arrange a facility for Leak detection and repair (LDAR): LDAR is a vital strategy to managing SF6 emissions (Components of LDAR are included as: Leak detection, Monitoring programs and Leak repair). A handheld LDAR kit should be made available at the site during filling and testing/commissioning which should be kept at the substation thereafter for O&M by substation staff. • Upgrade and replace the old and obsolete equipment: Upgrading and replacing equipment (circuit breakers in case of AIS stations with GIS technology) is a successful strategy that can significantly reduce emissions. • Ensure for environmentally safe and sound decommissioning: At the end of life, all SF6 equipment, including hermetically sealed-pressure switchgear, should be properly decommissioned to avoid emissions.

ECP 20: Construction Management in Ecologically Sensitive, Salt Pan, Fish Ponds and Waterlogged Areas

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction of foundations in Salt pan, fish pond and waterlogged area	Piling of foundations in salt pan areas leads to drainage of waste slurry and drilling fluids into water canals and flat lands that adversely impact the ecological sensitive area	The Contractor will – Ensure the strata analysis below the salt pan, fish pond, waterlogged area through borehole testing before piling for foundations to ensure proper depth and soil stability is available to avoid repeated drilling/piling – Ensure conformance to BS 5228-2:2009+A1:2014 that covers Noise and vibration control on construction and open sites. Code of practice for noise and vibration control applicable to piling operations. Section 2 in the standard contains recommendations relating to noise control and Section 3 contains recommendations for the mitigating of the effects of ground-borne vibration. – Design noise screen or barrier around piling activities (e.g. a wall of straw bales) or sheets to absorb sound and reduce the

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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		noise levels experienced by communities. – Consider alternative practices such as augering and sheet piling that can be pressed into place rather than being driven in, thereby reducing the noise at source.
Construction of infrastructure in that impact ecology of coastal areas	Avian collision: Possible collision of migrant and local birds with transmission line/others	The Contractor will – Design of towers and cables to follow international good practice. Install and maintain Flight Diverters where necessary to prevent avian collision risk on the transmission line. – Conduct periodic ecological survey of migratory birds during wintering months along with waterbirds and local birds to ensure documentation of affect to any endangered/critical/vulnerable species.
Other ECPs to reduce construction impacts in the coastal areas	Filling of canals, natural water drainage pathways inland that adversely impact salt pans, fishing areas and block access to saline coastal tidal waters to enrich the local ecology of the area	The Contractor will: – follow the ECPs to reduce construction impacts in the coastal areas that are environmentally sensitive ECP 3: Water Resources Management, ECP4: Drainage Management, ECP 11: Noise and Vibration Management, ECP 13: Protection Fauna and ECP 14: Protection of Fisheries.

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Appendix X: Applicable Standards for EMP

Table 1: Applicable Noise Levels Standards

Sl. No.	Category of areas	The Noise Pollution (Control) Rules 2006 (dBA)		IFC Standard, 2007 (One Hour LA_{eq} dBA)[a]		Applicable to the Project per ADB Safeguard Policy Statement (dBA)[b]	
		Day	Night	Day (07:00-22:00)	Night (22:00-07:00)	Day	Night
1	Silent zone[c]	50	40	-	-	50	40
2	Residential zone	55	45	55	45	55	45
3	Mixed zone (mainly residential area, simultaneously used for commercial and industrial purposes)	60	50	-	-	60	50
4	Commercial zone	70	60	70	70	70	60
5	Industrial zone	75	70	70	70	70	70
6	Occupational Health and Safety (above these limits PPE to be worn)	TBC		85dB(A) (Laeq 8 hours) Peak sound pressure 140 dB(C) LAmax 110 dB(A)		85dB(A) (Laeq 8 hours) Peak sound pressure 140 dB(C) Average maximum 110 dB(A)	

Source: Bangladesh Noise Pollution Control Rules 2006, Guidelines for Community Noise, World Health Organization (WHO), 1999 and IFC World Bank Group. 2007. Environmental, Health and Safety General Guidelines. Washington, D.C.

a/ Except for occupational health and safety levels guidelines values are for noise levels measured out of doors. Noise monitoring should be carried out using a Type 1 or 2 sound level meter meeting all appropriate IEC standards.

b/ If less stringent levels or measures are appropriate in view of specific project circumstances, executing agency will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS within the disclosed IEE report.

c/ Area up to a radius of 100 meters around hospitals or educational institutions or special institutions/establishments identified/to be identified by the Government is designated as Silent Zones where use of horns of vehicles or other audio signals, and loudspeakers are prohibited.

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Table 2: Applicable Ambient Air Quality Standards

Parameter	Bangladesh Ambient Air Quality Standard ($\mu g/m^3$)[a]	WHO Air Quality Guidelines ($\mu g/m^3$)		Applicable to the Project per ADB Safeguard Policy Statement[d] ($\mu g/m^3$)
		Global Update[b] 2005	Global Update[c] 2021	
PM_{10}	50 (1-year) 150 (24-h)	20 (1-year) 50 (24-h)	15 (1-year) 45 (24-h)	45 (24-h)
$PM_{2.5}$	35 (1-year) 65 (24-h)	10 (1-year) 25 (24-h)	5 (1-year) 15 (24-h)	15 (24-h)
SO_2	250 (1-h) 80 (24-h)	20 (24-h) 500 (10-min)	40 (24-h)	40 (24-h) 500 (10-min)
NO_2	40 (Annual) 80 (24-h)100 (1-year)	40 (1-year) 200 (1-h)	10 (1-year) 25 (24-h)	25 (24-h) 200 (1-h)
CO	5,000 (8-h) 20,000 (1-h)	-	4,000 (24-h)	4,000 (24-h) 10,000 (8-h) 40,000 (1-h)
Lead	0.25 (1-year) 0.50 (24-h)	-	-	0.5 (1-year)
Ozone (O_3)	180 (1-h) 100 (8-h)	100 (8-h)	100 (8-h) 60 (peak season, average 6 months)	100 (8-h)
Ammonia (NH_3)	100 (Annual) 400 (24-h)	-	-	400 (24-h)

ADB = Asian Development Bank, CO = carbon monoxide, h = hour, µg/m³ = microgram per cubic meter, min = minute, NO_2 = nitrogen dioxide, $PM_{2.5}$ = particulate matter 2.5 microns, PM_{10} = particulate matter 10 microns, SO_2 = sulfur dioxide, TSP = total suspended particle, WHO = World Health Organization. a/ SRO NO. 255-LAW/2022(Bangladesh Air Pollution Control Rules, 2022)). https://mccibd.org/wp-content/uploads/2022/07/Air-Pollution-Control-Rules-2022.pdf

b/ IFC World Bank Group. 2007. *Environmental, Health and Safety General Guidelines*. Washington, D.C.

c/ WHO. 2021. *WHO global air quality guidelines: particulate matter (*PM2.5 and PM10(, *ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide*. Geneva. 24-h standards are 99%iles.

d/If less stringent levels or measures are appropriate in view of specific project circumstances, executing agency will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS within the disclosed IEE.

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Table 3: Applicable Effluent Discharge Standards by Receiving Environment

Sl. No.	Parameters	Unit	Discharge To[a]			IFC Standard 2007, Treated Sanitary Sewage Discharge to Inland Surface Water
			Inland Surface Water	Public Sewerage system connected to treatment at second stage	Irrigated Land	
1	Ammoniacal nitrogen (as elementary N)	mg/l	50	75	75	-
2	Ammonia (as free ammonia)	mg/l	5	5	15	-
3	Arsenic (as As)	mg/l	0.2	0.05	0.2	-
4	BOD_5 at 20^oC	mg/l	50	250	100	30
5	Boron	mg/l	2	2	2	-
6	Cadmium (as Cd)	mg/l	0.5	0.05	0.05	-
7	Chloride	mg/l	600	600	600	-
8	Chromium (as total Cr)	mg/l	0.5	1.0	1.0	-
9	COD	mg/l	200	400	400	125
10	Chromium (as hexavalent Cr)	mg/l	0.1	1.0	1.0	-
11	Copper (as Cu)	mg/l	0.5	3.0	3.0	-
12	Dissolved oxygen (DO)	mg/l	4.5-8	4.5-8	4.5-8	-
13	Electro-conductivity (EC)	micromho/cm	1200	1200	1200	-
14	Total dissolved solids	mg/l	2100	2100	2100	-
15	Fluoride (as F)	mg/l	2	15	10	-
16	Sulfide (as S)	mg/l	1	2	2	-
17	Iron (as Fe)	mg/l	2	2	2	-
18	Total Kjeldahl nitrogen (as N)	mg/l	100	100	100	10 (Total Nitrogen)
19	Lead (as Pb)	mg/l	0.1	1	0.1	-
20	Manganese (as Mn)	mg/l	5	5	5	-
21	Mercury (as Hg)	mg/l	0.01	0.01	0.01	-
22	Nickel (as Ni)	mg/l	1.0	2.0	1.0	-
23	Nitrate (as elementary N)	mg/l	10.0	Not yet set	10	-
24	Oil and grease	mg/l	10	20	10	10

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Sl. No.	Parameters	Unit	Discharge To[a]			IFC Standard 2007, Treated Sanitary Sewage Discharge to Inland Surface Water
			Inland Surface Water	Public Sewerage system connected to treatment at second stage	Irrigated Land	
25	Phenolic compounds (as C_6H_5OH)	mg/l	1.0	5	1.0	-
26	Dissolved phosphorus (as P)	mg/l	8	8	15	2 (Total Phosphorous)
27	Radioactive substance	(to be specified by Bangladesh Atomic Energy Commission)				-
28	pH	----	6-9	6-9	6-9	6-9
29	Selenium (as Se)	mg/l	0.05	0.05	0.05	-
30	Zinc (as Zn)	mg/l	5	10	10	-
31	Temperature	^{o}C (summer) ^{o}C (winter)	40 45	40 45	40 45	-
32	Suspended solids (SS)	mg/l	150	500	200	50 (TSS)
33	Cyanide (as Cn)	mg/l	0.1	2.0	0.2	-
	Total Coliform	MPN/100ml	-	-	-	400

[a] *Schedule 10 Standards for Waste from Industrial Units or Projects Waste [See Rule 13]*

Notes:

1. These standards shall be applicable to all industries or projects other than those specified under the heading "Standards for sector wise industrial effluent or emission."
2. Compliance with these standards shall be ensured from the moment an industrial unit starts trial production, and in other cases, from the moment a project starts operation.
3. These standards shall be inviolable even in case of any sample collected instantly at any point of time. These standards may be enforced in a more stringent manner if considered necessary in view of the environmental conditions of a particular situation.
4. Inland Surface Water means drains/ponds/tanks/water bodies/ ditches, canals, rivers, springs and estuaries.
5. Public sewerage system means treatment facilities of the first and second stage and also the combined and complete treatment facilities.
6. Irrigable land means such land area which is sufficiently irrigated by wastewater taking into consideration the quantity and quality of such water for cultivation of selected crops on that land.
7. Inland Surface Water Standards shall apply to any discharge to a public sewerage system or to land if the discharge does not meet the requirements of the definitions in notes 5 and 6 above.

[b] *IFC World Bank Group. 2007. Environmental, Health and Safety General Guidelines. Washington, D.C.*

MPM=maximum probable number

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Table 4: Applicable Drinking Water Quality Standards (Groundwater Quality)

Sl	Parameter	Unit Standard	Bangladesh Standard (ECR 2023)	WHO Guidelines 2017
1	Aluminum	mg/l	0.2	0.2
2	Ammonia (NH_3)	mg/l	1.5	-
3	Arsenic	mg/l	0.05	0.01
4	Barium	mg/l	0.7	1.3
5	Benzene	mg/l	0.01	0.01
6	Boron	mg/l	1	2.4
7	Cadmium	mg/l	0.003	0.003
8	Calcium	mg/l	75	-
9	Chloride	mg/l	250*	-
10	Carbon Tetrachloride	mg/l	0.005	0.004
11	1.1 Dichloroethylene	mg/l	0.03	
12	1.2 Dichloroethylene	mg/l	0.03	0.03
13	Tetrachloroethylene	mg/l	0.04	0.04
14	Trichloroethylene	mg/l	0.02	0.02
15	Pentachlorophenol	mg/l	0.009	0.009
16	2.4.6 Trichlorophenol	mg/l	0.02	0.2
17	Chlorine (Residual)	mg/l	0.2	0.2
18	Chloroform	mg/l	0.09	0.3
19	Chromium (total)	mg/l	0.05	0.05
20	Coliform (fecal)	cfu/100 ml	0	-
21	Coliform (total)	cfu/100 ml	0	-
22	Color	Huyghens Unit	15	-
23	Copper	mg/l	1.5	2
24	Cyanide	mg/l	0.05	-
25	Fluoride	mg/l	1.0	1.5
26	Hardness (as $CaCO_3$)	mg/l	500	-
27	Iron (Fe)	mg/l	0.3-1.0	-
28	Nitrogen (Total Kjeldahl Nitrogen)	mg/l	1	-
29	Lead	mg/l	0.01	0.01
30	Magnesium	mg/l	30-35	-
31	Manganese	mg/l	0.4	0.4
32	Mercury	mg/l	0.001	0.006
33	Nickel	mg/l	0.05	0.07
34	Nitrate	mg/l	45	50
35	Nitrite	mg/l	1	3

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Sl	Parameter	Unit Standard	Bangladesh Standard (ECR 2023)	WHO Guidelines 2017
36	Odor		Odorless	-
37	Oil & Grease	mg/l	0.01	-
38	pH		6.5-8.5	-
39	Phenolic Compounds	mg/l	0.002	-
40	Potassium	mg/l	12	-
41	Radioactive Materials (gross alpha activity)	bq/l	0.1	-
42	Radioactive Materials (gross beta activity)	bq/l	1.0	-
43	Selenium	mg/l	0.01	0.04
44	Silver	mg/l	0.02	-
45	Sodium	mg/l	200	50
46	Suspended particulate matters	mg/l	10	-
47	Sulfide as H_2S	mg/l	0.05	-
48	Sulfate	mg/l	250	-
49	Total dissolved solids	mg/l	1000	1000
50	Temperature	°C	20-30	-
51	Tin	mg/l	2	-
52	Turbidity	NTU	5	-
53	Zinc	mg/l	5	-
54	Aldrin/Dieldrin	Microgram/l	0.003	
55	Anionic Detergents	mg/l	0.2	

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Table 5: Applicable Inland Surface Water Quality Standards

Best Practice Based classification	pH	DO mg/l	BOD mg/l	NO_3-N mg/l	NH_4-N mg/l	PO_4-P mg/l	Total Cr mg/l	Pb mg/l	Hg mg/l	Total Coliform cfu/100mg	TDS mg/l	COD mg/l
a. Source of drinking water for supply only after disinfecting:	6.5-8.5	≥6	≤2	7.0	0.1	0.1	0.02	0.03	0.001	≤100	1000	10
b. Water usable for recreational activity	6.5-8.5	≥5	≤3	7.0	0.3	0.5	0.2	0.05	0.001	≤50	1000	10
c. Source of drinking water for supply after conventional treatment	6-9	≥5	≤3	7.0	0.3	0.5	0.02	0.03	0.001	≤5000	1000	25
d. Water usable by fisheries	6-9	≥5	≤6	7.0	0.3	0.5	0.05	0.1	0.004	≤5000	1000	50
e. Water usable by various process and cooling industries	6.5-8.5	≥1	12	-	2.7	-	0.1	0.1	0.05	-	1000	100
f. Water usable for irrigation	6.5-8.5	-	≤12	5.0	1.5	2.0	0.1	0.1	0.002	≤50000	1000	100

Source: ECR,23

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Table 6: Reference Levels for Occupational Exposure to Time-Varying Electric and Magnetic Fields

Frequency range	E-Field Strength (V/m)	H-Field Strength (A/m)	B-Field (μT)	Equivalent plane wave power density S_{eq} (W/m^2)
up to 1 Hz	—	1.63×10^5	2×10^5	—
1–8 Hz	20,000	$1.63 \times 10^5/f^2$	$2 \times 10^5/f^2$	—
8–25 Hz	20,000	$2 \times 10^4/f$	$2.5 \times 10^4/f$	—
0.025–0.82 kHz	500/*f*	20/*f*	25/*f*	—
0.82–65 kHz	610	24.4	30.7	—
0.065–1 MHz	610	1.6/*f*	2.0/*f*	—
1–10 MHz	610/*f*	1.6/*f*	2.0/*f*	—
10–400 MHz	61	0.16	0.2	10
400–2,000 MHz	$3f^{1/2}$	$0.008f^{1/2}$	$0.01f^{1/2}$	*f*/40
2–300 GHz	137	0.36	0.45	50

Table 7: Reference Levels for General Public Exposure to Time-Varying Electric and Magnetic Fields

Frequency range	E-Field Strength (V/m)	H-Field Strength (A/m)	B-Field (μT)	Equivalent plane wave power density S_{eq} (W/m^2)
up to 1 Hz	—	3.2×10^4	4×10^4	—
1–8 Hz	10,000	$3.2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8–25 Hz	10,000	4,000/*f*	5,000/*f*	—
0.025–0.8 kHz	250/*f*	4/*f*	5/*f*	—
0.8–3 kHz	250/*f*	5	6.25	—
3–150 kHz	87	5	6.25	—
0.15–1 MHz	87	0.73/*f*	0.92/*f*	—
1–10 MHz	$87/f^{1/2}$	0.73/*f*	0.92/*f*	—
10–400 MHz	28	0.073	0.092	2
400–2,000 MHz	$1.375f^{1/2}$	$0.0037f^{1/2}$	$0.0046f^{1/2}$	*f*/200
2–300 GHz	61	0.16	0.2	10

Source: ICNIRP (International Commission on Non-Ionizing Radiation Protection) Guidelines 1998. Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz)

Note:

(i) *f* as indicated in the frequency range column.
(ii) Provided that basic restrictions are met and adverse indirect effects can be excluded, field strength values can be exceeded.
(iii) for frequencies between 100 kHz and 10 GHz, S_{eq}, E^2, H^2, and B^2 are to be averaged over any 6-min period.
(iv) for frequencies exceeding 10 GHz, S_{eq}, E^2, H^2, and B^2 are to be averaged over any $68/f^{1.05}$-min period (*f* in GHz).
(v) No E-field value is provided for frequencies <1 Hz, which are effectively static electric fields. Electric shock from low impedance sources is prevented by established electrical safety procedures for such equipment.

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Table 8: Minimum Limits for Workplace Illumination Intensity (IFC 2027)

Location / Activity	Light Intensity
Emergency light	10 lux
Outdoor non-working areas	20 lux
Simple orientation and temporary visits (Machine storage, garage, warehouse)	50 lux
Workspace with occasional visual tasks only (Corridors, stairways, lobby, elevator, auditorium, etc.)	100 lux
Medium precision work (Simple assembly, rough machine works, welding, packing, etc.)	200 lux
Precision work (Reading, moderately difficult assembly, sorting, checking, medium bench and machine works, etc.), offices.	500 lux
High precision work (Difficult assembly, sewing, color inspection, fine sorting etc.)	1,000 – 3,000 lux

Table 9: Guideline Values for Vibration Velocity to be Used When Evaluating Risks to Structures

Group	Type of structure	Guideline Values for Velocity (mm/s)				
		Short-term				Long-term
		At foundation			Uppermost Floor	Uppermost Floor
		Less than 10 Hz	10 Hz to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40	10
2	Residential dwellings and buildings of similar design and/or use	5 (105 dB)	5 to 15	15 to 20	15	5 (105 dB)
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order)	3 (100.5 dB)	2 to 8	8 to 10	8	2.5 (99.0 dB)

Source: DIN 4150-3, Structural Vibration, Part 3: Effect of vibration on structures

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Table 10: Transmission Voltage (kV) Width of Right of Way (in Meters)

Amount of Right of way (ROW)

Serial No	Transmission Voltage (kV)	Width of Right of way (on each side from the outer conductor) (Meter)	Minimum safe distance from conductive overhead wires (BS 7354) (Meter)
(1)	(2)	(3)	(4)
1.	11	2.50	2.50
2.	33	3.50	2.80
3.	132	14.00	3.80
4.	230	20.00	4.60
5.	400	23.00	6.40
6.	765	43.00	10.30

Source Bangladesh Electricity Rules 2020

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Appendix XI: Sample Environmental Assessment Checklist, Consultation Proforma

(to be used during detailed design stage[15])

Sample Environmental Inventorisation Checklist for Substation

Name of Substation Sub-project:
…….
Location of Sub-project: 1). Upazila: ……. 2). District:
…….
Major Components of the works: ……..

Sl No	Description	Detail
A.	**Inventorisation**	
1.a	Area of land (in sq m)	
1.b	Slope/Plain Land	
1.c	Approximate Volume of Land Filling required (if any)	
1.d	Type of land (in %) Ex: homestead...%, vita …. %. Crop…% etc.)	
1.e	GPS location (for SS/Buildings/SP)	N E
2	(i) Agricultural land	Type Area affected
	(ii) Non - Agriculture land	Type Area affected
	(iii) House or Building:	
	a) a. Residential	
	b) b. Non – Residential	
4.	Distance from Nearest (with name)	
4.a	River (Name and Distance) if any	
4.b	National Highway/Major Road (Name & distance)	
4.c	Adjacent to or within any of the following environmentally sensitive areas? (name & distance) if any	
4.c1	Forest (protected)	
4.c2	Wetland (Beel, Haor)	
4.c3	National Park	
4.c4	Wildlife sanctuary	
4.c5	Buffer zone of protected areas	
4.c6	Special area for protecting biodiversity e.g. KBA or IBA	
4.d	Village / town (Name & distance)	
4.e	Market/Area of Economic Activity (Name & distance)	
4.f	Houses and other Sensitive Receptors e.g. schools, mosques (Direction and distance)	
5.	Road accessibility in meters	

[15] The formats attached in this appendix will be used for environmental inventory surveys and public consultations during the final design stage to ensure that the IEE/EMP and other safeguards documents can be modified by PGCB and SIC to reflect design/route changes before construction implementation by the contractors.

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Sl No	Description	Detail
6.	220/132 kV Line Passing Near By (Distance)	
7.	33 kV HT line Passing Near By/ 11 kV line passing nearby	
8.	Communication/Fiber Cable/Telephone line Passing Near By	
9.	Distance from Gas pipeline	
10.	National Highway/major road passing nearby	
11.	Distance from Coastal areas (if any)	
12.	Distance from marshy area (if any)	
13.	Distance from cultivated area (if any)	
14.	Altitude of Substation	
15.	Nearest distance from port and airports	
16.	Nearest distance from various receptors -attached format 2 and major installations	
17.	Distance from nearest religious or archaeological sites (PCR)	
18.	No. of Trees (type) – detail in format 3	
	a) a. Trees to be felled (with Type)	
	b) b. Trees to be lopped (with Type)	
19	Low lying inundated land	
	Salt pan	
	Drain	
	Pond	
B.	**Impacts**	**Scale of Impact: High/Medium/Low (describe below)**
1	Is the site vulnerable to major natural or induced hazards such as landslides, flooding, storm, surge, erosion etc.	
2	Is there any past record of landslides, or land slippage nearby?	
3	Will the substation work pose a safety risk to children in schools and in nearby homes (for example, potential for increases in car accidents in areas where children play)?	
4	Will the substation result in any unsafe physical working conditions such as poor sanitation, excavation, working for height, and working with heavy equipment, etc.?	
5	Potential Environmental Impacts from construction of Substation etc. Will the sub-project cause…….	
5.1	Loss of agricultural land?	
5.2	Negative effects on threatened or endemic species of flora or their habitat?	
5.3	Negative effects on designated wetlands?	
5.4	Negative effects on wildlife habitat, populations, corridors or movement?	
5.5	Negative effects on locally important or valued ecosystems or vegetation?	
5.6	Destruction of trees and vegetation?	
5.7	Impact on fish migration and	

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Sl No	Description	Detail
	navigation?	
5.8	Obstruction of natural connection between river and wetlands inside project area?	
5.9	Water logging in polder areas?	
5.10	Insufficient drainage?	
5.11	Negative effects on surface water quality?	
5.12	Negative effects on groundwater quality, quantity or movement?	
5.13	Loss of existing buildings, property, economic livelihood?	
5.13	Increased soil erosion and/or sedimentation?	
5.14	Negative impact on soil stability and compactness?	
5.15	Impacts on collection and disposal of general wastes?	
5.16	Impacts on sustainability of associated construction waste disposal?	
5.17	Traffic disturbances due to construction material transport and wastes?	
5.18	Increased noise due to transportation of equipment and construction materials?	
5.19	Increased noise due to day-to-day construction activities?	
5.20	Increased wind-blown dust from material (e.g. Fine aggregate) storage areas?	
5.21	Health risks to labors involve in activities?	
5.22	Community health risks during construction activities?	
5.23	negative effects on neighborhood or community characters?	
5.24	negative effects on local business, institutions or public facilities?	
5.25	potential social conflict between occupational groups- farmers vs. fisheries?	
5.36	degradation or disturbance of historical or culturally important sites (mosque, graveyards, monuments etc.)?	
5.37	blockage of navigation system?	
5.28	impediments to movements of people and animals?	
5.29	conflicts in water supply rights and related social conflicts?	
5.40	air quality?	
5.41	impacts on natural disasters (such as heavy floods/rains?	

Assessment:

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Main Concerns:

Category	Action Required	Assessment
Low Impact		
Medium Impact		
High Impact		

Surveyed by: Designation: Signature:

Date:

FORMAT 2: Approximate distance (in km) of _____- from sensitive receptors

Name of the Substations _____

Sl. No.	Environmental Features	Distance to Left in meters	Distance to Right in meters	Distance to Front in meters	Distance to Back in meters
1.	**Ecological**				
a)	Presence of Wildlife Sanctuary/ National Park				
b)	Reserved forests				
c)	Wetland/water bodies				
d)	Migratory route for wild animals/ birds				
f)	Migratory routes for fishes/ Presence of Dolphin				
h)	Tree/vegetation cover				
i)	Birds Nesting				
2.	Groundwater				
3.	Land Use				
4.	Houses/Dwellings				
5.	Schools/colleges (all types				
6.	Archaeological Monuments				
7.	Physical Cultural Resources				
8.	Medical facilities (Hospital etc.)				
9.	Distance from river, water body				
10.	Population/ Inhabitants (in pockets)				

FORMAT 3: INVENTORIZATION OF THE TREES ON SUBSTATIONS

Name of the sub-project: …….
Start and end dates of inventorization: …….

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Sq. No	Kilometer		Location/s (Names)			
	From	To	Zila	Upazila	Village	Union
					D	

Sl. No.	Name Of Tree (s)	Location	Fruit=1 Commercial/ Timber=2 Medicinal=3 Endangered/ Protected=4	Description of Trees			Total
		GPS Coordinate		Large (> 10 m height)	Medium (5-10 m height)	Small (< 5 m height)	
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11							
12							
13							
	Total						

Picture at Location

Sl. No.	Picture of Tree (s)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11	
12	
13	

Sample Environmental Inventorisation Checklist Along the Transmission Line Alignment

Name of Sub-project: …….
Location of Sub-project: 1). Upazila: …….. 2). District: ……
Major Components of the works: ……..

Sl No	Description	Detail
A.	Inventorisation	
1.a	Length of line (in m)	
1.d	Kind of land (in %) Ex: homestead...%, vita …. %.	

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Sl No	Description	Detail
	Crop…% etc.)	
1 f	GPS location of line (as applicable Name of start location Name of finish location Localities/areas traversed	Locations:
2	(i) Agricultural land	Type Length/Area affected
	(ii) Non - Agriculture	Type Length/Area affected
	(iii) House or Building:	
	c) a. Residential	
	d) b. Non – Residential	
4.	Distance from Nearest (With name)	
4.a	River (Name and Distance) if any	
4.b	National Highway/Major Road (Name & distance)	
4.c	Adjacent to or within any of the following environmentally sensitive areas? (Name & distance) if any	
4.c1	Forest (protected)	
4.c2	Wetland (Beel, Haor)	
4.c3	National Park	
4.d4	Wildlife sanctuary	
4.c5	Buffer zone of protected areas	
4.c6	Special area for protecting biodiversity e.g., KBA or IBA	
4.d	Village / town (Name & distance)	
4.e	Market/Area of Economic Activity (Name & distance)	
4.f	Houses and sensitive receptors e.g., schools, mosques (Direction and distance)	
5.	Road accessibility in meters	
6.	220/132 kV Line Passing Near By (Distance)	
7.	33 kV HT line Passing Near By/ 11 kV line passing nearby	
8.	Communication/Fiber Cable/Telephone line Passing Near By	
9.	Distance from Gas pipe line	
10.	National Highway/major road passing nearby	
11.	Distance from Coastal areas (if any)	
12.	Distance from marshy area (if any)	
13.	Distance from cultivated area (if any)	
14.	Ground Altitude (high/;ow) of line	
15.	Nearest distance from port and airports	
16.	Nearest distance from various receptors (attached format 2) and major installations	
17.	Distance from nearest religious or archaeological sites	
18.	No. of Trees (type) format 3	

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Sl No	Description	Detail
	c) a. Trees to be felled (with Type)	
	d) b. Trees to be lopped (with Type)	
19	Low lying inundated land	
	Salt pan	
	Drain	
	Pond	
B.	**Impacts**	**Scale of Impact:** High/Medium/Low Describe Below
1	Is the site vulnerable to major natural or induced hazards such as landslides, flooding, storm, surge, erosion etc.	
2	Is there any past record of landslides, or land slippage along the route/right-of-way?	
3	Will the Line work pose a safety risk to children in schools and in nearby homes (for example, potential for increases in car accidents in areas where children play)?	
4	Will the Line result in any unsafe physical working conditions such as poor sanitation, excavation, working for height, and working with heavy equipment, etc.?	
5	Potential Environmental Impacts from construction of Line will the sub-project cause……	
5.1	Loss of agricultural land?	
5.2	Negative effects on threatened or endemic species of flora or their habitat?	
5.3	Negative effects on designated wetlands?	
5.4	Negative effects on wildlife habitat, populations, corridors or movement?	
5.5	Negative effects on locally important or valued ecosystems or vegetation?	
5.6	Destruction of trees and vegetation	
5.7	Impact on fish migration and navigation?	
5.8	Obstruction of natural connection between river and wetlands inside project area?	
5.9	Water logging in polder areas?	
5.10	Insufficient drainage?	
5.11	Negative effects on surface water quality?	
5.12	Negative effects on groundwater quality, quantity or movement?	
5.13	Loss of existing buildings, property, economic livelihood?	
5.13	Increased soil erosion and/or sedimentation?	
5.14	Negative impact on soil stability and compactness?	
5.15	Impacts on collection and disposal of general wastes?	
5.16	Impacts on sustainability of associated construction waste disposal?	
5.17	Traffic disturbances due to construction material transport and wastes?	
5.18	Increased noise due to transportation of equipment and construction materials?	
5.19	Increased noise due to day-to-day construction activities?	
5.20	Increased wind-blown dust from material (e.g. Fine aggregate) storage areas?	
5.21	Health risks to labors involve in activities?	
5.22	Community health risks during construction	

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Sl No	Description	Detail
	activities?	
5.23	negative effects on neighborhood or community characters?	
5.24	negative effects on local business, institutions or public facilities?	
5.25	potential social conflict between occupational groups- farmers vs. fisheries?	
5.36	degradation or disturbance of historical or culturally important sites (mosque, graveyards, monuments etc.)?	
5.37	blockage of navigation system?	
5.28	impediments to movements of people and animals?	
5.29	conflicts in water supply rights and related social conflicts?	
5.40	air quality?	
5.41	impacts on natural disasters (such as heavy floods/rains?	

Assessment:

……
……
……
……..

Main Concerns:

Category	Action Required	Assessment
Low Impact		
Medium Impact		
High Impact		

Surveyed by: Designation: Signature:

Date:

FORMAT 2: Approximate distance (in km) of _____- from sensitive receptors

Name of the Line _____

Chainage: _____

Sl. No.	Environmental Features	Distance to Left in meters	Distance to Right in meters
11.	**Ecological**		
a)	Presence of Wildlife Sanctuary/ National Park		
b)	Reserved forests		
c)	Wetland/water bodies		

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Sl. No.	Environmental Features	Distance to Left in meters	Distance to Right in meters
d)	Migratory route for wild animals/ birds		
f)	Migratory routes for fishes/ Presence of Dolphin		
h)	Tree/vegetation cover		
i)	Birds Nesting		
12.	Groundwater		
13.	Land Use		
14.	Houses/Dwellings		
15.	Schools/colleges (all types		
16.	Archaeological Monuments		
17.	Physical Cultural Resources (PCR)		
18.	Medical facilities (Hospital etc.)		
19.	Distance from river, water body		
20.	Population/ Inhabitants (in pockets)		

FORMAT 3: INVENTORIZATION OF THE TREES INSIDE ROW OF TRANSMISSION LINE

Name of the sub-project: ……

Start and end dates of inventorization: ……

Sq. No	Kilometer		Location/s (Names)			
	From	To	Zila	Upazila	Village	Union
					D	

Sl. No.	Name Of Tree (s)	Location	Fruit=1 Commercial/ Timber=2 Medicinal=3 Endangered/ Protected=4	Description of Trees			Total
		GPS Coordinate		Large (> 10 m height)	Medium (5-10 m height)	Small (< 5 m height)	
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11							
12							
13							
	Total						

Picture at Location

Sl. No.	Picture of Tree (s)
1.	
2.	
3.	

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4.	
5.	
6.	
7.	
8.	
9.	
10.	
11	
12	
13	

Sample format for Consultation form for Local Communities and Group Discussions

Name of the Component /Site: _____
Number of Participants: _____
Location_____**Date/Time:**_____
Name of town/village_____**Union:**_____
Upazila:_____ **Zila:**_____

Location of consultation (GPS Coordinate (s) :

PERSONAL DETAILS

In case of individual interview below personal information need to be collected

1. Date:
2. Name of the Respondent:
3. Phone Number of Respondent:
1. Address of the respondents:
2. Residence close to for SS or TL:
3. Age of Respondent:
   Under 16 ☐ 16-55 ☐ Over 55 ☐
4. Gender of Respondent:
   Female ☐ Male ☐ Others ☐
5. Main Livelihood (Occupation):
6. Secondary Livelihoods:
7. Ethnic Group:
8. Caste:
9. Religion:
10. Main Language:
11. Other Languages:
12. Number of family members living under the same roof (as a single household):
13. Do you or any of your family members fall into any of the following vulnerable groups?:

Potentially Vulnerable Group		**Remarks (numbers and relationship)**
Female Headed Household	☐	
Below Poverty Line	☐	
Indigenous Peoples	☐	
Children	☐	
Elderly	☐	
Illiterate	☐	
Persons with Disabilities	☐	

14. How is Your and Your Family Members Underlying Health?
    Very Poor ☐ Poor ☐ Good ☐ Very Good ☐

Elaborate on Health Conditions/Diseases Currently Suffered or Suffered in the last year, if any:

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15. Awareness of the Project Prior to this Consultation:
    Not At All Aware ☐ Slightly Aware ☐ Very Aware ☐

LAND USE, LIVELIHOODS, AND SENSITIVE COMMUNITY RECEPTORS

16. Where is your residence and/or land located in relation to the following project locations:

	Residence	**Land/Occupation Zone/Cropland/shops/Office, etc.**	**Remarks**
In the vicinity of the TL ROW			
In the vicinity of the SS			
In vicinity of other proposed facilities			
None of the above (please specify)			

17. Are you Concerned about Land Use being Adversely Impacted By The Project?
    Yes ☐ No ☐ Don't Know ☐
    If yes, elaborate on Concerns and Suggest any Measures the Project Can Consider Mitigating Impacts, noting that compensation will be paid for land acquisition and resettlement:[16]

18. Accidental property damage during construction works of TL/SS – houses, shops, school, other infrastructures
    Yes ☐
    No ☐
    Don't Know ☐
    If yes, elaborate on Concerns and Suggest any Measures the Project Can Consider to Mitigate Impacts:

19. Are you aware of any sensitive community receptors that may be directly or indirectly adversely impacted by the project, please identify their location on map provided whenever possible:

Receptor		**Remarks Potential Impact/Suggested Mitigation**
Agricultural land	☐	
forest/Wildlife	☐	
School	☐	
Clinic, Health Center, or Hospital	☐	
Religious Building	☐	
Irrigation channel	☐	
Groundwater well	☐	
Road	☐	
Other	☐	

BIODIVERSITY

20. Are you aware of any legally protected areas or other sensitive ecological haibat that may be directly or indirectly adversely impacted by the project, please identify their location on map provided whenever possible:

Legally Protected Area or Sensitive Ecological Habitat/KBA/IBA/Wildlife Movement/Active area	**Location**	**Remarks Potential Impact/ Suggested Mitigation**

[16] Under Land Use Consider Damage to Crops, Structures, Trees etc. but also Landscape/Visual Impacts

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21. Is any biodiversity supported by the local area of social, economic, or cultural importance to your local community (e.g. fisheries, forests)?
    Yes ☐ No ☐ Don't Know ☐
    If yes, please elaborate:

22. With reference to the photo guide provided, are you aware of any of these threated, endemic or migratory species being present in the project SS/TL area?

    Yes ☐ No ☐ Don't Know ☐
    If yes, please elaborate on species, season, and other factors including locations:

Species	Season Observed	When sites/heard about	Siting area	Any conflict/observations

23. Are you Concerned about forest/Wildlife being Adversely Impacted By The Project?
    Yes ☐ No ☐ Don't Know ☐
    If yes, Identify Concern and Suggest Measures the Project Can Consider Mitigating Impacts:

Habitat or Species	Remarks Potential Impact/Suggested Mitigation

24. Does your livelihood depend on wild animals within the TL/SS area, whether used for personal consumption or commercial purposes?
    Yes, personal consumption ☐ Yes, commercial ☐
    No ☐ Don't Know ☐
    If yes, please elaborate:

25. Does you livelihood depend on harvest of wild (not cultivated) plants including trees/timber, whether for personal consumption (heating, cooking, food, medicinal, regligious) or commercial purposes, directly from the TL/SS area?
    Yes, personal consumption ☐ Yes, commercial ☐
    No ☐ Don't Know ☐
    If yes, please elaborate:

Plant Species or Type	Purpose/Use of Plant	Season Harvested	Location	Quantity Per Year*

*If sold also indicate split of quantity kept for personal consumption and put up for sale and the market price in kg (or state alternative units)

26. With reference to the photo guide provided, are you aware of any of these threated wild animal or plant species being present in the TL/SS or surroundings area?
    Yes ☐ No ☐ Don't Know ☐
    If yes, please elaborate on location:

27. Are you Concerned about Wild Animals and Plants being Adversely Impacted by The Project?
    Yes ☐ No ☐ Don't Know ☐
    If yes, Identify Habitats or Species of Concern and Suggest Measures the Project Can Consider Mitigating Impacts:

Habitat or Species	Remarks Potential Impact/Suggested Mitigation

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Habitat or Species	Remarks Potential Impact/Suggested Mitigation

PHYSICAL CULTURAL RESOURCES

28. Are you Concerned about Physical Cultural Resources being Adversely Impacted By The Project?
    Yes ☐ No ☐ Don't Know ☐

29. Are you aware of any Physical Cultural Resources of either national or local importance (e.g. mosques, temples, monument, sacred groves or trees, graveyard, cremation places etc.) that may be directly or indirectly adversely impacted by the Project, please identify their location on map provided whenever possible?

Name of Physical Cultural Resource	Location	Remarks Potential Impact/ Suggested Mitigation

HUMAN ENVIRONMENT

30. Are you aware of any of the following having occurred in the local area?
    Earthquakes ☐ Landslides ☐ Storms ☐
    Flooding ☐ Drought ☐ None ☐ Don't Know ☐
31. Are you aware that, if not well managed, there may be community safety risks associated with operation of the SS and TL?
    Yes ☐ No ☐ Don't Know ☐
    Please elaborate on Concerns and, if no, suggest any Measures the Project Can Consider Increasing Awareness:

    Only for persons living around SS or along/adjacent to TL?
32. Are you Concerned about the Overall Community Health and Safety Impacts of the Project?:
    Yes ☐ No ☐ Don't Know ☐
    If yes, elaborate on Concerns and Suggest any Measures the Project Can Consider Mitigating Impacts:

33. Do You Believe that the project will meet National Regulations for the operation of SS and TL lines? If Not, Feedbacks/suggestion?

34. How would you qualify:
    The existing noise level in the area?
    Very Quiet ☐ Quiet ☐ Noisy ☐ Very Noisy ☐
    The existing air quality (dust levels) in the area?
    Very Dirty ☐ Dirty ☐ Clean ☐ Very Clean ☐
    The availability of water resources for drinking, washing etc.
    Very Poor ☐ Poor ☐ Good ☐ Very Good ☐
    The existing surface water quality in the area?
    Very Polluted ☐ Polluted ☐ Clean ☐ Very Clean ☐
    The existing ground water quality in the area?
    Very Polluted ☐ Polluted ☐ Clean ☐ Very Clean ☐
    Solid and hazardous waste management in the area is?
    Very Poor ☐ Poor ☐ Good ☐ Very Good ☐
    The existing road traffic in the area?
    Very Busy ☐ Busy ☐ Quiet ☐ Very Quiet ☐
35. What are the main sources of existing pollution in the local area?
    None ☐ Lack of Sanitation ☐ Agriculture ☐
    Discarded Waste ☐ Traffic ☐ Other (please state) ☐
    Don't Know ☐

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36. Are you concerned the SS/TL project will temporarily/or permanently increase the following during operations?
    Increase existing noise levels in the area?
    Yes: Intolerable ☐ Yes: Tolerable ☐ No ☐ Don't Know ☐
    Decrease existing air quality (dust) in the area?
    Yes: Intolerable ☐ Yes: Tolerable ☐ No ☐ Don't Know ☐
    Increase pressure on availability water resources for drinking, washing etc.
    Yes: Intolerable ☐ Yes: Tolerable ☐ No ☐ Don't Know ☐
    Decrease existing surface water quality in the area?
    Yes: Intolerable ☐ Yes: Tolerable ☐ No ☐ Don't Know ☐
    Decrease existing ground water quality in the area?
    Yes: Intolerable ☐ Yes: Tolerable ☐ No ☐ Don't Know ☐
    Increase solid and hazardous waste in the area?
    Yes: Intolerable ☐ Yes: Tolerable ☐ No ☐ Don't Know ☐
    Increase existing road traffic in the area?
    Yes: Intolerable ☐ Yes: Tolerable ☐ No ☐ Don't Know ☐

If yes to any of the above, elaborate on Potential Impacts and Detail Measures the Project Can Consider to Mitigate These Impacts:

37. Do you and your family have:

Socioeconomic Condition		**Remarks**
Access to electricity from national grid	☐	
Access to electricity from an off-grid system (solar panel, etc.)	☐	
Access to drinking water from home tap	☐	
Access to drinking water from public well	☐	
Access to drinking water from waterbody	☐	
Access to clean sanitation facilities (toilet)	☐	
Connection to sewerage system	☐	
Access to waste management facility of municipality or other entity	☐	
Access to health care close to home	☐	
Access to public transportation system close to home (e.g. bus route)	☐	
Access to private transportation system (motorbike, car, etc.)	☐	

38. How Do You Believe Socioeconomic Conditions Will Be/is being Impacted By The Project?
    Positively ☐ Negatively ☐ Don't know ☐
    Elaborate on Potential Socioeconomic Impacts and Detail Measures the Project Can Consider to Mitigate Any Negative Impacts:

39. Do You Believe the Project would/is Impact Transport Connectivity in Your Area, including transport by foot or by vehicle?
    Positively ☐ Negatively ☐ Don't know ☐
    Elaborate on Potential Impacts on Transport Connectivity and Detail Measures the Project Can Consider Mitigating Any Negative Impacts:

GENERAL

40. Further Suggestions to Project on Environment, Health and Safety Impacts to be Considered Further and Measures that Could be Incorporated to Mitigate Them.

Name and Signature of Interviewee (if individual):
Name and Signature of Interviewers:
Date:
Place:

Attendance Sheet for Consultation in Groups

Date:

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Venue with address:

Sl. No	Name	Occupation, designation and organization	Male (M)/Female (F)	Age	Signature

Photographs from consultation

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Method of Stake holder Consultations (Environment)

Stakeholders	Guideline/Purpose	Method
Forest/wildlife Department officers, Fisheries officers	• For information sharing about the project • To know about the local condition and discuss potential impacts and mitigation of project activities in the area • Seeking their views on the mitigation of potential project impact and risks to flora, fauna • Discuss plan of action for mitigation including project implementation and timeline.	Formal meetings with the Official
Energy Company Officials including women staff	• To seek their participation in the safeguards planning activities. • To discuss about ADB's SPS and broad policy and principles and safeguards requirement • To discuss with women staff on gender issues and their expectations from the project on future training and capacity building training.	Individual and group meetings
General Consultation with Chief Executive Member (Head of Upazila/his nominee) along with any elected council officials and representatives	• For information sharing about the project • Seeking their support to the project • Seeking support for sharing project benefits and local area development	Formal Official meetings at the Upazila council
Consultations with Traditional Village Head along with Affected persons of the Villages	• Disclosure of project brochure in Local language • For information sharing about the project • Seeking their views on the project impact and risks, obtain suggestion on the possible mitigation of risks • Project benefits • Impacts • Discuss plan of action such as project implementation and timeline. • Discuss about Institutional setup and Grievance Redress Mechanism • Seeking their participation during the project implementation	FGD at affected Village along with officials
Women in affected areas	• For information sharing about the project • To know about the local condition and discuss potential impacts and mitigation of project activities in the area to women • Seeking their views on the project impact and risks, obtain suggestion on the possible mitigation of risks for women • Discuss plan of action such as project implementation and timeline. • Gender equality and social inclusion in the project planning	Public consultations at some villages through FGDs in the project villages.
Affected person (agricultural/salt pan) Consultation	• Information Sharing about the project. • To ascertain the impacts of the project • Project Benefits • Discuss about Institutional setup and Grievance Redress Mechanism • Future action • Mitigation measures in case of issues.	Consultation through FGD
Business/Shop Operators in nearby	• To make them aware about the project • Seeking their feedback for any potential risks	Consultation through FGD

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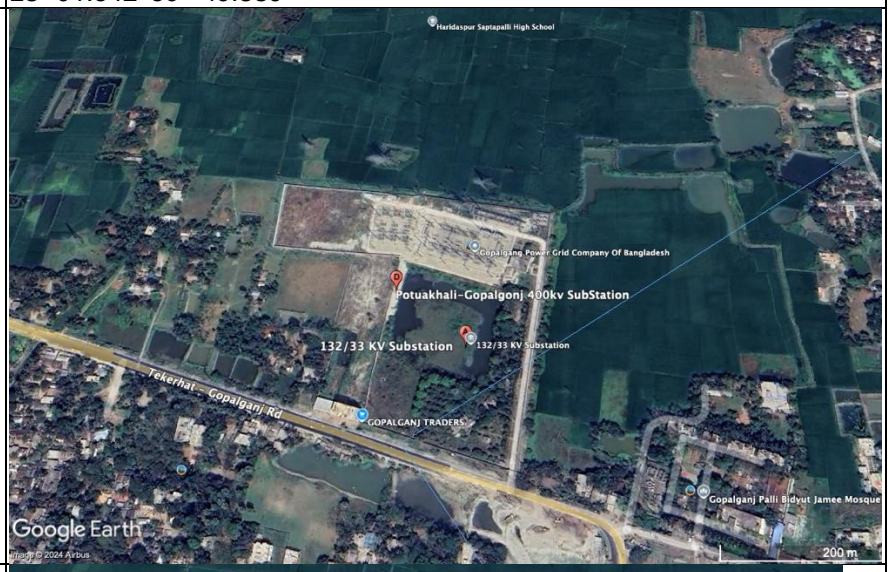
Stakeholders	Guideline/Purpose	Method
villages, Schools and Mosques etc.	• Providing responses as mitigation measures	

ADB= Asian Development Bank, FGD= Focused Group Discussion

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Appendix XII: Environmental Audit Checklists of Existing Substations [17]

Subproject 1: Gopalganj
Environmental Audit Checklist for Existing Substations
Visit 28-03-2024

Substation Name:	Gopalganj (Old) Substation 132/33 KV Substation
Year of establishment:	2006
Type of Substation (GIS/AIS):	AIS
Voltage:	132/33 KV
No. incomers and voltage:	02 Nos of 132 KV
No. outgoers and voltage:	02 Nos. of 132 KV and 8 33kV
Grid Reference:	23° 01.842' 89 ° 49.589'
Aerial map of substation:	
Allocated land for substation works:	
Photo of substation compound:	Attached
Photo of any control building and details of wall/roof materials:	Attached

[17] The environment audits are undertaken by ADB TA consultants and informed by data collected at site during site visits.

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No. transformers with make/model, MVA, manufacturer name and dates of manufacture/installation with photo of rating plate:	1. 80/120 MVA, EnergyPac Year 2020 2. 80/120 MVA, EnergyPac Year 2020[18]
Noise level at site entrance, indicative reading:	62 dBA
Noise level adjacent to transformer, indicative reading:	75 dBA
EMF level at site entrance, indicative reading:	44 Micro Tesla
EMF level adjacent to transformer, indicative reading:	57 Micro Tesla
Outside temperature, indicative reading:	93 Degree F
Area of substation, and layout map (area in use and available for expansion):	12.36 acre
Photo of vehicle entrance: Is it off a paved road?	paved road = YES (adjacent to the road)
Topography – flat land, sloped, or steep terrain:	FLAT
Previous land use (if known):	BPDB
Describe the land uses within 500m (supported with photos): Confirm presence or absence of agricultural land-cultivated or uncultivated, protected or environmentally sensitive areas, community or protected forest, water bodies, religious or ancestral cultural resources (e.g. temples, shrines, sacred trees)?	Absence of agricultural land-cultivated or uncultivated, absence of protected or environmentally sensitive areas, community or protected forest
Nearest protected or key biodiversity area (distance in m)?	N/A
Have endangered species been encountered in the vicinity (elephant, tiger,	N/A

[18] Transformers were tested by PGCB/DOE under UNIDO project, based on information provided by PGCB to ADB TA Consultants, none of the five existing substation site transformers contain PCB >50ppm (test data will be obtained for IEE update)

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etc.)?	
No. buildings within 50m and no. inhabitants:	Local houses 40 m, staff quarters 200 m Nearby 100 MW HFO BPDB Plant in vicinity
Nearest individual residence (name and distance in m, mark on aerial map if possible):	40 m
Nearest habitation (name and distance in m, mark on aerial map if possible):	BPDB plant, Kararghati Village
No. community facilities (schools, health centre etc.) within 50m with estimated no. of visitors (mark on aerial map if possible):	School 400m, Mosque 260 m
Nearest surface water (distance in m, mark on aerial map if possible):	50 meter on the left hand side,
No. groundwater wells/pumps/springs within 50m (mark on aerial map if possible):	100 feet depth
Total staff at substation (technical and non-technical): **No. men / no. women:**	Total number of staff- 14. (AE-1, SAE-6, Tech. Staff-6, Non-tech. Staff-1) Among them 2 SAE per shift Total number of men staff- 14. Women-0.

Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
A. Housekeeping / Waste Management					
Is an environment policy available on site?		√			
Is a pollution prevention manual or procedure available on-site covering hazardous materials management, oil storage etc?		√			
Is a waste management manual or procedure available on-site covering both solid and hazardous waste storage and disposal?		√			Soak pits for toilets available
Is there vegetation (grass, trees, shrubs) on site?		√			Not below gantry structures
Is the substation kept neat and tidy with no discarded wastes?		√			
Are there any trip hazards on the ground e.g. open channels, materials, equipment, trash laying around?		√			
Are there any other features that could post a danger e.g. broken or loose tiles?		√			
Is there any general waste storage and/or disposal on-site?		√			
Is solid waste segregated into recycling and waste for disposal?		√			
Is there a dedicated, labelled storage area for solid waste?		√			
Does the storage area have an impermeable floor?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is the storage area under cover?		√			
Do garbage bins have lids?		√			
Are garbage bins enclosed to contain leachates?		√			
Is any waste burning on site – open burning or incineration?		√			
Is any composting taking place on-site?		√			
Is end of life or unused equipment being stored on site?	√				
Is there a dedicated, labelled storage area for this equipment?		√			
Are supplies of fuel, oil, chemicals, SF6 tanks being stored on site?		√			
Are material data sheets for the fuels, oil or chemicals displayed?		√			
Are there empty drums, old transformers or used batteries on site?		√			
Are there any hazardous wastes (solid/liquid/gas) being stored and/or disposed of?		√			
Is there a dedicated, labelled storage area for fuels, oils, and chemicals, SF6 tanks, empty drums, old transformers, and/or hazardous wastes?		√			Just a regular store for all items
Does the storage area have an impermeable floor?	√				
Is the storage area under cover?	√				
Is the storage area locked?	√				
Does the storage area have a spill containment bund of 110% capacity (see picture glossary at end of checklist for example)?		√			
Is the storage area drainage connected to sump to collect runoff?		√			
Are all storage barrels or tanks labelled with their contents and hazard warning signs?		√			
Are empty storage barrels or tanks sent to stores for onwards disposal?	√				
Are redundant transformers sent to stores for onwards disposal?		√			
Are used batteries sent to stores for onwards disposal?		√			
Has there been any pest problem on site?		√			
Are any pest control measures undertaken on site?		√			
B. Transformers and Oil Leakage					
Is the power circuit breaker oil insulated?		√			
Are there any oil insulated transformers?	√				
Are there any oil filled capacitors?		√			
Do the transformers and capacitors have a		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
label indicating contains PCB (polychlorinated biphenyl) or is PCB free?[19]					
Is any other evidence available on-site to confirm transformers and/or capacitors PCB free e.g. supplier certification, oil test results?		√			
Is it known when the transformer oil was last changed?		√			
Is a maintenance logbook kept on the premises?	√				
Are the transformers mounted on an impermeable platform extending beyond the footprint of the transformer?	√				
Does the transformer platform have a spill containment bund/sump of 110% capacity?	√				
Is there any evidence of oil leaking or having previously leaked from transformers or other equipment?		√			
Have any oil spills occurred at the substation in the past 5 years?			√		
Is there any spill equipment available on site (e.g. sand, cloths, or other absorbent material)?		√			
C. Escape of SF_6 (sulphur hexafluoride) and other greenhouse/hazardous gases					
Is there presence of SF_6 at the substation?	√				
Is this a GIS?		√			
Is the power circuit breaker gas insulated?	√				
Is there gas insulated switchgear?		√			
Are there any gas insulated transformers?		√			
Are SF6 leakage detectors installed?	√				On panel meters only
Are portable SF6 leakage detectors available at the substation?		√			On panel meters only
Are records of SF6 use kept?		√			Level check
Are records of SF6 leakage kept?	√				
Have any SF6 leakages occurred at the substation in the past 5 years?		√			
Is there a SF_6 retrieval arrangement on-site?		√			
Is redundant equipment with SF6 sent to stores for onwards disposal?		√			
Are there presence of other hazardous gases within equipment or on the substation compound?		√			
D. Noise, EMF, Lighting and Ventilation					
Are there high levels of noise pollution at or around the site (e.g. traffic, etc.)		√			
Are there any warning signs noise levels may exceed >85dBA?		√			

[19] PCBs are persistent organic pollutants, meaning they a resistant to environmental degradation through time and may remain indefinitely present in the environment.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is any transformer hum audible?	√				
Has noise monitoring been undertaken at the substations in last 5 years?		√			
Are there any sources of vibration?		√			
Are shielding equipment/materials installed to reduce EMF exposure?		√			
Has EMF monitoring been undertaken at the substations in last 5 years?		√			
Is adequate ventilation provided in control building?		√			Air conditioned
Are all vents free of blockages?		√			
Is heating and/or air conditioning available and adequate?		√			Air conditioning
Is adequate natural or artificial lighting provided in control building?	√				
Is adequate lighting provided in the substation compound at night?	√				
Are all lights in working order?	√				
Are there high level of air pollution at or around the site (e.g. dust, traffic, etc.)?	√				
Has air quality monitoring been undertaken at the substations in last 5 years?		√			
E. First Aid Equipment					
Is a first aid kit available on site?	√				
Is the first aid kit well equipped?		√			
Is it clearly labelled where the first aid kit is stored?	√				
Is the first aid equipment within its expiry date?		√			
Do any staff on site have first aid training?	√				
Is one staff with first aid training present on the site at all times?		√			
Are there any posters showing first aid procedures especially for electrocution?		√			
F. Fire Safety Equipment					
Does the substation have any fire detectors and alarm?		√			
Are the alarm systems operational?		√			
Are any firewalls provided e.g. between transformers?		√			
Does the substation have automatic fire suppression systems connected to the alarm systems e.g. sprinklers?		√			
Is firefighting equipment present?	√				2 CO2 type & 3 Dry powder type fire extinguishers in control room. There are 8 Dry powder type fire extinguishers yard. No fire buckets filled with sand
Do fire extinguishers have an in-date service record?	√				

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is a record of fire alarm tests and fire drills available on site?		√			
Do any staff on site have fire training?	√				
Is one staff with fire training present on the site at all times?		√			
Are there any notices or posters describing procedures to be followed in the event of a fire?		√			
G. Community Health and Safety					
Is there a security fence and gates?	√				
Does the security fence have any gaps, permitting entry?	√				
Are the gates kept locked?	√				
Is 24/7 security guard present?		√			
Is the door to the control room kept locked?	√				
Are there written or graphic "danger of electrocution" signs posted on the fence/gates?	√				Some limited numbers
Are there written or graphic "danger of electrocution" signs posted on electrical equipment?		√			
H. Handling Emergencies					
Is an emergency plan available (e.g. for fire, earthquake, flood, accidents, illness etc.)?		√			
Are any COVID-19 specific precautions being followed on-site?		√			
Are the staff trained on responding to emergency situations?		√			
Are emergency exits sign-posted and clear of blockages?		√			
Is the location and phone number of doctor and hospital posted in a clear location?		√			
Is there an emergency eye wash or shower?		√			
Is an accident logbook available on site?	√				
Has the substation ever been subject to earthquakes?		√			
Has the substation ever been subject to flooding?		√			
Has the substation ever been subject to landslides / slope stability issues?		√			
I. Health and Safety of Staff					
Is a health and safety policy available on site?		√			
Is a health and safety risk assessment available on site?		√			
Is a health and safety manual or procedure available on site?		√			
Are there records of safety inspections, testing and calibration?		√			
Is there signage indicating to workers the hazards present?		√			
Is there adequate depth of gravel provided?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Does the control building look structurally sound?			√		Not tested
Has an asbestos survey ever been undertaken at the substation?		√			
Is there any evidence of asbestos on site especially lagging and roofing materials?		√			
Did auditor receive an OHS site induction?		√			
Have staff on site received OHS training?	√				
Are training materials and equipment available on site?		√			
Is maintenance handled by staff on site?	√				
Is there a strict written procedure available for de-energizing before working on electrical equipment?			√		Not at the station
Do external maintenance workers come in to undertake more advanced maintenance?		√			
Are the staff working on operation and maintenance activities trained on working at heights?		√			
Are the staff working on operation and maintenance activities trained on working with electricity?	√				
Are medical checks of staff undertaken?		√			Self-check at hospitals, no PGCB sponsored
Are staff informed of appropriate PPE for job e.g. via signage?		√			
Are staff on site wearing personal protective equipment (PPE)?		√			Helmets etc. available
Is there a store of PPE available on site[20]?		√			
Do staff avail of personal exposure monitoring equipment to warn of exceeding exposure levels to electromagnetic fields?		√			
J. Drainage					
Is there any standing water visible on site?	√				At same height as road
Is a drainage system provided?	√				Identify where it connects to: Outside drain
K. Sanitation and Welfare Facilities					
Is a toilet available on site?	√				Are there facilities for male and female? -No
Is the toilet clean?	√				
Is the toilet inside staff building or outside it?	√				Inside
Does the toilet connect to existing municipal sewerage system?		√			
Does the toilet connect to septic tank?	√				
Is there also a soakaway for the septic tank overflows?		√			
Is there any sign on leakage/pollution from septic tank?		√			

[20] E.g. hard hats, safety glasses steel-toed boots, rated dielectric footwear, insulated gloves, insulated tools, electrical insultation blankets, live-line tools/hot sticks, respiratory equipment etc.

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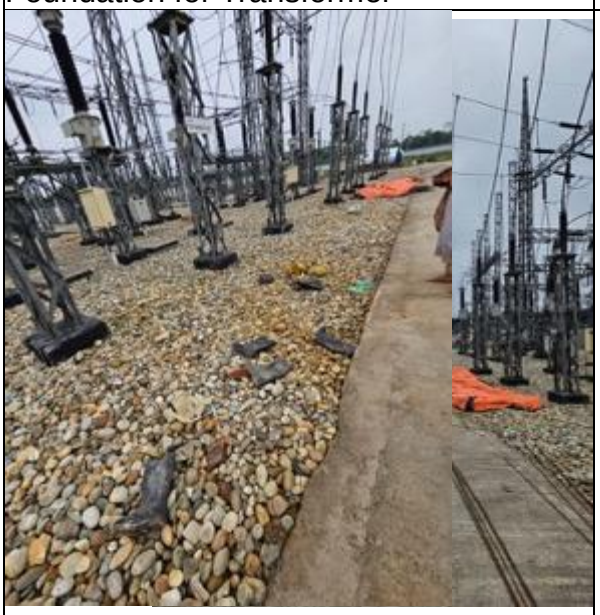
Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Are handwashing facilities available?	√				
Is hot and cold water available?		√			
Is soap provided?	√				
Does the toilet have lock or vacant indicator?		√			
Is potable water available on site?		√			
Is there any evidence of potable water meeting Drinking Water Standards?		√			
Are staff stationed at substation during on-shift hours (including security guards) ?	√				If so, how many? – 6 How long are staffs' shifts? -8 hours How long are security guards' shifts? -8 hours
Is there an undercover rest area available?		√			
Is a food preparation and clean eating area available?		√			
Is cooking fuel used on site?		√			
Are staff staying at the substation overnight (out of hours) and how many (including security guards)?		√			
Is there a dedicated accommodation area for staff?		√			
Is a TV/Radio/Internet connection available for staff?	√				Internet connection
Is there a dedicated shelter for any security guards?		√			

Consultations on past/present concerns (also inform them of the intended works)[21]

Picture Glossary:

[21] Consultations attached in Appendix AVIII.2.

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Foundation for Transformer	Bounded Waterbody inside PGCB complex
	
Bay construction area	**Bay construction area**

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Storage of power cables



Transformer rating plate



Transformer at substation



North (PGCB Grid)



South (PGCB Grid, Residence)

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 East (PGCB Grid, abandoned land)	 West (Abandoned Land)
 Existing substation picture	 Existing substation picture
 Access Road Picture	 Unaffected Structure
 Consultation with PGCB officials	 Consultation with PGCB officials

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Aerial View of Substation	Fire extinguishers outside building (one)
	
Danger Sign	PPE signage
	
Fire extinguisher inside building	

Subproject 2: Bajitpur
Environmental Audit Checklist for Existing Substations

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Visit 08-05-2024

Substation Name:	**Baljitpur 132/33 KV Substation**
Year of establishment:	2020
Type of Substation (GIS/AIS):	AIS
Voltage:	132/33 KV
No. incomers and voltage:	04 Nos of 132 KV
No. outgoers and voltage:	02 Nos. of 132 KV and 8 33kV
Grid Reference:	24° 13.732' 90° 53.572'
Aerial map of substation:	
Allocated land for substation works:	
Photo of substation compound:	Attached
Photo of any control building and details of wall/roof materials:	Attached
No. transformers with make/model, MVA, manufacturer name and dates of manufacture/installation with photo of rating plate:	No. of Transformer: 02 Nos (132/33 kV) Capacity: 80/120 MVA Manufacturer: Energypac Engineering Ltd., Bangladesh Year of Manufacture: 2022[22]

[22] Transformers were tested by PGCB/DOE under UNIDO project, based on information provided by PGCB to ADB TA Consultants, none of the five existing substation site transformers contain PCB >50ppm (test data will be obtained for IEE update)

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Noise level at site entrance, indicative reading:	65 dBA
Noise level adjacent to transformer, indicative reading:	75 dBA
EMF level at site entrance, indicative reading:	40 Micro Tesla
EMF level adjacent to transformer, indicative reading:	54 Micro Tesla
Outside temperature, indicative reading:	93 Degree F
Area of substation, and layout map (area in use and available for expansion):	5 acre
Photo of vehicle entrance: Is it off a paved road?	paved road = YES (7 meter from main road)
Topography – flat land, sloped, or steep terrain:	FLAT
Previous land use (if known):	PGCB land
Describe the land uses within 500m (supported with photos): Confirm presence or absence of agricultural land-cultivated or uncultivated, protected or environmentally sensitive areas, community or protected forest, water bodies, religious or ancestral cultural resources (e.g. temples, shrines, sacred trees)?	Absence of agricultural land-cultivated or uncultivated, Absence of protected or environmentally sensitive areas, community or protected forest
Nearest protected or key biodiversity area (distance in m)?	N/A
Have endangered species been encountered in the vicinity (elephant, tiger, etc.)?	N/A
No. buildings within 50m and no. inhabitants:	No. buildings within 100m = Residential on left, BREB control room on right, adjoining private land, road
Nearest individual residence (name and distance in m, mark on aerial map if possible):	300 m
Nearest habitation (name and distance in m, mark on aerial map if possible):	None
No. community facilities (schools, health centre etc.) within 50m with estimated no. of visitors (mark on aerial map if possible):	School 300 m, Hospital 5 km, Mosque 200 m

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Nearest surface water (distance in m, mark on aerial map if possible):	50 m
No. groundwater wells/pumps/springs within 50m (mark on aerial map if possible):	22m depth
Total staff at substation (technical and non-technical): **No. men / no. women:**	Total staff at substation = 4 and 8 No. men = 12

Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
A. Housekeeping / Waste Management					
Is an environment policy available on site?		√			
Is a pollution prevention manual or procedure available on-site covering hazardous materials management, oil storage etc?		√			
Is a waste management manual or procedure available on-site covering both solid and hazardous waste storage and disposal?		√			
Is there vegetation (grass, trees, shrubs) on site?		√			No trees within the site.
Is the substation kept neat and tidy with no discarded wastes?		√			
Are there any trip hazards on the ground e.g. open channels, materials, equipment, trash laying around?	√				
Are there any other features that could post a danger e.g. broken or loose tiles?		√			
Is there any general waste storage and/or disposal on-site?		√			
Is solid waste segregated into recycling and waste for disposal?		√			
Is there a dedicated, labelled storage area for solid waste?		√			
Does the storage area have an impermeable floor?		√			
Is the storage area under cover?	√				
Do garbage bins have lids?	√				
Are garbage bins enclosed to contain leachates?		√			
Is any waste burning on site – open burning or incineration?		√			
Is any composting taking place on-site?		√			
Is end of life or unused equipment being stored on site?	√				
Is there a dedicated, labelled storage area for this equipment?		√			
Are supplies of fuel, oil, chemicals, SF6 tanks being stored on site?	√				
Are material data sheets for the fuels, oil or chemicals displayed?		√			
Are there empty drums, old transformers or		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
used batteries on site?					
Are there any hazardous wastes (solid/liquid/gas) being stored and/or disposed of?		√			
Is there a dedicated, labelled storage area for fuels, oils, and chemicals, SF6 tanks, empty drums, old transformers, and/or hazardous wastes?		√			Just a regular store for all items
Does the storage area have an impermeable floor?	√				
Is the storage area under cover?	√				
Is the storage area locked?	√				
Does the storage area have a spill containment bund of 110% capacity (see picture glossary at end of checklist for example)?		√			
Is the storage area drainage connected to sump to collect runoff?		√			
Are all storage barrels or tanks labelled with their contents and hazard warning signs?		√			
Are empty storage barrels or tanks sent to stores for onwards disposal?		√			
Are redundant transformers sent to stores for onwards disposal?		√			
Are used batteries sent to stores for onwards disposal?			√		
Has there been any pest problem on site?		√			
Are any pest control measures undertaken on site?		√			
B. Transformers and Oil Leakage					
Is the power circuit breaker oil insulated?		√			
Are there any oil insulated transformers?	√				
Are there any oil filled capacitors?		√			
Do the transformers and capacitors have a label indicating contains PCB (polychlorinated biphenyl) or is PCB free?[23]		√			
Is any other evidence available on-site to confirm transformers and/or capacitors PCB free e.g. supplier certification, oil test results?		√			
Is it known when the transformer oil was last changed?		√			
Is a maintenance logbook kept on the premises?	√				
Are the transformers mounted on an impermeable platform extending beyond the footprint of the transformer?	√				
Does the transformer platform have a spill containment bund/sump of 110% capacity?	√				

[23] PCBs are persistent organic pollutants, meaning they a resistant to environmental degradation through time and may remain indefinitely present in the environment.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is there any evidence of oil leaking or having previously leaked from transformers or other equipment?		√			
Have any oil spills occurred at the substation in the past 5 years?			√		
Is there any spill equipment available on site (e.g. sand, cloths, or other absorbent material)?		√			
C. Escape of SF_6 (sulphur hexafluoride) and other greenhouse/hazardous gases					
Is there presence of SF_6 at the substation?	√				
Is this a GIS?		√			
Is the power circuit breaker gas insulated?	√				
Is there gas insulated switchgear?		√			
Are there any gas insulated transformers?		√			
Are SF6 leakage detectors installed?	√				On panel meters only
Are portable SF6 leakage detectors available at the substation?	√				On panel meters only
Are records of SF6 use kept?	√				
Are records of SF6 leakage kept?	√				
Have any SF6 leakages occurred at the substation in the past 5 years?		√			
Is there a SF_6 retrieval arrangement on-site?		√			
Is redundant equipment with SF6 sent to stores for onwards disposal?		√			
Are there presence of other hazardous gases within equipment or on the substation compound?		√			
D. Noise, EMF, Lighting and Ventilation					
Are there high levels of noise pollution at or around the site (e.g. traffic, etc.)		√			
Are there any warning signs noise levels may exceed >85dBA?		√			
Is any transformer hum audible?		√			
Has noise monitoring been undertaken at the substations in last 5 years?		√			
Are there any sources of vibration?		√			
Are shielding equipment/materials installed to reduce EMF exposure?		√			
Has EMF monitoring been undertaken at the substations in last 5 years?		√			
Is adequate ventilation provided in control building?		√			Air conditioned
Are all vents free of blockages?		√			
Is heating and/or air conditioning available and adequate?		√			Air conditioning
Is adequate natural or artificial lighting provided in control building?	√				
Is adequate lighting provided in the substation	√				

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Audit Checks:	Yes	No	Don't Know	N/A	Remarks (attach photos to support findings)
compound at night?					
Are all lights in working order?	√				
Are there high level of air pollution at or around the site (e.g. dust, traffic, etc.)?	√				
Has air quality monitoring been undertaken at the substations in last 5 years?		√			
E. First Aid Equipment					
Is a first aid kit available on site?	√				
Is the first aid kit well equipped?		√			
Is it clearly labelled where the first aid kit is stored?	√				
Is the first aid equipment within its expiry date?		√			
Do any staff on site have first aid training?	√				
Is one staff with first aid training present on the site at all times?	√				
Are there any posters showing first aid procedures especially for electrocution?		√			
F. Fire Safety Equipment					
Does the substation have any fire detectors and alarm?		√			
Are the alarm systems operational?		√			
Are any firewalls provided e.g. between transformers?		√			
Does the substation have automatic fire suppression systems connected to the alarm systems e.g. sprinklers?		√			
Is firefighting equipment present?	√				ABC Dry Powder = 1 No CO2 Type = 2 Nos Fire buckets filled with sand = 5 Nos
Do fire extinguishers have an in-date service record?	√				
Is a record of fire alarm tests and fire drills available on site?		√			
Do any staff on site have fire training?	√				
Is one staff with fire training present on the site at all times?		√			
Are there any notices or posters describing procedures to be followed in the event of a fire?		√			
G. Community Health and Safety					
Is there a security fence and gates?	√				
Does the security fence have any gaps, permitting entry?	√				
Are the gates kept locked?	√				
Is 24/7 security guard present?		√			
Is the door to the control room kept locked?	√				
Are there written or graphic "danger of electrocution" signs posted on the fence/gates?	√				Some limited numbers
Are there written or graphic "danger of		√			

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Audit Checks:	Yes	No	Don't Know	N/A	Remarks (attach photos to support findings)
electrocution" signs posted on electrical equipment?					
H. Handling Emergencies					
Is an emergency plan available (e.g. for fire, earthquake, flood, accidents, illness etc.)?		√			
Are any COVID-19 specific precautions being followed on-site?		√			
Are the staff trained on responding to emergency situations?		√			
Are emergency exits sign-posted and clear of blockages?		√			
Is the location and phone number of doctor and hospital posted in a clear location?		√			
Is there an emergency eye wash or shower?		√			
Is an accident logbook available on site?	√				
Has the substation ever been subject to earthquakes?		√			
Has the substation ever been subject to flooding?		√			
Has the substation ever been subject to landslides / slope stability issues?		√			
I. Health and Safety of Staff					
Is a health and safety policy available on site?		√			
Is a health and safety risk assessment available on site?		√			
Is a health and safety manual or procedure available on site?		√			
Are there records of safety inspections, testing and calibration?		√			
Is there signage indicating to workers the hazards present?		√			
Is there adequate depth of gravel provided?		√			
Does the control building look structurally sound?			√		Not tested
Has an asbestos survey ever been undertaken at the substation?		√			
Is there any evidence of asbestos on site especially lagging and roofing materials?		√			
Did auditor receive an OHS site induction?		√			
Have staff on site received OHS training?	√				
Are training materials and equipment available on site?		√			
Is maintenance handled by staff on site?	√				
Is there a strict written procedure available for de-energizing before working on electrical equipment?			√		Not at the station
Do external maintenance workers come in to undertake more advanced maintenance?		√			
Are the staff working on operation and maintenance activities trained on working at heights?		√			
Are the staff working on operation and	√				

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
maintenance activities trained on working with electricity?					
Are medical checks of staff undertaken?		√			Self-check at hospitals, no PGCB sponsored
Are staff informed of appropriate PPE for job e.g. via signage?		√			
Are staff on site wearing personal protective equipment (PPE)?		√			Helmets etc available
Is there a store of PPE available on site[24]?		√			
Do staff avail of personal exposure monitoring equipment to warn of exceeding exposure levels to electromagnetic fields?		√			
J. Drainage					
Is there any standing water visible on site?	√				At same height as road
Is a drainage system provided?	√				Identify where it connects to: Outside drain
K. Sanitation and Welfare Facilities					
Is a toilet available on site?	√				Are there facilities for male and female? -No
Is the toilet clean?	√				
Is the toilet inside staff building or outside it?	√				Inside
Does the toilet connect to existing municipal sewerage system?		√			
Does the toilet connect to septic tank?	√				
Is there also a soakaway for the septic tank overflows?		√			
Is there any sign on leakage/pollution from septic tank?		√			
Are handwashing facilities available?	√				
Is hot and cold water available?		√			
Is soap provided?	√				
Does the toilet have lock or vacant indicator?		√			
Is potable water available on site?		√			
Is there any evidence of potable water meeting Drinking Water Standards?		√			
Are staff stationed at substation during on-shift hours (including security guards) ?	√				If so, how many? – 4 How long are staffs' shifts? - 8 hours How long are security guards' shifts? -8 hours
Is there an undercover rest area available?		√			
Is a food preparation and clean eating area available?		√			
Is cooking fuel used on site?		√			
Are staff staying at the substation overnight (out of hours) and how many (including security guards)?		√			

[24] E.g. hard hats, safety glasses steel-toed boots, rated dielectric footwear, insulated gloves, insulated tools, electrical insultation blankets, live-line tools/hot sticks, respiratory equipment etc.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is there a dedicated accommodation area for staff?		√			
Is a TV/Radio/Internet connection available for staff?	√				Internet connection
Is there a dedicated shelter for any security guards?		√			

Consultations on past/present concerns (also inform them of the intended works)[25]

Picture Glossary:



Aerial map of substation



Switch Yard



North (Agriculture land)



South (Palli Biddut Sub-Station)

[25] Consultations attached in Appendix AVIII.2

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East (Bajitpur Zonal Road)



West (Agriculture Land)



Existing substation picture



Existing substation picture



Control Room picture



Security Room Picture

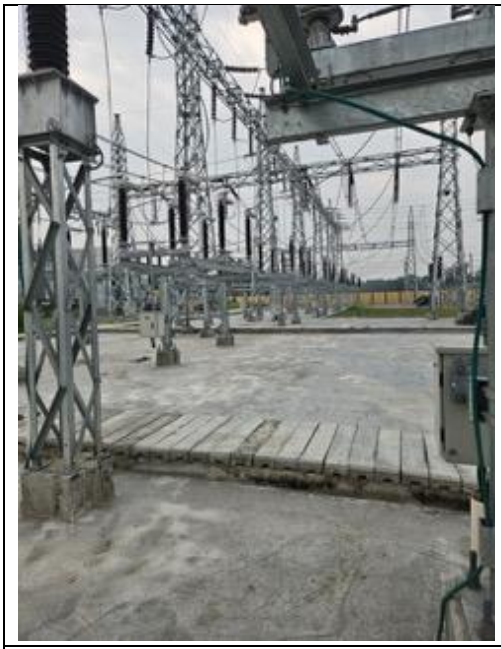




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Consultation with PGCB officials	Consultation with PGCB officials
	
Safety Signs	
	
Bay connection for new transmission line	Ongoing project details for another project
	
Tranformer rating Plate	Safety Signage

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Yard layout and cable trays	Oil sump pit and drainage
	
Safety signage	Drainage in yard

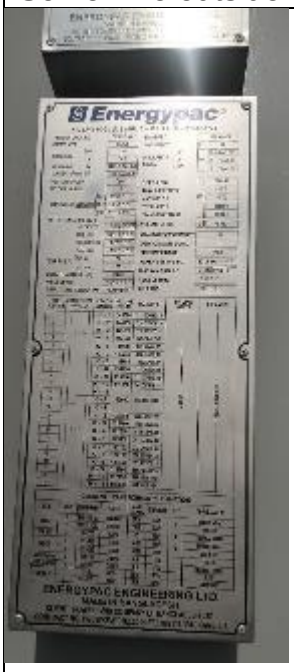
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Some wire outside in yard



Transformer separated by firewall





Transformer Plates



Contol Room



New bay construction area

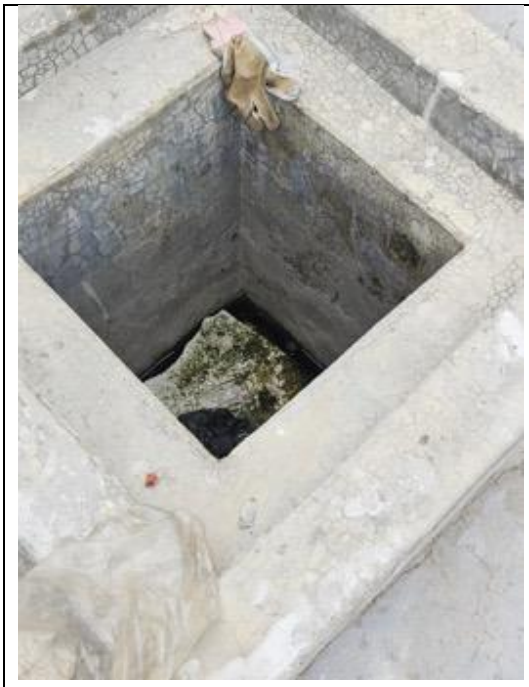


New Bay Construction area inside yard

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Tranformer foundation with 110% oil sum	Control panel area for new bays
	
Toilet	Cale trays under repair
	
Battery area	Soak pits

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Oil drainage pit	Safety washing area
	
Some yard trash from ongoing construction	Safety kits for panel

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Water pit	Water pit
	
Battery area	Empty drum
	
Empties from current site	VCB and SF6 circuit breakers

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Information



SF6 breaker switch



Sand Buckets





Fire extinguishers





Signage



Signage

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Subproject 3: Kachua
Environmental Audit Checklist for Existing Substations
Visit 10-05-2024

Substation Name:	**Kachua Substation 132/33 KV Substation**
Year of establishment:	12/01/2021
Type of Substation (GIS/AIS):	AIS
Voltage:	230/132/33 KV
No. incomers and voltage:	4 Incomers and Voltage level 132 kV
No. outgoers and voltage:	2 Outgoers and Voltage level 33 kV
Grid Reference:	312002 GPS 23.26704^{o} 90.86572^{o}
Aerial map of substation:	
Land allocation for substation upgrade	
Photo of substation compound:	Attached
Photo of any control building and details of wall/roof materials:	Attached

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No. transformers with make/model, MVA, manufacturer name and dates of manufacture/installation with photo of rating plate:	2 Nos. 50/75 MVA, Liaoning-Efacec Electrical Equipment Co. Ltd. (LEEC), China, Model No: SFZ-75000/132±8×1.25%/33, 2018[26]
Noise level at site entrance, indicative reading:	71.9 dB
Noise level adjacent to transformer, indicative reading:	70.9 dB
EMF level at site entrance, indicative reading:	43 µT
EMF level adjacent to transformer, indicative reading:	26 µT
Outside temperature, indicative reading:	Maximum temp. 42°C
Area of substation, and layout map (area in use and available for expansion):	5 acres. All area is used, No available land for further expansion.
Photo of vehicle entrance: **Is it off a paved road?**	paved road = YES Gauripur Kachua road
Topography – flat land, sloped, or steep terrain:	Flat land
Previous land use (if known):	Agricultural land
Describe the land uses within 500m (supported with photos): Confirm presence or absence of agricultural land-cultivated or uncultivated, protected or environmentally sensitive areas, community or protected forest, water bodies, religious or ancestral cultural resources (e.g. temples, shrines, sacred trees)?	Land uses within 500 meter area: 1. agricultural land- cultivated- 65%, 2. Agricultural land uncultivated -10%, 3. Residence-15%, 4. water bodies- 6%, 5. Roads- 1%, 6. Market- 1% , 7. Religious-1% , 8. Under constructed 230kV Grid- 1%
Nearest protected or key biodiversity area (distance in m)?	No
Have endangered species been encountered in the vicinity (elephant, tiger, etc.)?	No
No. buildings within 50m and no. inhabitants:	1 Mosque Building No inhabitants.
Nearest individual residence (name and distance in m, mark on aerial map if possible):	Bepary House, 93 m.
Nearest habitation (name and distance in m, mark on aerial map if possible):	Hazi bari, 138 m.
No. community facilities (schools, health centre etc.) within 50m with estimated no. of visitors (mark on aerial map if possible):	Gausia Jame Mosque; 50m
Nearest surface water (distance in m, mark on aerial map if possible):	20 m at back canal
No. groundwater wells/pumps/springs within 50m (mark on aerial map if possible):	**3 nos**
Total staff at substation (technical and non-technical): **No. men / no. women:**	**Technical- 9 men**

Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)

[26] Transformers were tested by PGCB/DOE under UNIDO project, based on information provided by PGCB to ADB TA Consultants, none of the five existing substation site transformers contain PCB >50ppm (test data will be obtained for IEE update)

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
A. Housekeeping / Waste Management					
Is an environment policy available on site?	√				
Is a pollution prevention manual or procedure available on-site covering hazardous materials management, oil storage etc?		√			
Is a waste management manual or procedure available on-site covering both solid and hazardous waste storage and disposal?		√			
Is there vegetation (grass, trees, shrubs) on site?		√			
Is the substation kept neat and tidy with no discarded wastes?		√			
Are there any trip hazards on the ground e.g. open channels, materials, equipment, trash laying around?		√			
Are there any other features that could post a danger e.g. broken or loose tiles?		√			
Is there any general waste storage and/or disposal on-site?		√			There is no electrical waste inside the substation area. Since civil construction is going on therefore materials remained at several places within the substation.
Is solid waste segregated into recycling and waste for disposal?		√			
Is there a dedicated, labelled storage area for solid waste?		√			
Does the storage area have an impermeable floor?		√			
Is the storage area under cover?		√			
Do garbage bins have lids?		√			
Are garbage bins enclosed to contain leachates?		√			
Is any waste burning on site – open burning or incineration?		√			
Is any composting taking place on-site?		√			
Is end of life or unused equipment being stored on site?	√				
Is there a dedicated, labelled storage area for this equipment?	√				
Are supplies of fuel, oil, chemicals, SF6 tanks being stored on site?	√				Transformer oil-8700 ltr.
Are material data sheets for the fuels, oil or chemicals displayed?		√			
Are there empty drums, old transformers or used batteries on site?		√			6 Empty oil tanks
Are there any hazardous wastes (solid/liquid/gas) being stored and/or disposed of?		√			
Is there a dedicated, labelled storage area for fuels, oils, and chemicals, SF6 tanks, empty drums, old transformers, and/or hazardous		√			Just a regular store for all items

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
wastes?					
Does the storage area have an impermeable floor?	√				
Is the storage area under cover?	√				
Is the storage area locked?	√				
Does the storage area have a spill containment bund of 110% capacity (see picture glossary at end of checklist for example)?		√			
Is the storage area drainage connected to sump to collect runoff?		√			
Are all storage barrels or tanks labelled with their contents and hazard warning signs?	√				
Are empty storage barrels or tanks sent to stores for onwards disposal?	√				
Are redundant transformers sent to stores for onwards disposal?		√			
Are used batteries sent to stores for onwards disposal?		√			
Has there been any pest problem on site?		√			
Are any pest control measures undertaken on site?		√			
B. Transformers and Oil Leakage					
Is the power circuit breaker oil insulated?		√			
Are there any oil insulated transformers?	√				
Are there any oil filled capacitors?		√			
Do the transformers and capacitors have a label indicating contains PCB (polychlorinated biphenyl) or is PCB free?[27]		√			
Is any other evidence available on-site to confirm transformers and/or capacitors PCB free e.g. supplier certification, oil test results?		√			
Is it known when the transformer oil was last changed?		√			
Is a maintenance logbook kept on the premises?	√				
Are the transformers mounted on an impermeable platform extending beyond the footprint of the transformer?	√				
Does the transformer platform have a spill containment bund/sump of 110% capacity?	√				
Is there any evidence of oil leaking or having previously leaked from transformers or other equipment?		√			
Have any oil spills occurred at the substation in the past 5 years?		√			
Is there any spill equipment available on site		√			

[27] PCBs are persistent organic pollutants, meaning they a resistant to environmental degradation through time and may remain indefinitely present in the environment.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
(e.g. sand, cloths, or other absorbent material)?					
C. Escape of SF_6 (sulphur hexafluoride) and other greenhouse/hazardous gases					
Is there presence of SF_6 at the substation?	√				
Is this a GIS?		√			
Is the power circuit breaker gas insulated?	√				
Is there gas insulated switchgear?		√			
Are there any gas insulated transformers?		√			
Are SF6 leakage detectors installed?	√				On panel meters only
Are portable SF6 leakage detectors available at the substation?		√			On panel meters only
Are records of SF6 use kept?	√				Level check
Are records of SF6 leakage kept?	√				
Have any SF6 leakages occurred at the substation in the past 5 years?		√			
Is there a SF_6 retrieval arrangement on-site?		√			
Is redundant equipment with SF6 sent to stores for onwards disposal?		√			
Are there presence of other hazardous gases within equipment or on the substation compound?		√			
D. Noise, EMF, Lighting and Ventilation					
Are there high levels of noise pollution at or around the site (e.g. traffic, etc.)		√			
Are there any warning signs noise levels may exceed >85dBA?		√			
Is any transformer hum audible?	√				
Has noise monitoring been undertaken at the substations in last 5 years?		√			
Are there any sources of vibration?		√			
Are shielding equipment/materials installed to reduce EMF exposure?		√			
Has EMF monitoring been undertaken at the substations in last 5 years?		√			
Is adequate ventilation provided in control building?	√				Air conditioned
Are all vents free of blockages?	√				
Is heating and/or air conditioning available and adequate?	√				Air conditioning
Is adequate natural or artificial lighting provided in control building?	√				
Is adequate lighting provided in the substation compound at night?	√				
Are all lights in working order?	√				
Are there high level of air pollution at or around the site (e.g. dust, traffic, etc.)?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Has air quality monitoring been undertaken at the substations in last 5 years?		√			
E. First Aid Equipment					
Is a first aid kit available on site?	√				
Is the first aid kit well equipped?		√			
Is it clearly labelled where the first aid kit is stored?	√				
Is the first aid equipment within its expiry date?		√			
Do any staff on site have first aid training?	√				
Is one staff with first aid training present on the site at all times?		√			
Are there any posters showing first aid procedures especially for electrocution?	√				
F. Fire Safety Equipment					
Does the substation have any fire detectors and alarm?		√			
Are the alarm systems operational?		√			
Are any firewalls provided e.g. between transformers?		√			
Does the substation have automatic fire suppression systems connected to the alarm systems e.g. sprinklers?		√			
Is firefighting equipment present?	√				28 in nos. Fire Extinguishers. Multipurpose Dry Powder = 1 no. ABCE Dry Powder = 16 nos. CO2 Type = 11 nos. No. of fire buckets filled with sand = 3 nos.
Do fire extinguishers have an in-date service record?	√				
Is a record of fire alarm tests and fire drills available on site?		√			
Do any staff on site have fire training?	√				
Is one staff with fire training present on the site at all times?	√				
Are there any notices or posters describing procedures to be followed in the event of a fire?	√				
G. Community Health and Safety					
Is there a security fence and gates?	√				
Does the security fence have any gaps, permitting entry?	√				
Are the gates kept locked?	√				
Is 24/7 security guard present?		√			
Is the door to the control room kept locked?		√			
Are there written or graphic "danger of electrocution" signs posted on the	√				Some limited numbers

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
fence/gates?					
Are there written or graphic "danger of electrocution" signs posted on electrical equipment?	√				
H. Handling Emergencies					
Is an emergency plan available (e.g. for fire, earthquake, flood, accidents, illness etc.)?		√			
Are any COVID-19 specific precautions being followed on-site?		√			
Are the staff trained on responding to emergency situations?		√			
Are emergency exits sign-posted and clear of blockages?		√			
Is the location and phone number of doctor and hospital posted in a clear location?	√				
Is there an emergency eye wash or shower?		√			
Is an accident logbook available on site?	√				
Has the substation ever been subject to earthquakes?		√			
Has the substation ever been subject to flooding?		√			
Has the substation ever been subject to landslides / slope stability issues?		√			
I. Health and Safety of Staff					
Is a health and safety policy available on site?		√			
Is a health and safety risk assessment available on site?		√			
Is a health and safety manual or procedure available on site?		√			
Are there records of safety inspections, testing and calibration?		√			
Is there signage indicating to workers the hazards present?	√				
Is there adequate depth of gravel provided?	√				175 mm switchyard & 225 mm Transformer
Does the control building look structurally sound?	√				Not tested
Has an asbestos survey ever been undertaken at the substation?		√			
Is there any evidence of asbestos on site especially lagging and roofing materials?		√			
Did auditor receive an OHS site induction?		√			
Have staff on site received OHS training?	√				
Are training materials and equipment available on site?		√			
Is maintenance handled by staff on site?	√				
Is there a strict written procedure available for de-energizing before working on electrical equipment?			√		Not at the station
Do external maintenance workers come in to undertake more advanced maintenance?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Are the staff working on operation and maintenance activities trained on working at heights?		√			
Are the staff working on operation and maintenance activities trained on working with electricity?	√				
Are medical checks of staff undertaken?		√			Self-check at hospitals, no PGCB sponsored
Are staff informed of appropriate PPE for job e.g. via signage?		√			
Are staff on site wearing personal protective equipment (PPE)?		√			Helmets etc available
Is there a store of PPE available on site[28]?		√			
Do staff avail of personal exposure monitoring equipment to warn of exceeding exposure levels to electromagnetic fields?		√			
J. Drainage					
Is there any standing water visible on site?		√			At same height as road
Is a drainage system provided?	√				Identify where it connects to: Outside drain
K. Sanitation and Welfare Facilities					
Is a toilet available on site?	√				Are there facilities for male and female? -No
Is the toilet clean?	√				
Is the toilet inside staff building or outside it?	√				Inside
Does the toilet connect to existing municipal sewerage system?		√			
Does the toilet connect to septic tank?	√				
Is there also a soakaway for the septic tank overflows?		√			
Is there any sign on leakage/pollution from septic tank?		√			
Are handwashing facilities available?	√				
Is hot and cold water available?		√			
Is soap provided?	√				
Does the toilet have lock or vacant indicator?		√			
Is potable water available on site?		√			
Is there any evidence of potable water meeting Drinking Water Standards?		√			
Are staff stationed at substation during on-shift hours (including security guards) ?	√				If so, how many? – 4 How long are staffs' shifts? - 8hours How long are security guards' shifts? -8 hours
Is there an undercover rest area available?		√			

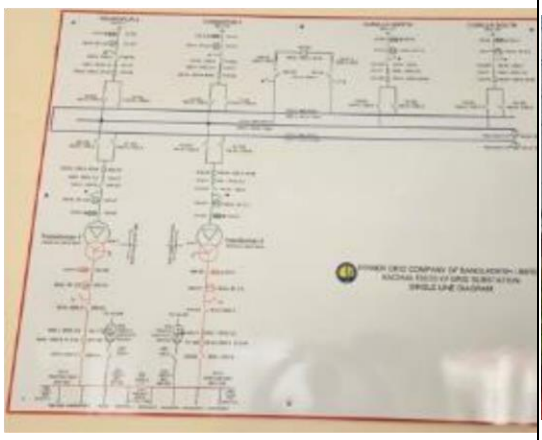
[28] E.g. hard hats, safety glasses steel-toed boots, rated dielectric footwear, insulated gloves, insulated tools, electrical insultation blankets, live-line tools/hot sticks, respiratory equipment etc.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is a food preparation and clean eating area available?		√			
Is cooking fuel used on site?		√			
Are staff staying at the substation overnight (out of hours) and how many (including security guards)?		√			
Is there a dedicated accommodation area for staff?		√			
Is a TV/Radio/Internet connection available for staff?	√				Internet connection
Is there a dedicated shelter for any security guards?		√			

Consultations on past/present concerns (also inform them of the intended works)[29]

Picture Glossary:

	
Interconnection Diagram	**Terminal Gantry outside**

[29] Consultations attached in Appendix AVIII.2

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Ongoing construction of adjoining 400/230/132 kV GIS Kachua through World Bank funding	**400 kV line incomer to Kachua GIS station with aviation markers**
	
Aerial View of Substation	**132 kV Bus bar, ongoing civil works**
	
North (Agriculture land and Electric Tower)	Land and Pond) South (Agriculture

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East (Gouripur to Kachua Zonal Road)



West (Agriculture Land and pond)



Existing substation picture



Existing substation picture



Aerial View



Aerial View



Control Room picture



Security Room Picture

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PPE	4 Tanks stored
	
First Aid Box	First Aid Box

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Contact nos



Safety signs



Dormitory Building



Consultation with PGCB officials

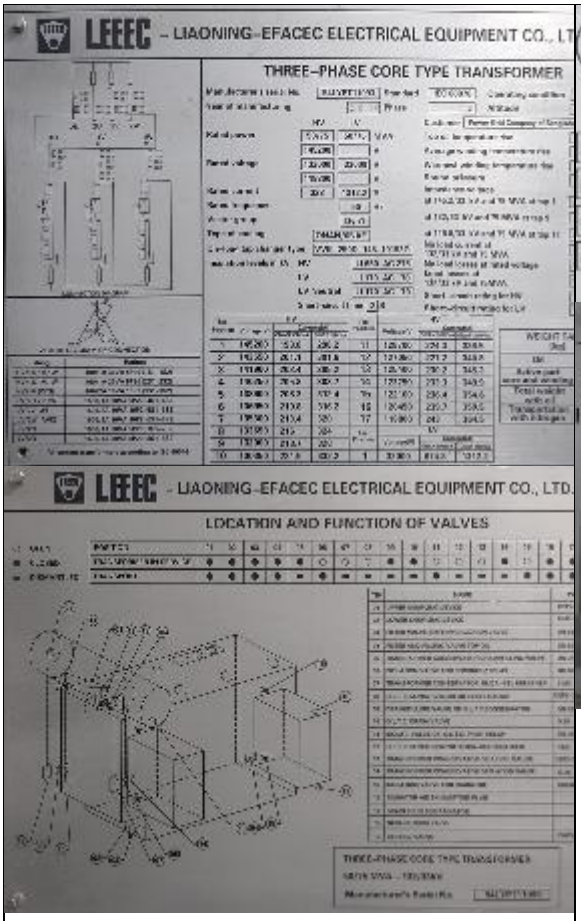


Water submersible



Pump House

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Tranformer # 1 Details

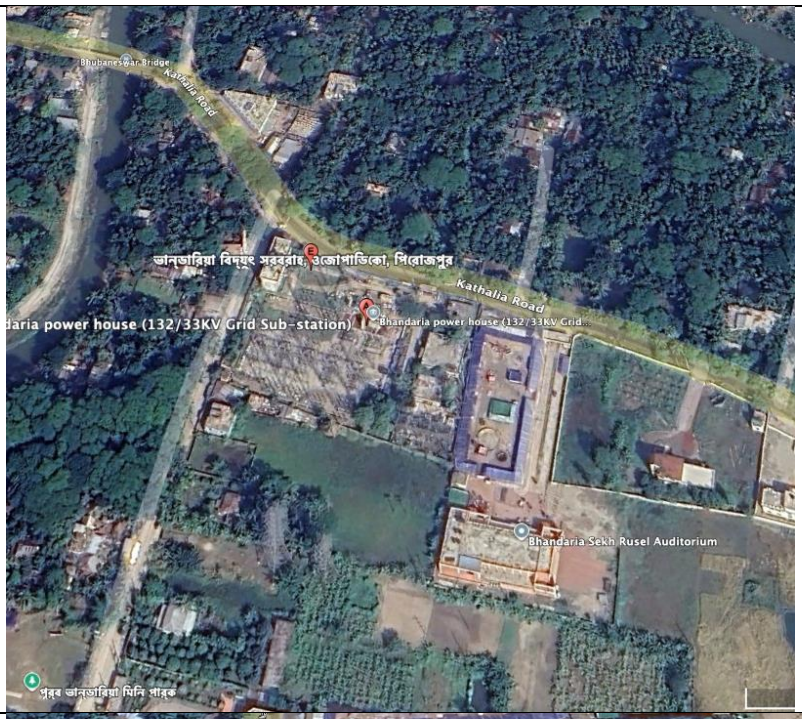




Trnsformer #2 Detail

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Subproject 4: Bhandaria
Environmental Audit Checklist for Existing Substations
Visit 23-04-2024

Substation Name:	**Bhandaria 132/33 KV Substation**
Year of establishment:	2002
Type of Substation (GIS/AIS):	AIS
Voltage:	132/33 KV
No. incomers and voltage:	02 Nos of 132 KV
No. outgoers and voltage:	02 Nos. of 132 KV
Grid Reference:	22o 28.844' 90° 04.206'
Aerial map of substation:	
Land allocated for substation upgrade	
Photo of substation compound:	Attached
Photo of any control building and details of wall/roof materials:	Attached
No. transformers with make/model, MVA,	1. SFZ XIJIANG TEBIAN Electric Apparatus Stock Company Year 2001 installed outside

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manufacturer name and dates of manufacture/installation with photo of rating plate:	2. SFZ Year 2001 – not working, oil leakage 3. SAMBIAN[30]
Noise level at site entrance, indicative reading:	65 dBA
Noise level adjacent to transformer, indicative reading:	75 dBA
EMF level at site entrance, indicative reading:	40 Micro Tesla
EMF level adjacent to transformer, indicative reading:	54 Micro Tesla
Outside temperature, indicative reading:	93 Degree F
Area of substation, and layout map (area in use and available for expansion):	2.19 acre
Photo of vehicle entrance: Is it off a paved road?	Paved road = YES
Topography – flat land, sloped, or steep terrain:	FLAT
Previous land use (if known):	Private land
Describe the land uses within 500m (supported with photos): Confirm presence or absence of agricultural land-cultivated or uncultivated, protected or environmentally sensitive areas, community or protected forest, water bodies, religious or ancestral cultural resources (e.g. temples, shrines, sacred trees)?	7 Mango trees to be cut onsite Absence of agricultural land-cultivated or uncultivated, Absence of protected or environmentally sensitive areas, community or protected forest
Nearest protected or key biodiversity area (distance in m)?	N/A
Have endangered species been encountered in the vicinity (elephant, tiger,	N/A

[30] Transformers were tested by PGCB/DOE under UNIDO project, based on information provided by PGCB to ADB TA Consultants, none of the five existing substation site transformers contain PCB >50ppm (test data will be obtained for IEE update)

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etc.)?	
No. buildings within 50m and no. inhabitants:	No. buildings within 100m = Residential on left, BREB control room on right, adjoining private land, road, mosque in 25 m
Nearest individual residence (name and distance in m, mark on aerial map if possible):	
Nearest habitation (name and distance in m, mark on aerial map if possible):	50m
No. community facilities (schools, health centre etc.) within 50m with estimated no. of visitors (mark on aerial map if possible):	Fire station 1 km, Mosque 25 m (no person staying there), College 300m, School 700m
Nearest surface water (distance in m, mark on aerial map if possible):	NA
No. groundwater wells/pumps/springs within 50m (mark on aerial map if possible):	300m depth
Total staff at substation (technical and non-technical): **No. men / no. women:**	Total staff: 12 AE-01 SAE(Maintenance)-01 SAE(Shift)-04 Technical staff-05 Daily Basis-01

Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
A. Housekeeping / Waste Management					
Is an environment policy available on site?	√				
Is a pollution prevention manual or procedure available on-site covering hazardous materials management, oil storage etc.?		√			
Is a waste management manual or procedure available on-site covering both solid and hazardous waste storage and disposal?		√			
Is there vegetation (grass, trees, shrubs) on site?		√			
Is the substation kept neat and tidy with no discarded wastes?		√			
Are there any trip hazards on the ground e.g. open channels, materials, equipment, trash	√				

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
laying around?					
Are there any other features that could post a danger e.g. broken or loose tiles?		√			
Is there any general waste storage and/or disposal on-site?		√			
Is solid waste segregated into recycling and waste for disposal?		√			
Is there a dedicated, labelled storage area for solid waste?		√			
Does the storage area have an impermeable floor?		√			
Is the storage area under cover?		√			
Do garbage bins have lids?		√			
Are garbage bins enclosed to contain leachates?		√			
Is any waste burning on site – open burning or incineration?		√			
Is any composting taking place on-site?		√			
Is end of life or unused equipment being stored on site?	√				
Is there a dedicated, labelled storage area for this equipment?		√			
Are supplies of fuel, oil, chemicals, SF6 tanks being stored on site?	√				
Are material data sheets for the fuels, oil or chemicals displayed?		√			
Are there empty drums, old transformers or used batteries on site?	√				
Are there any hazardous wastes (solid/liquid/gas) being stored and/or disposed of?		√			
Is there a dedicated, labelled storage area for fuels, oils, and chemicals, SF6 tanks, empty drums, old transformers, and/or hazardous wastes?		√			
Does the storage area have an impermeable floor?		√			
Is the storage area under cover?		√			
Is the storage area locked?		√			
Does the storage area have a spill containment bund of 110%		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
capacity (see picture glossary at end of checklist for example)?					
Is the storage area drainage connected to sump to collect runoff?		√			
Are all storage barrels or tanks labelled with their contents and hazard warning signs?		√			
Are empty storage barrels or tanks sent to stores for onwards disposal?		√			
Are redundant transformers sent to stores for onwards disposal?		√			
Are used batteries sent to stores for onwards disposal?			√		
Has there been any pest problem on site?	√				
Are any pest control measures undertaken on site?		√			
B. Transformers and Oil Leakage					
Is the power circuit breaker oil insulated?	√				
Are there any oil insulated transformers?	√				
Are there any oil filled capacitors?		√			
Do the transformers and capacitors have a label indicating contains PCB (polychlorinated biphenyl) or is PCB free?[31]		√			
Is any other evidence available on-site to confirm transformers and/or capacitors PCB free e.g. supplier certification, oil test results?		√			
Is it known when the transformer oil was last changed?			√		
Is a maintenance logbook kept on the premises?	√				
Are the transformers mounted on an impermeable platform extending beyond the footprint of the transformer?		√			

[31] PCBs are persistent organic pollutants, meaning they a resistant to environmental degradation through time and may remain indefinitely present in the environment.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Does the transformer platform have a spill containment bund/sump of 110% capacity?	√				
Is there any evidence of oil leaking or having previously leaked from transformers or other equipment?	√				
Have any oil spills occurred at the substation in the past 5 years?			√		
Is there any spill equipment available on site (e.g. sand, cloths, or other absorbent material)?		√			
C. Escape of SF6 (sulphur hexafluoride) and other greenhouse/hazardous gases					
Is there presence of SF6 at the substation?		√			
Is this a GIS?		√			
Is the power circuit breaker gas insulated?		√			
Is there gas insulated switchgear?		√			
Are there any gas insulated transformers?		√			
Are SF6 leakage detectors installed?		√			
Are portable SF6 leakage detectors available at the substation?		√			
Are records of SF6 use kept?		√			
Are records of SF6 leakage kept?		√			
Have any SF6 leakages occurred at the substation in the past 5 years?		√			
Is there a SF6 retrieval arrangement on-site?		√			
Is redundant equipment with SF6 sent to stores for onwards disposal?		√			
Are there presence of other hazardous gases within equipment or on the substation compound?		√			
D. Noise, EMF, Lighting and Ventilation					

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Are there high levels of noise pollution at or around the site (e.g. traffic, etc.)		√			
Are there any warning signs noise levels may exceed >85dBA?		√			
Is any transformer hum audible?	√				
Has noise monitoring been undertaken at the substations in last 5 years?		√			
Are there any sources of vibration?		√			
Are shielding equipment/materials installed to reduce EMF exposure?		√			
Has EMF monitoring been undertaken at the substations in last 5 years?		√			
Is adequate ventilation provided in control building?		√			Air conditioned
Are all vents free of blockages?		√			
Is heating and/or air conditioning available and adequate?		√			Air conditioning
Is adequate natural or artificial lighting provided in control building?	√				
Is adequate lighting provided in the substation compound at night?	√				
Are all lights in working order?		√			Lighting to standard LUX levels to be installed
Are there high level of air pollution at or around the site (e.g. dust, traffic, etc.)?	√				
Has air quality monitoring been undertaken at the substations in last 5 years?		√			
E. First Aid Equipment					
Is a first aid kit available on site?	√				
Is the first aid kit well equipped?		√			
Is it clearly labelled where the first aid kit is stored?	√				
Is the first aid equipment within its expiry date?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Do any staff on site have first aid training?	√				
Is one staff with first aid training present on the site at all times?	√				
Are there any posters showing first aid procedures especially for electrocution?		√			
F. Fire Safety Equipment					
Does the substation have any fire detectors and alarm?		√			
Are the alarm systems operational?		√			
Are any firewalls provided e.g. between transformers?		√			
Does the substation have automatic fire suppression systems connected to the alarm systems e.g. sprinklers?		√			
Is firefighting equipment present?	√				ABC- 09 Nos. CO2-07 Nos. Buckets with sand= 09 Nos
Do fire extinguishers have an in-date service record?	√				
Is a record of fire alarm tests and fire drills available on site?		√			
Do any staff on site have fire training?	√				
Is one staff with fire training present on the site at all times?		√			
Are there any notices or posters describing procedures to be followed in the event of a fire?		√			
G. Community Health and Safety					
Is there a security fence and gates?	√				
Does the security fence have any gaps, permitting entry?	√				
Are the gates kept locked?	√				
Is 24/7 security guard present?		√			
Is the door to the control room kept locked?	√				
Are there written or graphic "danger of electrocution" signs posted on the fence/gates?	√				Some limited numbers
Are there written or graphic		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
"danger of electrocution" signs posted on electrical equipment?					
H. Handling Emergencies					
Is an emergency plan available (e.g. for fire, earthquake, flood, accidents, illness etc.)?		√			
Are any COVID-19 specific precautions being followed on-site?		√			
Are the staff trained on responding to emergency situations?		√			
Are emergency exits sign-posted and clear of blockages?		√			
Is the location and phone number of doctor and hospital posted in a clear location?		√			
Is there an emergency eye wash or shower?		√			
Is an accident logbook available on site?	√				
Has the substation ever been subject to earthquakes?		√			
Has the substation ever been subject to flooding?		√			
Has the substation ever been subject to landslides / slope stability issues?		√			
I. Health and Safety of Staff					
Is a health and safety policy available on site?		√			
Is a health and safety risk assessment available on site?		√			
Is a health and safety manual or procedure available on site?		√			
Are there records of safety inspections, testing and calibration?		√			
Is there signage indicating to workers the hazards present?		√			
Is there adequate depth of gravel provided?		√			
Does the control building look structurally sound?			√		Old building but confirmed by staff to be sound
Has an asbestos survey ever		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
been undertaken at the substation?					
Is there any evidence of asbestos on site especially lagging and roofing materials?		√			
Did auditor receive an OHS site induction?		√			
Have staff on site received OHS training?	√				
Are training materials and equipment available on site?		√			
Is maintenance handled by staff on site?	√				
Is there a strict written procedure available for de-energizing before working on electrical equipment?			√		Not at the station
Do external maintenance workers come in to undertake more advanced maintenance?		√			
Are the staff working on operation and maintenance activities trained on working at heights?		√			
Are the staff working on operation and maintenance activities trained on working with electricity?	√				
Are medical checks of staff undertaken?		√			Self-check at hospitals, no PGCB sponsored
Are staff informed of appropriate PPE for job e.g. via signage?		√			
Are staff on site wearing personal protective equipment (PPE)?		√			Helmets etc. available
Is there a store of PPE available on site[32]?		√			
Do staff avail of personal exposure monitoring equipment to warn of exceeding exposure levels to electromagnetic fields?		√			
J. Drainage					

[32] E.g. hard hats, safety glasses steel-toed boots, rated dielectric footwear, insulated gloves, insulated tools, electrical insultation blankets, live-line tools/hot sticks, respiratory equipment etc.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is there any standing water visible on site?	√				At same height as road
Is a drainage system provided?	√				Identify where it connects to: Outside drain
K. Sanitation and Welfare Facilities					
Is a toilet available on site?	√				Are there facilities for male and female? -No
Is the toilet clean?	√				
Is the toilet inside staff building or outside it?	√				Inside
Does the toilet connect to existing municipal sewerage system?		√			
Does the toilet connect to septic tank?	√				
Is there also a soakaway for the septic tank overflows?		√			
Is there any sign on leakage/pollution from septic tank?		√			
Are handwashing facilities available?	√				
Is hot and cold water available?		√			
Is soap provided?	√				
Does the toilet have lock or vacant indicator?		√			
Is potable water available on site?		√			
Is there any evidence of potable water meeting Drinking Water Standards?		√			
Are staff stationed at substation during on-shift hours (including security guards) ?	√				If so, how many? 3 How long are staffs' shifts? -8 hours How long are security guards' shifts? -8 hours
Is there an undercover rest area available?		√			
Is a food preparation and clean eating area available?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is cooking fuel used on site?		√			
Are staff staying at the substation overnight (out of hours) and how many (including security guards)?		√			
Is there a dedicated accommodation area for staff?		√			
Is a TV/Radio/Internet connection available for staff?	√				Internet connection
Is there a dedicated shelter for any security guards?		√			

Consultations[33] on past/present concerns (also inform them of the intended works)

Picture Glossary:



Control Room



SCADA panels



Cable Trench and yard





Fire Extinguishers and safety equipment at site

[33] Consultations attached in Appendix AVIII.2

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Control Panels	Transformer No 1. on 150% oil sump
	
First Aid box	Fire buckets
	
Spares and Material from ongoing PGCB project	Empty drums storage, construction material from ongoing works

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Spare Oil drum storage from ogoing PGCB project	Battery room with storage of batteries for O&M to transfer to new station where needed
	
Transformer rating Plate	Yard layout (weeds)
	
Danger signate	Logbook registers for Duty rosters and Fire extinguishers

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Substation Yard	Cable trench inside substation, drainage on left side
	
Location of Bay extension - 5 mango trees will cut	Signage for Substation
	
Water pumping for toilets etc	Battery Room
	

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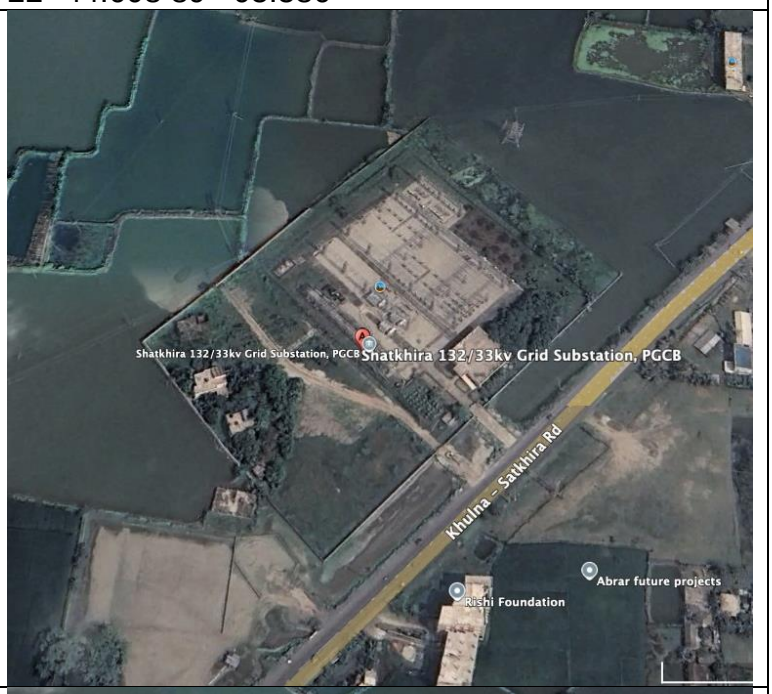
Transformer oil tank	
	
North (Adjacent road)	South (Fallow land and Residence)
	
East (Pouroshova Oditoriam)	West: PDB quarter room, Gouripur road
	
Existing Substation Structure	Existing Substation Structure
	
Meeting with officials	Meeting with officials

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Safety Sign	Danger sign
	
CCTV	Fire extinguisher in yard

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Subproject 5: Satkhira 132 kV Substation
Environmental Audit Checklist for Existing Substations
Visit 24-04-2024

Substation Name:	**Satkhira 132/33 KV Substation**
Year of establishment:	2006
Type of Substation (GIS/AIS):	AIS
Voltage:	132/33 KV
No. incomers and voltage:	02 Nos of 132 KV
No. outgoers and voltage:	10 Nos. of 33 KV
Grid Reference:	22° 44.608 89 ° 05.586’
Aerial map of substation:	
Land allocated for substation upgrade	
Photo of substation compound:	Attached
Photo of any control building and details of wall/roof materials:	Attached
No. transformers with make/model, MVA, manufacturer name and	Total Transformer: 03 Model/Type: SFZ-41000/132 and EP120M 132kv MVA: 2*25/41 MVA and 1*80/120 MVA

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dates of manufacture/installation with photo of rating plate:	Manufacture name: TEBA, China and Energypac, Bangladesh. Date of Manufacture/installation: 2003 and 2017[34]
Noise level at site entrance, indicative reading:	70 dBA
Noise level adjacent to transformer, indicative reading:	80 dBA
EMF level at site entrance, indicative reading:	50 Micro Tesla
EMF level adjacent to transformer, indicative reading:	80 Micro Tesla
Outside temperature, indicative reading:	90 Degree F
Area of substation, and layout map (area in use and available for expansion):	3.34 acre. 3 acre new under construction
Photo of vehicle entrance: Is it off a paved road?	Paved road = YES
Topography – flat land, sloped, or steep terrain:	FLAT
Previous land use (if known):	PDB and private land
Describe the land uses within 500m (supported with photos): Confirm presence or absence of agricultural land-cultivated or uncultivated, protected or environmentally sensitive areas, community or protected forest, water bodies, religious or ancestral cultural resources (e.g. temples, shrines, sacred trees)?	Absence of agricultural land-cultivated or uncultivated, Absence of protected or environmentally sensitive areas, community or protected forest
Nearest protected or key biodiversity area (distance in m)?	N/A
Have endangered species been encountered in the vicinity (elephant, tiger, etc.)?	N/A

[34] Transformers were tested by PGCB/DOE under UNIDO project, based on information provided by PGCB to ADB TA Consultants, none of the five existing substation site transformers contain PCB >50ppm (test data will be obtained for IEE update)

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No. buildings within 50m and no. inhabitants:	No. buildings within 100m = Bangladesh Institute of Nuclear Agriculture across road (30m wide road)
Nearest individual[35] residence (name and distance in m, mark on aerial map if possible):	20m Staff quarters
Nearest habitation (name and distance in m, mark on aerial map if possible):	Binerputa
No. community facilities (schools, health centre etc.) within 50m with estimated no. of visitors (mark on aerial map if possible):	Fire station 6 km, hospital 4 km, Khulna Medical hospital 60 km School 500 m College 1 km
Nearest surface water (distance in m, mark on aerial map if possible):	50 m
No. groundwater wells/pumps/springs within 50m (mark on aerial map if possible):	760 feet submersible
Total staff at substation (technical and non-technical): **No. men / no. women:**	Total staff at substation =12 AE(Shift with AE charge)-01 SAE(Shift with Maintenance)-01 SAE(Shift)-06 Technical staff-05 Daily Basis-01 3 Shifts – 2 persons in control room

Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
A. Housekeeping / Waste Management					
Is an environment policy available on site?	√				
Is a pollution prevention manual or procedure available on-site covering hazardous materials management, oil storage etc.?		√			
Is a waste management manual or procedure available on-site covering both solid and hazardous waste storage and disposal?		√			
Is there vegetation (grass, trees, shrubs) on site?	√				
Is the substation kept neat and tidy with no discarded wastes?		√			

[35] Consultations attached in Appendix AVIII.2

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Are there any trip hazards on the ground e.g. open channels, materials, equipment, trash laying around?	√				
Are there any other features that could post a danger e.g. broken or loose tiles?		√			
Is there any general waste storage and/or disposal on-site?		√			
Is solid waste segregated into recycling and waste for disposal?		√			
Is there a dedicated, labelled storage area for solid waste?		√			
Does the storage area have an impermeable floor?		√			
Is the storage area under cover?		√			
Do garbage bins have lids?		√			
Are garbage bins enclosed to contain leachates?		√			
Is any waste burning on site – open burning or incineration?		√			
Is any composting taking place on-site?		√			
Is end of life or unused equipment being stored on site?	√				
Is there a dedicated, labelled storage area for this equipment?		√			
Are supplies of fuel, oil, chemicals, SF6 tanks being stored on site?	√				3 bottles in store, 5 new oil drums
Are material data sheets for the fuels, oil or chemicals displayed?		√			
Are there empty drums, old transformers or used batteries on site?	√				Yes, will be taken by contractor after work is complete
Are there any hazardous wastes (solid/liquid/gas) being stored and/or disposed of?		√			
Is there a dedicated, labelled storage area for fuels, oils, and chemicals, SF6 tanks, empty drums, old transformers, and/or hazardous wastes?		√			
Does the storage area have an impermeable floor?		√			
Is the storage area under cover?		√			
Is the storage area locked?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Does the storage area have a spill containment bund of 110% capacity (see picture glossary at end of checklist for example)?		√			
Is the storage area drainage connected to sump to collect runoff?		√			
Are all storage barrels or tanks labelled with their contents and hazard warning signs?		√			
Are empty storage barrels or tanks sent to stores for onwards disposal?		√			
Are redundant transformers sent to stores for onwards disposal?		√			
Are used batteries sent to stores for onwards disposal?			√		Some new extra ones are stored
Has there been any pest problem on site?	√				
Are any pest control measures undertaken on site?		√			
B. Transformers and Oil Leakage					
Is the power circuit breaker oil insulated?	√				
Are there any oil insulated transformers?	√				
Are there any oil filled capacitors?		√			
Do the transformers and capacitors have a label indicating contains PCB (polychlorinated biphenyl) or is PCB free?[36]		√			
Is any other evidence available on-site to confirm transformers and/or capacitors PCB free e.g. supplier certification, oil test results?		√			
Is it known when the transformer oil was last changed?			√		
Is a maintenance logbook kept on the premises?	√				
Are the transformers mounted on an impermeable platform extending beyond the footprint of the transformer?		√			
Does the transformer platform have	√				But one transformer

[36] PCBs are persistent organic pollutants, meaning they a resistant to environmental degradation through time and may remain indefinitely present in the environment.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
a spill containment bund/sump of 110% capacity?					stored on wooden platform with no sump
Is there any evidence of oil leaking or having previously leaked from transformers or other equipment?	√				
Have any oil spills occurred at the substation in the past 5 years?			√		
Is there any spill equipment available on site (e.g. sand, cloths, or other absorbent material)?		√			
C. Escape of SF_6 (sulphur hexafluoride) and other greenhouse/hazardous gases					
Is there presence of SF_6 at the substation?	√				
Is this a GIS?		√			
Is the power circuit breaker gas insulated?	√				
Is there gas insulated switchgear?	√				
Are there any gas insulated transformers?		√			
Are SF6 leakage detectors installed?	√				
Are portable SF6 leakage detectors available at the substation?		√			
Are records of SF6 use kept?		√			
Are records of SF6 leakage kept?		√			
Have any SF6 leakages occurred at the substation in the past 5 years?		√			
Is there a SF_6 retrieval arrangement on-site?		√			
Is redundant equipment with SF6 sent to stores for onwards disposal?		√			
Are there presence of other hazardous gases within equipment or on the substation compound?		√			
D. Noise, EMF, Lighting and Ventilation					
Are there high levels of noise pollution at or around the site (e.g. traffic, etc.)		√			
Are there any warning signs noise levels may exceed >85dBA?		√			
Is any transformer hum audible?	√				
Has noise monitoring been undertaken at the substations in last 5 years?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Are there any sources of vibration?		√			
Are shielding equipment/materials installed to reduce EMF exposure?		√			
Has EMF monitoring been undertaken at the substations in last 5 years?		√			
Is adequate ventilation provided in control building?		√			Air conditioned
Are all vents free of blockages?		√			
Is heating and/or air conditioning available and adequate?		√			Air conditioning
Is adequate natural or artificial lighting provided in control building?	√				
Is adequate lighting provided in the substation compound at night?	√				
Are all lights in working order?		√			Lighting to standard LUX levels to be installed
Are there high level of air pollution at or around the site (e.g. dust, traffic, etc.)?	√				
Has air quality monitoring been undertaken at the substations in last 5 years?		√			
E. First Aid Equipment					
Is a first aid kit available on site?	√				Once stretcher is also available at site
Is the first aid kit well equipped?		√			
Is it clearly labelled where the first aid kit is stored?	√				
Is the first aid equipment within its expiry date?		√			
Do any staff on site have first aid training?	√				
Is one staff with first aid training present on the site at all times?	√				Two times a year
Are there any posters showing first aid procedures especially for electrocution?		√			
F. Fire Safety Equipment					
Does the substation have any fire detectors and alarm?		√			
Are the alarm systems operational?		√			
Are any firewalls provided e.g. between transformers?		√			
Does the substation have automatic		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
fire suppression systems connected to the alarm systems e.g. sprinklers?					
Is firefighting equipment present?	√				ABC- 30 Nos. CO2-17 Nos. Buckets with sand= 03 Nos
Do fire extinguishers have an in-date service record?	√				
Is a record of fire alarm tests and fire drills available on site?		√			
Do any staff on site have fire training?	√				
Is one staff with fire training present on the site at all times?		√			
Are there any notices or posters describing procedures to be followed in the event of a fire?		√			
G. Community Health and Safety					
Is there a security fence and gates?	√				
Does the security fence have any gaps, permitting entry?	√				
Are the gates kept locked?	√				
Is 24/7 security guard present?		√			
Is the door to the control room kept locked?	√				
Are there written or graphic "danger of electrocution" signs posted on the fence/gates?	√				Some limited numbers
Are there written or graphic "danger of electrocution" signs posted on electrical equipment?		√			
H. Handling Emergencies					
Is an emergency plan available (e.g. for fire, earthquake, flood, accidents, illness etc.)?		√			
Are any COVID-19 specific precautions being followed on-site?		√			
Are the staff trained on responding to emergency situations?		√			
Are emergency exits sign-posted and clear of blockages?		√			
Is the location and phone number of doctor and hospital posted in a clear location?		√			
Is there an emergency eye wash or shower?		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is an accident logbook available on site?	√				
Has the substation ever been subject to earthquakes?		√			
Has the substation ever been subject to flooding?		√			
Has the substation ever been subject to landslides / slope stability issues?		√			
I. Health and Safety of Staff					
Is a health and safety policy available on site?		√			
Is a health and safety risk assessment available on site?		√			
Is a health and safety manual or procedure available on site?		√			
Are there records of safety inspections, testing and calibration?		√			
Is there signage indicating to workers the hazards present?		√			
Is there adequate depth of gravel provided?		√			
Does the control building look structurally sound?	√				
Has an asbestos survey ever been undertaken at the substation?		√			
Is there any evidence of asbestos on site especially lagging and roofing materials?		√			
Did auditor receive an OHS site induction?		√			
Have staff on site received OHS training?		√			Drills undertaken 2 times a year by fire department
Are training materials and equipment available on site?		√			
Is maintenance handled by staff on site?	√				
Is there a strict written procedure available for de-energizing before working on electrical equipment?			√		Not at the station
Do external maintenance workers come in to undertake more advanced maintenance?		√			
Are the staff working on operation and maintenance activities trained		√			

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
on working at heights?					
Are the staff working on operation and maintenance activities trained on working with electricity?	√				
Are medical checks of staff undertaken?		√			Self check at hospitals, no PGCB sponsored
Are staff informed of appropriate PPE for job e.g. via signage?		√			
Are staff on site wearing personal protective equipment (PPE)?		√			Helmets etc. available
Is there a store of PPE available on site[37]?	√				List the types of PPE that are available: helmets – 8, Gloves
Do staff avail of personal exposure monitoring equipment to warn of exceeding exposure levels to electromagnetic fields?		√			
J. Drainage					
Is there any standing water visible on site?		√			No
Is a drainage system provided?	√				Identify where it connects to: Outside drain
K. Sanitation and Welfare Facilities					
Is a toilet available on site?	√				Are there facilities for male and female? -Two numbers
Is the toilet clean?	√				
Is the toilet inside staff building or outside it?	√				Inside
Does the toilet connect to existing municipal sewerage system?		√			
Does the toilet connect to septic tank?	√				
Is there also a soakaway for the septic tank overflows?		√			
Is there any sign on leakage/pollution from septic tank?		√			
Are handwashing facilities available?	√				
Is hot and cold water available?		√			

[37] E.g. hard hats, safety glasses steel-toed boots, rated dielectric footwear, insulated gloves, insulated tools, electrical insultation blankets, live-line tools/hot sticks, respiratory equipment etc.

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Audit Checks:	**Yes**	**No**	**Don't Know**	**N/A**	**Remarks** (attach photos to support findings)
Is soap provided?	√				
Does the toilet have lock or vacant indicator?		√			
Is potable water available on site?		√			
Is there any evidence of potable water meeting Drinking Water Standards?		√			
Are staff stationed at substation during on-shift hours (including security guards) ?	√				If so, how many? – 3 shifts 2 persons How long are staffs' shifts? -8hours How long are security guards' shifts? -8 hours
Is there an undercover rest area available?		√			
Is a food preparation and clean eating area available?		√			
Is cooking fuel used on site?		√			
Are staff staying at the substation overnight (out of hours) and how many (including security guards)?		√			
Is there a dedicated accommodation area for staff?		√			
Is a TV/Radio/Internet connection available for staff?	√				Internet connection
Is there a dedicated shelter for any security guards?		√			

Consultations on past/present concerns (also inform them of the intended works)[38]

Picture Glossary:

[38] Consultations attached in Appendix AVIII.2

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Yard area for equipment storage	Soakpit
	
Additional transformer operating on pathway on wooden blocs	
	
External cable for extra transformer	Extra transformer oil on non-bunded concrete floor

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Fire extinguishers and sand bucket at yard	First Aid box
	
First aid box and stretchers for emergency	Water storage underground tank
	
Toilet – male & female signage	Load Management log book

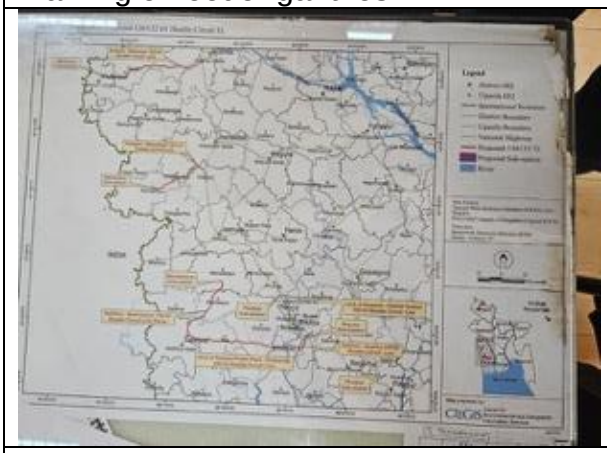
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Control Panel	Entry to station and control room building
	
Control Room building	Security Room
	
Sand filling	Bounded water tank inside PGCB campus
	
JCB working on spreading and	Land development in case of low-lying

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compacting sand	lands by raising the height of these lands up to the standard height of main access road
	
Sand filling ongoing	Sand buckets
	
SF6 gas storage bottles	Empty Fire -extinguisers and bottle in store
	
Insulator storage in yard for ongoing works	CT/PT storage

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Ongoing testing at substation yard	
	
Marking of feeder gantries	Cable Reel storage at yard
	
Diagram showing new project lines under contruction	Danger signage

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Signage	Signage
	
North (Water bodies)	South (Control Room & Road)
	
East (PGCB quarter & Water bodies)	West (Water body)
	
Existing substation picture	Existing substation picture

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Pictures of Access Road	Proposed substation extension picture
	
Consultation with PGCB officials	Consultation with PGCB officials

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Appendix XIII: Substation Land Record and Adminstrative Locations

AXIV.1: New Substation Land Details

SN	Name of Substation	Required Land (acre)	Type of Land	No. of Landowners	Number of Share-copper	Type of Crops	Cropping Pattern	Land Ownership	
								Private	Gov.
1	Pekua VRE Hub Station	32	Salt	10	10	Salt	Triple Crops	32.00	0.00
2	Madhabpur Double Bus	10	Agriculture	12	1	Amon and Boro	Double Crops	8.95	1.05
3	Monohardi Double Bus	10	Agriculture	12	1	Amon and Boro	Double Crops	10.00	0.00
4	Tungipara	4	Agriculture	3	0	Amon	Single Crops	4.00	0.00
5	Dupchanchia	3	Agriculture	23	1	Peddy, Mustard, Potatoes	Triple Crops	3.00	0.00
6	Matlab (N)	3	Agriculture	6	0	Amon and Boro	Double Crops	3.00	0.00
7	Kusthia (Kumarkhali)	4	Agriculture	19	2	Amon and Boro	Double Crops	3.82	0.18
8	Chatkhil/Sunaimuri	3	Agriculture	6	0	Amon and Boro	Double Crops	3.00	0.00
9	Mathbaria	4	Agriculture	22	0	Amon	Single Crops	4.00	0.00
10	Paikgacha	5	PGCB	0	0	PGCB Land		0.00	5.00
Total		**78**		**113**	**15**			**71.78**	**6.22**

Source: SES survey and Tree Inventory Survey, June 2024

Table 2.2 : Impact on land for substation from project RP

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AXIV.2: Administrative Location of Substations

SN	Name of Sub-stations	Required Land (acre)	Division	District	Sub-district/ City corporation	Mouza Name	Coordinates
I	New Substations						
A	**List of New 400/230/132 kV Substation with Capacity**						
1	Pekua VRE Hub Station 400/230/132 kV AIS	32	Chattogram	Cosx's Bazar	Pekua/ Chokoria	Poschim Boro Bheoula	21.750836 91.992352
B	**List of New 230/132/33kV Substation**						
2	Madhabpur : 230/132/33 kV AIS Double Bus	10	Syhlet	Habiganj	Madhabpur	Baksair	24.123460 91.315404
3	Monohardi 230/132/32 kV AIS Double Bus	10	Dhaka	Narshindi	Monohardi	Kismat Soraikandi	24.168008 90.718274
C	**List of New 132/33kV Substation**						
4	Tungipara 132/33 kv AIS	4	Dhaka	Gopalganj	Tongipara	Baladanga	22.918729 89.903929
5	Dupchanchia 132/33kV AIS	3	Rajshahi	Bogura	Dupchancia	Islampur	24.892665 89.159309
6	Matlab (N)132/33 kV AIS	3	Chattogram	Chandpur	Matlab (N)	Charpapalokodi	23.413469 90.633791
7	Kusthia (Kumarkhali) 132/133kV AIS;	4	Khulna	Kustia	Kumarkhali	Charaikhal	23.87051989.222 328
8	Chatkhil 132/33 kV AIS	3	Chattogram	Noakhali	Chatkhil	North Kaloyai	23.056956 91.081256
9	Paikgacha 132/33 kV AIS:	5	Khulna	Khulna	Paikgacha	Chalk Bogura	22.57868289.297 260
10	Mathbaria 132-33kV AIS Substation	4	Barishal	Pirojpur	Matbaria	Gulishakhali	22.232129 89.971724
Sub-total		**78 Acres**					
II	**132kV AIS bay extensions**						
1	Bajitpur Substation	0 (own land)	Dhaka	Kishoreganj	Kishoreganj	Duliachar	22.229098 90.886019
2	Gopalganj (Old) Substation	0(own land)	Dhaka	Gopalganj	Gopalganj Sadar	Karargati	23.030920 89.826365
3	Kachua 230/132 kV Substation	0(own land)	Chattogram	Chandpur	Haziganj	Turaghor	23.267303 90.865413
4	Satkhira Substation	0(own land)	Khulna	Satkhira	Satkhira Sadar	Binerputa	22.743134 89.092294
5	Bhandaria:	0(own land)	Barishal	Pirojpur	Bandaria Sadar	PurbaBandaria	22.480878

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SN	Name of Sub-stations	Required Land (acre)	Division	District	Sub-district/ City corporation	Mouza Name	Coordinates
							90.069815
Sub-total		0					
Grand Total		**78 acres**					

Source: SES survey and Tree Inventory Survey, June 2024

And Table 2.2 : Impact on land for substation from project RP

AXIV.3: Transmission Line Details

SL	Name of the TLs/Lilo	Length (km)	Division	District	Sub-district/ City corporation	Coverage Mouza
(i)	**Name of the Transmission Lines**					
A	**230/132/33kV Lines**					
01	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132kV line	75	2 Division (Chattogram and Sylhet)	2-District Habiganj and B-baria	5-Upazila (Madhubpur, Bijaynagar, Saril, Asuganj, and B-bariasadar)	14 Mouzas (Fotehpur, Horitola, Kalikapur, Nowapara, Satiyan, Naranpur, Itakhula, Andiura, Hariya, Chandura, Soshoi, Dariyapur, Ashtogram, Poitola
02	Monohardi-Bajitpur 132kV double circuit line	20.52	Dhaka	2 District Narsingdi and Kishoreganj	4 Upazila Monohari, Kotiadi, Kuliarchar and Bajitpur	15 Mouzas(Shariyakandi, Chalakchor, Narandi, Monohordi, Sollabait, Kachikata,Dhulirchor, GoboiraAbdullapur, Pirojpur,Lohjori, Jamalpur,Paikan, Borochapa, Beer-Maijdiya and Boro Mirjapur)
	Subtotal	**95.52**				
B	**132/33kV Lines**					
03	Gopalganj - Tungipara 132kV double circuit line	18.37	Dhaka	Gopalganj	2 Upazila (Gopalganj Sadar and tongipara)	1 Mouza (Baladanga)
04	Kachua- Matlab(N) 132kV double circuit line	32.81	Chattogram	Chadpur	3 Upazilas (Uttar Matlab, Dakshin Matlab and Haziganj)	13 Mouzas (Charpapalokodi, Krishnopur,Boleirkandi, Boro-Laxmipur,Beloti, Gorairkandi,Nagada, Ramra, Esapur, Kakaikaf Kajirgao, Baora and Kalcho)
05	Satkhira- Paikgacha 132kV double circuit line	29.79	Khulna	2- District Satkhira and Khulna	4 Upazilas (Paikgacha, Ashasonit, Tala and Satkhira Sadar	10 Mouzas (Chakbogora, Sreedhobpur,Ashasonit, Dorgapur,Khashbagan, Sonai, Raoli,Khorihati,Hossenpur andBinerputa)

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SL	Name of the TLs/Lilo	Length (km)	Division	District	Sub-district/ City corporation	Coverage Mouza
06	Bhandaria-Mathbaria 132kV double circuit transmission line	31.62	Barishal	2 District (Jhalakathi and Pirojpur)	3 Upazila (Bandaria, Mothbaria and Kathalia)	20 Mouzas (Gulishakhali, Kobotorkhali, Vechki, Ghoshertikikata, Harzinolboniya, Soto Harzi, Niyamatpura, Morichboniya, Ptikhalghata, Atorkhali, Banai, Gazipur, Kanoa, Gouripur, Bhandariya, Ekri, BetagiSinghokhali, Mirokhali, Nolboniya and Uttar Chechri)
	Subtotal	112.59				
	Total TLs	208.11				
(ii)	**Name of the LILO Lines**					
A	**400/230/132kV Lines**					
07	LILO of Existing Matarbari PP-Bashkhali PP double circuit 400kV line at Pekua	12.66	Chattogram	Chokoria	Cox's Bazar	2 Mouza Poschim Boro Bhewla and Dhemoshiya
08	LILO of Anwara-Cox’s Bazar 230Ky line at Pekua	0.50	Chattogram	Chokoria	Cox's Bazar	2 Mouza Poschim Boro Bhewla and Dhemoshiya
09	LILO of Existing Matarbari (132/33)-Chakaria 132kV line at Pekua	1.30	Chattogram	Chokoria	Cox's Bazar	2 Mouza Poschim Boro Bhewla and Dhemoshiya
	Subtotal	14.46				
B	**230/132/33kV Lines**					
10	LILO of Cumilla(N) - Shahjibazar PP 230kV double circuit line at Madhabpur	1.20	Sylhet	Habiganj	Madhubpur	Baksair
11	LILO of Shahjibazar - Brahmanbaria 132kV double circuit line at Madhabpur	1.20	Sylhet	Habiganj	Madhubpur	Baksair
12	LILO of Sripur - Ashuganja 230kV	5.12	Dhaka	Narsingdi	Monohardi	5 Mouza Sonarampur, Talsahar, Astogram, Puthai and Dariapur

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SL	Name of the TLs/Lilo	Length (km)	Division	District	Sub-district/ City corporation	Coverage Mouza
	double circuit line at Monohardi					
	Subtotal	7.52				
C	**132/33kV Lines**					
13	LILO of Bogura(S) - Naogaon 132kV line at Dupchanchia	1.90	Rajshahi	Bogura	Dupchahia Sadar	2 Mouza (Dim Sahar and Islampur)
14	LILO of Bheramara-Rajbari, 132 kv line at Kushtia	0.60	Khulna	Kustia	Kumarkhali	1 Mouza (Choraikul)
15	LILO of Chowmuhani-Ramganj 132kV double circuit line at Chatkhil	2.00	Chattogram	Noakhali	Sunaimuri	1 Mouza (North Kaloyai)
	Subtotal	**4.50**				
	Total LILO	**26.48**				
	Grand Total (TLS+LILOs)	**234.59**				

Source: SES survey and Tree Inventory Survey, June 2024

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Appendix XIV: Terms of Reference for Safeguards Implementation Consultant

A. Purpose of the ToR

Power Grid Company of Bangladesh Limited (PGCB) intends to engage an INGO/ Consulting firm to implement the environmental and social safeguards for "Power Transmission Strengthening and Integration of Renewable Energy Project". The Terms of Reference (ToR) is prepared for the INGO/ Consulting firm to be engaged in implementing the Resettlement Plan (RP), Initial Environmental Examination (IEE) and Environmental Management Plan (EMP) and Gender Action Plan (GAP). As a part of the GAP, a Gender Equality and Social Inclusion (GESI) strategy for PGCB will be developed. The ToR includes the approach and methodology of activities to be performed by the INGO/ Consulting firm. The ToR also includes a guideline to plan, implement and evaluate the activities within the Resettlement Plan/Environment Management Plan along with the technical resources to be required for this purpose.

To become eligible for this purpose, the INGO/ Consulting firm must be a Resettlement Implementation Organization and have environment assessment and management expertise duly registered with the relevant authority of the Government of Bangladesh. The Firm will ensure PGCB and their contractor implement the resettlement plan/EMP based on the Acquisition and Requisition of Immovable Property Act (ARIPA, 2017), Electricity Act, 2018 & Electricity Rules, 2020, Bangladesh Environmental Conservation Act, 1995 (amendments in 2010), Environment Conservation Rules, 2023, National Environmental Management Action Plan (NEMAP), 1995 etc. and ADB's Safeguard Policy Statement (SPS) 2009.

B. Introduction to the Project

Electricity is an inevitable part for diversified development of our country. Bangladesh's electricity consumption rose at a compound annual growth rate of 8.4% per annum from 36.5 terawatt-hours (TWh) in 2010 to 82.0 TWh in 2020,5 and the power generation capacity has also increased fourfold from 4.9 gigawatt (GW) in 2010 to 21.3 GW in 2022. The Government achieved its target of 100% electrification in March 2022. However, the per capita electricity consumption in 2020 was only 498 kilowatt-hours (kWh), still among the lowest in Asia and the Pacific region, indicating a significant potential for future growth. Further, the Government attaches high priority to agriculture and rural development to reduce poverty and improve food security for the country's poor. A reliable and uninterrupted power supply is essential for agriculture and rural development. The Government has therefore placed a high priority on expanding and modernizing the power transmission infrastructure by employing advanced smart grid technologies to provide uninterrupted and reliable power supply across the country including rural areas, and ensure optimized grid operational efficiency. Therefore, Power Grid Company of Bangladesh Limited (PGCB) under Ministry of Energy, Power and Mineral Resources (MoEPMR) has taken up a project for construction of substations and transmission lines named "Power Transmission Strengthening and Integration of Renewable Energy Project" for reliable power supply. The Project will be funded by the Asian Development Bank (ADB).

This ToR is for implementation of the RP, IEE/ EIA and EMP and GAP for the Project. The proposed project aims to support the government in (i) enhancing the reliability, resiliency, and efficiency of the power transmission grid in the rural areas of Narshingdi, Gopalganj, Khulna, Pirojpur, Bogura, Kushtia, Chandpur, Noakhali, Cox's Bazar and Habiganj located in the Bangladesh Economic Corridor (BEC) region and (ii) integrating the anticipated increase in renewable energy generation in the VRE Hub in Southern Chattogram. This will (i) serve the fast-growing demand for electricity in the BEC region, (ii) reduce transmission system losses, and (iii) facilitate the integration of renewable energy resources. The project will employ advanced smart grid technologies, build the institutional capacity of PGCB by developing a roadmap and action plan for commercial borrowing for PGCB and training on operation and maintenance (O&M) and

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emergency management of transmission system, strengthen safeguards capacity, and support inclusiveness in PGCB's operations by strengthening and monitoring gender equality and social inclusion (GESI) requirements during and after project implementation.

C. Objective of the Consulting Services

The objective of the consultancy service under this Terms of Reference (ToR) is to provide socio-environmental and management support to the PMU, and the regional level officials of PGCB to implement the program ensuring compliance with the policies / guidelines of the Government of Bangladesh (GoB) and the Asian Development Bank (ADB). Broadly the objective is summarized below:

- Updating the IEE/EIA and RP reports;
- Conduct comprehensive supervision and monitoring of project implementation activities carried out by the contractor(s) to ensure total compliance with the EMP requirements, drawings, technical specifications and various stipulations in the contract documents;
- Conduct environment, ecology, health & safety, social and resettlement implementation as well as monitoring and prepare related safeguard documents following IEE/EIA, EMP and RAP of the Project;
- Support the PMU/regional units in project planning, implementation, monitoring, and reporting;
- Assist the PMU/regional units to develop and deliver training programs for its staff and other stakeholders in environmental and social aspects. The functions of these programs are to improve levels of competence to their duties and responsibilities.

1.1 Social and Resettlement Perspectives

The primary objective of involving an INGO/ Consulting firm by PGCB is to carry out implementation activities and strengthening of delivery capabilities of the employer at the field level to implement the Resettlement Plan (RP). The INGO/ Consulting firm will build up a team with trained field workers to provide necessary institutional support to the employer in identifying, informing and mobilizing all APs during the RP implementation. They will ensure that all eligible APs receive their respective entitlement and can resettle properly in terms of acquiring agricultural land and other properties. The INGO/ Consulting firm will coordinate with the Employer, and Deputy Commissioner on a regular basis to discuss progress and constraints in the RP implementation process. In case of raising any critical issue not covered by the provision of the RP, the INGO/Consulting firm can make necessary recommendations consulting with the representatives of different committees (PVAC, GRC and JVC) to solve it.

1.2 Environmental Safeguards, Ecology and Health & Safety (Labor) Perspectives

The Consultants shall assist PGCB to undertake supervision and monitoring of IEE and EMP implementation in the field, and prepare a bi-annual social and environmental monitoring reports on the implementation of the Environmental Management Plan (EMP) and RP including implementation arrangements, mitigation and monitoring requirements, compensation and entitlement payments, grievances records and resolutions, and meaningful consultations with affected persons and communities, to ensure that the preparation, design, construction implementation, operation and commissioning of the Project comply with (a) all applicable laws and regulations of Bangladesh relating to environment, health and safety; (b) ADB Safeguard Policy Statement, 2009; (c) the Environmental Safeguards; (d) all measures and requirements set forth in the IEE, the EMP, RP and any corrective or preventive actions set forth in a safeguard monitoring report, and (e) any violation of environmental standards under this Project is corrected. The bi- annual report shall be submitted within 2 weeks by end of June and December

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of each year, due with ADB by 15 January and 15 July. The monitoring results will also be included in the quarterly progress reports.

1.3 ADB Safeguards Policy Statement 2009

The operational policy of ADB includes the Safeguard Policy Statement of 2009 (SPS, 2009) which covers environment safeguards, involuntary resettlement, and indigenous people. Safeguard policies are generally understood to be operational policies that seek to avoid, minimize, or mitigate adverse environmental and social impacts, including protecting the rights of those likely to be affected or marginalized by the development process. The policy under all 3 safeguard issues involves a structured process of impact assessment, planning, and mitigation to address the adverse effects of projects throughout the project cycle. The safeguard policies require that (i) impacts are identified and assessed early in the project cycle; (ii) plans to avoid, minimize, mitigate, or compensate for the potential adverse impacts are developed and implemented; and (iii) affected people are informed and consulted during project preparation and implementation.

D. Project Details Related to Social and Resettlement

1.1 Impacts on Resettlement

The project is expected to acquire mostly agricultural private land for the proposed 10 new substations. To minimize the resettlement impact, government-owned lands have been considered to be selected wherever possible that are free of any resettlement. for the construction of the 10 substations, approximately 78 acres of land will be acquired. The total land impacts will be reconfirmed upon finalizing the site selections for the substations and project components. The location has already identified and finalized, and the process of land acquisition has been initiated through the district collector. However, the land acquisition has not been completed, and compensation is yet to be paid, but it will be part of the project preparation social due diligence and addressed in the RP. The physical displacement and the severity of impacts are expected to be minimal.

The project entails the reconductoring and construction of transmission lines spanning approximately 75 kilometers and 158 kilometers respectively, which require land for tower footings and temporary impact within the rights of way. The Government has enacted the Electricity Rules, 2020, which stipulates that compensation will be provided to the landowners and other affected persons for assets affected by the transmission lines. Temporary impacts, such as loss of crops and trees, are anticipated along the transmission lines' right of way, with any impacts on structures under or within the right of way to be identified. Compensation for all asset losses shall be in accordance with the prevailing laws of the Government and in compliance with ADB's SPS 2009, calculated at replacement cost. Compensations to be paid before land possession by the project and any displacement and construction works. The assessment of all resettlement impacts shall be conducted through field surveys, detailed measurement surveys, and a census of affected persons, aiming to cover 100% of affected households.

Table A-1: Summary impacts of the project

SN	Project Impacts	Substation	Transmission Line	Tower footings	Total
Land					
1	Amount of land to be required (acre)	78	-	48.12	126.12
2	Amount of land to be acquired (acre)	73	-	-	73
3	Amount of land to be compensate (acre)	-	-	48.12	48.12
Households					
4	Number of HH to be affected	331	116	1394	1841
5	Number of HH losing only land (as per Khatian and Census)	255	-	-	255

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SN	Project Impacts	Substation	Transmission Line	Tower footings	Total
6	Number of Wage earners lose their income	-	-	-	-
7	Number of Sharecroppers lose their income	-	-	-	-
8	Number of vulnerable HHs	20	-	15	35
9	Total number of persons affected	1324	464	5576	7364
10	Number of trees affected	191	2,638	-	2829

1.2 Land Acquisition and Resettlement Policies

1.2.1 Legal Framework of the Government of Bangladesh

Current legislation governing land acquisition in Bangladesh is the Acquisition and Requisition of Immovable Property Act of 2017. The Act of 2017 requires that compensation be paid for land and assets permanently acquired (including standing crops, trees, houses); any other damage caused by such acquisition.

The Deputy Commissioner (DC) determines the market price of assets based on the legislative procedures and in addition to that, pays an additional 200 percent on the assessed market value established by DC Office. Provisions for payment of crop-compensation to tenant cultivators cover under the Act 2017 for the Project-affected persons, but without title to land or ownership record, such as informal settlers/, occupiers, and informal tenants and leaseholders (without registration document) are not titled for compensation and does not ensure replacement market value of the property acquired.

The Act 2017 has provision for providing compensation to the affected titled affected people for this Project for land acquisition.

1.2.2 ADB Policy

The Safeguard Policy Statement (SPS) of ADB (2009) includes safeguard requirements for environment, involuntary resettlement and indigenous people.

The objectives of the Involuntary Resettlement Safeguard policy are to avoid involuntary resettlement wherever possible; to minimize involuntary resettlement by exploring project and design alternatives; to enhance, or at least restore, the livelihoods of all displaced persons in real terms relative to pre- project levels; and to improve the standards of living of the displaced poor and other vulnerable groups. The involuntary resettlement safeguards cover physical displacement (relocation, loss of residential land, or loss of shelter) and economic displacement (loss of land, assets, access to assets, income sources, or means of livelihoods) as a result of (i) involuntary acquisition of land; or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas. It covers them whether such losses and involuntary restrictions are full or partial, permanent or temporary. The three important elements of ADB's SPS (2009) are: (i) compensation at replacement cost for lost assets, livelihoods, and incomes prior to displacement;

(ii) assistance for relocation, including provision of relocation sites with appropriate facilities and services; and (iii) assistance for rehabilitation to achieve at least the same level of well-being that affected persons had prior to the project. The SPS gives special attention to poor and vulnerable households to ensure their improved well-being as a result of project interventions.

The ARIPA of 2017 provides for the payment of compensation, 3 times of the mouza value for land and 2 times of the market value for other assets and income/livelihood loses, but there can be a gap between this compensation amount and replacement cost required by ADB. If there is a gap between the compensation amount by ARIPA and the replacement value by ADB's SPS, then it will be filled by the project as provided for in the entitlement matrix of the resettlement plan.

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ADB's involuntary resettlement policy recognizes the need for resettlement of physically and economically displaced persons providing them with needed assistance including secured tenure to relocation land, better housing at resettlement sites with comparable access to employment and production opportunities, transitional support and development assistance, such as land development, credit facilities, training, or employment opportunities and civic infrastructure and community services, as required. The regulatory framework in Bangladesh does not provide for such resettlement and rehabilitation assistance for displaced persons. It only provides for cash compensation for properties acquired. This gap between the safeguards requirements of ADB and the national regulatory framework will be bridged through a series of project specific measures built into the resettlement plan such as provisions to pay compensation for non-titleholders who as per the SPS are entitled to compensation at replacement cost for assets other than land affected by the project; and extend special assistance to restore and improve the livelihoods of the affected persons including the vulnerable groups such as elderly and women headed households.

Carrying out meaningful consultations with affected persons, host communities, and concerned nongovernment organizations and establishing a grievance redress mechanism that would receive and facilitate resolution of the concerns of the affected persons are key policy requirements of ADB. The ARIPA does not make any provisions for consultations or a project- based grievance redress mechanism. The law provides only limited space for the affected persons to raise objections to land acquisition (after section 5 Notice under ARIPA is issued) while disputes over land acquisition must be settled through an arbitrator or the courts of law. Therefore, the vacuum for consultations and grievance redress procedures observed in the regulatory framework will be addressed through the resettlement plan.

1.3 Resettlement Principles Adopted by the Project

Based on the national regulatory framework and the safeguards policy of ADB, the project implementation will be guided by the following safeguards principles.

1. Adverse impacts arising from project design, planning and implementation including involuntary resettlement would be avoided, minimized, and mitigated by exploring design alternatives.
2. Project related information including entitlements to affected persons will be disclosed in a timely manner and will be made available in places easily accessible to them and in local languages.
3. Consultations will be carried out with the affected persons and their communities to elicit their views and suggestions on project design and implementation procedures, and to ensure their participation in project planning, implementation, and monitoring.
4. Permanent and temporary loss of crops, standing trees and commercial trees due to project constructions will be compensated at replacement cost as determined by the Property Assessment and Valuation Committee (PAVC) to be established by the executing agency.
5. Civil construction works will be scheduled for off-farming seasons to minimize adverse impacts on crops and cultivations. If unavoidable, affected persons will be compensated at replacement cost for their loss of production and incomes.
6. Vulnerable persons/households, severely affected households/persons affected and those to be physically displaced by land acquisitions will be provided with special assistance as per the entitlement matrix of the resettlement plan.
7. All entitlements and compensation will be paid to the affected persons prior to possession of land by the project and the commencement of the civil construction work.
8. Livelihoods and incomes of all displaced persons will be restored and improved.

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9. Affected households will be eligible for compensation, irrespective of tenure status, titled owners or non-titled social or economic standing, and any such factors that discriminate against achievement of the resettlement objectives. Lack of legal rights to lost assets, tenure, social or economic status will not bar the affected households from entitlement to compensation and assistance.
10. A project grievance redress mechanism will be established at different levels from construction sites to the executing agency level to receive and resolve any grievances from affected persons, and to be resolved within a reasonable time frame.
11. Contractual agreements with construction companies will ensure that contractors adopt adequate safety measures, and avoid accidents and disturbances to communities causing from noise, dust, access restrictions etc. A resettlement plan will be developed incorporating affected persons entitlements, compensation procedures, plans for livelihood and income restoration and improvement, grievance redress mechanisms, etc. will be disclosed in an accessible place and in a form and language(s) understandable to the affected persons and other stakeholders. Contractual agreements shall have provisions EPC contractors' surveys on updating/verifying the resettlement impact (including land, crops, trees and so on) on the ground based on final alignments of the project components and transmission lines
12. Compliance with the safeguards policies and principles by the executing agency and the outcomes and impacts of resettlement will be monitored both internally.

1.4 Mitigation of Adverse Resettlement Impact

As per the census, the Project will have resettlement impacts. The compensation entitled for the loss of land at replacement cost and income restoration assistances are detailed in the entitlement matrix of the RP. Special support for affected people belonging to vulnerable groups is included in the Resettlement Plan.

The APs will be entitled to-

- compensation for the loss of land, crops/trees at their market value;
- assistance for loss of wage income;

This will ensure that persons affected by land acquisition will be eligible for appropriate compensation and or resettlement assistance. Persons having no legal title but using the land under acquisition, if vacated for the Project purposes, would be provided with compensation and resettlement assistance for all loss assets and income/livelihoods, structures at replacement cost and shifting/reconstruction allowances as per ADB SPS.

Households having customary rights to land for instance sharecroppers are also covered under the RP. The resettlement activities of the Project will be carried out in consultation with the APs and all efforts will be made to minimize disruption during implementation. AP preferences will be taken into account in relocating and resettling the affected persons.

An entitlement matrix has been prepared on the basis of currently known impacts by the IoL, Census Survey of the Project that identified the level of impacts on different resources including land. The matrix shows the entitlements for each type of losses. In case of additional impacts identified during implementation, the entitlement matrix will be revised through inclusion of compensation and assistance for the additional impacts as per the resettlement policy framework of the Project.

1.5 Resettlement Scope of Work and Responsibilities

The responsibility for the effective, timely and efficient execution of the resettlement activities will lie with the PGCB and facilitation by the INGO/ Consulting firm. The INGO/ Consulting firm will be responsible to the Project Director for payment of entitlement and relocation as

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applicable of the APs based on Cash Compensation under Law (CCL) would be made by concerned DCs within short period of time of signing the contract.

The general scope of work for the selected INGO/ Consulting firm will include:

1.5.1 Logistics

- Recruitment, deployment and training of the PGCB and project staff of HQ and field;
- Setting of office, equipment and implementation tools.

1.5.2 Consultations of Affected People

- • Information and communications campaign;

1.5.3 Support in Compensation Payments and Resettlement Benefits

- Carry out additional census and IOL (including tower footing compensation), if required for verification;
- Identification of entitled persons (EPs);
- Preparation of EP file, entitlement card and payment statement;
- Assist in collecting CCL;
- Computerization of DC Office data (calculation sheet, DC Award, share determination);
- Preparation of supplementary LAP during implementation for any "left out" land/plots or
- disputed area required for Project implementation;
- Disbursement of resettlement benefits;
- Collection of documents and photographs during payment of any type of compensation (e.g., tower footing, land, crop etc.);
- Prepare sketch maps for tower footing compensation.

1.5.4 Assistance in securing land

- • Support APs in the search for alternative land to buy with documentation and negotiation;

1.5.5 Participation in Grievance Redress Committee (GRC)

- • participation in grievance redress committee (GRC);.

1.5.6 Monitoring of RP implementation

- • Preparation of monitoring and supervision reports to IA as agreed in the contract..

The general tasks and responsibilities for the selected INGO/ Consulting firm in all the stages of the process for RP update (Addendum preparation as needed) and implementation; preparatory stage, implementation stage, monitoring and evaluation stage will be as follows:

1.5.7 Preparatory /Updating Stage

Carry out a census and/or verify IOL: the INGO/ Consulting firm will carry out, where needed, additional census and/or verify existing IOL for compensation purposes. In case new areas or type and number of affected assets, livelihoods and so on are to be acquired, the INGO/ Consulting firm will have to carry out census for additional areas and resettlement impact.

Creation of Inventory of Losses (IOL):

- Collection and computerization of Land Acquisition (LA) & Tower footing compensation inventory, land owner details, all other impact as crops, trees, structure and other livelihood and assets, joint verification data, payment of cash compensation under law data and resettlement entitlements benefit payment data, and reconciliation of all these;
- Creation of an electronic database of inventory of losses and dislocations.

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Preparation/updating of EP file: Prepare the entitled persons' files bringing together all her/his losses or update on a regular basis.

Preparation/updating of entitlement card: Prepare or update 'entitlement card' for the individual EPs as per their types of losses and the amount of compensation due for each type of losses from legal title and compensation for all non-land assets loss to non-titled APs, and the amount of Resettlement Benefit to be paid by PGCB.

Consultation and Information disclosure campaign: Design, plan and implement and consultation and information campaign in the Project affected areas to ensure Affected Persons (APs) are aware of the type of impact, their entitlements and assistance measures and how to avail them. The campaign would include activities, such as, translating the information booklet in Bengali and distributing information booklets, leaflets, notices among the APs. Besides,

INGO/ Consulting firm accompanied by PGCB representative staff will be carrying out public consultation meeting, public announcements, and any other individual meetings with APs and measures necessary to provide information to all APs in the Project area. The campaign should also inform APs on the Grievance Redress Mechanism, contact information and its procedures.

Information dissemination and feedback: Assist PGCB and the local representatives in organizing public consultation and recording the outcome of the meetings. Ensure dissemination of information on the Project and resettlement policy to the Project-affected persons and others (community groups, local administration, etc.), who are instrumental in effective and transparent implementation of the RPs.

Support PGCB in the establishment of the Grievance Redress Committee, Joint Verification Committee, and Property Valuation Advisory Committee (GRC, JVC and PVAC): Support the establishment of the grievance redress mechanism. The INGO/ Consulting firm should support PGCB in setting up the GRC, JVC, PVAC and provide advice to ensure its smooth implementation.

1.5.8 Implementation Stage

Identification of entitled persons (EPs) and issuance of ID card: Assist PGCB field personnel in identifying and issuing ID cards to the entitled persons identified as per Resettlement Framework (RF) and Addendums as needed and duly certified by the UP members.

Preparation/updating of payment statement: Prepare and/or update payment statements for individual EPs as per their types of losses and the amount of compensation due for each type of losses from legal title and the amount of resettlement benefit paid by PGCB.

Disbursement of resettlement benefit: Process payment of additional benefits based on the price approved by MoPEMR following recommendation of PVAC and ensures that all resettlement benefits are paid accordingly.

Participation in Grievance Redress Committee (GRC): Build personal rapport and confidence with the Affected Persons (APs) and ensure that they are fully aware of the grievance redress procedure and the process of bringing their complaints to the GRCs. Assist the APs in filing grievances. Investigate the accuracy of the complaints and try to settle them amicably, fairly and transparently before they go to the redress committee or the court of law. Assist GRC in settling the dispute and prepare minutes of the GRC meetings and communicate the decisions to the parties involved. Assist the PGCB to set up a system for the project on grievance records and resolution status in HQ and also management on local levels, including by contractors.

Assistance to EPs in the process of resettlement: The EPs and their losses will be identified and recorded in EP file. The EPs will be informed of the resettlement compensation and entitlements,

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benefits adequately. Payment of entitlement will be processed and assisted in collection of those. They should be guided in relocating and investing the compensation and resettlement benefit in an appropriate manner.

1.5.9 Monitoring and Evaluation Stage

Monitoring tools for implementation progress: Prepare monitoring tools covering RP implementation issues as follows to monitor the progress:

- Land Acquisition (LA) progress;
- LA and other loss assets compensation payment (CCL) progress;
- Compensation and entitlement payments progress;
- Tower Footing compensation progress;
- Preparation and distribution of Bengali version of brochures and booklets/ leaflets with summary of the RP and other safeguard documents; and
- Awareness level of the stakeholders including the APs on GRM, RP, entitlement matrix, project works schedule and so on, by different awareness programs.

Monitoring and supervision: Generate progress reports for real-time monitoring of RP implementation progress using user-friendly menu driven software. The software will simultaneously be operated by the RU, INGO/ Consulting firm the construction supervision contractor, as well as by PGCB, so that all the organizations are aware of the progress and problems instantly. Monitoring and supervision will include the following:

- Implementation progress;
- Utilization of manpower input;
- Internal coordination meetings; and
- Meeting between client and INGO/ Consulting firm.

Progress Reporting: The RP requires that all EPs are paid the stipulated compensations/entitlements before they are evicted from the properties and/or construction work begins. The INGO/ Consulting firm will provide monthly report to PGCB on the progress in RP implementation, including any issue that might be hindering progress, separately for each civil works contract. The INGO/ Consulting firm will design tabular and other formats appropriate for reporting on the above information. To the extent possible, the Tables will have to be pre-programmed in the menu-driven MIS and the quantitative reports will have to be generated directly. The report will contain the following together with the progress reporting:

a. A clear and complete account of work performed in each Project component;
b. Work plan for the next reporting period;
c. Status of funding and expenditure; and
d. Identification of any problems encountered or anticipated that would affect the completion of the Project within the time and money constraints set forth in the agreement, together with recommended solution to such problems.
e. Update RP Report (via Addendums to RP if required)
f. Preparation of Semi-annually Social Safeguard Monitoring Reports

Technical services: Prepare software for reconciliation of data bases, create database, prepare software for EP file and EC or their updating, calculating and processing payment, progress and performance and participatory monitoring. In this regard, a computerized Management Information System (MIS) will be developed by the INGO/ Consulting firm for the use of PGCB and ADB Review team.

1.6 RP Update and Implementation Period

Update and Implementation of the RP will begin prior to the commencement of

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construction/engineering works in any kind of resettlement and assets loss impacted site. A total of 60 months is planned for the update and implementation of RP. The update and implementation work will be scheduled to start when possible and will continue till the end of the implementation within the scheduled date of time period.

1.7 RP Activity Schedule

The INGO/ Consulting firm will be engaged by the implementation agency (IA) i.e., for a period of 60 months/ completion of the Project activities from the date of commencement of service. The selected INGO/ Consulting firm will assist IA in implementing the tasks set out in Table A2. Using the estimated man-months (Table A3) the INGO/ Consulting firm should show the duration of their services and total time in weeks as per requirement of the services.

Table A-2: Activity Schedule for Implementation of RP

SN.	Activities	Duration	Total Time (Weeks)
1	Recruitment, training and assist in collecting CCL deployment		
2	Census/Additional LAP, if needed		
3	Meaningful consultation and Information disclosure campaign with affected communities and persons		
4	Identification of EPs		
5	Technical services		
6	Preparation of EP file		
7	Preparation of EC		
8	Preparation of Payment statement		
9	Payment of compensations, Resettlement Benefit		
10	Assis in setting up a well-functioning GRM for the project; Participate in GRCs, JVC and PVAC		
11	Assist EPs in the Process of Resettlement		
12	Monitoring and Supervision, Reporting		

1.8 Other social activities outside the RP implementation

1.8.1 Assist to Implement Labor Management Plan (LMP)

- INGO/ Consulting firm will assist to implement Labor Management Plan (LMP). LMP will be prepared by the contractors as sub-plan to their Construction Environmental Management Plan, in accordance with the contract and EMP's labor requirements. The INGO/ consulting firm will review the plan prepared to ensure it will enable the Project to comply with Bangladesh labor law and ILO guidelines with respect to working conditions on site and worker accommodation before it is approved by PGCB. Particular attention must be paid to ensuring subcontractor and work gang compliance by the main contractor. The INGO/ consulting firm will then supervise and monitor implementation on at least a monthly basis (see environment safeguards).

1.8.2 Assist to Implement Stakeholder Engagement Plan (SEP)

- INGO/ Consulting firm will assist to implement Stakeholder Engagement Plan (SEP). In the first instance the INGO/ consulting firm will identify all stakeholders and prepare the SEP on behalf of PGCB in line with the RP, IEE and EMP and GAP. It should outline the engagement activities, by whom and by when they will be delivered. They will then support PGCB in its implementation, ensuring contractors also comply through supervision and monitoring of their activities reporting monthly on consultation activities undertaken (see environment safeguards).

1.8.3 Implement Gender Action Plan (GAP)

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- INGO/ Consulting firm will implement the Gender Action Plan (GAP).

1.8.4 Arrange and Assist Contractors on Labor Management and Stakeholder Engagement Training sessions

- Organize and deliver labor management and stakeholder engagement training sessions for PGCB staffs and officials and EPC contractors in accordance with the EMP requirements. Labor topics to cover Bangladesh labor law, CLS, ILO guidelines, ADB/EMP requirements, preparation of the LMP by contractors, challenges with using and management and monitoring of subcontractors and work gangs' labor compliance, communicable diseases, worker code of conduct etc. Topics for stakeholder engagement to cover the importance of community involvement, grievance redress etc. The training manual should be specifically made with respect to its target audience.

1.8.5 Arrange and Assist Contractors on GESI Training sessions

- Organize Gender Equality and Social Inclusion (GESI) training sessions for PGCB staffs and officials. Four training sessions (2 for staffs and 2 for officials) will have to be arranged and each session shall include 35 participants (i.e., the training will facilitate 70 staffs and 70 officials) from PGCB. The training manual should be specifically made with respect to its target audience;
- Assist EPC contractors with training on safe energy use for beneficiaries, and gender-based violence (incl. sexual exploitation, abuse, and harassment) including women and awareness raising for students including girls in schools in and around the rural areas where the infrastructure will be established;
- Assist EPC contractors with training people including women from the communities under this component in energy-based livelihoods and entrepreneurship.

1.8.6 Public Awareness on Health and Safety and Social Risks and Impacts associated with construction of substations and towers

The INGO/ Consulting firm will be responsible for carrying-out Public Awareness on Health and Safety and Social risks and impacts associated with construction of sub-stations and towers in the area of influence of the project (which goes beyond people affected by resettlement activities). These activities go beyond the scope of the RP implementation, they are related to the EMP and GESI. They include:

EMP

a. Conduct in all settlements in the area of influence health and safety awareness sessions on construction and electrical safety with the support of the contractors in accordance with the EMP requirements.
b. Construction and electrical safety preventative awareness materials to be prepared in accordance with the EMP requirements, brochures or pamphlets to be distributed and billboards and signs are set up in strategic places at the substations and along the transmission lines during and after construction.

GESI

a. Conduct human-trafficking gender segregated awareness sessions.
b. The target is to have at least 100 community members (with 40% women) living around the sub-stations participate in Public Awareness Campaigns; and
c. Human trafficking preventative awareness billboards and signs are set up in strategic places along the sub-stations during and after construction.

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• **Arrange and Assist Contractors on GESI Training sessions**

Gender Equality and Social Inclusion (GESI) targets for education, training, and awareness-raising campaigns will be established under this Project, through which PGCB's capacity for inclusive development will be initiated. The activities in fulfilling the GAP targets include as following:

a. Organize Gender Equality and Social Inclusion (GESI) training sessions for PGCB staffs and officials. Four training sessions (2 for staffs and 2 for officials) will have to be arranged and each session shall include 35 participants (i.e., the training will facilitate 70 staffs and 70 officials) from PGCB. The training manual should be made with respect to its target audience;
b. Assist EPC contractors with training on safe energy use for beneficiaries including women and awareness raising for students including girls in schools in and around the rural areas where the infrastructure will be established;
c. Assist EPC contractors with training people including women from the communities under this component in energy-based livelihoods and entrepreneurship.

1.8 Other Social Activity Schedule

The INGO/ Consulting firm will be engaged by the implementation agency (IA) i.e., for a period of 60 months/ completion of the Project activities from the date of commencement of service. The selected INGO/ Consulting firm will assist IA in implementing the tasks set out in Table A2. Using the estimated man-months (Table A3) the INGO/ Consulting firm should show the duration of their services and total time in weeks as per requirement of the services.

Table A-2: Activity Schedule for Implementation of Other Social Activities

SN.	Activities	Duration	Total Time (Weeks)
	Safeguards		
1	LMP review/approval		
2	Labor training		
3	LMP Monitoring and Supervision, Reporting (monthly)		
4	Identification stakeholders, SEP preparation		
5	Stakeholder engagement training		
6	Public awareness on health and safety		
7	SEP Monitoring and Supervision, Reporting (monthly)		
	GESI		
8	Arrange and Assist Contractors with GESI Training		
9	GESI Monitoring and Supervision, Reporting		

E. Project Details Related to Environment, Ecology, Health & Safety

1.1 ADB Policy requirements for Environment

ADB's Environmental Safeguard Requirements outline the requirements that borrowers/clients are required to meet when delivering environmental safeguards for projects supported by the Asian Development Bank (ADB). It discusses the objectives and scope of application, and underscores the requirements for undertaking the environmental assessment process. These requirements include assessing impacts, planning and managing impact mitigations, preparing environmental assessment reports, disclosing information and undertaking consultation, establishing a grievance mechanism, and monitoring and reporting. It includes particular environmental safeguard requirements pertaining to biodiversity conservation and sustainable management of natural resources, pollution prevention and abatement, occupational and community health and safety, and conservation of physical cultural resources. The applicability

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of particular requirements is established through the environmental assessment process, as documented in the IEE, and compliance with the requirements is achieved through implementation of the environmental management plan agreed to by ADB and the borrower/client. Key international good practice to which ADB refers and which are applicable to the project are the IFC EHS general guidelines, the IFC EHS guidelines on power transmission and distribution and the ILO safety and health in construction guidelines, and guidelines on worker accommodation.

Impacts and risks will be analyzed in the context of the project's area of influence. This area of influence encompasses (i) the primary project site(s) and related facilities that the borrower/client (including its contractors) develops or controls, such as power transmission corridors, pipelines, canals, access roads, borrow pits and disposal areas, and construction camps; (ii) associated facilities that are not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project; (iii) areas and communities potentially affected by cumulative impacts from further planned development of the project, other sources of similar impacts in the geographical area, any existing project or condition, and other project-related developments that are realistically defined at the time the assessment is undertaken; and (iv) areas and communities potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location. The area of influence does not include potential impacts that might occur without the project or independently of the project. Environmental impacts and risks will also be analyzed for all relevant stages of the project cycle, including preconstruction, construction, operations, decommissioning, and post closure activities such as rehabilitation or restoration.

The assessment will identify potential transboundary effects, such as air pollution, increased use or contamination of waterways, as well as global impacts, such as emission of greenhouse gases and impacts on endangered species and habitats.

The environmental assessment will examine whether particular individuals and groups may be differentially or disproportionately affected by the project's potential adverse environmental impacts because of their disadvantaged or vulnerable status, in particular, the poor, women and children, and Indigenous Peoples. Where such individuals or groups are identified, the environmental assessment will recommend targeted and differentiated measures so that adverse environmental impacts do not fall disproportionately on them.

1.2 Impacts on Environment

During the construction phase of the project, there will be some environmental impacts with machinery and vehicle movement for construction tower foundations, the erection of towers and stringing of conductors. Various activities will take place for towers and new SS construction including land filling, storage of construction materials, activity of workers and movement of construction vehicles. Particular attention needs to be paid to noise and the management of piling mud generated by the contractor. Contractor needs to avoid soil compaction, piling, blasting and other vibration inducing activities as much as possible. If piling is required, method statement for management of piling mud needs to be prepared to ensure the immediate adjacent waterbody is protected, there must be no discharge of piling mud to surface water. Mitigation measures are proposed in the Environmental Management Plan (EMP) and will be included in contracts to ensure that good practices are observed as per the measures identified in the EMP. Pollution risk at substations will continue into the operation phase, at this stage PGCB will be responsible for EMP implementation but PGCB will have needed to ensure that the contractor's designs are adequate to facilitate compliance e.g. inclusion of transformer bunding etc.

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1.3 Impacts on Health and Safety (Labor)

The safety and health of workers and the public may be impacted due to the hazards created during the construction and operation period. It is anticipated that the risk of accidents during the construction period is moderate to high due to the operation and movement of heavy equipment, vehicles and machineries. Working at heights, with electricity and other construction activities as well as excess overtime of workers may pose occupational and safety risks. Exposure of workers who maintain the transmission lines may also pose health risks. Community health and safety due to the presence of workers, construction and electrical works in the public domain and along busy roads, due to construction traffic, structural safety of immediately adjacent buildings due to vibrations from piling work etc.

1.4 Impacts on Ecology

Site clearing activities at the substation sites and along the ROW of the transmission lines can lead to removal of vegetation, which can have impacts on the biodiversity in the surrounding area. Removal of terrestrial flora can result in loss of habitats for fauna. Migratory birds coming in the project sites mostly Pekua, and Paikgacha and some other substation sites which may decrease due to noise and loss in food resources. Ecological surveys, consultations and documentation is required to ensure no threatened species, avifauna, aquatic ecology of the wetland or salt pan be affected by the Project. Risks to wildlife from transmission lines will continue into the operation, PGCB will have needed to ensure that the contractor's designs are adequate to facilitate compliance e.g. inclusion of bird divertors etc.

1.5 Assist to Implement, Supervise and Monitor Environmental Safeguards

- Support PGCB in developing the training plan and provide environment management training to the PGCB project staff and contractors as per the EMP requirement including operationalization of the grievance redress mechanism, ongoing meaningful consultation etc.
- Ensure PGCB field staff are capacitated to undertake environmental safeguards supervision and monitoring on a day-to-day basis.
- Ensure environment and ecology aspects of the EMP requirements are reflected in all bidding and contract documents and reflected in bid evaluation, detailed designs prior to approval etc.
- If during detailed sites/routes change or in other case of an unanticipated impact provide update the IEE/ EIA/ EC for design changes etc. including field surveys and meaningful consultations. Ensure ADB reviews and clears any updated IEE for disclosure before works are commenced in relation to design changes and that the EC remains valid in respect of them.
- Participate in monthly meetings to discuss EMP implementation progress and any issues
- Review CESMP for the construction work with subplans for specific construction work activities, waste management subplan etc.
- Develop the systems for site inspections by PGCB field staff undertaking day-to-day supervision and weekly and monthly checks by the INGO/ consulting firm, ensure environment record keeping by the contractor, and ensure monthly reporting in suitable format for including in QPR/ semi-annual EMR by the contractors.
- Undertake environment audit to confirm status of PGCB implementation of corrective action for existing substations prior to contractor being given access.
- Undertake routine site inspections, weekly environment management checks with active works at each package being checked at least once per month along with store areas, issue internal stop notices, if necessary, for polluting or otherwise unacceptable activities, issue internal non- compliance and observation reports, and identify time bound corrective action where required

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- Support annual renewal of the EC from Department of Environment (DoE)
- Ensure contractor obtains and maintains records of all necessary environmental permits, licenses etc.
- Ensure contractor undertakes environmental monitoring and maintains records per the EMoP
- Support PGCB in undertaking quantitative monitoring requirements e.g., air, noise, water quality levels where this is their responsibility e.g. during operation, and ensure the contractor's quantitative monitoring is being undertaken in accordance with the requirements of the EMoP.
- Provide monthly reports to PGCB and environment input to the QPR and semi-annual environment monitoring reports
- Undertake awareness raising activities for workers and to the community to make them aware of the environmental risks posed by the Project and grievance redress and support PGCB with ongoing community consultations.
- Ensure resolution of environment related grievances at project level.
- Provide the safeguards section including a detailed annex on safeguard performance of the project completion report in relation to the environment management.

1.6 Assist to Implement, Supervise and Monitor Health and Safety (Labor)

(scope applies to the health and safety specialist, and social development specialist supporting labor management in respect of overseeing working conditions and worker's accommodation)

- Support PGCB in developing the training plan and provide health and safety and labor training to PGCB project staff and contractors as per the EMP requirement.
- Ensure health and safety and labor aspects of the EMP requirements are reflected in all bidding and contract documents and reflected in bid evaluation, detailed designs prior to approval etc.
- Develop the systems for daily site inspections by PGCB field staff undertaking day-to-day supervision and weekly and monthly checks by the INGO/ consulting firm, ensure H&S and labor record keeping including records from subconsultants and work gangs by the contractor, ensure monthly reporting in suitable format for including in QPR/ semi-annual EMR by the contractors. for labor records to include copies of insurances, contracts and working hours, eligibility of construction workers for employment etc.
- Participate in H&S risk assessment workshops for detailed design and for specific construction work activities, review risk assessments and H&S plans for the construction work with subplans for specific construction work activities.
- Participate in monthly meetings and H&S committee meetings to discuss EMP implementation progress and any issues with respect to H&S and labor management.
- Undertake routine site inspections, weekly H&S checks including sanitation and welfare provision checks with active works at each package being checked at least once per month, monthly labor checks of each package including detailed review of sanitation and welfare provisions and all worker accommodation, issue internal stop notices, if necessary, for unsafe activities, issue internal non-compliance and observation reports, and identify time bound corrective action where required.
- Ensure contractor maintains H&S statistics records for near misses, as well as incidents, report them accordingly to PGCB with lessons learned to avoid future repeats.
- Provide monthly health and safety and labor reports to PGCB and input to the QPR and semi- annual environment monitoring reports.
- Support resolution of health and safety and labor related grievances.
- Undertake awareness raising activities for workers and to the community to make them aware of the H&S risks posed by the Project and grievance redress, and for workers to raise awareness on Government of Bangladesh labor laws.

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- Provide the safeguards section including a detailed annex on safeguard performance of the project completion report in relation to the H&S and labor management.

1.8 Assist to Implement, Supervise and Monitor Ecology/Biodiversity Management

- Conducting ecological studies in potentially sensitive areas prior to contract award: to confirm assumptions in the IEE regarding the sensitivity of the wetland or salt pan sites/routes near to these habitats for migratory and other birds, seasonal bird counts reporting numbers per species will be conducted prior to contract award. If unanticipated impacts not accounted for in the IEE are identified following these ecological studies, support PGCB to develop additional biodiversity management measures for agreement with ADB to ensure no net loss of biodiversity will result.
- Provide ecological training to the PGCB project staff and contractors as per the agreed training plan and EMP requirement. Ensure PGCB field staff are capacitated to undertake ecological supervision and monitoring on a day-to-day basis, and that the contractors understand the ecological surveys to be undertaken and records to be kept by them.
- In accordance with the EMP requirements conduct periodic ecology related pre-construction field surveys/monitoring studies on behalf of PGCB.
- Provide ecological support in ensuring adherence to biodiversity provisions in the EMP e.g., full- time supervision of contactor's site and vegetation clearance. During periods of site and vegetation clearance, and then as required, participate in monthly meetings to discuss EMP implementation progress and any issues with respect to ecology/biodiversity management.
- Monitor the 1:3 compensatory tree plantation undertaken by the contractor, ensuring that trees planted are well maintained.
- Ecological Report on EMP implementation will be prepared semi-annually during the construction and operation phases.

1.9 Environmental management plan implementation arrangements.

- The INGO/Consulting firm will have the overall responsibility for supervising and monitoring the implementation of the EMP by PGCB and the contractors, coordinating the project level GRM arrangements, and reporting to PGCB and ADB through the PGCB ESMU focal. The INGO/Consulting firm will internally assign staffs listed in Table A-3 below to supervise, implement and monitor the effective implementation of the EMP – social development specialist will assist with labor and stakeholder engagement aspects. To ensure that the contractors comply with the EMP provisions, the consultants will prepare and provide specific clauses for incorporation into the bidding documents based on the advanced contracting example: (i) to ensure activities proposed in the EMP are completely budgeted by the bidders; (ii) to provide environmental clauses for contractual terms and conditions as per PGCB, ADB, and international good practices to the bidder;[39] and (iii) to ensure complete environmental base line and environmental audit information of all existing facilities to the project is provided to each bidder.
- PGCB will be responsible for corrective action at existing facilities at existing SS unless they assign these to the contractor, and certain pre-construction requirements. Construction contractors will be responsible for implementing the stipulated mitigation

[39] During the design, construction, and operation of the project, the borrower/client will apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety Guidelines. These standards contain performance levels and measures that are normally acceptable and applicable to projects. When host country regulations differ from these levels and measures, the borrower/client will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the borrower/client will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in this document. for labor management, the ILO safety and heath in construction guidelines and ILO worker accommodation guidelines to be referred.

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measures defined in the EMP during the pre-construction and construction period. Operational measures will also need to be reflected upon in the detailed design. Each contractor will assign persons responsible for environment, health, and safety who shall be responsible for implementation of EMP at the site. Their staff will assume day-to-day responsibility for supervising the performance of the contractors and their adherence to the EMP and environment monitoring plan along with the PGCB field staff (engineers). PGCB will manage the contract and the INGO/ consulting firm must immediately communicate any stop work requirement through them.

- The INGO/ consulting firm will (i) review and (through the PGCB contract management team) approve contractors' EMP implementation; (ii) conduct site inspections; and (iii) work in preparing six monthly monitoring reports on EMP implementation in English. PGCB will submit them to ADB for review and disclosure until the issuance of project completion report.
- The effectiveness of the mitigation measures listed in the EMP will be evaluated through environmental monitoring and reporting, and periodic review missions of PGCB ESU, PMU staff and ADB. Environmental monitoring will be conducted by the government environment monitoring agencies or certified monitoring companies of project components.
- Assurances for environmental safeguards have been prepared and are included in the loan and project agreements.

1.10 Environment Management Plan budget

PGCB through ADB project will make available the necessary budget and human resources through each of INGO/Consulting and contractors to fully implement the EMP. for any unanticipated environmental risks and impacts which may include any change in scope of work or a design change to a subproject arise during construction or operation of the project that were not considered in the IEE and/or EMP, the INGO/Consulting firm should promptly inform PGCB in writing of the occurrence of such risks or impacts, with detailed description of the event and the proposed action plan for incorporation in the updated EMP, as necessary for onward communication to ADB. The update of the IEE and EMP shall be done INGO/Consulting firm working in consultation with PGCB which is required to be cleared for disclosure by ADB before it is implemented.

No.	Type of Environment Mitigation/Monitoring Activity	Periodicity of reporting
1	Awareness activities for EMP[a]	
2	Support the implementation of mitigation activities	
3	Reviewing and revising the IEE and EMP[b]	
4	Review Environment parameters testing (quarterly) - included in civil works contract	
5	Training and consultancy[c]	
6	Monitoring activities document	
7		

EMP = environmental management plan, PCR = project completion report.

[a] Includes activities to provide awareness on EMP to relevant stakeholders and public communities in surroundingareas of construction sites as well as informing them of the roles and responsibilities of various parties involved.

[b] Revision of initial environmental examination/EMP, if change in scope happens during implementation (estimate two times).

[c] Training costs for items.

1.11Consultation, Information Disclosure, and Grievance Redress Mechanism

INGO/Consulting firm will conduct meaningful consultation with affected people in respect of environmental impacts and risks (which goes beyond people affected by resettlement activities)

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during project implementation. INGO/Consulting firm will be responsible for local information disclosure arrangements, including disclosure of corrective action plan and updated IEE. INGO/Consulting firm shall be responsible for assisting in establishing the GRM and addressing environment safeguard related grievances.

1.12Institutional strengthening and training

INGO/Consulting firm will provide training to the PGCB safeguard unit, PGCB project staff and contractors. The training activities will be organized by the INGO/Consulting firm and executed by the environment, health and safety; ecologist experts (as well as the social development specialist in respect of labor, stakeholder engagement) to support the environmental safeguard issues under the Project. In addition to the upfront training required at inception stage, each year two rounds of training will be provided with focus on environmental management plan implementation, roles and responsibilities, GRM, monitoring, supervising and reporting, and lessons learned.

1.13Reporting

INGO/Consulting firm key staff will support with contractor staff for their monthly reports and shall further provide quarterly report to the PGCB on safeguards issues. The INGO/Consulting firm will consolidate the information required in the semiannual monitoring report and submit to PGCB for transmission to ADB.

F. Support to be Provided by the IA

The implementation INGO/ Consulting firm /will be provided with the Resettlement Plan, IEE and EMP, and a map showing locations of Project, ecology/terrain and mouza maps.

G. Accounts and Records

The INGO/ Consulting firm shall keep accurate and systematic accounts and records in respect of the services in such form and detail as are customary in its profession and sufficient to establish accurately that the remuneration and reimbursable out-of-pocket expenses have been duly incurred. Thus, the INGO/ Consulting firm shall collect the documents, photographs, and/or other records during any type of compensation (e.g., tower footing, land, crop etc.) and surveys and site visits for environment safeguards. The INGO/ Consulting firm shall permit duly authorized representatives of the Client, to inspect and make an audit of all such documents, accounts and records in connection with payments made in accordance with this contract.

H. Ownership of Documents and Equipment

All reports, documents, correspondence, draft publications, maps, drawings, notes, specifications, statistics, work product in any form and, technical data compiled or prepared by the INGO/ Consulting firm and communicated to the Client in performing the services (in electronic form or otherwise and including computer-disks comprising data) shall be the sole and exclusive property of the client, and may be made available to the general public at its sole discretion. The INGO/

Consulting firm may take copies of such documents and data for purpose of use related to the services under terms and conditions acceptable to the client but shall not use the same for any purpose unrelated to the services without the prior written approval of the client. All computer program developed by the INGO/ Consulting firm under this contract shall be the sole and exclusive property of the client; provided, however, that the INGO/ Consulting firm may use such programs for their own use with prior written approval of the client.

Equipment and materials furnished to the INGO/ Consulting firm by the client or purchased by the INGO/ Consulting firm wholly or partly with funds supplied or reimbursed by the Client hereunder, shall be the property of the client. Equipment or materials brought into by the INGO/

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Consulting firm and the personnel and used either for the Projector personal use shall remain the property of the INGO/ Consulting firm or the personnel concerned, as applicable.

I. Monitoring and Evaluation of INGO/ Consulting firm Work

In order to monitor progress of INGO/ Consulting firm work in RP/IEE and EMP implementation, an appropriate monitoring format should be prepared with score/weight against each activity and sub- activities. User-friendly menu driven software should be used to generate progress reports for monitoring the progress regularly. The software will be simultaneously operated by the RU and INGO/ Consulting firm and the PGCB project team so that all the organizations are aware of the progress without delay.

Proper orientation to the PGCB staff members is to be given so that they can supervise the INGO/ Consulting firm activity appropriately from the very beginning and operate the menu-driven MIS to remain updated about the progress and problem. CCL payment records should be collected from DC office regularly and be compared with the payment data of the INGO/ Consulting firm so that the progress achieved, mistakes made, if any by the stakeholders in the process of RP implementation are checked and verified instantly. Before making payment of entitlement, land schedule and census data or any environment mitigation cost to contractor will be compared with the payable amount and works done, to avoid mistakes or fraud.

Criteria for measuring performance of INGO/ Consulting firm staff: There are number of actions needed in collecting CCL and grants. The INGO/ Consulting firm operatives will investigate the steps completed so far in collecting compensation for a particular plot. Data collected through Focus Group Discussions in this connection will be processed in a computerized system to monitor the progress in CCL and grant collection by the EPs. Performance evaluation of the INGO/ Consulting firm operatives, especially the field staff will be judged by that progress. Production and application of RP/EMP implementation tools, payment of grants, resettlement of APs as well as no of EMP mitigation efforts effectively implemented should also be the basis for calculating INGO/ Consulting firm performance.

The INGO/ Consulting firm will develop monthly progress reporting format as per the requirement of the ADB and PGCB. Based on the quantitative reports generated through the above- mentioned computerized system monthly progress report by INGO/ Consulting firm will be prepared and submitted to the RU and PGCB. The INGO/ Consulting firm will ensure the following issues in implementation of the RPs in addition to the above.

J. Coordination

The INGO/ Consulting firm will meet regularly with the PGCB to discuss progress and constraints on activities during the previous month. Actions to be taken and the key actors for the tasks concerned will be identified as tasks assigned from respective agencies. In case, any items are not covered by the RP and EMP, the coordination meeting should come up with recommendations, which should be approved and implemented through executive order of the PGCB.

Payment of service charges: Bills for the INGO/ Consulting firm services will be paid as per the progress achieved during the preceding month.

K. Criteria for INGO/ Consulting firm Selection

- The INGO/ Consulting firm to be selected must have proven experience in all of the above tasks of Resettlement Planning and implementation as per ADB SPS and/or other IFIs safeguard policies, IEE preparation and EMP implementation including environment, H&S and labor supervision and monitoring, and GESI.
- The INGO/ Consulting firm shall have the demonstrated capacity to mobilize the required qualified, trained and experienced field staff.

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- The INGO/ Consulting firm shall have the experience in implementation of large Resettlement Plan/EMP like the present Project, the preparation of IEE for SS and TL projects, and with successful supervision and monitoring of multiple packages and contractors.
- The INGO/ Consulting firm must have at least ten years of working experience in the implementation of resettlement and land acquisition, and environmental management and monitoring under externally funded development program.
- The INGO/ Consulting firm must be registered under the Social Welfare Department or under NGO Affairs Bureau or Joint Stock Company.
- for Environment management and monitoring activities, the INGO/Consulting firm must have a proven track record for undertaking 3 similar assignments for IEE preparation, and 3 similar assignments for EMP implementation for ADB or other donor agency funded projects in last 5 years.
- for GESI, the INGO/Consulting firm must have a proven track record for undertaking 3 similar assignments for ADB or other donor agency funded projects in last 5 years.
- The INGO/ Consulting firm must present certificate/s from the concerned Government department/agency to verify its satisfactory performance in resettlement social/census surveys, environment mitigation, planning and implementation of Resettlement Plan/EMP, monitoring and evaluation through effective management information systems and preparation of analytical reports that meet the standards of ADB.
- The INGO/ Consulting firm shall have to present audit report for the past three years.

L. Staffing

The INGO/ Consulting firm must be able to present evidence of sufficient qualified, experienced and trained qualified manpower to be mobilized to this end. The INGO/ Consulting firm shall have to provide staff input to carry out the works under this Terms of Reference. The man-months and designation of the staff shall have to be as stated in table below. The INGO/ Consulting firm should show the duration of their services and limit as per requirement in consultation with the civil works contract. If settlement of legal issues on land acquisition requires longer time, the INGO/ Consulting firm may have to demobilize for a period with respect to resettlement aspects as per the request from the executing agency in writing while continuing to monitor the environment parameters and performing environmental management activities as per ADB SPS 2009 guidelines and implementing GESI activities.

Table A-3: Man-month and Designation of the Staff

Item No.	Position	Number of Staff	Estimated Man-month
A. Key Staff			
1	Team Leader/ Resettlement Specialist	1	30
2	Deputy Team Leader/Social Development Specialist (Labor and Stakeholder Engagement)	1	30
3	Environment Specialist	1	30
4	Health & Safety Specialist	1	30
5	Ecologist	1	10
6	Gender Specialist[1]	1	20
7	MIS specialist	1	10
Sub-total		**7**	**160**
B. Non-Key Staff			
1	Area Manager	1	30
2	Resettlement worker	5	150
4	Community mobilizer[1]	2	20
Sub total		**9**	**200**

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Total	**16**	**360**

[1] ToR has been attached to Attachment-1

M. Qualifications and Experience of Key Staff

Table A4 presents a general description of key staff including qualification and minimum required experience.

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Table A-4: Qualification of the Key Staff and Minimum Required Experience

Position	Academic Qualifications	MinimumYears of Experience	Specific Experience
Team Leader/Resettlement Specialist	MSS in Social Science	15	Experience in planning and implementing resettlement program and compliance with safeguard policy requirements of ADB SPS (2009) and /or other IFIs, including but not limited to (i) leading and supervising multidisciplinary teams engaged in socioeconomic development activities; (ii) multidisciplinary action research/surveys; and thorough knowledge of (iii)Bangladesh land administration system and land acquisition laws; (iv) process and function arise involved in land administration and acquisition; (v)report writing capability; and ability to demonstrate personal integrity and create a transparent and accountable work environment. Experience in energy sector projects will be advantageous.
Deputy Team Leader /Social Development Specialist	MSS in Social Science	10	Experience in (i) leading and supervising multidisciplinary teams engaged in socio economic development activities; (ii) ability to conduct methods; and thorough knowledge of (iii) Bangladesh land administration system and land acquisition laws –specifically the property valuation process; (iv) the process and functionaries involved in land administration and acquisition; and (v) report writing capability. Experience in energy sector projects will be advantageous. For other social activity inputs: Experience of preparing labor management plans Experience of labor management site supervision; Experience of preparing stakeholder engagement plans; Experience of managing a GRM; Experience of capacity development; Report writing capacity and fluency in English is required.
Environmental Specialist	Minimum Post-graduate	15	Experience in preparation, implementation of EMP and preparation of EMR according to ADB's SPS (2009). Experience of preparing environmental assessments. Experience of environment site supervision. Experience in environmental training and

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Position	Academic Qualifications	MinimumYears of Experience	Specific Experience
			capacity development. Experience of environment supervision on MDB funded projects in a range of countries including those with mature environmental assessment and management enforcement practices and Bangladesh. Report writing capacity and fluency in English is required.
Health & Safety Specialist	Bachelors and masters in engineering or related field with IOSH, NEBOSH or equivalent healthand safety certification	10	Experience of preparing health and safety risk assessments and management plans Experience of health and safety site supervision Experience in health and safety training and capacity development. Experience of health and safety supervision on MDB funded projects in a range of countries including those with mature health and safety management practices and Bangladesh. Report writing capacity and fluency in English is required.
Ecologist	M.Sc. in Zoology/ Botany/ Environmental Science	10	He/ She must have experience in surveying of ecology in order to manage the potential impacts within the eco-sensitive areas and preparation of ecological reports. Ability to identify flora and fauna of Bangladesh Experience of overwintering migratory bird counts Experience of ecological site supervision Report writing capacity and fluency in English is required.
Gender Specialist	MSS/MA/ M.Sc. in social science or gender studies or related studies	20	Thorough knowledge of gender issues and their implications in development Projects; research and work experience relating to gender issues; and knowledge of techniques and their applications in mobilizing community participation in development programs. ToR has been added to Attachment-1.
MIS Specialist	MSS/MSc in Social Science/ Statistics/ Computer science	10	Working experience and knowledge of software, preferably relational, those are most commonly used in Bangladesh; demonstrated ability to design and implement user friendly menu-driven MIS (s) for monitoring progress and generate reports as and when necessary.

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N. Deliverables

- Socioeconomic, census, IOL and environmental screening survey report for review and comments of the PMU;
- Market survey report is to be submitted to PMU. The report shall contain name of the respondent with address and unit rate of affected properties in tabular format;
- Stakeholders/ focus group meetings report is to be submitted. The report shall contain list of participants along with venue, date, time, topics of discussion and outcome of the meeting;
- All database and outputs would be delivered to the PMU with user friendly menu driven software after completion of each assignment;
- Prepare and update RP for zone wise for submission (Package/ Substation/ Transmission Line);
- Submit full RAP report after Project completion;
- Quarterly GAP implementation progress report and GBV Prevention Plan (site specific). ToR has been attached to Annexure-1 in this regard;
- Organizing GESI trainings for PGCB officials and staffs and assisting EPC contractors with trainings related to GESI along with proper documentation;
- Site Specific Labor Management Plan;
- Updated IEE and EMP;
- Ecological Survey Reports;
- Monthly progress, quarterly progress, and semi-annual social monitoring reports, RAP and IEE/ EIA/EMP implementation report;
- Safeguard, GAP, LMP, Tree Plantation training to PGCB and contractors;
- Final Report on the activities performed as per ToR shall be submitted to the PMU incorporating comments of PGCB and ADB, if any;
- Assist contractor to prepare CESMP/ site specific EMP and associated other reports by compiling data and documents and submitting comments to PMU for subsequent approval;
- Field visit schedule/ plan and submission of weekly checklists and associated reports quarterly and semi-annually;
- Laboratory data (monitoring) analysis and validation report (data needs to be collected from contractor semi-annually) and submission of data to PMU;
- Compensation assessment and status report for tower plie, pile cap, tower erection, ROW etc.;
- Submission of sketch maps for tower footing compensation;
- Assessment of grievances and associated report;
- Audit report for existing substations, and for construction environment, social, health & safety with time bound corrective action plans;
- Project Completion Report.

The reporting requirement shall be as per below:

1. **Inception Report:** The Consultant shall submit and present an inception report within one month after signing the contract. The report will include the consultant's proposals on the detailed project implementation arrangements and the planned activities for different components based on the initial assessment. The report will also include a detailed work program and approach towards the assignment. The report needs to be finalized within 15 days after receiving the comments from PGCB.
2. **Updated Resettlement Plan.** As required, the consultant will prepare the update for review by PGCB and ADB and respond to all comments received to enable the report to

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be disclosed.

3. **Updated IEE/EMP.** As required, the consultant will prepare the update for review by PGCB and ADB and respond to all comments received to enable the report to be disclosed.
4. **Monthly Report:** The consultant will submit monthly report which must reflect all the activities undertaken during the month of report. Report must contain the target and achievement.
5. **Quarterly Reports:** The consultant shall furnish quarterly progress reports on physical and financial progress and also on implementation progress including achievements and problems faced, if any, and the measures to overcome the constraints. The quarterly reports shall be factual and concise with recommendations for the subsequent quarter-it shall contain the information required for onwards transmission to ADB.
6. **Bi-annual Reports:** The consultant shall furnish to PGCB a bi-annual report covering all activities in the last 6 months. In addition to summarizing key facts and issues presented in the 2 quarterly reports for the reporting period, the bi-annual report should include the Consultant's views on the strengths and weaknesses of the project implementation arrangement and remedial actions to be taken if any.
7. **Semi-annual environmental monitoring reports and social monitoring reports.** for onwards transmission to ADB.
8. **Annual Reports:** The consultant shall furnish to PGCB an annual report covering all activities in the last 12 months. In addition to summarizing key facts and issues presented in the 4 quarterly reports for the reporting period, the annual report should include the Consultant's views on the strengths and weaknesses of the project implementation arrangement and remedial actions to be taken if any.
9. **Project Completion Report:** The consultants shall assist PGCB to prepare a project completion report within 6 months of physical completion of the Project.

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Appendix XV: Inventorisation for Substations

All inventorisation details including photographs are sourced from SES survey conducted in June 2024 and Resettlement Plan

XV.1 New Substations

A. List of New 400/230/132 kV Substation with Capacity

1. Pekua VRE Hub Station 400/230/132 kV AIS

NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		Pekua VPE Hub Station 400/230/132 KV AIS
A	**Location of the Substation**	
1.	Name of the District	Coxs Bazar
2.	Name of the Sub-district/Upazila	Chakaria
3.	Name of the Village/Block	Elisha
4.	Name of The Mouza	Pacchim Boro Vaula
5.	Name of the Union/Ward	Vaula
6.	Total extent of land required (Acre)	32 Acre
6.1	Total Extent of Private Land (Acre)	32 Acre
6.2	Total Extent of Government Land (Acre)	Nil
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	To be purchased
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	To be acquired
8	Plot No	
9	Coordinates of the land	Latitude: 21.750990 Longitude: 91.993024
10	Surrounding landscape:	**North**: Road **South**: Salt Pan and Khal **East:** Salt Pan **West:** Salt Pan and Residential
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Salt Pan
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Salt pan and local fish/shrimp cultivation
13	Whether the land is irrigated or non-irrigated?	n/a
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways,	School: 200 meter Mosque: 400 meter Bridge: 400 meter Khal: 150 meter Pond: Salt Pan within Proposed Land

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td></td><td>railway tracks, schools, hospitals, forest reserves etc.)</td><td></td></tr>
<tr><td>C.</td><td colspan="2">Current Land Use – Vegetation</td></tr>
<tr><td>15</td><td>If cultivated, type of crops cultivated</td><td>Salt</td></tr>
<tr><td>16</td><td>No. seasons that cultivation is conducted</td><td>2 time</td></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>no</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>None</td></tr>
<tr><td>20</td><td>If yes, how many residential/commercial structures (Details of structures such as no of structures by type/category of structure and length/width, No of Household etc.)</td><td>N/A</td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td>N/A</td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>N/A</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>11</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>11</td></tr>
<tr><td>23.2</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>10</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>Yes</td></tr>
<tr><td>26.</td><td>Any particular issue/s related to the substation land</td><td>No</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>2-3 meter</td></tr>
</table>

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NO.	REQUIRED INFORMATION	DESCRIPTION
28.	Access Road distance Road from sub-station	2 meter

Photographs of Substation/sub-project



North: Road and Salt Pan



South: (Salt Pan and Khal)



East: (Salt Pan)



West: (Salt Pan and Residential)



Proposed substation picture



Proposed substation picture

B. List of New 230/132/33kV Substation

2. Madhabpur: 230/132/33 kV AIS Double Bus

NO.	REQUIRED INFORMATION	DESCRIPTION
	Sub Project Under NESCO/PGCB/BREB:	**PGCB**

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NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		Madhabpur: 230/132/32 KV AIS Double Bus
A	**Location of the Substation**	
1.	Name of the District	Hobiganj
2.	Name of the Sub-district/Upazila	Madhabpur
3.	Name of the Village/Block	Bakshayer
4.	Name of The Mouza	Bakshayer
5.	Name of the Union/Ward	Andiura
6.	Total extent of land required (Acre)	10
6.1	Total Extent of Private Land (Acre)	10
6.2	Total Extent of Government Land (Acre)	None
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	Private
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	To be acquired
8	Plot No	
9	Coordinates of the land	Latitude: 24.124242 Longitude: 91.315474
10	Surrounding landscape:	North: Pond and Agriculture Land South: Restaurant East: Highway Road West: Agriculture Land
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Paddy and Mustard
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Under cultivation
13	Whether the land is irrigated or non-irrigated?	Irrigated
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	Restaurant : 50 meter Mosque: 300 meter Hospital: 2 km Low lying area: On the Proposed Land, permanently inundated area Highway Road: 7 meter
C.	**Current Land Use – Vegetation**	
15	If cultivated, type of crops cultivated	Paddy/ Mustard
16	No. seasons that cultivation is conducted	3 time
17	Are there any trees grown on the land?	no

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>None</td></tr>
<tr><td>20</td><td>If yes, how many residential/commercial structures (Details of structures such as no of structures by type/category of structure and length/width, No of Household etc.)</td><td>N/A</td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td>N/A</td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>N/A</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>13</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>13</td></tr>
<tr><td>23.2</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>12</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>No</td></tr>
<tr><td>26.</td><td>Any particular issue/s related to the substation land</td><td>Interested to giving land</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>4 meter</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>7 meter</td></tr>
</table>

Photographs of Substation/sub-project

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



North: Agriculture Land



South: (Restaurant)



East (Highway Road)



West (Agriculture Land)



Proposed substation picture



Proposed substation picture

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

3. Monohardi 230/132/32 kV AIS Double Bus

NO.	REQUIRED INFORMATION	DESCRIPTION
Sub Project Under NESCO/PGCB/BREB:		PGCB
Name of the Sub-stations		Monohardi 230/132/32 KV AIS Double Bus
A	**Location of the Substation**	
1.	Name of the District	Norshindi
2.	Name of the Sub-district/Upazila	Monohardi
3.	Name of the Village/Block	Chandon-Bari
4.	Name of The Mouza	Soraikandi
5.	Name of the Union/Ward	Chandonbari
6.	Total extent of land required (Acre)	10
6.1	Total Extent of Private Land (Acre)	10
6.2	Total Extent of Government Land (Acre)	None
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	None
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	To be acquired
8	Plot No	
9	Coordinates of the land	Latitude:24.168181 Longitude: 90.717629
10	Surrounding landscape:	**North**: Agriculture Land **South**: Agriculture Land **East:** Highway Road **West:** Agriculture Land
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Paddy
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Abandoned
13	Whether the land is irrigated or non-irrigated?	Irrigated
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	School: 700 meter Mosque: 300 meter Hospital: 3 km Petrol Pump: 400 meter
C.	**Current Land Use – Vegetation**	
15	If cultivated, type of crops cultivated	Paddy
16	No. seasons that cultivation is conducted	2 time

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>no</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th>Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th>Bamboo Bushes</th></tr>
<tr><th></th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th></th></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>None</td></tr>
<tr><td>20</td><td>If yes, how many residential/commercial structures (Details of structures such as no of structures by type/category of structure and length/width, No of Household etc.)</td><td>N/A</td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td>N/A</td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>N/A</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>14</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>14</td></tr>
<tr><td>23.2</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>12</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>No</td></tr>
<tr><td>26.</td><td>Any particular issue/s related to the substation land</td><td>Interested in giving land</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>3-4 meter</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>7 meter</td></tr>
</table>

Photographs of Substation/sub-project

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



North: Agriculture Land



South: (Agriculture Land)



East: (Highway Road)



West: (Agriculture Land)



Proposed substation picture



Proposed substation picture

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

4. Tungipara 132/33 kv AIS

NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		**Tungipara 132/33 kv AIS**
A	**Location of the Substation**	
1.	Name of the District	Gopalganj
2.	Name of the Sub-district/Upazila	Thana- Tungipara
3.	Name of the Village/Block	Balaganj
4.	Name of The Mouza	Baladanga
5.	Name of the Union	Patgati
6.	Total extent of land required (Acre)	4.0 Acre
6.1	Total Extent of Private Land (Acre)	4.0 Acre
6.2	Total Extent of Government Land (Acre)	0.00 Acre
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	Private Land
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	Private Land
8	Plot No	
9	Coordinates of the land	Latitude:22.91872986 Longitude: 89.90392998
10	Surrounding landscape:	North: Crop land South: Crop land East: High land, Crop land West: Baladanga road, Crop land,
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Paddy and High land
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Under cultivation (Boro Paddy), now land is underwater for rain
13	Whether the land is irrigated or non-irrigated?	Irrigated land
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	Baghir river-380 meter (west) Baladanga S.M Mosa school-900 meter
C.	**Current Land Use – Vegetation**	
15	If cultivated, type of crops cultivated	Boro Paddy (one season)
16	No. seasons that cultivation is conducted	One season land

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>Yes</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>12</td><td>23</td><td>8</td><td>11</td><td>25</td><td>23</td><td>0</td><td>8</td><td>4</td><td>0</td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>No</td></tr>
<tr><td>20</td><td>If yes, how many residential structures (Details of structures such as no of structures by type/category of structure and length/width, No of Household etc.)</td><td>No</td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td>No</td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>No</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>3</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>3</td></tr>
<tr><td>23.3</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>3</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>Yes</td></tr>
<tr><td>26.</td><td>Any particular issue/s related to the substation land</td><td>Interested to giving land</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>3-4 meter</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>Adjacent to the land</td></tr>
</table>

Photographs of Substation/sub-project

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.



North (Crop land)



South (Crop land)



East (High land, Crop land)



West (Baladanga road, Crop land)



Pictures of Access Road



Proposed substation picture



Proposed substation picture



Proposed substation picture

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

 Affected Structure/Trees	 Affected Structure/Trees

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5. Dupchanchia 132/33kV AIS

NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		Dupchanchia 132/33kV AIS
A	**Location of the Substation**	
1.	Name of the District	Bogura
2.	Name of the Sub-district/Upazila	Dupchacia
3.	Name of the Village/Block	Islampur
4.	Name of The Mouza	Islampur
5.	Name of the Union/Ward	Dupchacia Sadar union
6.	Total extent of land required (Acre)	3.06 Acre
6.1	Total Extent of Private Land (Acre)	3.06 Acre
6.2	Total Extent of Government Land (Acre)	nil
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	Private land
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	Negotiation on progress
8	Plot No	
9	Coordinates of the land	Latitude: 24.89266556 Longitude: 89.15930935
10	Surrounding landscape:	North: Paddy & Rice mill South: Paddy land East: Assess Road West: Paddy land
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Paddy land
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Paddy land
13	Whether the land is irrigated or non-irrigated?	Irrigated
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	School: 400 meters (Islampur Gove. Primary School) College: 2km (Jahanara Kamruzzaman degree college) Hospital: 3 km(Upazilla Health complex)
C.	**Current Land Use – Vegetation**	
15	If cultivated, type of crops cultivated	Seasonal crops
16	No. seasons that cultivation is conducted	2 times
17	Are there any trees grown on the land?	No

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>Yes</td></tr>
<tr><td>20</td><td>If yes, how many residential/commercial structures (Details of structures such as no of structures by type/category of structure and length/width, No of Household etc.)</td><td>N/A</td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td>N/A</td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>2 Biddut pole</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>23</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>23</td></tr>
<tr><td>23.2</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>23 land owner census survey covered.</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>Negotiation uncompleted. They are interested to sell and get proper market value.</td></tr>
<tr><td>26.</td><td>Any particular issue/s related to the substation land</td><td>N/A</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>2 meter</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>Adjacent to the land</td></tr>
</table>

Photographs of Substation/sub-project

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North (Paddy land & Rice mill)



South (Paddy land)



East (Assess road)



West (Paddy land)



Proposed substation picture



Proposed substation picture



Proposed substation picture



Pictures of Access Road

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

 Affected Structure	 Affected Structure

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

6. Matlab (N)132/33 kV AIS

NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		Matlab (N) 132/33 KV AIS
A	**Location of the Substation**	
1.	Name of the District	Chadpur
2.	Name of the Sub-district/Upazila	Matlab Uttar
3.	Name of the Village/Block	Kolakanda
4.	Name of The Mouza	Charpalolokdi
5.	Name of the Union/Ward	Charpalokokdi
6.	Total extent of land required (Acre)	3 Acre
6.1	Total Extent of Private Land (Acre)	3 Acre
6.2	Total Extent of Government Land (Acre)	Nil
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	Private
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	To be Acquired
8	Plot No	
9	Coordinates of the land	Latitude:23.413237 Longitude: 90.633661
10	Surrounding landscape:	**North**: Road and Residential **South**: Agriculture Land **East:** Agriculture land and residential **West:** Agriculture Land
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Paddy
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Abandoned
13	Whether the land is irrigated or non-irrigated?	Irrigated
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	Temporary house: 50m School: 800 meter Mosque: 300 meter Hospital: 3 km College: 900 meter
C.	**Current Land Use – Vegetation**	
15	If cultivated, type of crops	Paddy

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td></td><td>cultivated</td><td></td></tr>
<tr><td>16</td><td>No. seasons that cultivation is conducted</td><td>2 time</td></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>no</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td></td></tr>
<tr><td>20</td><td>If yes, how many residential/commercial structures (Details of structures such as no of structures by type/category of structure and length/width, No of Household etc.)</td><td>N/A</td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td>N/A</td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>N/A</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>8</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>8</td></tr>
<tr><td>23.2</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>6</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>Yes</td></tr>
<tr><td>26.</td><td>Any particular issue/s related to the substation land</td><td>No</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>2 meter</td></tr>
</table>

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NO.	REQUIRED INFORMATION	DESCRIPTION
28.	Access Road distance Road from sub-station	6 meter

Photographs of Substation/sub-project



North: Road and Residential



South (Agriculture Land)



East (Agriculture land and residential)



West (Agriculture Land)



Proposed substation picture



Proposed substation picture

7. Kusthia (Kumarkhali) 132/133kV AIS

NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		Kusthia (Kumarkhali) 132/133kV AIS
A	**Location of the Substation**	

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NO.	REQUIRED INFORMATION	DESCRIPTION
1.	Name of the District	Khustia
2.	Name of the Sub-district/Upazila	Kumarkhali
3.	Name of the Village/Block	Choraikul
4.	Name of The Mouza	Choraikul
5.	Name of the Union/Ward	Shelaidah
6.	Total extent of land required (Acre)	4 Acre
6.1	Total Extent of Private Land (Acre)	4 acre
6.2	Total Extent of Government Land (Acre)	nil
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	Private land
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	Negotiation on progress
8	Plot No	
9	Coordinates of the land	Latitude: 23.87051944 Longitude: 89.22232487
10	Surrounding landscape:	North: Paddy land South: Road (Dhaka-khustia Hwy) East: Paddy land West: Paddy & residence
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Paddy land
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Paddy land
13	Whether the land is irrigated or non-irrigated?	Irrigated
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	School: 100m (name not known) Kumarkhali Govt. primary school – 2.4Km College: 3 km (Kumarkhali Gove College) Hospital : 2.5 km (Upazilla Health complex)
C.	**Current Land Use – Vegetation**	
15	If cultivated, type of crops cultivated	Seasonal crops (paddy)
16	No. seasons that cultivation is conducted	2 Season
17	Are there any trees grown on the land?	No
18	If yes, what are the trees grown (Type [small, medium, large] and their numbers)	**Type of tree** / Non-fruit bearing (**L M S**) / Fruit bearing (**L M S**) / Medicinal (**L M S**) / Bamboo Bushes

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NO.	REQUIRED INFORMATION	DESCRIPTION
		No. Trees 0 0 0 0 0 0 0 0 0
D.	**Current Land Use – Built Structures**	
19	Are there any built structures on the land?	Yes
20	If yes, how many residential structures (Details of structures such as no of structures bey type/category of structure and length/width, No of Household etc.)s	
21	How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)	Motor pump room: 1 (Length 10 ft, Width 8 ft) 80 sqft (Pucka)
22	How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)	1. Motor -1 2. Biddut pillar - 2
E	**Land Ownership**	
23	No. Landowners (Total)	19
23.1	No. Private landowners	19
23.3	No. Other landowners (e.g. business companies, government agencies)	
24.	No. Landowners covered in the census survey	19 landowners census survey Covered
25.	Landowners willingness to land acquisition	Yes
26.	Any particular issue/s related to the substation land	N/A
27.	What is the land filling requirement? (meter)	4.35m
28.	Access Road distance Road from sub-station	Adjacent to the road

Photographs of Substation/sub-project

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North (Paddy land)



South (Road)



East (Paddy land)



West (Paddy & residence)



Pictures of Access Road



Proposed substation picture



Proposed substation picture



Proposed substation picture

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 Affected Structure	 Affected Structure

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8. Chatkhil 132/33 kV AIS

9. NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		**Chatkhil** 132/33 KV AIS
A	**Location of the Substation**	
1.	Name of the District	Noakhali
2.	Name of the Sub-district/Upazila	**Chatkhil**
3.	Name of the Village/Block	Kolakanda
4.	Name of The Mouza	North Kaloyai
5.	Name of the Union/Ward	Nadona
6.	Total extent of land required (Acre)	3 Acre
6.1	Total Extent of Private Land (Acre)	3 Acre
6.2	Total Extent of Government Land (Acre)	Nil
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	Private
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	To be acquired
8	Plot No	
9	Coordinates of the land	Latitude:23.057626 Longitude: 91.080901
10	Surrounding landscape:	**North**: Highway and Residential **South**: Agriculture Land **East:** Agriculture land **West:** Agriculture Land and pond
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Paddy
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Abandoned
13	Whether the land is irrigated or non-irrigated?	Irrigated
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	School: 600 meter Mosque: 400 meter Hospital: 3 km Khal: 2 meter Houses: 200m

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<table>
<tr><th>9. NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td>C.</td><td colspan="2">Current Land Use – Vegetation</td></tr>
<tr><td>15</td><td>If cultivated, type of crops cultivated</td><td>Paddy</td></tr>
<tr><td>16</td><td>No. seasons that cultivation is conducted</td><td>1 time</td></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>no</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th>Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th>Bamboo Bushes</th></tr>
<tr><th></th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th></th></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td></td></tr>
<tr><td>20</td><td>If yes, how many residential/commercial structures (Details of structures such as no of structures by type/category of structure and length/width, No of Household etc.)</td><td>N/A</td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td>N/A</td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>N/A</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>7</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>7</td></tr>
<tr><td>23.2</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>6</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>Yes</td></tr>
</table>

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9. NO.	REQUIRED INFORMATION	DESCRIPTION
26.	Any particular issue/s related to the substation land	No
27.	What is the land filling requirement? (meter)	3-4 meter
28.	Access Road distance Road from sub-station	35 meter (access needed)

Photographs of Substation/sub-project



North: Highway and Residential



South (Agriculture Land)



East (Agriculture land)



West (Agriculture Land and pond)



Proposed substation picture



Proposed substation picture

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

9. Paikgacha 132/33 kV AIS

NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		Paikgacha 132/33 kV AIS
A	**Location of the Substation**	
1.	Name of the District	Khulna
2.	Name of the Sub-district/Upazila	Paickgacha
3.	Name of the Village/Block	Soronkhali
4.	Name of The Mouza	Chakbogura
5.	Name of the Union/Ward	Loskar
6.	Total extent of land required (Acre)	4.96 Acre
6.1	Total Extent of Private Land (Acre)	4.96 acre
6.2	Total Extent of Government Land (Acre)	nil
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	PGCB owned
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	Acquired already
8	Plot No	
9	Coordinates of the land	Latitude: 22.57868207 Longitude: 89.29726088
10	Surrounding landscape:	North: Road South: Water body East: Water body West: Pond, School & residence
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Naturally inundated low lying area
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Under PGCB ownership
13	Whether the land is irrigated or non-irrigated?	N/A
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	School: 20 meter (Soronkhola Gove primary school) College: 1 km (Islamia College) Hospital : 2.5 km (Upazilla Health complex) River : 1 km (Kopothakho) Roads : 20 meters
C.	**Current Land Use – Vegetation**	
15	If cultivated, type of crops cultivated	No cultivation as under PGCB ownership
16	No. seasons that cultivation is conducted	

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>Yes (Already Acquired)</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>0</td><td>1</td><td>2</td><td>0</td><td>2</td><td>2</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>Yes</td></tr>
<tr><td>20</td><td>If yes, how many residential structures (Details of structures such as no of structures bay type/category of structure and length/width, No of Household etc.)s</td><td>Residential structures - 1(Tin Shed) (15x12) 180 Sqft
Household -1 (Already Acquired)</td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.) (Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td></td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>1. One tube-well (Already Acquired)
2. One Toilet (Already Acquired)</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>19</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>19</td></tr>
<tr><td>23.3</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>1</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>Yes</td></tr>
<tr><td>26.</td><td>Any particular issue/s related to the substation land</td><td>N/A</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>3.2m</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>Adjacent to the road</td></tr>
</table>

Photographs of Substation/sub-project

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North (Road)



South (Water bodies)



East (Water body)



West (Residential, pond, primary School)



Pictures of Access Road



Proposed substation picture



Proposed substation picture



Proposed substation picture

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 Affected Structure	 Affected Trees

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10. Mathbaria 132-33kV AIS Substation

NO.	REQUIRED INFORMATION	DESCRIPTION
Name of the Sub-stations		Mathbaria 132-33kV AIS Substation
A	**Location of the Substation**	
1.	Name of the District	Pirojpur
2.	Name of the Sub-district/Upazila	Mathbaria
3.	Name of the Village/Block	Gulishakhali
4.	Name of The Mouza	Gulishakhali
5.	Name of the Union/Ward	Gulishakhali
6.	Total extent of land required (Acre)	4 Acre
6.1	Total Extent of Private Land (Acre)	4 Acre
6.2	Total Extent of Government Land (Acre)	nil
6.3	Own Land/owned by PGCB/BREB/NESCO (Acre)	Private land
7	Land taking status. It can be leased/donated/ parched/acquisition/ own land.	Negotiation on progress
8	Plot No	
9	Coordinates of the land	Latitude: 22.232129 Longitude: 89.971724
10	Surrounding landscape:	North: Agricultural Land South: Agricultural Land East: Agricultural Land West: Assess Road
B	**Type of Land**	
11	**Type of land** (paddy, other seasonal crops, marshy land, pond or other water bodies, forest etc.	Agricultural Paddy land
12	**Current use of the land** (under cultivation, abandoned, barren, scrubs etc.)	Barren
13	Whether the land is irrigated or non-irrigated?	Irrigated & non irrigated
14	Any important major structures and/or natural resources observed in the surrounding area (within a radius of 500 meters) of the land (e.g. bridges, canals, rivers, ponds, electricity lines, roads, highways, railway tracks, schools, hospitals, forest reserves etc.)	School: 800 meters (108 no south Golishakhali Govt. Primary School) High school: 800 meters (South Golishakhali Momin Sriti High school) Mosque: 900 meters(South Golishakhali jame mosque) Road: Pathorghata- Mathbaria-Charkhali road
C.	**Current Land Use – Vegetation**	
15	If cultivated, type of crops cultivated	Paddy
16	No. seasons that cultivation is conducted	2 times
17	Are there any trees grown on the	No

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td></td><td>land?</td><td></td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>No</td></tr>
<tr><td>20</td><td>If yes, how many residential/commercial structures (Details of structures such as no of structures by type/category of structure and length/width, No of Household etc.)</td><td></td></tr>
<tr><td>21</td><td>How many other primary structures (community buildings, schools, etc.)(Details of structures such as no of structures by type/category of structure and length/width, No of Households etc.)</td><td>N/A</td></tr>
<tr><td>22</td><td>How many other secondary structures (e.g. irrigation pumps, tube-well, Boundary wall, RCC Pillar, Toilet, Sello Pump etc.) (Details of structures such as no of structures by type/category of structure and length/with, Number of Households etc.)</td><td>N/A</td></tr>
<tr><td>E</td><td colspan="2">Land Ownership</td></tr>
<tr><td>23</td><td>No. Landowners (Total)</td><td>22</td></tr>
<tr><td>23.1</td><td>No. Private landowners</td><td>22</td></tr>
<tr><td>23.2</td><td>No. Other landowners (e.g. business companies, government agencies)</td><td>0</td></tr>
<tr><td>24.</td><td>No. Landowners covered in the census survey</td><td>22 land owner census survey covered.</td></tr>
<tr><td>25.</td><td>Landowners willingness to land acquisition</td><td>Negotiation uncompleted. They are interested to sell and get proper market value.</td></tr>
<tr><td>26.</td><td>Any particular issue/s related to the substation land</td><td>N/A</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>2 meter</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>Adjacent to the land</td></tr>
</table>

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Photographs of Substation/sub-project



North side: Agricultural Land



South side: Agriculture Land



West: (Agriculture Land)



West (Asses Road)



Proposed substation picture



Proposed substation picture



Proposed substation picture



Proposed substation picture

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

XV.2: Bay Extensions

1. Bajitpur AIS Substation

NO.	REQUIRED INFORMATION	DESCRIPTION
Sub Project Under NESCO/PGCB/BREB:		PGCB
Name of Existing Substations/Workshop/ Bay Extension and others Facilities		Bajitpur Substation
A	Location of the of Existing Substations/Workshop/ Bay Extension and others Facilities	
1.	Name of the District	Kishoreganj
2.	Name of the Sub-district/Upazila	Bajitpur
3.	Name of the Village/Block	Dulirchor
4.	Name of The Mouza	Dulirchor
5.	Name of the Union/Ward	Halimpur
7	Coordinates of the land	Latitude: 24.229242 Longitude: 90.886192
10	Surrounding landscape:	North: Agriculture land South: Palli Biddut Sub-Station East: Bajitpur Zonal Road West: Agriculture Land and pond
11	Present Status of Proposed Land	PGCB Existing Substation
12	How long since the substation/facility has been built (Year of Commissioning)	14/06/2020
	What is the approximate total area of the substation/facility	5 Acre
13	Is there any requirement for additional land required for bay extension/construction of additional infrastructure/bay	No
14	Is the existing facility well fenced and is there any encroachment	Yes
	What is the nearest habitat from the substation (distance in meters) and how many households in the just in the vicinity	200 meter
	Are there any social infrastructure (schools, hospitals, temples, monastery etc). If yes, name and distance from the substation/facility	School-300 meter (Shorarchor Technical College) Hospital-5km (Jahurul Islam Medical College Hospital) Mosque-200 meter (Dulirchar Dakshin para Jame Masjid)
	What was land ownership prior to construction of substation/facility (Previous land status)	PGCB Substation
	If private land, has the land been acquired or mutually purchased or	Acquired

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td></td><td>voluntarily donated?</td><td></td></tr>
<tr><td></td><td>Was there support of local people while finalizing the substation site?</td><td>Yes</td></tr>
<tr><td></td><td>Was there any displacement due to the land acquisition, if yes provide details</td><td>No</td></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>No</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>Yes</td></tr>
<tr><td>20</td><td>If yes, how many primary and secondary structures (Details of structures such as no of structures by type/category of structure and length/width etc.)</td><td>3 Structure on the land, 2 Control room, 1 Security Room</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>No</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>7 meter.</td></tr>
</table>

Photographs of Substation/sub-project



North (Agriculture land)



South (Palli Biddut Sub-Station)

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East (Bajitpur Zonal Road)



West (Agriculture Land)



Existing substation picture



Existing substation picture



Control Room picture



Security Room Picture

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2. Gopalganj (Old) Substation

NO.	REQUIRED INFORMATION	DESCRIPTION
Sub Project Under NESCO/PGCB/BREB:		PFCB
Name of Existing Substations/Workshop/ Bay Extension and others Facilities		Gopalganj 132/33 KV Sub-Station
A	**Location of the of Existing Substations/Workshop/ Bay Extension and others Facilities**	
1.	Name of the District	Gopalganj
2.	Name of the Sub-district/Upazila	Thana-Sadar
3.	Name of the Village/Block	Karargati
4.	Name of The Mouza	Karargati
5.	Name of the Union/Ward	Ward no-1
7	Coordinates of the land	Latitude: 23.03092019 Longitude: 89.8263655
10	Surrounding landscape:	North: PGCB Grid South: PGCB Grid, Residence East: PGCB Grid, abandon land West: PGCB abandon land
11	Present Status of Proposed Land	Existing PGCB Substation
12	How long since the substation/facility has been built (Year of Commissioning)	09 June, 2006
	What is the approximate total area of the substation/facility	12.63 Acre
13	Is there any requirement for additional land required for bay extension/construction of additional infrastructure/bay	No
14	Is the existing facility well fenced and is there any encroachment	Yes
	What is the nearest habitat from the substation (distance in meters) and how many households in the just in the vicinity	40 meter local houses 200m staff quarters
	Are there any social infrastructure (schools, hospitals, temples, monastery etc). If yes, name and distance from the substation/facility	Karargati Govt school-400 meter Palli biddut jame masjid-260 meter
	What was land ownership prior to construction of substation/facility (Previous land status)	BPDB
	If private land, has the land been acquired or mutually purchased or voluntarily donated?	N/A
	Was there support of local people while finalizing the substation site?	Yes

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td></td><td>Was there any displacement due to the land acquisition, if yes provide details</td><td>No</td></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>No</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><td>Type of tree</td><td colspan="3">Non-fruit bearing</td><td colspan="3">Fruit bearing</td><td colspan="3">Medicinal</td><td>Bamboo Bushes</td></tr>
<tr><td></td><td>L</td><td>M</td><td>S</td><td>L</td><td>M</td><td>S</td><td>L</td><td>M</td><td>S</td><td></td></tr>
<tr><td>No. Trees</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>Yes</td></tr>
<tr><td>20</td><td>If yes, how many primary and secondary structures (Details of structures such as no of structures by type/category of structure and length/width etc.)</td><td>1 Control room (Not affected)
Length-60 feet, width 45 feet (approx.)</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>No</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>Adjacent to the road</td></tr>
</table>

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Photographs of Substation/sub-project



North (PGCB Grid)



South (PGCB Grid, Residence)



East (PGCB Grid, abandoned land)



West (Abandoned Land)



Existing substation picture



Existing substation picture



Access Road Picture



Unaffected Structure

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3. Kachua 230/132 kV Substation

NO.	REQUIRED INFORMATION	DESCRIPTION
Sub Project Under NESCO/PGCB/BREB:		**PGCB**
Name of Existing Substations/Workshop/ Bay Extension and others Facilities		**Kachua 230/132 kV Substation**
A	**Location of the of Existing Substations/Workshop/ Bay Extension and others Facilities**	
1.	Name of the District	Chadpur
2.	Name of the Sub-district/Upazila	Haziganj
3.	Name of the Village/Block	Bodorpur
4.	Name of The Mouza	Toragor
5.	Name of the Union/Ward	Toragor
7	Coordinates of the land	Latitude: 23.267123 Longitude: 90.865492
10	Surrounding landscape:	North: Agriculture land and Electric Tower South: Agriculture Land and Pond East: Gouripur to Kachua Zonal Road West: Agriculture land and Pond
11	Present Status of Proposed Land	PGCB Existing Substation
12	How long since the substation/facility has been built (Year of Commissioning)	2021
	What is the approximate total area of the substation/facility	10 Acre
13	Is there any requirement for additional land required for bay extension/construction of additional infrastructure/bay	No
14	Is the existing facility well fenced and is there any encroachment	Yes
	What is the nearest habitat from the substation (distance in meters) and how many households in the just in the vicinity	93 m Bepary House, Hazi Bari 138 m
	Are there any social infrastructure (schools, hospitals, temples, monastery etc). If yes, name and distance from the substation/facility	College-1.5 km (Haziganj Model Government College) Hospital-3 Km (Central Hospital Hajigonj) Mosque-30 meter (Gausiya Jame Masjid)
	What was land ownership prior to construction of substation/facility (Previous land status)	PGCB Substation
	If private land, has the land been acquired or mutually purchased or	Acquired

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NO.	REQUIRED INFORMATION	DESCRIPTION
	voluntarily donated?	
	Was there support of local people while finalizing the substation site?	Yes
	Was there any displacement due to the land acquisition, if yes provide details	No
17	Are there any trees grown on the land?	No
18	If yes, what are the trees grown (Type [small, medium, large] and their numbers)	
D.	**Current Land Use – Built Structures**	
19	Are there any built structures on the land?	Yes
20	If yes, how many primary and secondary structures (Details of structures such as no of structures by type/category of structure and length/width etc.)	10 Structure on the land, 2 Control room,1 Under Construction Control Room, 1 Security Room, 2 Dormitory Building, 4 Watch Tawer
27.	What is the land filling requirement? (meter)	No
28.	Access Road distance Road from sub-station	7 meter.

Type of tree	Non-fruit bearing			Fruit bearing			Medicinal			Bamboo Bushes
	L	**M**	**S**	**L**	**M**	**S**	**L**	**M**	**S**	
No. **Trees**	0	0	0	0	0	0	0	0	0	0

Photographs of Substation/sub-project



North (Agriculture land and Electric Tower)



South (Agriculture Land and Pond)

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East (Gouripur to Kachua Zonal Road)



West (Agriculture Land and pond)



Existing substation picture



Existing substation picture



Control Room picture



Security Room Picture



Dormitory Building

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4. Satkhira Substation

NO.	REQUIRED INFORMATION	DESCRIPTION
Sub Project Under NESCO/PGCB/BREB:		PGCB
Name of Existing Substations/Workshop/ Bay Extension and others Facilities		Satkhira Substation
A	**Location of the of Existing Substations/Workshop/ Bay Extension and others Facilities**	
1.	Name of the District	Satkhira
2.	Name of the Sub-district/Upazila	Satkhira Sadar
3.	Name of the Village/Block	Binerputa
4.	Name of The Mouza	Binerputa
5.	Name of the Union/Ward	Satkhira Sadar
7	Coordinates of the land	Latitude: 22.74313215 Longitude: 89.09229465
10	Surrounding landscape:	North: Water body South: Control Room & Road East: PGCB quarter & Water bodies West: Water body
11	Present Status of Proposed Land	PGCB Existing Substation
12	How long since the substation/facility has been built (Year of Commissioning)	Year 2006
	What is the approximate total area of the substation/facility	3.34 Acre
13	Is there any requirement for additional land required for bay extension/construction of additional infrastructure/bay	No
14	Is the existing facility well fenced and is there any encroachment	Yes
	What is the nearest habitat from the substation (distance in meters) and how many households in the just in the vicinity	Staff quarters adjacent to the land in 20 meters
	Are there any social infrastructure (schools, hospitals, temples, monastery etc). If yes, name and distance from the substation/facility	School- 500 meters (Gopinathpur Gove School) College: 1km (Islamia College) Hospital-4 km (Satkhira Sadar Hospital) Fire station: 6 Km
	What was land ownership prior to construction of substation/facility (Previous land status)	Existing Substation from PDB
	If private land, has the land been acquired or mutually purchased or	Acquired

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<table>
<tr><th>NO.</th><th>REQUIRED INFORMATION</th><th>DESCRIPTION</th></tr>
<tr><td></td><td>voluntarily donated?</td><td></td></tr>
<tr><td></td><td>Was there support of local people while finalizing the substation site?</td><td>Yes</td></tr>
<tr><td></td><td>Was there any displacement due to the land acquisition, if yes provide details</td><td>No</td></tr>
<tr><td>17</td><td>Are there any trees grown on the land?</td><td>Yes</td></tr>
<tr><td>18</td><td>If yes, what are the trees grown (Type [small, medium, large] and their numbers)</td><td>
<table>
<tr><th rowspan="2">Type of tree</th><th colspan="3">Non-fruit bearing</th><th colspan="3">Fruit bearing</th><th colspan="3">Medicinal</th><th rowspan="2">Bamboo Bushes</th></tr>
<tr><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th><th>L</th><th>M</th><th>S</th></tr>
<tr><td>No. Trees</td><td>0</td><td>12</td><td>0</td><td>0</td><td>13</td><td>7</td><td>0</td><td>5</td><td>0</td><td>0</td></tr>
</table>
</td></tr>
<tr><td>D.</td><td colspan="2">Current Land Use – Built Structures</td></tr>
<tr><td>19</td><td>Are there any built structures on the land?</td><td>Yes</td></tr>
<tr><td>20</td><td>If yes, how many primary and secondary structures (Details of structures such as no of structures by type/category of structure and length/width etc.)</td><td>PGCB control room & Guard room (Non Affected)</td></tr>
<tr><td>27.</td><td>What is the land filling requirement? (meter)</td><td>No</td></tr>
<tr><td>28.</td><td>Access Road distance Road from sub-station</td><td>Adjacent to the road</td></tr>
</table>

Photographs of Substation/sub-project



North (Water bodies)



South (Control Room & Road)

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East (PGCB quarter & Water bodies)



West (Water body)



Existing substation picture



Existing substation picture



Pictures of Access Road



proposed substation picture

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5. Bhandaria 132/33 kV substation

NO.	REQUIRED INFORMATION	DESCRIPTION
Name of Existing Substations/Workshop/ Bay Extension and others Facilities		Bhandaria Existing Substation
A	**Location of the of Existing Substations/Workshop/ Bay Extension and others Facilities**	
1.	Name of the District	Pirojpur
2.	Name of the Sub-district/Upazila	Bhandaria
3.	Name of the Village/Block	Bhandaria
4.	Name of The Mouza	Bhandaria
5.	Name of the Union/Ward	Pouroshova /5 ward
7	Coordinates of the land	Latitude: 22.480878 Longitude: 90.069815
10	Surrounding landscape:	North: Kathalia - Barishal- Dhaka Road, Akonbari jamae mosjid South: Fallow land and Residence East: Poroshova Auditorium. West: PDB quarter room,Gouripur road, Khal par Jame Mosque
11	Present Status of Proposed Land	PGCB Existing Substation
12	How long since the substation/facility has been built (Year of Commissioning)	2002
	What is the approximate total area of the substation/facility	2.19
13	Is there any requirement for additional land required for bay extension/construction of additional infrastructure/bay	No
14	Is the existing facility well fenced and is there any encroachment	Yes
	What is the nearest habitat from the substation (distance in meters) and how many households in the just in the vicinity	50 meters
	Are there any social infrastructure (schools, hospitals, temples, monastery etc). If yes, name and distance from the substation/facility	Mosque: 25 m (Akon bari jame mosque) College: 300 m (Mazida begum women's college) School: 700 m (74 no. Southeast Bhandaria primary School) Fire station: 1 Km
	What was land ownership prior to construction of substation/facility (Previous land status)	Private Land

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NO.	REQUIRED INFORMATION	DESCRIPTION
	If private land, has the land been acquired or mutually purchased or voluntarily donated?	Purchased From PDB
	Was there support of local people while finalizing the substation site?	Yes
	Was there any displacement due to the land acquisition, if yes provide details	No
17	Are there any trees grown on the land?	Yes four medium and four small trees (these will not be impacted by the bay extension)
18	If yes, what are the trees grown (Type [small, medium, large] and their numbers)	**Type of tree**: Non-fruit bearing (L, M, S); Fruit bearing (L, M, S); Medicinal (L, M, S); Bamboo Bushes **No. Trees**: Non-fruit bearing (L, M, S) = (, ,); Fruit bearing (L, M, S) = (, 4, 4); Medicinal (L, M, S) = (, ,); Bamboo Bushes =
D.	**Current Land Use – Built Structures**	
19	Are there any built structures on the land?	Yes
20	If yes, how many primary and secondary structures (Details of structures such as no of structures by type/category of structure and length/width etc.)	Grid control room, Control room, PDB Quarter
27.	What is the land filling requirement? (meter)	none
28.	Access Road distance Road from sub-station	Adjacent to Substation



North (Adjacent road)



South (Fallow land and Residence)

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East (Pouroshova Oditoriam)



West: PDB quarter room, Gouripur road



Existing Substation Structure



Existing Substation Structure

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Appendix XVI: Inventorisation for Transmission Lines[40]

All inventorisation details including photographs are sourced from SES survey conducted in June 2024 and Resettlement Plan August 2024

XVI.1: Details of Receptors Nearest to Tentative Transmission Line Alignments/Substation Boundaries

Distance to boundary/tentative alignment (Blank cell means that there is no Receptor of significance on the proposed route alignment)												
#	Distance from line alignment to village	Name of Closest village From line alignment	Location of village GPS Coordinate	Primary School in km	Secondary School in km	Mosque/Temple in km	Primary Clinic (PHC) in km	Main Hospital in km	College or any other place of religious or cultural significance in km	Total estimated Population/ Inhabitants (in pockets) near the line alignment	Petrol/gas tanks in km	Remarks
A	**Substations**											
1	**Madhabpur 230/132/33 KV AIS Substation**											
	0.11 km-	Itakhol	23°58'48.23"N 90°44'0.25"E - 23°52'33.25"N 90°35'22.10"E	Baksair Govt. Primary School-0.71 km	Dr. Mir Mahmud Hossain High School-1.13 km	Bhanga 0.3km - Joal Jame Mosque-2.8 km	-	2 km	Jamiatu Sunnah Anwara Begum Islamia Madrasha-1.28 km	Total 319016; Male 155882, Female 163134	-	-
	0.15 km	Haria	23°46'58.71"N 90°39'0.18"E									
	0.3 km	Mir Nagar	24°59'34.63"N 90°12'5.43"E									
	0.3 km	Baghsai	25°21'57.56"N 87°21'44.67"E									
	0.56 km	Andiura	24° 7'51.48"N 91°20'8.42"E									
	4.13 km	Madhabpur Bazar	24° 5'42.32"N 91°17'19.53"E									
	1.54 km	Baneshwar	24° 7'46.22"N 91°18'4.12"E									
2	**Pekua 400/230/132 kV AIS Substation**											
	6.58 km	Poschim Boro Bheoula	23°51'1.96"N 89°24'38.19"E	700m Kutub Nogor Govt. Primary School 5km 53 No. Khonakhali	Dorbesh Kata High School-<5km Bahadder Kata High School-4.50km	0.4km	-	-	Bahadder Kata Al Iman Mahila Madrasha-4.43km	Total 171538; Male 86310; Female 85228	-	-

[40] The distances noted in this table are based on consultations with local people/PGCB staff and review through Google Maps.

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Distance to boundary/tentative alignment (Blank cell means that there is no Receptor of significance on the proposed route alignment)												
#	Distance from line alignment to village	Name of Closest village From line alignmen	Location of village GPS Coordinate	Primary School in km	Secondary School in km	Mosque/Temple in km	Primary Clinic (PHC) in km	Main Hospital in km	College or any other place of religious or cultural significance in km	Total estimated Population/ Inhabitants (in pockets) near the line alignment	Petrol/gas tanks in km	Remarks
				Govt. Primary School								
3	**Matlab (N)132/33 kV AIS Substation**											
	3.26 km	Chor Palalokodi	23°24'48.50"N 90°38'2.21"E	0.8km	Nedamdi Ideal School-3.89km Siddikia Girls High School <5km College 900m	0.3km-Golder Bari Jame Masjid-4.43km		3 km	Ekotai Sokti Cultural Organization-3.16km	Total 292057; Male 140753, Female 151304	-	-
4	**Dupchanchia 132-33kV AIS Substation**											
	0.54 km	Bhatahar	25° 7'58.91"N 89°14'8.39"E	-	Dhupchanchia Technical School and College-2.36km Jahanara Kamruzzaman degree college - 2km	Coksohaga Jame Masjid-<5km Gunahar Waktia Masjid-<5km Kali Mondir-<5km Dorbar sharif<5km	-	3 km (Upazilla Health complex)	-	Total 176678; Male 87073, Female 89605	-	-
	0.5 km	Islampur	25° 4'52.66"N 89°47'22.12"	400m Islampur Gove. Primary School								
5	**Kumarkhali Substation**											
	3.53 km	Choraikol	24° 5'39.11"N 89°14'6.02"E	2.4 km Kumarkhali Gove primary school	Kumarkhali MN Pilot High School-1.43km Kumarkhali Gove College - 3 km	-	-	2.5 km (Upazilla Health complex)	Aladdin Ahmed Shikkhapalli Park-2.18km	Total 328457; Male 163461, Female 164996	-	-
		Durgapur	24°21'29.53"N 89°58'43.04"E									
6	**Tungipara 132-33kV AIS Substation**											
	0.74 km	Baladanga	22°54'46.06"N 89°54'13.56"E	Senerchar Primary School-3.91km 72 No. Gojaliya Govt. Primary School-2.90km	Baladanga S.M Mosa school-0.9km -Dumuria High School->5km	Shitola Mondir	-	-	Bangabandhu College 3km Arambagh Mosqu 2 km	Total 100893; Male 50517, Female 50376	-	-

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Distance to boundary/tentative alignment (Blank cell means that there is no Receptor of significance on the proposed route alignment)												
#	Distance from line alignment to village	Name of Closest village From line alignmen	Location of village GPS Coordinate	Primary School in km	Secondary School in km	Mosque/Temple in km	Primary Clinic (PHC) in km	Main Hospital in km	College or any other place of religious or cultural significance in km	Total estimated Population/ Inhabitants (in pockets) near the line alignment	Petrol/gas tanks in km	Remarks
7	**Mathbaria 132/33kV AIS Sub-Station**											
	2.87 km	Gulisakhali	22°14'3.98"N 90° 6'45.33"E	0.8km 108 no. south Golishakhali Govt. Primary School	0.8km (South Golishakhali Momin Sriti High school)	South Golishakhali jame mosque - 0.9km Moksed Ali Master Bari Masjid- 3.62km	-	-	Jati Buniya Dakhil Madrasha<5km	Total 262841; Male 128845, Female 133996	-	-
8	**Chatkhil 132/33kV AIS Substation**											
	8.61 km	Kaluyai	23° 3'16.58"N 90°59'12.41"E	0.6km	Chatkhil PG Govt. High School- 0.65km	0.4km Chatkhil Upazilla Model Masjid- 1.99km		3 km	Shingbahura Girl's Academy- 2.73km	Total 327194; Male 149751, Female 177443	-	-
9	**Monohardi 230/132/33kV AIS Substation**											
	0.4 km	Kismot Soraikandi	23°33'5.88"N 91°35'7.77"E	MA Majid Science College- 2.74 km - Monohardi Pilot High School- 1.84 km	Monohardi Darul Islam Dakhil Madrasha 0.52 km	Masjid- 0.3km	Union Health Center 1 km		Sahabuddin Memorial Academy- 4.93km Dairadi Momtaz Uddin Memorial Academy- 1.28km	Total 275112; Male 131316, Female 143796	0.4km	
10	**Paikgacha 132/33 kV AIS**											

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Distance to boundary/tentative alignment (Blank cell means that there is no Receptor of significance on the proposed route alignment)												
#	Distance from line alignment to village	Name of Closest village From line alignmen	Location of village GPS Coordinate	Primary School in km	Secondary School in km	Mosque/Temple in km	Primary Clinic (PHC) in km	Main Hospital in km	College or any other place of religious or cultural significance in km	Total estimated Population/ Inhabitants (in pockets) near the line alignment	Petrol/gas tanks in km	Remarks
	1 km	Soronkhali,		0.02km (Soronkhola Gove primary school)	1 km (Islamia College)	Almtola Jame masjid 2.5 km	-	Hospital : 2.5 km (Upazilla Health complex)	-	-	-	-
B	**Transmission Lines**											
1	**Bhandaria-Mathbaria132kV double circuit transmission Line**											
	2.54 km	Bhandaria	22°28'57.14"N 90° 3'25.37"E	-	Ilisia Bazar Para Jame Mosque-1.8km	Madarshi Bazar masjid-4.5 km				Total 262841; Male 128845, Female 133996	-	-
2	**Gopalganj -Tungipara 132kV Double CircuitLine**											
	0.89 km	Golabaria	23° 1'58.90"N 89°50'22.05"E	Arpara Primary school 1 km Konagram Primary School 0.5km	-	Nilokhi Ttara Para mosque– 200m Church of Nzrene & Jama Masjid 200m	-Desh Nurshing home-1 km	-	Nilokhi Ttara Para cremation – 500m	Total 100893; Male 50517, Female 50376	-	-
3	**Kachua-Matlab (Uttor) 132kV double circuit line**											
	1.7 km	Palalokdi Pouro	23°18'1.27"N 90°48'23.19"E	Rajagaon High School – 2 km	Nasirkot Shahid Smriti Degree, 1 km		-	-	Haziganj Model Government College -2 km	Total 292057; Male 140753, Female 151304	-	-
4	**Monohardi-Bajitpur 132kV Double Circuit Line**											
	1 km	Madhabdi Chak	24° 8'50.88"N 90°42'57.13"E	Model Quran Madrasa - 1km	Madhupur High School 1 km	Baitul Aman Masjid – 1 km	-	Taj Private Hospital – 1 km	-	Total 275112; Male 131316, Female 143796	-	-
5	**Satkhira-Paikgacha 132kV Double Circuit Line**											
	0.43 km	Dohakula	22°40'45.61"N 89° 5'25.42"E	Gacha Adarsh HS School 1.5 km Kariati Sec School 2 km	Rishilpi Center School 0.5km	Khoyira Danga kali Mandir 0.5km	-	-	Satkhira Polytechnic - 4km Satkhira Government College – 2km	Total 247983; Male 123900, Female 124083	-	-
C	**LILO lines**											
1	**LILO of Anwara Coxs Bazar 230kV line at Pekua**											
	0.86 km	Paschim Bara Bheola	21°44'36.86"N 91°59'34.97"E	-	-	-	-	-	-	Total 171538; Male 86310; Female 85228	--	-
2	**LILO of Cumilla (N) - Shahjibazar PP 230kVdouble circuit line at Madhabpur**											
	2.54 km	- Bakshair (JL 69)	24°11'7.34"N 91°20'46.06"E	-	-	-	-	-	-	Total 319016; Male 155882, Female 163134	-	-
3	**LILO of Existing Matarbari PP – Banskhali PP double circuit 400kV line at Pekua**											
	0.82 km	Paschim Bara Bheola	21°44'36.86"N 91°59'34.97"E	Azizia Madarsa-1.5 km Govt Primary School 1 km	-	Dhemoshia Gandhi para Mosque – 2 km	-	-	-	262841; Male 128845, Female 133996	-	-
4	**LILO of Existing Matarbari 132-33 Chakaria132kVline At Pekua**											

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Distance to boundary/tentative alignment (Blank cell means that there is no Receptor of significance on the proposed route alignment)												
#	Distance from line alignment to village	Name of Closest village From line alignmen	Location of village GPS Coordinate	Primary School in km	Secondary School in km	Mosque/Temple in km	Primary Clinic (PHC) in km	Main Hospital in km	College or any other place of religious or cultural significance in km	Total estimated Population/ Inhabitants (in pockets) near the line alignment	Petrol/gas tanks in km	Remarks
	1.07 km	Paschim Bara Bheola	21°44'36.86"N 91°59'34.97"E	-	-	-	-	-	-	262841; Male 128845, Female 133996	-	-
5	**LILO of Shahjibazar - Brahmanbaria132kVdouble circuit line at Madhabpur**											
	0.94 km	Monohardi	24° 6'39.10"N 91°18'31.80"E	-	-	-	-	-	-	Total 319016; Male 155882, Female 163134	-	-
6	**LILO of Bheramara-Rajbari 132kV line at Kumarkhali**											
	4.8km	Choraikol	24°14'0.94"N 89°12'45.28"E	-	-	Charaikhol Jama Masjid 2 km Old Uphill Jama masjid 1 km	-	-	-	Total 328457; Male 163461, Female 164996	-	-
8	**LILO of Bogura(S) - Naogaon 132kV line at Dupchanchia**											
	4.8km	Matihas	24°42'19.25"N 89°11'38.47"E	Hazrul Madarsa – 1 km	Dimshahar High school 1 km	-	-	-	JK College 1 km Women's College –2 km	Total 176678; Male 87073, Female 89605	-	-

Source: SES survey, June 2024

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XVI.2: Details of Impacts to land type and structures by transmission lines (by distance)

ID	Component name	SL-1 Total length (m)	SL-2 Forest area (m)	SL-3 Waterlogged (m)	SL-4 Cultivated/ Irrigated (m)	SL-5 Cultivated/Non Irrigated (m)	SL-6 Residential (m)	SL-7 Vita/ High Land (m)	SL-8 Orchard (m)	SL-9 Bamboo (m)	SL-10 Uncultivated/ Fallow (m)	SL-15 Private Land (m)	SL-16 Government Land (m)
1	LILO OF SRIPUR - ASHUGANJ 230KV DOUBLE CIRCUIT LINE AT MONOHARDI	5624	0	0	5195	50	10	75	156	1	137	5541	83
2	MONOHARDI-BAJITPUR 132KV DOUBLE CIRCUIT LINE	22,483		3,705	16,378	100	520	510	960	80	230	22,173	310
3	Kachua- Matlab(N) 132kV double circuit line	35710	0	1620	24770	1700	1610	1290	750	50	3920	34930	780
4	LILO of Chowmuhani-Ramganj 132kV double circuit line at Chatkhil	1801	0	30	1701	0	0	50	0	0	20	1751	50
5	LILO of Existing Matarbari PP-Danskhat PP double circuit 400kV line at Matarbarı	13,631	-	1,386	11,445	-	480	300	-	-	20	12,725	906
6	LILO of Anwara-Cox's Bazar 230Ky line at Matarbari	580	0	0	580	0	0	0	0	0	0	580	0
7	LILO of Shahjibazar - Brahmanbaria 132kV double circuit line at Madhabpu	1300	0	0	1300	0	0	0	0	0	0	1300	0
8	LILO of Cumilla(N) - Shahjibazar PP 230kV double circuit line at Madhabpu	1200	0	100	1100	0	0	0	0	0	0	1200	0
9	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132kV line	72608	0	3500	56450	150	5618	1815	350	0	4725	70848	1760
10	Bhandaria-Mathbaria 132kV double circuit transmission line	34160	0	405	2365	28790	1214	955	40	0	391	33535	625
11	Satkhira- Paikgacha 132kv double circuit transmission line	32730	0	6883	22088	2637	265	642	15	0	0	32011	719
12	LILO of Bogura(S) - Naogaon 132kV line at Dupchanchia	2660	0	480	0	1000	190	0	0	0	990	2660	0
13	LILO of Bheramara-Rajbari, 132 kv line at Kushtia	600	0	20	0	530	0	0	50	0	0	600	0
14	Gopalganj - Tungipara 132kV double circuit line	19925	0	1580	16660	790	30	675	0	0	190	19610	315
		246212	0	19709	161232	35747	9937	6312	2321	131	10623	240664	5548

Source: SES survey, June 2024

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XVI.3: Tree Information

Trees to be affected by Transmission Lines/LILO

SL	Name of the TLs/Lilo	Height of Fruit Trees			Height of Wood/Timber Trees			Height of Medicinal			Total Trees	Affected Banana	Affected Bamboo	Overall
		(> 10 m)	(5-10 m)	(< 5 m)	(> 10 m)	(5-10 m)	(< 5 m)	(> 10 m)	(5-10 m)	(< 5 m)				
(i)	Name of the Transmission Lines													
A	132/33kV Lines													
01	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132kV line	72	156	206	31	99	108	0	3	3	678	650	180	1508
02	Monohardi-Bajitpur 132kV double circuit line	40	93	122	37	73	113	0	2	1	481	1805	236	2522
03	Gopalganj - Tungipara 132kV double circuit line	5	37	38	29	35	22	0	0	0	166	60	0	226
04	Kachua- Matlab(N) 132kV double circuit line	85	450	490	326	1255	1447	20	35	60	4168	280	0	4448
05	Satkhira-Paikgacha 132kv double circuit line	0	8	10	8	15	6	0	0	0	47	12	0	59
06	Bhandaria-Mathbaria 132kV double circuit transmission line	139	244	75	7	381	230	0	0	0	1076	390	10	1476
	Total TLs	341	988	941	438	1858	1926	20	40	64	6616	3197	426	10239
(ii)	Name of the LILO Lines													
A	400/230/132kV Lines													
01	LILO of Existing	6	13	21	25	61	88	0	0	0	214	0	0	214

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SL	Name of the TLs/Lilo	Height of Fruit Trees			Height of Wood/Timber Trees			Height of Medicinal			Total Trees	Affected Banana	Affected Bamboo	Overall
		(> 10 m)	(5-10 m)	(< 5 m)	(> 10 m)	(5-10 m)	(< 5 m)	(> 10 m)	(5-10 m)	(< 5 m)				
	Matarbari PP-Bashkhali PP double circuit 400kV line at Pekua													
	Subtotal	6	13	21	25	61	88	0	0	0	214	0	0	214
B	230/132/33kV Lines													
05	LILO of Cumilla(N) - Shahjibazar PP 230kV double circuit line at Madhabpur	0	0	0	0	0	0	0	0	0	0	0	0	0
03	LILO of Anwara-Cox's Bazar 230Ky line at Pekua	0	0	0	0	0	0	0	0	0	0	0	0	0
07	LILO of Sripur - Ashuganja 230kV double circuit line at Monohardi	14	10	22	1	9	11	0	0	0	67	525	10	602
	Subtotal	14	10	22	1	9	11	0	0	0	67	525	10	602
C	132/33kV Lines													
08	LILO of Bogura(S) - Naogaon 132kV line at Dupchanchia	0	4	0	0	4	0	0	0	0	8	0	0	8
04	LILO of Existing Matarbari (132/33)-Chakaria 132kV line at Pekua	0	0	0	0	0	0	0	0	0	0	0	0	0
06	LILO of Shahjibazar - Brahmanbaria 132kV double	0	0	0	0	0	0	0	0	0	0	0	0	0

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SL	Name of the TLs/Lilo	Height of Fruit Trees			Height of Wood/Timber Trees			Height of Medicinal			Total Trees	Affected Banana	Affected Bamboo	Overall
		(> 10 m)	(5-10 m)	(< 5 m)	(> 10 m)	(5-10 m)	(< 5 m)	(> 10 m)	(5-10 m)	(< 5 m)				
	circuit line at Madhabpur													
09	LILO of Bheramara-Rajbari, 132 kv line at Kushtia €	0	0	2	14	18	17	0	0	0	51	49	0	100
10	LILO of Chowmuhani-Ramganj 132kV double circuit line at Chatkhil	5	5	10	0	3	0	0	0		23	0	25	48
	Subtotal	5	9	12	14	25	17	0	0	0	82	49	25	156
	Total LILO	25	32	55	40	95	116	0	0	0	363	574	35	972
	Grand Total (TLS+LILOs)	366	1020	996	478	1953	2042	20	40	64	6979	3771	461	11211

Source: SES 2004 and RP

Only Trees above 5 m height will be cut (if required)

Trees to be affected by Substations

SN	Name of	Fruit Trees			Timber/Wood			Medicinal			Total Trees
	Substation	Big	Medium	Small	Big	Medium	Small	Big	Medium	Small	
	Tungipara	12	23	8	11	25	23	0	8	4	114
	Paikgacha	0	2	2	0	1	2	0	0	0	7
	Bhandaria	5	0	1	0	1	0	0	0	0	7
Total		17	25	11	11	27	25	0	8	4	128

Source: Census and SES survey and Tree Inventory Survey, June 2024 and RP

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Trees nearest from the alignment of transmission lines

(this table shows the distance to trees near angle points of the proposed alignment, trees do existing in the ROW along the alignment)

Name of the TL/LILO	Location	Trees	
		Left (m)	Right (m)
LILO of Existing Matarbari PP – Banskhali PP double circuit 400 Kv line at Matarbari	Transmission Lines		
	AP-1	150	200
	AP-2	100	250
	AP-3	200	250
	AP-4	350	300
	AP-5	300	150
	AP-6	150	350
	AP-7	200	150
	AP-8	300	250
Monohardi-Bajitput 132kV double circuit line	Transmission Lines		
	AP-1	10	150
	AP-2	50	250
	AP-3	150	200
	AP-4	200	150
	AP-5	150	200
	AP-6	100	250
	AP-7	250	300
	AP-8	200	250
	AP-9	50	150
	AP-10	100	250
	AP-11	150	350
	AP-12	350	300
	AP-13	300	150
	AP-14	250	50
	AP-15	200	100
	AP-16	150	50
	AP-17	200	50
	AP-18	300	200
	AP-19	350	250
	AP-20	150	350
	AP-21	200	150
	AP-22	350	200
	AP-23	300	150
	AP-24	250	100
	AP-25	250	100
	AP-26	100	50
	AP-27	150	100
	AP-28	250	100
	AP-29	250	50
Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132Kv line	Transmission Lines		
	AP-1	200	250
	AP-5	50	150
	AP-10	100	250
	AP-15	150	350
	AP-20	350	300
	AP-25	300	150
	AP-30	250	50
	AP-35	200	100
	AP-40	150	50
	AP-45	200	50

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Name of the TL/LILO	Location	Trees	
		Left (m)	Right (m)
	AP-50	300	200
	AP-55	350	250
	AP-60	150	350
	AP-65	200	150
	AP-70	350	200
	AP-75	300	150
Satkhira-Paikgacha 132Kv double circuit line	Transmission Lines		
	AP-1	10	150
	AP-2	200	150
	AP-3	150	200
	AP-4	100	250
	AP-5	300	150
	AP-6	250	50
	AP-7	200	50
	AP-8	200	150
	AP-9	100	200
	AP-10	300	250
Bhandaria-Mathbaria 132Kv double circuit transmission line	Transmission Lines		
	AP-1	10	150
	AP-2	50	250
	AP-3	100	100
	AP-4	80	350
	AP-5	200	250
	AP-6	150	200
	AP-7	200	150
	AP-8	150	200
	AP-9	100	250
	AP-10	250	300
	AP-11	300	150
	AP-12	250	50
	AP-13	200	100
	AP-14	150	50
	AP-15	200	50
	AP-16	300	200
	AP-17	350	250
	AP-18	150	350
	AP-19	200	150
	AP-20	350	200
	AP-21	300	250
	AP-22	150	50
	AP-23	100	50
	AP-24	150	100
Kachua – Matlab (N) 132Kv double circuit line	Transmission Lines		
	AP-1	10	150
	AP-2	50	200
	AP-3	150	150
	AP-4	80	350
	AP-5	150	200
	AP-6	50	200
	AP-7	50	150
	AP-8	50	150
	AP-9	200	300
	AP-10	200	200
	AP-11	150	200
	AP-12	200	150
	AP-13	150	200

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Name of the TL/LILO	Location	Trees	
		Left (m)	Right (m)
	AP-14	150	200
	AP-15	200	300
	AP-16	200	200
	AP-17	50	150
	AP-18	150	200
	AP-19	150	350
	AP-20	350	300
	AP-21	300	150
	AP-22	200	50
	AP-23	200	150
	AP-24	150	50
	AP-25	200	50
	AP-26	300	200
	AP-27	350	200
	AP-28	150	350
	AP-29	200	150
	AP-30	350	200
	AP-31	300	150
	AP-32	200	150
	AP-33	200	150
	AP-34	200	150
	AP-35	150	200
	AP-36	300	200
	AP-37	150	50
	AP-38	150	50
	AP-39	150	150
	AP-40	200	150
	AP-41	200	50
Gopalganj – Tungipara 132Kv double circuit line	Transmission Lines		
	AP-1	10	150
	AP-2	300	150
	AP-3	250	50
	AP-4	350	200
	AP-5	300	150
	AP-6	250	100
	AP-7	250	100
	AP-8	200	150
LILO of Chowmuhani – Ramganj 132Kv double circuit line at Chatkhil	Transmission Lines		
	AP-1	250	50
	AP-2	200	100
	AP-3	150	350
LILO of Bheramara – Rajbari 132Kv line at Kusthia (E)	Transmission Lines		
	AP-1	150	200
LILO of Bogura (S) – Naogaon 132Kv line at Dupchanchia	Transmission Lines		
	AP-1	100	50

Source: TA Consultant, 2024

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XVI.4: Physical Cultural Resources Information (Nearest to Angle Points) (Less than 5 Km) (Other Physical Cultural Resources May Exist within the RoW)

Name of the TL/LILO	Location		Physical Cultural Resources		
		Nos	Left (km)	No	Right (km)
LILO of Existing Matarbari PP – Banskhali PP double circuit 400 Kv line at Matarbari			Transmission Lines		
	AP-1	1	4	1	3
	AP-2	1	4	1	4
	AP-3	2	2 and 3	1	3
	AP-4	1	1	1	3
	AP-5	2	2 and4	1	2
	AP-6	2	3 and 4	1	3
	AP-7	1	3	1	2
	AP-8	1	2	1	1
Monohardi-Bajitput 132kV double circuit line			Transmission Lines		
	AP-1	1	2	2	4 and 4
	AP-2	1	2	1	1
	AP-3	1	3	1	2
	AP-4	2	4 and 3	2	4 and 3
	AP-5	2	1 and 4	2	1 and4
	AP-6	2	2 and 3	1	2
	AP-7	2	3 and 4	2	2 and 4
	AP-8	1	4	1	4
	AP-9	1	2	1	3
	AP-10	2	1 and 4	1	3
	AP-11	1	4	1	2
	AP-12	1	2	2	3 and 4
	AP-13	2	2 and 3	1	2
	AP-14	2	3 and 4	1	4
	AP-15	1	3	2	1 and 3
	AP-16	1	1	2	2 and 4
	AP-17	1	1	1	2
	AP-18	1	2	1	2
	AP-19	2	3 and 4	1	1
	AP-20	1	2	1	2
	AP-21	2	3 and 3	2	3 and 4
	AP-22	2	4 and4	1	2
	AP-23	1	3	2	2 and 4
	AP-24	1	3	1	1
	AP-25	2	2 and 4	2	1 and 4
	AP-26	1	2	1	2
	AP-27	2	4 and 4	1	2
	AP-28	1	3	1	2
	AP-29	1	4	1	2 and 4
Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132Kv line			Transmission Lines		
	AP-1	1	2	1	4
	AP-5	2	3 and 4	2	2 and 4
	AP-10	1	2	2	2 and 4
	AP-15	2	2 and 3	1	3
	AP-20	2	2 and4	1	2
	AP-25	1	4	2	3 and 3
	AP-30	1	1	2	2 and 4
	AP-35	1	2	1	2
	AP-40	1	3	1	1
	AP-45	2	2 and 4	1	2
	AP-50	1	3	1	3
	AP-55	2	4 and 3	2	2 and 4

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Name of the TL/LILO	Location		Physical Cultural Resources		
		Nos	Left (km)	No	Right (km)
	AP-60	2	3 and 4	1	1
	AP-65	1	3	1	2
	AP-70	1	2	1	3
	AP-75	1	1	1	2
Satkhira-Paikgacha 132Kv double circuit line			Transmission Lines		
	AP-1	1	2	1	1
	AP-2	2	3 and 4	2	2 and 4
	AP-3	1	4	1	4
	AP-4	1	1	1	1
	AP-5	1	2	2	2 and 4
	AP-6	1	3	1	2
	AP-7	1	4	1	4
	AP-8	2	1 and 4	1	2
	AP-9	1	2	1	1
	AP-10	2	4 and 3	2	2 and 4
Bhandaria-Mathbaria 132Kv double circuit transmission line			Transmission Lines		
	AP-1	1	4	1	3
	AP-2	2	3 and 4	2	3 and 4
	AP-3	1	2	1	1
	AP-4	1	3	2	2 and 3
	AP-5	2	4 and 3	2	4 and 4
	AP-6	2	1 and 4	1	1
	AP-7	2	2 and 3	1	2
	AP-8	2	3 and 4	2	2 and 4
	AP-9	1	2	1	2
	AP-10	1	3	1	4
	AP-11	2	3 and 4	1	1
	AP-12	1	1	1	2
	AP-13	1	2	2	1 and 4
	AP-14	1	3	2	3 and 4
	AP-15	2	4 and3	2	3 and 4
	AP-16	2	1 and 4	1	2
	AP-17	1	2	1	2
	AP-18	1	3	2	1 and 4
	AP-19	1	2	1	2
	AP-20	2	3 and 4	2	3 and 4
	AP-21	1	4	1	2
	AP-22	2	3 and 4	1	1
	AP-23	1	2	1	2
	AP-24	1	3	2	1 and 4
Kachua – Matlab (N) 132Kv double circuit line			Transmission Lines		
	AP-1	1	2	1	4
	AP-2	2	3 and .4	2	2 and 4
	AP-3	1	2	1	2
	AP-4	1	2	2	3 and 3
	AP-5	2	1 and 3	2	4 and 4
	AP-6	1	4	1	2
	AP-7	1	1	1	4
	AP-8	1	4	2	3 and 4
	AP-9	1	3	1	3
	AP-10	1	2	1	1
	AP-11	2	3 and 3	2	2 and 3
	AP-12	2	4 and4	2	4 and 4
	AP-13	2	1.and 3	1	1
	AP-14	2	2 and 4	2	2 and 4
	AP-15	1	3	1	2

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Name of the TL/LILO	Location		Physical Cultural Resources		
		Nos	Left (km)	No	Right (km)
	AP-16	1	4	1	4
	AP-17	2	2 and 4	1	3
	AP-18	1	1	1	3
	AP-19	1	4	2	2 and 4
	AP-20	2	2 and 3	1	3
	AP-21	2	2 and4	1	2
	AP-22	1	3	2	4 and 3
	AP-23	1	3	2	1 and 4
	AP-24	1	1	1	2
	AP-25	1	2	1	1
	AP-26	2	2 and4	1	3
	AP-27	1	4	1	3
	AP-28	2	1 and 3	2	2 and 4
	AP-29	2	2 and 4	1	2
	AP-30	1	3	1	1
	AP-31	1	2	2	2 and 4
	AP-32	1	3	1	3
	AP-33	2	4 and 4	2	2 and 4
	AP-34	1	3	1	1
	AP-35	2	3 and 4	1	2
	AP-36	1	2	1	3
	AP-37	1	2	2	2 and 4
	AP-38	2	4 and 4	1	2
	AP-39	1	3	1	2
	AP-40	2	4 and 4	2	3 and 4
	AP-41	1	2	0	0
Gopalganj – Tungipara 132Kv double circuit line			Transmission Lines		
	AP-1	1	2	1	4
	AP-2	2	3 and 4	2	2 and 4
	AP-3	1	2	1	2
	AP-4	1	2	2	3 and 3
	AP-5	2	1 and 3	2	4 and 4
	AP-6	0	0	2	2 and 4
	AP-7	1	2	1	2
	AP-8	2	3 and 4	2	3 and 4
LILO of Chowmuhani – Ramganj 132Kv double circuit line at Chatkhil			Transmission Lines		
	AP-1	1	3	1	4
	AP-2	1	4	2	3 and 4
	AP-3	2	1 and 4	2	2 and 4
LILO of Bheramara – Rajbari 132Kv line at Kusthia (E)			Transmission Lines		
	AP-1	1	2	2	3 and 3
LILO of Bogura (S) – Naogaon 132Kv line at Dupchanchia			Transmission Lines		
	AP-1	1	2	1	3

Source: TA Consultant, 2024

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XVI.5: Groundwater and Surface Water Information (nearest to APs) (Other Sources May be Present within the RoW)

Name of the TL/LILO	Location	Ground water		Surface water	
		Left (m)	Right (m)	Left (m)	Right (m)
LILO of Existing Matarbari PP – Banskhali PP double circuit 400 Kv line at Matarbari	Transmission Lines				
	AP-1	350	150	150	100
	AP-2	100	150	250	300
	AP-3	350	100	350	200
	AP-4	300	200	300	100
	AP-5	150	350	300	250
	AP-6	250	100	400	250
	AP-7	200	50	250	100
	AP-8	250	50	200	150
Monohardi-Bajitput 132kV double circuit line	Transmission Lines				
	AP-1	300	100	100	300
	AP-2	500	350	350	250
	AP-3	150	150	300	200
	AP-4	100	350	200	150
	AP-5	150	300	150	200
	AP-6	250	150	400	350
	AP-7	200	250	300	300
	AP-8	300	200	250	250
	AP-9	350	150	150	100
	AP-10	200	100	250	200
	AP-11	100	150	250	300
	AP-12	350	100	350	200
	AP-13	300	200	300	100
	AP-14	250	250	250	50
	AP-15	100	150	100	50
	AP-16	100	100	150	100
	AP-17	150	100	150	100
	AP-18	50	150	350	150
	AP-19	50	300	250	300
	AP-20	100	350	150	350
	AP-21	250	250	250	300
	AP-22	200	150	100	350
	AP-23	350	250	150	250
	AP-24	350	300	450	150
	AP-25	450	350	250	250
	AP-26	400	150	200	200
	AP-27	250	250	150	300
	AP-28	100	300	350	150
	AP-29	150	350	300	250
Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132Kv line	Transmission Lines				
	AP-1	50	150	250	150
	AP-5	250	250	250	200
	AP-10	100	300	200	350
	AP-15	300	100	100	300
	AP-20	500	350	350	250
	AP-25	150	100	150	100
	AP-30	50	150	350	150
	AP-35	50	300	250	300
	AP-40	100	350	150	350
	AP-45	250	250	250	300
	AP-50	350	250	150	250
	AP-55	350	300	450	150
	AP-60	450	350	250	250

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Name of the TL/LILO	Location	Ground water		Surface water	
		Left (m)	Right (m)	Left (m)	Right (m)
	AP-65	400	150	200	200
	AP-70	250	250	150	300
	AP-75	50	100	350	250
Satkhira-Paikgacha 132Kv double circuit line	Transmission Lines				
	AP-1	250	150	400	350
	AP-2	200	250	300	300
	AP-3	300	200	250	250
	AP-4	350	150	150	100
	AP-5	200	100	250	200
	AP-6	150	100	150	100
	AP-7	50	150	350	150
	AP-8	50	300	250	300
	AP-9	100	350	150	350
	AP-10	250	250	250	300
Bhandaria-Mathbaria 132Kv double circuit transmission line	Transmission Lines				
	AP-1	250	250	250	200
	AP-2	100	300	200	350
	AP-3	300	100	100	300
	AP-4	500	350	350	250
	AP-5	200	250	300	300
	AP-6	100	150	250	300
	AP-7	350	100	350	200
	AP-8	300	200	300	100
	AP-9	250	250	250	50
	AP-10	100	150	100	50
	AP-11	100	100	150	100
	AP-12	150	100	150	100
	AP-13	50	150	350	150
	AP-14	50	300	250	300
	AP-15	100	350	150	350
	AP-16	350	300	450	150
	AP-17	450	350	250	250
	AP-18	400	150	200	200
	AP-19	250	250	150	300
	AP-20	100	300	350	150
	AP-21	150	350	300	250
	AP-22	250	100	400	250
	AP-23	200	50	250	100
	AP-24	150	100	200	350
Kachua – Matlab (N) 132Kv double circuit line	Transmission Lines				
	AP-1	200	200	350	200
	AP-2	300	200	400	150
	AP-3	200	150	400	150
	AP-4	150	150	350	200
	AP-5	50	150	200	150
	AP-6	200	200	200	200
	AP-7	150	300	200	350
	AP-8	300	150	150	300
	AP-9	500	350	350	200
	AP-10	150	150	300	200
	AP-11	150	350	200	150
	AP-12	150	300	150	200
	AP-13	150	200	450	200
	AP-14	150	200	300	200
	AP-15	200	150	400	350

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Name of the TL/LILO	Location	Ground water		Surface water	
		Left (m)	Right (m)	Left (m)	Right (m)
	AP-16	200	200	300	300
	AP-17	300	200	200	200
	AP-18	350	150	150	150
	AP-19	200	150	200	200
	AP-20	150	150	200	300
	AP-21	350	150	350	200
	AP-22	300	200	300	150
	AP-23	200	200	200	50
	AP-24	150	150	150	50
	AP-25	150	150	150	150
	AP-26	150	150	150	150
	AP-27	50	150	350	150
	AP-28	50	300	200	300
	AP-29	150	350	150	350
	AP-30	200	200	200	300
	AP-31	200	150	150	350
	AP-32	350	200	150	200
	AP-33	350	300	450	150
	AP-34	450	350	200	200
	AP-35	400	150	200	200
	AP-36	200	200	150	300
	AP-37	150	300	350	150
	AP-38	150	350	300	200
	AP-39	200	150	400	200
	AP-40	200	50	200	150
	AP-41	200	50	200	150
Gopalganj – Tungipara 132Kv double circuit line	Transmission Lines				
	AP-1	350	100	350	200
	AP-2	300	200	300	100
	AP-3	250	250	250	50
	AP-4	100	150	100	50
	AP-5	100	100	150	100
	AP-6	250	100	400	250
	AP-7	200	50	250	100
	AP-8	250	50	200	150
LILO of Chowmuhani – Ramganj 132Kv double circuit line at Chatkhil	Transmission Lines				
	AP-1	150	100	150	100
	AP-2	50	150	350	150
	AP-3	50	300	250	300
LILO of Bheramara – Rajbari 132Kv line at Kusthia (E)	Transmission Lines				
	AP-1	100	300	350	150
LILO of Bogura (S) – Naogaon 132Kv line at Dupchanchia	Transmission Lines				
	AP-1	100	300	350	150

Source: TA Consultant, 2024

Gound water and surface water information for substations:

Name of the Substation	New/Existing	Ground water (submersible)	Surface water (other than inundated lowlying lands)
		(m)	(m)

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Gopalgunj	Existing	inside	50m
Baljitpur	Existing	Inside	50m
Kachua	Existing	Inside	20 m back canal
Bhandaria	Existing	Inside	-
Satkhira	Existing	Inside	50 m
Pekua	New	-	150 m khal Seasonal salt pan
Madhabpur	New	50 m	-
Monohardi	New	-	-
Tunigpara	New	-	Baghi river 380 m`
Dhupchanchia	New	-	-
Matlab	New	-	-
Kusthia	New	-	-
Chatkhil	New	100m	-
Paikgacha	New	-	Kopothakho river 1 km
Mathbaria	New	-	-

Source: TA Consultant, 2024

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XVI.6: Clinic and Hospital Information (Nearest to Angle Points) (other facilities may be along the RoW)

Name of the TL/LILO	Location	Medical, Clinic and Hospital	
		Left (km)	Right (km)
LILO of Existing Matarbari PP – Banskhali PP double circuit 400 Kv line at Matarbari	Transmission Lines		
	AP-1	6	6
	AP-2	6	2
	AP-3	4	4
	AP-4	6	5
	AP-5	3	4
	AP-6	4	6
	AP-7	3	3
	AP-8	4	4
Monohardi-Bajitput 132kV double circuit line	Transmission Lines		
	AP-1	4	4
	AP-2	3	5
	AP-3	5	5
	AP-4	1	4
	AP-5	2	3
	AP-6	4	4
	AP-7	5	2
	AP-8	6	5
	AP-9	3	4
	AP-10	4	3
	AP-11	2	4
	AP-12	5	5
	AP-13	4	6
	AP-14	5	3
	AP-15	2	2
	AP-16	6	4
	AP-17	3	3
	AP-18	4	4
	AP-19	2	5
	AP-20	5	4
	AP-21	6	2
	AP-22	6	3
	AP-23	4	4
	AP-24	3	5
	AP-25	5	2
	AP-26	6	3
	AP-27	2	4
	AP-28	5	5
	AP-29	4	4
Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132Kv line	Transmission Lines		
	AP-1	4	4
	AP-5	3	5
	AP-10	4	3
	AP-15	2	4
	AP-20	5	5
	AP-25	4	6
	AP-30	5	3
	AP-35	2	2
	AP-40	6	4
	AP-45	5	2
	AP-50	6	3
	AP-55	2	4
	AP-60	5	5

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Name of the TL/LILO	Location	Medical, Clinic and Hospital	
		Left (km)	Right (km)
	AP-65	4	4
	AP-70	4	3
	AP-75	2	4
Satkhira-Paikgacha 132Kv double circuit line	Transmission Lines		
	AP-1	6	2
	AP-2	2	4
	AP-3	5	5
	AP-4	4	4
	AP-5	4	3
	AP-6	4	6
	AP-7	5	3
	AP-8	4	4
	AP-9	5	4
	AP-10	5	5
Bhandaria-Mathbaria 132Kv double circuit transmission line	Transmission Lines		
	AP-1	4	4
	AP-2	3	5
	AP-3	6	6
	AP-4	5	3
	AP-5	6	2
	AP-6	1	4
	AP-7	2	3
	AP-8	4	4
	AP-9	5	2
	AP-10	6	5
	AP-11	3	4
	AP-12	4	3
	AP-13	2	4
	AP-14	5	5
	AP-15	4	6
	AP-16	4	4
	AP-17	2	5
	AP-18	5	4
	AP-19	6	2
	AP-20	6	3
	AP-21	2	4
	AP-22	5	5
	AP-23	4	4
	AP-24	4	2
Kachua – Matlab (N) 132Kv double circuit line	Transmission Lines		
	AP-1	4	4
	AP-2	3	5
	AP-3	6	6
	AP-4	5	3
	AP-5	6	2
	AP-6	2	4
	AP-7	5	5
	AP-8	4	4
	AP-9	6	2
	AP-10	3	5
	AP-11	4	4
	AP-12	5	5
	AP-13	1	4
	AP-14	2	3
	AP-15	4	4
	AP-16	5	2

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Name of the TL/LILO	Location	Medical, Clinic and Hospital	
		Left (km)	Right (km)
	AP-17	6	5
	AP-18	3	4
	AP-19	4	3
	AP-20	2	4
	AP-21	5	5
	AP-22	4	6
	AP-23	5	3
	AP-24	2	2
	AP-25	6	4
	AP-26	3	3
	AP-27	4	4
	AP-28	2	5
	AP-29	5	4
	AP-30	6	2
	AP-31	3	3
	AP-32	4	4
	AP-33	5	4
	AP-34	6	3
	AP-35	4	4
	AP-36	3	5
	AP-37	5	2
	AP-38	6	3
	AP-39	2	4
	AP-40	5	5
	AP-41	4	4
Gopalganj – Tungipara 132Kv double circuit line	Transmission Lines		
	AP-1	4	4
	AP-2	3	5
	AP-3	6	6
	AP-4	5	3
	AP-5	6	2
	AP-6	3	5
	AP-7	4	4
	AP-8	3	4
LILO of Chowmuhani – Ramganj 132Kv double circuit line at Chatkhil	Transmission Lines		
	AP-1	5	2
	AP-2	6	5
	AP-3	2	4
LILO of Bheramara – Rajbari 132Kv line at Kusthia (E)	Transmission Lines		
	AP-1	5	6
LILO of Bogura (S) – Naogaon 132Kv line at Dupchanchia	Transmission Lines		
	AP-1	4	6

Source: TA Consultant, 2024

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XVI.7: Cultivated land under RoW of transmission line

SL	Name of the TL/LILO	Length Cultivated (m)	Full RoW Width (m)	Area Cultivated in RoW (acre)	Clearing Width (m)	Area Cultivated to be Cleared (acre)
(i)	Name of the Transmission Lines					
A	132/33kV Lines					
01	Reconductoring of Shahjibazar-Brahmanbaria-Ashuganj 132kV line	3500	28	24.22	7.6	6.57
02	Monohardi-Bajitpur 132kV double circuit line	3705	28	25.63	7.6	6.96
03	Gopalganj -Tungipara 132kV double circuit line	1580	28	10.93	7.6	2.97
04	Kachua- Matlab(N) 132kV double circuit line	1620	28	11.21	7.6	3.04
05	Satkhira- Paikgacha 132kv double circuit line	6883	28	47.62	7.6	12.93
06	Bhandaria-Mathbaria 132kV double circuit transmission line	405	28	2.80	7.6	0.76
	Total TLs	17693		122.42		33.23
(ii)	Name of the LILO Lines					
A	400/230/132kV Lines					
01	LILO of Existing Matarbari PP- Bashkhali PP double circuit 400kV line at Pekua	1386	46	15.75	12.8	4.38
	Subtotal	1386		15.75		4.38
B	230/132/33kV Lines					
05	LILO of Cumilla(N) - Shahjibazar PP 230kV double circuit line at Madhabpur	100	40	0.99	9.2	0.23
03	LILO of Anwara-Cox's Bazar 230Ky line at Pekua	0	40	0.00	9.2	0.00
07	LILO of Sripur -Ashuganja 230kV double circuit line at Monohardi	0	40	0.00	9.2	0.00
	Subtotal	100		0.99		0.23
C	132/33kV Lines					
08	LILO of Bogura(S) -Naogaon 132kV line at Dupchanchia	480	28	3.32	7.6	0.90
04	LILO of Existing Matarbari (132/33)-Chakaria 132kV line at Pekua	0	28	0.00	7.6	0.00
06	LILO of Shahjibazar - Brahmanbaria 132kV double circuit line at Madhabpur	0	28	0.00	7.6	0.00
09	LILO of Bheramara-Rajbari, 132 kv line at Kushtia €	20	28	0.14	7.6	0.04
10	LILO of Chowmuhani-Ramganj 132kV double circuit line at Chatkhil	30	28	0.21	7.6	0.06

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SL	Name of the TL/LILO	Length Cultivated (m)	Full RoW Width (m)	Area Cultivated in RoW (acre)	Clearing Width (m)	Area Cultivated to be Cleared (acre)
	Subtotal	530		3.67		1.00
	Total LILO	2016		20.41		5.61
	Grand Total (TLS+LILOs)	19709		142.83		38.83

Source: SES Survey 2024 and RP Annex 15

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Appendix XVII: Sample Grievance Registration Form[41]

The Project welcomes complaints, suggestions, queries and comments regarding Project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback. Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing 'CONFIDENTIAL' above your name. Thank you.

<table>
<tr><td colspan="4">Grievance Form: Power Transmission Strengthening & Integration of Renewable Energy (PTSIRE) Project</td></tr>
<tr><td colspan="4">Grievance registration number:</td></tr>
<tr><td rowspan="4">Contact details
(may be submitted anonymously)</td><td colspan="3">Name (s):</td></tr>
<tr><td colspan="3">Address:</td></tr>
<tr><td colspan="3">Telephone/Mobile:</td></tr>
<tr><td colspan="3">Email:</td></tr>
<tr><td>How would you prefer to be contacted (check one)</td><td>By mail/post:
☐</td><td>By phone/SMS:
☐</td><td>By email
☐</td></tr>
<tr><td>Preferred language</td><td>☐ Bengali</td><td>☐ English</td><td>☐ Other
Please state: _____</td></tr>
<tr><td colspan="4">Provide details of your grievance. Please describe the problem, type, who it happened to, when and where it happened, how many times, etc. Describe in as much detail as possible.</td></tr>
<tr><td colspan="4">What is your suggested resolution for the grievance if you have one? Is there something you would like PGCB or another party/person to do to solve the problem?</td></tr>
<tr><td rowspan="2">How have you submitted this form to the project?</td><td>Website
☐</td><td>Email
☐</td><td>By hand
☐</td></tr>
<tr><td>In person
☐</td><td>By telephone
☐</td><td>Other (specify)
☐</td></tr>
<tr><td>Who filled out this form (If not the person named above)?</td><td colspan="3">Name and contact details:</td></tr>
<tr><td>Signature</td><td colspan="3"></td></tr>
</table>

[41] This grievance form may be adapted as appropriate during project implementation.

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Name of PGCB official assigned responsibility			
Resolved on site (informally) or referred to Level 1 GRM?	☐ Resolved	☐ Referred	If referred, date:
Resolved referred to Level 2 GRM?	☐ Resolved	☐ Referred	If referred, date:
Resolved referred to Level 3 GRM?	☐ Resolved	☐ Referred	If referred, date:
Completion			
Final resolution (briefly describe)			

	Short description	Accepted? (Y/N)	Acknowledgement signature
1st proposed solution			
2nd proposed solution			
3rd proposed solution			

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Appendix XVIII: Chance Find Procedure[42]

1. Background

The purpose of this document is to address the possibility of previously unknown above ground cultural heritage resources being identified or below ground archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance find to ensure that cultural heritage and archaeological sites are documented and protected as required. Cultural heritage resources or archaeological materials are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public and local communities. Impacts to cultural heritage and archaeological sites must be avoided or managed.

The objectives of this 'Chance Find Procedure' are to promote preservation of cultural heritage and archaeological data while minimizing disruption of construction scheduling. It is recommended that all on site personnel and contractors be informed of the Chance Find Procedure and have access to a copy of procedure while on site.

2. Potential Impacts to Archaeological Sites

Developments that involve excavation, movement, or disturbance of soils have the potential to impact cultural heritage resources or archaeological materials, if present. Activities such as road construction, land clearing, piling and excavation are all examples of activities that may adversely affect archaeological deposits.

3. Relevant Legislation

The Antiquities Act, 1968, protects archaeological sites, whether on Government owned or private land. It ensures the protection, preservation, development and maintenance of antiquities in Bangladesh. The Act defines "antiquities" as ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments, etc. The Act is designed to protect these antiquities from destruction, theft, negligence, unlawful excavation, trade, and export. The law prohibits new construction in the proximity of a protected antiquity and empowers the relevant provincial governments to prohibit excavation in any area that may contain articles of archaeological significance. Under the Act, proponents are obligated to ensure that no activity is undertaken in the proximity of a protected antiquity, and report to the Department of Archaeology, any archaeological discovery made during the course of the project.

4. Remedies and Penalties

The Antiquities Act, 1968 provides for heritage inspection or investigation orders, temporary protection orders, civil remedies and penalties to limit contraventions. These powers provide: 'A contravention of any provision of this Act or the rules shall, where no punishment has been specifically provided be punishable with rigorous imprisonment for a term which may extend to one year, or with fine, or with both.'

5. Chance Find Procedure

If you believe that you may have encountered any cultural heritage resources or archaeological materials, stop work in the area and follow the procedure below:

[42] This chance find procedure is provided and suggested by ADB TA consultants, However, this can be revised and reviewed by SIC and Contractors for each site as relevant during detailed design to account for any value addition.

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The following 'chance-find' principles will be implemented by the contractor throughout the construction works to account for any unknown or undiscovered items identified during construction works:

i. Workers will be trained in the location of cultural heritage receptors within the construction area and adjacent, and in the identification of potential items of heritage significance.
ii. Should any potential items be located, the site supervisor will be immediately contacted and work will be temporarily stopped in that area.
iii. If the site supervisor determines that the item is of potential significance, an officer from the Department of Archaeology (DoA) will be invited to inspect the site and work will be stopped until DoA has responded to this invitation.
iv. Work will not re-commence in this location until agreement has been reached between DoA and PGCB as to any required mitigation measures, which may include excavation and recovery of the item (subject to the requirements of ADB SPS 2009 being met first).
v. A precautionary approach will be adopted in the application of these procedures.

6. Detailed Procedural Steps

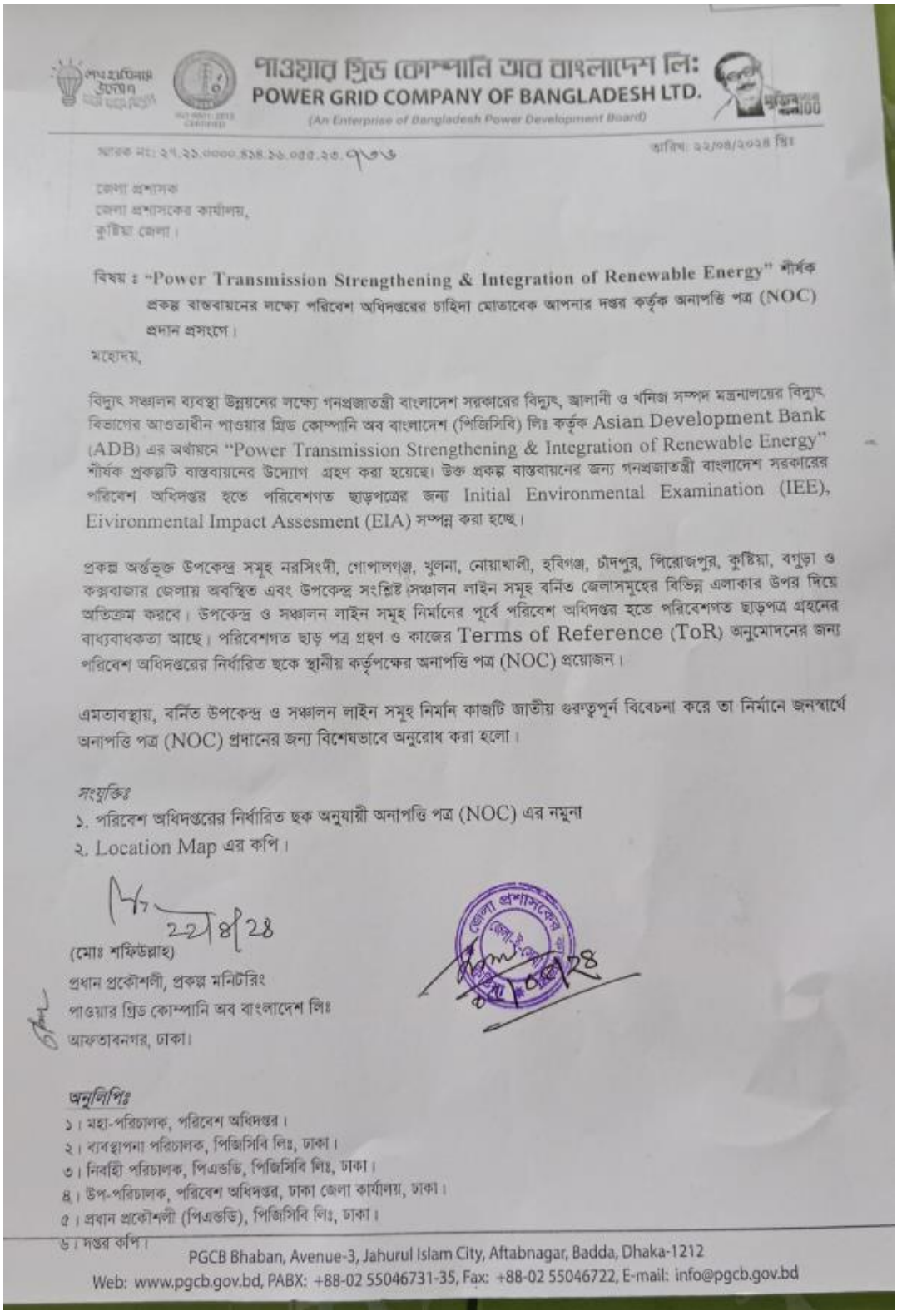
- If the Director, Department of Archaeology receives any information or otherwise has the knowledge of the discovery or existence of an antiquity of which there is no owner, they shall, after satisfying themself as to the correctness of the information or knowledge, take such steps with the approval of the Government, as they may consider necessary for the custody, preservation and protection of the antiquity.
- Whoever discovers, or finds accidentally, any movable antiquity shall inform forth with the Directorate within seven days of its being discovered or found.
- If, within seven days of being informed, the Director decides to take over the antiquity for purposes of custody, preservation and protection, the person discovering or finding shall hand it over to the Director or a person authorized by him in writing.
- Where the Director decides to take over an antiquity, they may pay to the person by whom it is handed over to him such cash reward as may be decided in consultation with the Advisory Committee.
- If any person, who discovers or finds any movable antiquity contravenes the provisions of the Act, they shall be punishable with imprisonment for a term which may extend to five (05) years, or with fine not less than fifteen hundred thousand rupees or with both and the Court convicting such person shall direct that the antiquity in respect of which such contravention has taken place shall stand forfeited to Government.
- The Director or any officer authorized by them with police assistance may, after giving reasonable notice, enter into, inspect and examine any premises, place or area which or the sub-soil of which he may have reason to believe to be, or to contain an antiquity and may cause any site, building, object or any antiquity or the remains of any antiquity in such premises, place or area to be photographed, copied or reproduced by any process suitable for the purpose.
- The owner or occupier of the premises, place or area shall afford all reasonable opportunity and assistance to the Director.
- No photograph, copy of reproduction taken or made shall be sold or offered for sale except by or with the consent of the owner of the object of which the photograph, copy or the reproduction has been taken or made.
- Where substantial damage is caused to any property as a result of the inspection, the Director shall pay to the owner thereof reasonable compensation for the damage in consultation with the Advisory Committee. If the Director after conducting an inquiry, has reasonable grounds to believe that any land contains any antiquity, he may approach the

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Government to direct the Revenue Department to acquire such land or any part thereof and the Revenue Department shall thereupon acquire such land or part under the ARIPA 2017, as for a public purpose.

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Appendix XIX: Applications for NOC From Local Authority[43]



পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
POWER GRID COMPANY OF BANGLADESH LTD.
(An Enterprise of Bangladesh Power Development Board)

স্মারক নং: ২৭.২১.০০০০.৪১৪.১৬.০৪৫.২৩.৭৩৬ তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
কুষ্টিয়া জেলা।

বিষয় ঃ "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসংগে।

মহোদয়,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রনালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Eivironmental Impact Assesment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অর্ন্তভূক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, হবিগঞ্জ, চাঁদপুর, পিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্নিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহনের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র গ্রহণ ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্ধারিত ছকে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্নিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মনি কাজটি জাতীয় গুরুত্বপূর্ন বিবেচনা করে তা নির্মানে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

সংযুক্তিঃ
১. পরিবেশ অধিদপ্তরের নির্ধারিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

22/4/24
(মোঃ শফিউল্লাহ)
প্রধান প্রকৌশলী, প্রকল্প মনিটরিং
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
আফতাবনগর, ঢাকা।

জেলা প্রশাসকের কার্যালয় কুষ্টিয়া 22/04/24

অনুলিপিঃ
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। ব্যবস্থাপনা পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। নির্বাহী পরিচালক, পিএন্ডডি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। প্রধান প্রকৌশলী (পিএন্ডডি), পিজিসিবি লিঃ, ঢাকা।
৬। দপ্তর কপি।

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[43] These are initial NOC letters obtained by PGCB. Remaining approvals will be provided by PGCB through SIC and Contractor for each site before contract award and/or the detailed design to meet regulatory requirements with copies of all such approvals being included in the updated IEE.

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পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
POWER GRID COMPANY OF BANGLADESH LTD.
(An Enterprise of Bangladesh Power Development Board)

স্মারক নং: ২৭.২১.০০০০.৪২৪.১৬.০৪৫.২০.৭৬৮ তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
কক্সবাজার জেলা।

বিষয় ঃ "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসংগে।

মহোদয়,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রনালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Eivironmental Impact Assesment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অর্ন্তভূক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, হবিগঞ্জ, চাঁদপুর, পিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্নিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহনের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র গ্রহণ ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্ধারিত ছকে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্নিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মান কাজটি জাতীয় গুরুত্বপূর্ন বিবেচনা করে তা নির্মানে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

সংযুক্তিঃ
১. পরিবেশ অধিদপ্তরের নির্ধারিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

22/4/24
(মোঃ শফিউল্লাহ)
প্রধান প্রকৌশলী, প্রকল্প মনিটরিং
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
আফতাবনগর, ঢাকা।

অনুলিপিঃ
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। ব্যবস্থাপনা পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। নির্বাহী পরিচালক, পিএন্ডডি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। প্রধান প্রকৌশলী (পিএন্ডডি), পিজিসিবি লিঃ, ঢাকা।
৬। নথির কপি।

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পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
POWER GRID COMPANY OF BANGLADESH LTD.

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স্মারক নং: ২৭.২১.০০০০.৪১৪.১৬.০৫৫.২৩. ৭৩৪ তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
গোপালগঞ্জ জেলা।

বিষয় ঃ "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসংগে।

মহোদয়,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রনালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Eivironmental Impact Assesment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অর্ন্তভূক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, হবিগঞ্জ, চাঁদপুর, পিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্নিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহনের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র গ্রহণ ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্ধারিত ছকে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্নিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মান কাজটি জাতীয় গুরুত্বপূর্ন বিবেচনা করে তা নির্মানে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

সংযুক্তিঃ
১. পরিবেশ অধিদপ্তরের নির্ধারিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

22/4/24

(মোঃ শফিউল্লাহ)
প্রধান প্রকৌশলী, প্রকল্প মনিটরিং
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
আফতাবনগর, ঢাকা।

২৩/০৪/২৪

অনুলিপিঃ
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। ব্যবস্থাপনা পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। নির্বাহী পরিচালক, পিএন্ডডি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। প্রধান প্রকৌশলী (পিএন্ডডি), পিজিসিবি লিঃ, ঢাকা।
৬। দপ্তর কপি।

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২১০৩৮৭৪২৪০৪৬০০২৪

পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
POWER GRID COMPANY OF BANGLADESH LTD.
(An Enterprise of Bangladesh Power Development Board)

স্মারক নং: ২৭.২১.০০০০.৪১৪.১৬.০৫৫.২৩.৭৩১

তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
হবিগঞ্জ জেলা।

বিষয় : "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসংগে।

মহোদয়,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রনালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Eivironmental Impact Assesment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অর্ন্তভূক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, হবিগঞ্জ, চাঁদপুর, পিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্নিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহনের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র গ্রহণ ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্ধারিত ছকে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্নিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মান কাজটি জাতীয় গুরুত্বপূর্ন বিবেচনা করে তা নির্মানে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

জেলা প্রশাসকের কার্যালয় হবিগঞ্জ ০৩/০৫/২৪ নায়েক

১. পরিবেশ অধিদপ্তরের নির্ধারিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

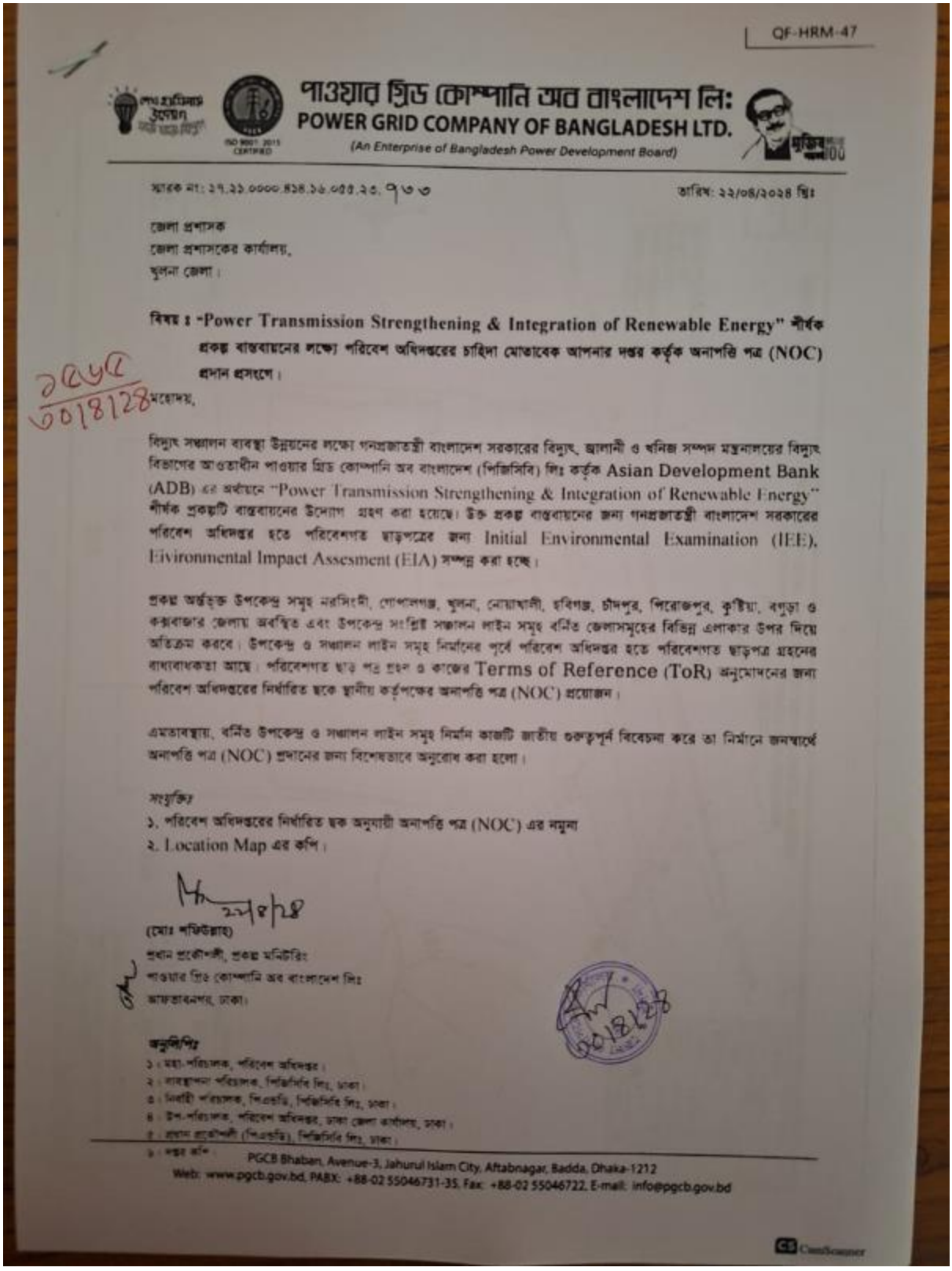
২২/৪/২৪

(মোঃ শফিউল্লাহ)
প্রধান প্রকৌশলী, প্রকল্প মনিটরিং
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
আফতাবনগর, ঢাকা।

অনুলিপিঃ
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। ব্যবস্থাপনা পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। নির্বাহী পরিচালক, পিএন্ডডি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। প্রধান প্রকৌশলী (পিএন্ডডি), পিজিসিবি লিঃ, ঢাকা।
৬। দপ্তর কপি।

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পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
POWER GRID COMPANY OF BANGLADESH LTD.
(An Enterprise of Bangladesh Power Development Board)

স্মারক নং: ২৭.২১.০০০০.৪২৪.১৬.০৫৪.২৩.৭৩৩ তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
খুলনা জেলা।

বিষয়ঃ "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসংগে।

মহোদয়,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রনালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Eivironmental Impact Assesment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অর্ন্তভুক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, ফরিদপুর, চাঁদপুর, পিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্ণিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহনের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র গ্রহন ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্ধারিত ছকে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্ণিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মান কাজটি জাতীয় গুরুত্বপূর্ণ বিবেচনা করে তা নির্মানে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

সংযুক্তিঃ
১. পরিবেশ অধিদপ্তরের নির্ধারিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

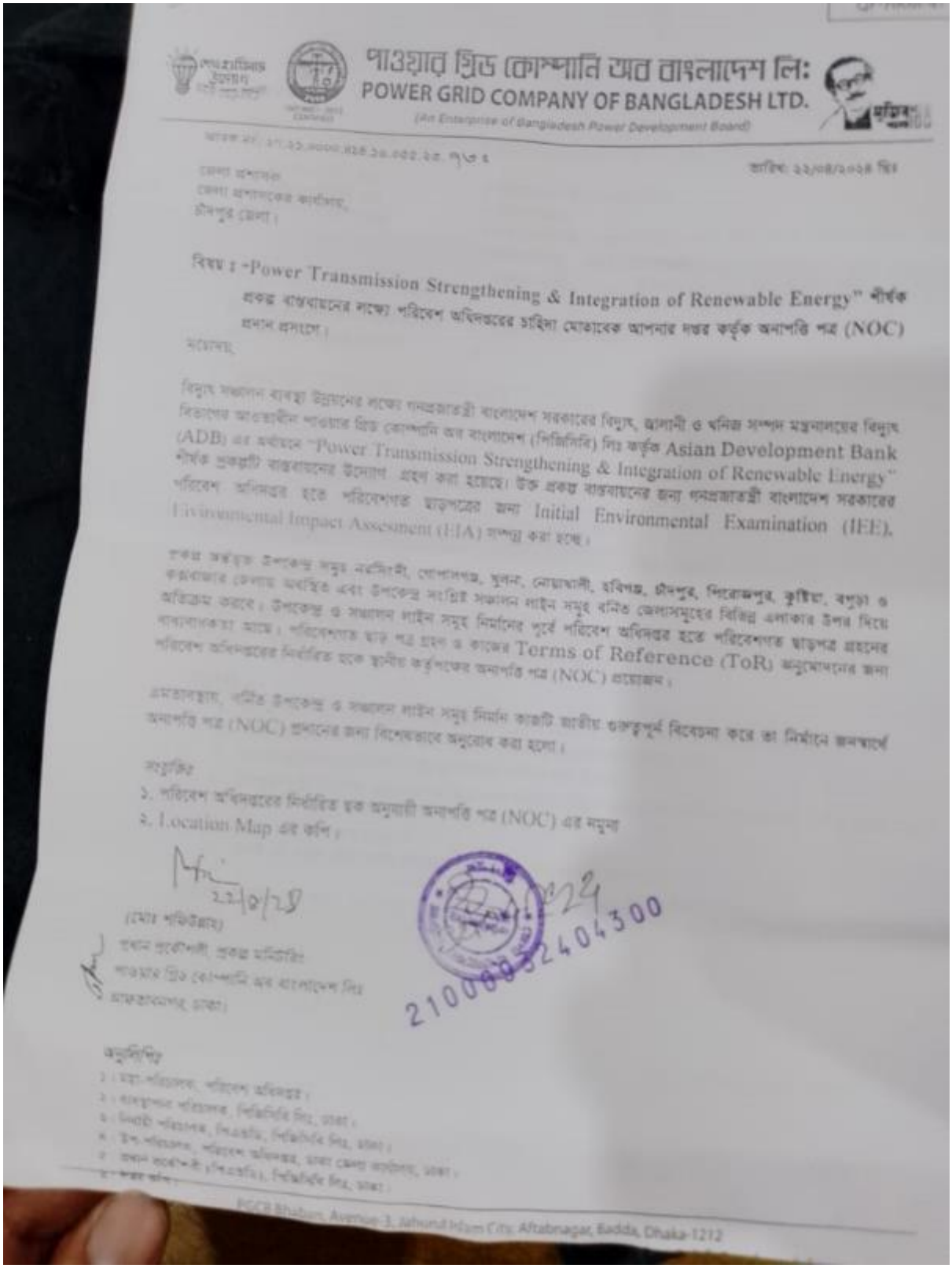
২২/৪/২৪

(মোঃ শফিউল্লাহ)
প্রধান প্রকৌশলী, প্রকল্প মনিটরিং
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
আফতাবনগর, ঢাকা।

অনুলিপিঃ
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। ব্যবস্থাপনা পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। নির্বাহী পরিচালক, পিএন্ডডি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। প্রধান প্রকৌশলী (পিএন্ডডি), পিজিসিবি লিঃ, ঢাকা।
৬। নথি/কপি।

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পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
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তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
চাঁদপুর জেলা।

বিষয়ঃ "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসঙ্গে।

সবিনয় নিবেদন,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রণালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Environmental Impact Assessment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অন্তর্ভুক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, ঝিনাইদহ, চাঁদপুর, শিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্ণিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মাণের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহণের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র গ্রহণ ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্দেশিত ফরমে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্ণিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মাণ কাজটি জাতীয় গুরুত্বপূর্ণ বিবেচনা করে তা নির্মাণে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

সংযুক্তি
১. পরিবেশ অধিদপ্তরের নির্দেশিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

22/4/24

(মোঃ শফিউল্লাহ)
প্রকল্প পরিচালক, প্রকল্প অফিস
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
বাফরাবাদ, ঢাকা।

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অনুলিপি
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। আঞ্চলিক পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। বিভাগীয় পরিচালক, পিজিসিবি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। সহকারী প্রকৌশলী, পিজিসিবি, পিজিসিবি লিঃ, ঢাকা।

PGCB Bhaban, Avenue-3, Jahurul Islam City, Aftabnagar, Badda, Dhaka-1212

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পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
POWER GRID COMPANY OF BANGLADESH LTD.
(An Enterprise of Bangladesh Power Development Board)

স্মারক নং: ২৭.২১.০০০০.৪১৪.১৬.০৪৫.২৩.৭৩৬ তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
কুষ্টিয়া জেলা।

বিষয় ঃ "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসংগে।

মহোদয়,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রনালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Eivironmental Impact Assesment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অর্ন্তভূক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, হবিগঞ্জ, চাঁদপুর, পিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্নিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহনের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র গ্রহণ ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্ধারিত ছকে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্নিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানি কাজটি জাতীয় গুরুত্বপূর্ন বিবেচনা করে তা নির্মানে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

সংযুক্তিঃ
১. পরিবেশ অধিদপ্তরের নির্ধারিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

22/4/24

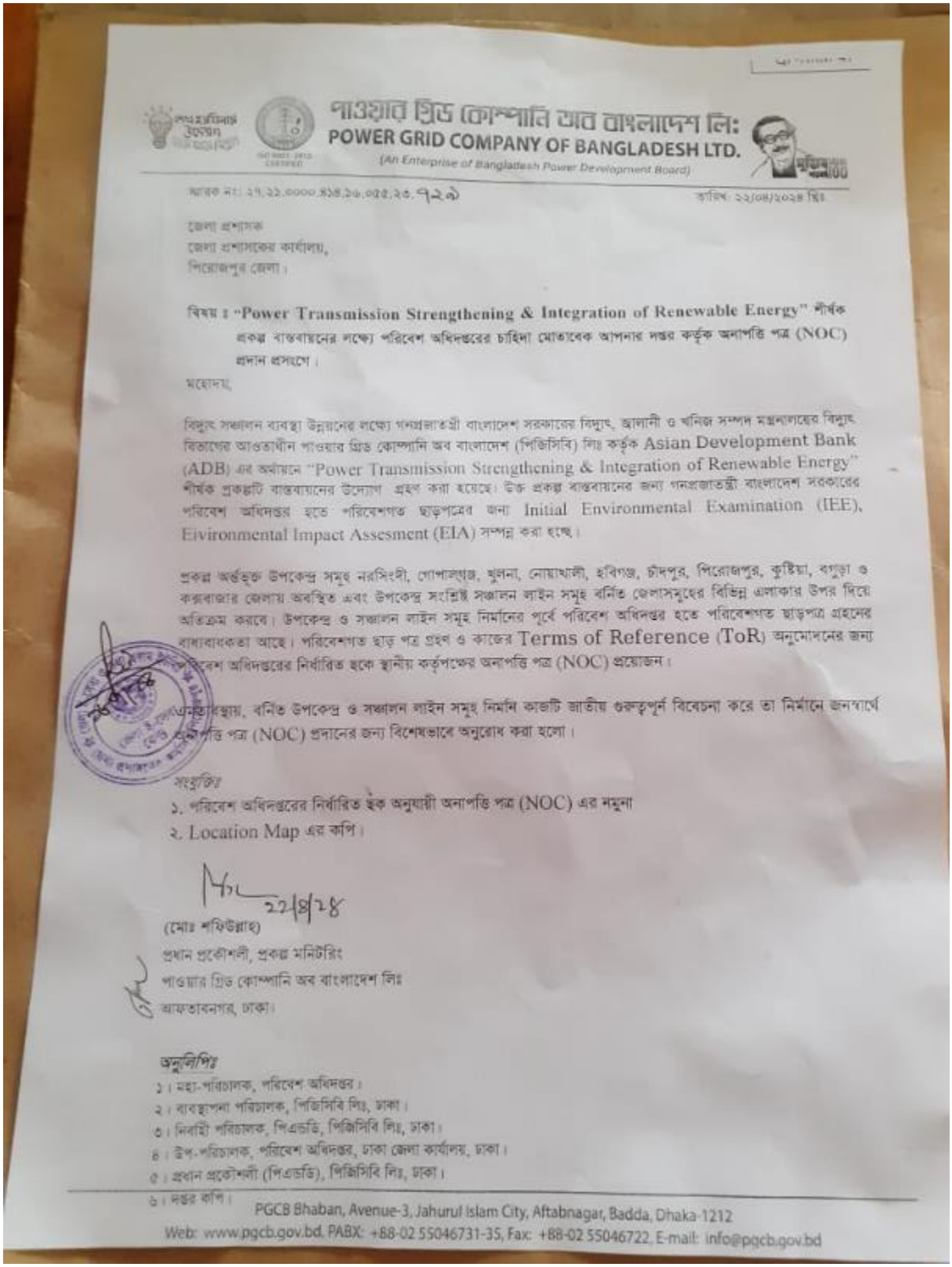
(মোঃ শফিউল্লাহ)
প্রধান প্রকৌশলী, প্রকল্প মনিটরিং
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
আফতাবনগর, ঢাকা।

জেলা প্রশাসকের কার্যালয় কুষ্টিয়া ২২/৪/২৪

অনুলিপিঃ
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। ব্যবস্থাপনা পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। নির্বাহী পরিচালক, পিএন্ডডি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। প্রধান প্রকৌশলী (পিএন্ডডি), পিজিসিবি লিঃ, ঢাকা।
৬। দপ্তর কপি।

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স্মারক নং: ২৭.২২.০০০০.৪১৪,১৬.০৫৫,২৩.৭২৯ তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
পিরোজপুর জেলা।

বিষয়ঃ "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসঙ্গে।

মহোদয়,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রণালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Eivironmental Impact Assesment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অর্ন্তভুক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, হবিগঞ্জ, চাঁদপুর, পিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্নিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহনের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র প্রহণ ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্ধারিত ছকে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্নিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানি কাজটি জাতীয় গুরুত্বপূর্ণ বিবেচনা করে তা নির্মানে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

সংযুক্তিঃ
১. পরিবেশ অধিদপ্তরের নির্ধারিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

22/4/24
(মোঃ শফিউল্লাহ)
প্রধান প্রকৌশলী, প্রকল্প মনিটরিং
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
আফতাবনগর, ঢাকা।

অনুলিপিঃ
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। ব্যবস্থাপনা পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। নির্বাহী পরিচালক, পিএন্ডডি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। প্রধান প্রকৌশলী (পিএন্ডডি), পিজিসিবি লিঃ, ঢাকা।
৬। দপ্তর কপি।

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শেখ হাসিনার উদ্যোগ ঘরে ঘরে বিদ্যুৎ

ISO 9001: 2015 CERTIFIED

পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
POWER GRID COMPANY OF BANGLADESH LTD.

(An Enterprise of Bangladesh Power Development Board)

মুজিব শতবর্ষ ১০০

স্মারক নং: ২৭.২১.০০০০.৪১৪.১৬.০৫৫.২৩.৭২৯ তারিখ: ২২/০৪/২০২৪ খ্রিঃ

জেলা প্রশাসক
জেলা প্রশাসকের কার্যালয়,
পিরোজপুর জেলা।

বিষয় ঃ "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্প বাস্তবায়নের লক্ষ্যে পরিবেশ অধিদপ্তরের চাহিদা মোতাবেক আপনার দপ্তর কর্তৃক অনাপত্তি পত্র (NOC) প্রদান প্রসংগে।

মহোদয়,

বিদ্যুৎ সঞ্চালন ব্যবস্থা উন্নয়নের লক্ষ্যে গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রনালয়ের বিদ্যুৎ বিভাগের আওতাধীন পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ (পিজিসিবি) লিঃ কর্তৃক Asian Development Bank (ADB) এর অর্থায়নে "Power Transmission Strengthening & Integration of Renewable Energy" শীর্ষক প্রকল্পটি বাস্তবায়নের উদ্যোগ গ্রহণ করা হয়েছে। উক্ত প্রকল্প বাস্তবায়নের জন্য গনপ্রজাতন্ত্রী বাংলাদেশ সরকারের পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্রের জন্য Initial Environmental Examination (IEE), Eivironmental Impact Assesment (EIA) সম্পন্ন করা হচ্ছে।

প্রকল্প অর্ন্তভূক্ত উপকেন্দ্র সমূহ নরসিংদী, গোপালগঞ্জ, খুলনা, নোয়াখালী, হবিগঞ্জ, চাঁদপুর, পিরোজপুর, কুষ্টিয়া, বগুড়া ও কক্সবাজার জেলায় অবস্থিত এবং উপকেন্দ্র সংশ্লিষ্ট সঞ্চালন লাইন সমূহ বর্নিত জেলাসমূহের বিভিন্ন এলাকার উপর দিয়ে অতিক্রম করবে। উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মানের পূর্বে পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহনের বাধ্যবাধকতা আছে। পরিবেশগত ছাড় পত্র গ্রহণ ও কাজের Terms of Reference (ToR) অনুমোদনের জন্য পরিবেশ অধিদপ্তরের নির্ধারিত ছকে স্থানীয় কর্তৃপক্ষের অনাপত্তি পত্র (NOC) প্রয়োজন।

এমতাবস্থায়, বর্নিত উপকেন্দ্র ও সঞ্চালন লাইন সমূহ নির্মান কাজটি জাতীয় গুরুত্বপূর্ন বিবেচনা করে তা নির্মানে জনস্বার্থে অনাপত্তি পত্র (NOC) প্রদানের জন্য বিশেষভাবে অনুরোধ করা হলো।

সংযুক্তিঃ
১. পরিবেশ অধিদপ্তরের নির্ধারিত ছক অনুযায়ী অনাপত্তি পত্র (NOC) এর নমুনা
২. Location Map এর কপি।

22/৪/২৪
(মোঃ শফিউল্লাহ)
প্রধান প্রকৌশলী, প্রকল্প মনিটরিং
পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ
আফতাবনগর, ঢাকা।

অনুলিপিঃ
১। মহা-পরিচালক, পরিবেশ অধিদপ্তর।
২। ব্যবস্থাপনা পরিচালক, পিজিসিবি লিঃ, ঢাকা।
৩। নির্বাহী পরিচালক, পিএন্ডডি, পিজিসিবি লিঃ, ঢাকা।
৪। উপ-পরিচালক, পরিবেশ অধিদপ্তর, ঢাকা জেলা কার্যালয়, ঢাকা।
৫। প্রধান প্রকৌশলী (পিএন্ডডি), পিজিসিবি লিঃ, ঢাকা।
৬। দপ্তর কপি।

PGCB Bhaban, Avenue-3, Jahurul Islam City, Aftabnagar, Badda, Dhaka-1212
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Appendix XX: Clarifications on EMP Budget Items[44]

XX.1: Labor Camp Utility

Water Supply:	Ensure there is a reliable source of clean water for drinking, cooking, and sanitation.
Electricity:	Depending on the camp's needs, this could range from basic lighting to powering appliances and devices.
Sanitation Facilities:	This includes toilets, showers, and proper waste disposal systems.
Sewer System:	Labor camps must have a sewer system.
Cooking Facilities:	This could be a communal kitchen area or individual setups with stoves and grills.

Safety and Emergency Equipment: Fire extinguishers, first aid kits, and emergency communication systems.

XX.2: Noise Control Equipment

Noise control in substations and transmission lines is essential to reduce the impact of noise on the surrounding environment and comply with regulations. Acoustic barriers, soundproof barriers, silencers, mufflers, corona rings, shield wires, and so on could be used as the applicable methods.

Specifications & Features of Meter

Sound Level Meter meeting IEC61672 Class 1 standard that can measure from 30 to ^{13}0 dB with A & C weighting with teal-time data logger i.e. data is saved onto a removal SD memory card enabling data to be easily downloaded and analyzed using excel.

Applications: Industrials, Schools, Noise at Work/Occupational Noise and Environmental and Community Noise, Vehicle Noise Testing as well as basic noise measurements, Auditorium, Library.

- Frequency and time weighting meet IEC61672 class 1.
- Auto range: 30 to 130 db.
- A/C frequency weighting.
- Fast/slow time weighting.
- Peak hold, Data hold.
- Record (Max., Min.).
- RS232/USB computer interface.
- Optional windshield ball, SB-01.
- SD card as optional
- 0.5" standard microphone head.
- Condenser microphone for high accuracy & long-term stability
- SD card capacity: 1 GB to 16 GB.
- LCD with green light backlight, easy reading
- Can default auto power off or manual power off

[44] These are clarifications on the basis of budgeting EMP items developed by Tecvy, PGCB's IEE contractor and appended by ADB TA consultants, contractors must determine their costs for complying with the EMP requirements

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XX.3: Drinking Water

Drinking water could be provided to the project site via water jars, installing tube-wells with permissions, and so on. Supplying drinking water and managing water-related tasks on a substation and transmission line project site are crucial for ensuring the health, safety, and well-being of workers.

1. Supplying Drinking Water

a. Water Jars

- **Purpose:** To provide clean, potable water for drinking directly at the project site.
- **Details:**
    - **Supply:** Regularly deliver large water jars (typically 5-20 liters) to different locations on the site.
    - **Distributors:** Place water jars at convenient spots such as work areas, rest zones, and dining facilities.
    - **Maintenance:** Ensure water jars are sealed and stored in hygienic conditions to prevent contamination.
    - **Water Quality:** The water should meet health and safety standards for drinking water, with regular testing and certification.

b. Tube-Wells

- **Purpose:** To provide a continuous, reliable source of water on-site.
- **Details:**
    - **Installation:** Install tube-wells in areas with sufficient groundwater availability.
    - **Water Quality:** Regularly test the water from tube-wells for contaminants and treat it if necessary to meet potable water standards.
    - **Maintenance:** Conduct routine maintenance of the tube-wells, including checking the pump systems and ensuring the wells are protected from contamination.
    - **Usage:** Tube-wells can be used for drinking water, sanitation, and other site needs. Ensure workers know which wells are for drinking and which are for other uses.

2. Monitoring and Management Tasks

a. Water Quality Monitoring

- **Purpose:** To ensure that all water supplied on-site meets safety standards.
- **Tasks:**
    - **Regular Testing:** Perform chemical, physical, and microbiological tests on water from jars, tube-wells, and other sources.
    - **Record Keeping:** Maintain records of test results and any corrective actions taken.
    - **Corrective Actions:** If water does not meet standards, take immediate steps to treat it or replace the source.

b. Water Supply Management

- **Purpose:** To ensure continuous and adequate water supply for all workers.
- **Tasks:**
    - **Supply Chain:** Coordinate with suppliers to maintain a steady supply of water jars.
    - **Inventory Management:** Keep track of water consumption and manage the inventory of water jars and other supplies.

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- **Distribution:** Organize the distribution of water jars and ensure they are accessible to all workers throughout the site.

c. Equipment Maintenance

- **Purpose:** To maintain water supply equipment (e.g., tube-wells, pumps, storage tanks) in good working condition.
- **Tasks:**
  - **Regular Inspections:** Conduct routine inspections of tube-wells, pumps, and storage tanks.
  - **Repairs:** Perform timely repairs and maintenance to avoid disruptions in water supply.
  - **Sanitization:** Clean and disinfect equipment regularly to prevent contamination.

d. Health and Safety Compliance

- **Purpose:** To ensure that water-related operations comply with health and safety regulations.
- **Tasks:**
  - **Training:** Provide training to workers on safe water handling practices and the importance of using clean drinking water.
  - **Regulatory Compliance:** Ensure that all water sources and supplies meet local and national health standards.
  - **Emergency Preparedness:** Develop and implement plans for addressing water supply issues, such as contamination or shortages.

3. Supporting Infrastructure

a. Water Storage Facilities

- **Purpose:** To store and manage water on-site efficiently.
- **Details:**
  - **Tanks:** Use large water storage tanks to store water delivered to the site.
  - **Distribution System:** Install a simple distribution system to ensure that water reaches various parts of the site efficiently.
  - **Protection:** Ensure that storage facilities are covered and protected from contamination.

b. Sanitation Facilities

- **Purpose:** To maintain hygiene standards on-site.
- **Details:**
  - **Handwashing Stations:** Set up handwashing stations with soap and clean water at strategic points.
  - **Toilets:** Provide adequate and clean toilet facilities, ensuring they are well-maintained.

Waste Management: Implement proper waste management systems to prevent contamination of water sources.

XX.4: Examples of Trainings

Training is very crucial for any development project. The number and frequency of training sessions for a substation and transmission line project depend on the **project's complexity**, **size**, **duration**, and the specific roles of the workforce involved. A general framework for organizing training sessions has been outlined below:

1. Initial Training (Before Project Commencement)

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a. Orientation Training

- **Audience:** All workers, including engineers, technicians, laborers, and administrative staff.
- **Content:**
  - Overview of the project scope, timeline, and objectives.
  - Introduction to the site layout, facilities, and safety protocols.
  - Basic safety training, including emergency procedures, first aid, and PPE (Personal Protective Equipment) usage.
  - Environmental awareness and regulations related to the project.
- **Frequency:** One-time training session before the project starts.
- **Duration:** 1-2 days.

b. Role-Specific Technical Training

- **Audience:** Engineers, technicians, electricians, and specialized workers.
- **Content:**
  - Detailed training on the specific tasks, equipment, and systems they will be working with.
  - Training on the use of tools, machinery, and protective measures.
  - Instructions on quality control, troubleshooting, and maintenance procedures.
- **Frequency:** One-time training, with refresher sessions if there are significant changes or updates in the project.
- **Duration:** 2-5 days, depending on the complexity of the tasks.

2. Ongoing Training (During Project Execution)

a. Safety Training

- **Audience:** All workers, with specific sessions for high-risk roles (e.g., those working at heights, near live electrical components).
- **Content:**
  - Regular updates on safety protocols and procedures.
  - Training on hazard identification and risk assessment.
  - Emergency response drills (e.g., fire, electrical accidents, natural disasters).
  - Specialized safety training for tasks like working at heights, confined spaces, or handling hazardous materials.
- **Frequency:**
  - Daily tool box talks
  - Monthly safety briefings for all workers.
  - Quarterly or bi-annual in-depth safety training sessions.
  - Ad-hoc sessions if new risks or safety concerns arise.
- **Duration:** 15 minues for tool box talks; 1-2 hours for briefings; 1-2 days for in-depth training.

b. Technical Skills Refresher Training

- **Audience:** Engineers, technicians, and specialized workers.
- **Content:**
  - Refresher courses on critical tasks, particularly before key phases of the project.
  - Training on new technologies, tools, or procedures introduced during the project.
  - Troubleshooting and maintenance practices.
- **Frequency:** Quarterly refresher sessions, or as needed when new technologies or methodologies are introduced.
- **Duration:** 1-3 days, depending on the content.

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c. Environmental and Compliance Training

- **Audience:** Environmental officers, project managers, and workers involved in activities impacting the environment.
- **Content:**
  - Training on environmental protection measures, waste management, and pollution control.
  - Compliance with local and national environmental regulations.
  - Monitoring and reporting procedures for environmental impact.
- **Frequency:** Bi-annual sessions, or as required by regulatory updates or project phases.
- **Duration:** 1 day.

3. Specialized Training (As Required)

a. Equipment-Specific Training

- **Audience:** Operators of specialized machinery, electricians, and maintenance staff.
- **Content:**
  - Detailed training on new or complex equipment being used in the project.
  - Hands-on sessions for operating, maintaining, and troubleshooting specific equipment.
- **Frequency:** Before the deployment of new equipment and as required.
- **Duration:** 1-3 days, depending on the complexity of the equipment.

b. Emergency Response and Crisis Management

- **Audience:** All workers, with a focus on supervisory staff and emergency response teams.
- **Content:**
  - Detailed emergency response plans for various scenarios (e.g., electrical accidents, fires, natural disasters).
  - Crisis management strategies and communication protocols.
  - Drills and simulations to practice responses.
- **Frequency:** Annually, with additional sessions before high-risk project phases.
- **Duration:** 1-2 days.

4. End-of-Project Training

a. Project Closure and Handover Training

- **Audience:** All workers, with specific sessions for those involved in the handover.
- **Content:**
  - Procedures for project closure, including documentation, final inspections, and site cleanup.
  - Handover protocols to the client or operations team.
  - Lessons learned and best practices from the project.
- **Frequency:** One-time training at the project's end.
- **Duration:** 1-2 days.

XX.5: Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) is essential in ensuring the safety of workers involved in substation and transmission line projects. The specific types of PPE required depend on the tasks being performed, the hazards present, and regulatory requirements. The key types of PPE that should be considered for such projects outlined below:

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1. Head Protection

- **Hard Hats:** Protects against impact, falling objects, and electrical shock.
  - **Class E (Electrical):** Offers protection against electrical hazards up to 20,000 volts.
  - **Class G (General):** Provides impact protection and limited electrical protection up to 2,200 volts.

2. Eye and Face Protection

- **Safety Glasses:** Protects against flying debris, dust, and particles.
  - Should be shatter-resistant and meet the ANSI Z87.1 standard.
- **Goggles:** Provides a higher level of protection, including from chemical splashes or electrical arcs.
- **Face Shields:** Used for tasks involving flying particles, electrical hazards, or chemical splashes, often in combination with safety glasses or goggles.
- **Arc Flash Face Shields:** Specifically designed to protect against the intense light and heat from an arc flash.

3. Hearing Protection

- **Earplugs:** Used in environments with high noise levels, such as near transformers or heavy machinery.
- **Earmuffs:** Provides more robust protection, particularly in extremely noisy areas.
- **Combination:** Sometimes earplugs and earmuffs are used together for maximum protection.

4. Respiratory Protection

- **Dust Masks (N95 or higher):** Protects against inhalation of dust, dirt, and other airborne particles.
- **Respirators:** Used when dealing with hazardous particulates, fumes, or gases.
- **Full-Face Respirators:** Offers protection for both the respiratory system and the eyes, used in more hazardous environments.
- **Supplied-Air Respirators:** Used in environments with insufficient oxygen or high concentrations of hazardous substances.

5. Hand Protection

- **Work Gloves:** General protection against cuts, abrasions, and minor impacts.
  - **Leather Gloves:** Used for handling rough materials and providing general hand protection.
  - **Rubber Insulating Gloves:** Essential for protection against electrical shock.
  - **Chemical-Resistant Gloves:** Used when handling chemicals or substances that could cause skin irritation or burns.
- **Arc-Rated Gloves:** Protects against arc flash hazards.

6. Foot Protection

- **Safety Boots:** Protects against impact, puncture, and electrical hazards.
  - **Steel Toe Caps:** Provides protection against heavy objects dropping on the feet.
  - **Electrical Hazard (EH) Rated Boots:** Designed to reduce the risk of electric shock.
  - **Slip-Resistant Soles:** Provides traction on slippery surfaces, reducing the risk of falls.
- **Dielectric Boots:** Provides protection in environments with a high risk of electrical hazards.

7. Body Protection

- **Flame-Resistant (FR) Clothing:** Essential for protection against arc flash and fire hazards.
  - **Arc-Rated Clothing:** Protects against the thermal effects of an arc flash, such as burns.
- **Coveralls:** Provides full-body protection, typically made of flame-resistant materials.

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- **High-Visibility Clothing:** Ensures that workers are visible, especially in areas with heavy equipment or traffic.
- **Insulated Clothing:** Used in cold weather environments to protect workers from extreme cold.

8. Fall Protection

- **Harnesses and Lanyards:** Essential for workers performing tasks at height, such as on transmission towers or scaffolding.
    - Must comply with OSHA standards (such as ANSI Z359).
- **Anchorage Points:** Secure points where fall protection equipment can be attached.
- **Self-Retracting Lifelines:** Provides fall arrest capabilities with the ability to limit fall distances.

9. Electrical Protection

- **Arc Flash Suits:** Provides full-body protection against arc flash hazards.
- **Insulating Mats:** Placed on the ground to protect workers from electrical shock when working on electrical equipment.
- **Voltage Detectors:** To ensure equipment is de-energized before work begins.

10. General Protection

- **Reflective Vests:** Improves visibility, especially during night shifts or in areas with vehicular traffic.
- **Fire Extinguishers:** Portable fire extinguishers should be available at strategic points around the site.
- **First Aid Kits:** Must be readily available and stocked with supplies for treating common injuries.

11. Task-Specific PPE

- **Welding Helmets:** For workers involved in welding tasks, providing protection from sparks, heat, and UV radiation.
- **Chemical Protective Suits:** Used when handling hazardous chemicals that could cause injury or illness upon contact.

To conclude, by ensuring the appropriate PPE is available and used correctly, substation and transmission line project sites can maintain high safety standards, protecting workers from various potential hazards associated with the job. Regular training and inspections should also be conducted to ensure that PPE is used effectively.

XX.6: Fire Safety

Fire safety is a critical aspect of managing substation and transmission line project sites due to the presence of high-voltage equipment, flammable materials, and potential ignition sources. Implementing comprehensive fire safety measures and having the appropriate equipment on-site is essential to prevent, detect, and respond to fire emergencies effectively.

1. Fire Risk Assessment

- **Initial Assessment:** Conduct a thorough fire risk assessment before the project begins to identify potential fire hazards.
- **Ongoing Assessment:** Regularly review and update the fire risk assessment as the project progresses and as new hazards emerge.

2. Fire Prevention Measures

a. Control of Ignition Sources

- **Electrical Safety:** Ensure all electrical installations comply with safety standards to prevent short circuits and electrical fires.

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- **Hot Work Permits:** Implement a permit system for hot work (e.g., welding, cutting) to control and monitor activities that generate sparks or flames.
- **Equipment Maintenance:** Regularly maintain electrical equipment, transformers, and machinery to prevent overheating and malfunctions.

b. Flammable Material Management

- **Storage:** Store flammable materials (e.g., fuels, chemicals) in designated areas away from ignition sources, with proper ventilation.
- **Spill Control:** Implement spill containment measures and have spill kits readily available to manage leaks or spills of flammable liquids.
- **Housekeeping:** Keep the site clean and free of combustible debris, ensuring that waste is regularly removed.

c. Fire-Resistant Materials

- **Construction Materials:** Use fire-resistant materials for buildings and enclosures within the substation.
- **Insulation:** Ensure that all insulation materials used in electrical equipment are fire-resistant.

3. Fire Detection and Alarm Systems

a. Fire Detectors

- **Smoke Detectors:** Install smoke detectors in areas where smoke might be an early sign of fire, such as control rooms or equipment enclosures.
- **Heat Detectors:** Use heat detectors in areas where smoke might not be present in the early stages of a fire, such as near transformers and switchgear.
- **Flame Detectors:** Consider installing flame detectors in high-risk areas where fires could ignite quickly.

b. Fire Alarm Systems

- **Automatic Alarm System:** Ensure that the site has an automatic fire alarm system connected to detectors, which can alert personnel immediately.
- **Manual Call Points:** Install manual call points at accessible locations so that workers can raise the alarm if they detect a fire.
- **Alert Mechanisms:** Include both audible (sirens, bells) and visual (flashing lights) alarms to ensure the warning reaches all personnel, including those in noisy environments or those with hearing impairments.

4. Fire Suppression Systems

a. Fire Extinguishers

- **Types of Extinguishers:**
  - **Class A:** For ordinary combustibles (wood, paper).
  - **Class B:** For flammable liquids (oil, gasoline).
  - **Class C:** For electrical fires.
  - **Class D:** For metal fires.
  - **Class K:** For cooking oils and fats (mainly in dining areas).
- **Placement:** Strategically place fire extinguishers throughout the site, especially near high-risk areas like electrical panels, fuel storage, and hot work zones.
- **Maintenance:** Regularly inspect and maintain extinguishers, ensuring they are fully charged and easily accessible.

b. Fire Suppression Systems

- **Automatic Sprinkler Systems:** Install in critical areas like control rooms or areas with a high density of electrical equipment.

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- **Inert Gas Suppression Systems:** Use in enclosed areas where water-based suppression might damage sensitive equipment (e.g., server rooms).
- **Foam Systems:** Consider foam suppression systems for areas with a high risk of flammable liquid fires.

c. Fire Hydrants and Hose Reels

- **Fire Hydrants:** Ensure that the site is equipped with fire hydrants connected to a reliable water supply, with clear access for fire services.
- **Hose Reels:** Install hose reels at strategic points, particularly near high-risk areas, to allow for immediate firefighting efforts.

5. Emergency Response Planning

a. Fire Emergency Plan

- **Evacuation Routes:** Clearly mark and maintain evacuation routes and emergency exits, ensuring they are free from obstructions.
- **Assembly Points:** Designate safe assembly points where workers can gather after an evacuation.
- **Emergency Contacts:** Display emergency contact numbers for fire services and key personnel at various points around the site.

b. Fire Drills and Training

- **Regular Drills:** Conduct regular fire drills to ensure all workers know the evacuation procedures and their roles in an emergency.
- **Fire Warden Training:** Appoint and train fire wardens to coordinate evacuations and ensure all areas are cleared.
- **Firefighting Training:** Provide basic firefighting training to workers, focusing on how to use extinguishers, hose reels, and other firefighting equipment.

c. Coordination with Local Fire Services

- **Site Familiarization:** Arrange for local fire services to visit the site and familiarize themselves with the layout, hazards, and firefighting resources.
- **Emergency Response Plan:** Share the site's emergency response plan with local fire services to ensure coordinated efforts in case of an incident.

6. Signage and Communication

a. Fire Safety Signage

- **Exit Signs:** Ensure that all emergency exits are clearly marked with illuminated or reflective signs.
- **Fire Equipment Signs:** Label the locations of fire extinguishers, hose reels, and fire alarms with clear signage.
- **Hazard Signs:** Use warning signs to indicate areas with a high fire risk.

b. Communication Systems

- **Public Address System:** Install a public address system for broadcasting fire alarms and emergency instructions.
- **Two-Way Radios:** Provide key personnel with two-way radios to coordinate during a fire emergency, especially in large or complex sites.

7. Electrical Fire Safety

a. Electrical Insulation

- Ensure that all electrical wiring, connectors, and equipment are properly insulated to prevent short circuits and overheating.

b. Arc Flash Protection

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- Implement measures to protect against arc flash, including arc-rated PPE, insulated tools, and clear procedures for working on or near live electrical equipment.

c. Grounding and Bonding

Ensure all electrical systems are properly grounded and bonded to prevent electrical fires due to stray currents or lightning strikes.

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