

**FINAL**

# **ENVIRONMENTAL AND SOCIAL DUE DILIGENCE**

North Dhaka WtE Power Plant

**BLACK & VEATCH PROJECT NO. 419451**

**PREPARED FOR**

**China Machinery Engineering Corporation,  
CMEC Green Energy Investment Limited and  
WtE Power Plant North Dhaka Private Limited**

**6 JANUARY 2025**



## Table of Contents

<b>Special Notice</b>	<b>1</b>
<b>Abbreviations</b>	<b>1</b>
<b>Executive Summary</b>	<b>1</b>
<b>1.0 Introduction</b>	<b>1-1</b>
1.1 Project Background	1-1
1.2 Project Details	1-2
1.2.1 Location	1-3
1.2.2 Structure	1-7
1.2.3 Plant Technology	1-9
1.2.4 Site and Interconnection	1-12
1.2.5 Project Schedule	1-13
1.3 Purpose/Scope of the Study	1-13
1.4 Rationale for ESDD	1-15
1.5 Reporting Format	1-16
1.6 Limitation	1-17
<b>2.0 Applicable Legal Frameworks</b>	<b>2-1</b>
2.1 Applicable Local and Bangladesh Regulation	2-1
2.2 AIIB ESF 2022	2-21
2.3 IFC – EHS Guidelines	2-21
2.4 Equator Principles	2-25
2.5 WBG Environmental, Health and Safety Guidelines, 2007	2-28
2.6 Others Key Standards	2-30
<b>3.0 Methodology</b>	<b>3-1</b>
3.1 Approach and Methodology	3-1
3.2 Review of ESIA and Other Related Documents	3-3
3.3 Site Visit	3-4
3.4 Analysis	3-4
3.5 Reporting	3-4
<b>4.0 Findings of Document Review</b>	<b>4-1</b>
4.1 Baseline Findings	4-1
4.1.1 Environment	4-1
4.1.2 Geology	4-6
4.1.3 Natural Hazards	4-6
4.1.4 Water Resources	4-10
4.1.5 Land use, Soil	4-12
4.1.6 Air Quality	4-16
4.1.7 Noise	4-20

4.1.8	Ecology .....	4-22
4.1.9	Socio-economic (Land Acquisition and Stakeholder Management) .....	4-34
4.1.10	Summary of Demography, Socio-Economic and Gender Aspect of Project-Affected Peoples (PAPs): .....	4-55
4.1.11	Policy Gap analysis of AIB and ARIPA,2017 .....	4-56
4.2	Impacts Findings (Construction and Operations) .....	4-63
4.2.1	Environment.....	4-63
4.2.2	Water Resources Including Groundwater.....	4-64
4.2.3	Waste .....	4-67
4.2.4	Noise and Vibration.....	4-69
4.2.5	Alteration of Natural Drainage Pattern.....	4-69
4.2.6	Ecology .....	4-70
4.2.7	Socio-economic .....	4-73
4.2.8	OHS and Safety Issues associated with Waste Transport to STS and the Power Plant.....	4-75
4.3	Findings from document review with AIB’s comments.....	4-79
4.4	Restoration of livelihood to cover income loss and measures adopted for vulnerable PAPs. ....	4-90
4.5	ESMP Findings.....	4-93
4.6	Biodiversity Management Plan.....	4-110
4.7	Litigation, Complaints and Media Coverage Related to the Project.....	4-112
4.8	Impacted Stakeholder Management Plan .....	4-115
4.9	Other Document findings .....	4-118
4.9.1	GHG Emission .....	4-118
4.9.2	Water Intake and Water Discharge Routes.....	4-119
4.9.3	Waste Disposal from The Plant .....	4-120
4.9.4	Entitlement Matrix (including budget and assumptions) .....	4-123
4.9.5	Proposed Budget Plan for Land Assets and Livelihood for Impacted Individuals .....	4-131
4.9.6	Status of land acquisition before initiation of the site visit: .....	4-135
<b>5.0</b>	<b>Site Visit Observation.....</b>	<b>5-1</b>
5.1	Environmental and Social Settings/Visit Observations of WtE Plant.....	5-1
5.1.1	Physical Environment.....	5-1
5.1.2	Biological Environment .....	5-2
5.1.3	Social Setting .....	5-2
5.2	Environmental and Social Settings/Visit Observations of Transmission line.....	5-3
5.2.1	Location and Land Requirement .....	5-5
5.2.2	Land Use and Impact.....	5-5
5.2.3	Socio-economic Considerations around Transmission line.....	5-5

5.2.4	Details of Transmission Line Route and Tower Specifications .....	5-7
5.3	Stakeholders Insights .....	5-10
5.3.1	Outcome of Stakeholder Consultation During Site Assessment .....	5-12
5.4	Status of Impacted Landowners, Compensations, and Basis of Valuation.....	5-27
5.5	Identified Potential Areas in Support of Supplemental and CSR Initiatives .....	5-30
<b>6.0</b>	<b>Aspect-wise Gap Assessment .....</b>	<b>6-1</b>
<b>7.0</b>	<b>Assessment of appropriateness of Institutional set-up for implementation of ESCAP, ESMP and E&amp;S Monitoring .....</b>	<b>7-1</b>
<b>8.0</b>	<b>Risk Matrix (Construction and Operation Phase) .....</b>	<b>8-1</b>
<b>9.0</b>	<b>Stakeholder Engagement Plan (SEP) .....</b>	<b>9-1</b>
9.1	Objectives .....	9-1
9.2	Categorization of Stakeholders.....	9-2
9.3	Stakeholder Consultation and Disclosure Requirement for the Project .....	9-3
<b>10.0</b>	<b>Environmental and Social Action Plan (ESAP)/Corrective Action Plan (CAP) .....</b>	<b>10-1</b>
<b>11.0</b>	<b>Environmental and Social Monitoring Plan (ESMP).....</b>	<b>11-1</b>
<b>12.0</b>	<b>BAT Analysis .....</b>	<b>12-1</b>
12.1	Criteria .....	12-1
12.2	Technologies .....	12-2
12.2.1	Flue Gas Treatment.....	12-2
12.2.2	Efficient Energy Recovery.....	12-2
12.2.3	Sustainable Water and Wastewater Management.....	12-2
12.2.4	Sustainable Waste Management Practices.....	12-3
12.2.5	Sustainable Drainage Systems (SuDS).....	12-3
12.2.6	Green Infrastructure and Landscaping.....	12-3
12.2.7	Community Engagement and Social Responsibility .....	12-3
12.2.8	Real-Time Monitoring Systems: .....	12-4
12.3	Industrial Emissions Directive and Best Available Technique Review .....	12-4
12.3.1	IED .....	12-4
12.3.2	Summary of BREF for Waste Incineration.....	12-5
12.3.3	Emission Limits for Waste Incineration.....	12-7
12.3.4	Greenhouse Gas Emissions from Municipal Solid Waste Incineration .....	12-8
<b>13.0</b>	<b>Categorization of Projects as per AIB's guideline .....</b>	<b>13-1</b>
<b>14.0</b>	<b>Conclusion and Recommendation .....</b>	<b>14-1</b>
<b>Appendix A.</b>	<b>Photo Log of the Site Visit .....</b>	<b>A-1</b>
<b>Appendix B.</b>	<b>NOC Certificate .....</b>	<b>B-1</b>
<b>Appendix C.</b>	<b>Site Clearance .....</b>	<b>C-1</b>
<b>Appendix D.</b>	<b>No Objection Certificate (NOC) for Water Intake from WARPO.....</b>	<b>D-1</b>
<b>Appendix E.</b>	<b>No Objection Certificate (NOC) of Water Intake from Local Authority.....</b>	<b>E-1</b>
<b>Appendix F.</b>	<b>Mouza Map of the Project Site .....</b>	<b>F-1</b>



<b>Appendix G.</b>	<b>Gazette Copy on Land Possession .....</b>	<b>G-1</b>
<b>Appendix H.</b>	<b>Estimated Budget of Deputy Commissioner (DC).....</b>	<b>H-1</b>
<b>Appendix I.</b>	<b>Status (Last Column) of Compensation Disbursement .....</b>	<b>I-1</b>
<b>Appendix J.</b>	<b>List of Waste Pickers provided by DNCC.....</b>	<b>J-1</b>
<b>Appendix K.</b>	<b>Climate Risk Assessment Report.....</b>	<b>K-1</b>
<b>Appendix L.</b>	<b>GHG Study by WtE Power Plant North Dhaka Private Limited.....</b>	<b>L-1</b>
<b>Appendix M.</b>	<b>Cultural Heritage Chance Find Procedure.....</b>	<b>M-1</b>
<b>Appendix N.</b>	<b>Implementation Agreement .....</b>	<b>N-1</b>
<b>Appendix O.</b>	<b>Power Purchase Agreement .....</b>	<b>O-1</b>
<b>Appendix P.</b>	<b>Land Use Agreement.....</b>	<b>P-1</b>
<b>Appendix Q.</b>	<b>Waste Supply Agreement.....</b>	<b>Q-1</b>
<b>Appendix R.</b>	<b>Award Book.....</b>	<b>R-1</b>

## LIST OF TABLES

Table 1-1	Basic Information of WTE Power Plant Project .....	1-2
Table 1-2	Geographic Coordinates of the Proposed Project .....	1-3
Table 1-3	Main Buildings and Structures.....	1-9
Table 1-4	Basic Project Data .....	1-11
Table 1-5	Project Duration.....	1-13
Table 1-6	Structure of the report .....	1-16
Table 2-1	Applicable Environmental, Health, Safety and Social Regulation.....	2-2
Table 2-2	Applicability of AIIB ESS to this Project.....	2-21
Table 2-3	IFC’s Environmental and Social Performance Standards.....	2-21
Table 2-4	Compliance to Equator Principles.....	2-25
Table 2-5	Applicability of Environmental, Health, and Safety General Guidelines, 2007 .....	2-28
Table 2-6	Other Key Standards .....	2-30
Table 3-1	Classification of Stakeholders .....	3-2
Table 3-2	A List of Stakeholder Influence and Interest Matrix.....	3-3
Table 4-1	Findings of Water Quality Results.....	4-11
Table 4-2	Findings of Soil and Sediment Quality Results.....	4-15
Table 4-3	Key Parameters and their Standards .....	4-16
Table 4-4	Ambient Air Quality Results.....	4-16
Table 4-5	Specific Standards.....	4-20
Table 4-6	Ambient Noise Quality Results .....	4-20
Table 4-7	Protected areas in 50-60 km radial zone .....	4-22
Table 4-8	Predominant flora of the study area .....	4-24
Table 4-9	Birds documented in the study area.....	4-25
Table 4-10	Mammals in the documented in the study area .....	4-27

Table 4-11	Herpetofauna documented in the study area .....	4-27
Table 4-12	Fishes documented in the study area.....	4-28
Table 4-13	Prawns documented in the study area.....	4-30
Table 4-14	Macrophytes documented in the study area. ....	4-30
Table 4-15	Demographic profile of Savar Upazila, Municipality and Union.....	4-36
Table 4-16	Quantum of land as per the recipients and non-recipients from the owners.....	4-40
Table 4-17	Income range of Household Head from Primary Occupation .....	4-42
Table 4-18	Involvement with income from family members and amount of income .....	4-43
Table 4-19	Monthly Household Income .....	4-43
Table 4-20	Synopsis of Stakeholder consultation exercise carried out by consultant in support of ESIA study.....	4-49
Table 4-21	Key Findings from Public Consultation .....	4-53
Table 4-22	Policy Gap Analysis (ARIPA, 2017 Vs AIIB’s ESS guidelines with respect to Land Acquisition activity).....	4-56
Table 4-23	A summary of Impact Findings covering socio-economic, health and safety, OHS and community health component .....	4-75
Table 4-24	Findings from document review with AIIB’s comments.....	4-79
Table 4-25	Aspect wise key findings from ESMP (Construction Phase) .....	4-93
Table 4-26	Aspect Wise key Findings from ESMP (Operations Phase).....	4-104
Table 4-27	Applicable Environmental, Health, Safety and Social Regulation.....	4-110
Table 4-28	A summary of media search findings.....	4-112
Table 4-29	Impacted Stakeholder Management Plan .....	4-116
Table 4-30	GHG Emission.....	4-118
Table 4-31	Waste Disposal from The Plant.....	4-122
Table 4-32	Entitlement Matrix (including budget and assumptions) .....	4-123
Table 4-33	Summary of Impact.....	4-125
Table 4-34	Environmental and Social Management Cost (A) for Pre-construction/Construction Stage.....	4-126
Table 4-35	Environmental Management Cost (B) for Operation Stage.....	4-127
Table 4-36	Environmental Monitoring Cost (C) during construction and operation stage/year .....	4-129
Table 4-37	Budget summary cost for land, assets, and livelihood .....	4-132
Table 4-38	Tentative Budget for Ragpickers.....	4-134
Table 4-39	Overall Status of Compensation .....	4-137
Table 4-40	Summary of Pending Compensation Payable to Titled Holders And Non-Titled Holders Of WtE Project.....	4-138
Table 4-41	Status of Impacted Titled Holders of The Business Units .....	4-141
Table 5-1	Plant Details .....	5-1
Table 5-2	Tower-wise land information .....	5-6
Table 5-3	Detailed Specifications of Transmission Line.....	5-8

Table 5-4	Land Use Types and Market Values in Bangladesh for Transmission Line .....	5-10
Table 5-5	A Summary of stakeholders consulted during site assessment in connection with ESDD.....	5-11
Table 5-6	Outcomes of Stakeholder Consultations .....	5-12
Table 5-7	Status of impacted landowners, compensations, and basis of valuation .....	5-27
Table 5-8	Identified Potential Areas in Support of CSR & Supplemental Initiative .....	5-30
Table 6-1	Aspect Wise Gap Assessment for Construction Phase .....	6-1
Table 6-2	Aspect Wise Gap Assessment Matrix for Operations Phase .....	6-5
Table 7-1	Role of WtE Power Plant North Dhaka Private Limited, hired EPC contractor and HSE/EHS Team .....	7-5
Table 8-1	Identified Risk Matrix for Construction and Operational Phase.....	8-2
Table 9-1	Categorization of Stakeholders.....	9-2
Table 9-2	Categorization of Stakeholders (As per Influence and Involvement).....	9-2
Table 9-3	AIBB Requirements (Disclosure and Consultation).....	9-3
Table 10-1	Environmental and Social Corrective Action Plan (ESCAP).....	10-2
Table 10-2	ESCAP outlined Policy/Plan Implementation Timeline.....	10-20
Table 11-1	Environmental and Social Monitoring Plan .....	11-2
Table 12-1	Summary of Air Emission Controls for the Project in Comparison to BAT Air Pollution Categories.....	12-6
Table 12-2	Daily Average Emission Limit Values .....	12-7
Table 12-3	Half-Hourly Average Emission Limit Values .....	12-7
Table 12-4	Emission Limits for Heavy Metals .....	12-8
Table 12-5	Total CO <sub>2</sub> e/year estimation from incineration of MSW.....	12-9
Table 14-1	Annexure I Profiling of Impacted landowners availed compensation against acquisition of land parcel for WtE Project.....	J-1

## LIST OF FIGURES

Figure 1-1	Sand piling at Project site .....	1-4
Figure 1-2	Sand piling at Project site .....	1-4
Figure 1-3	Accessibility Map .....	1-5
Figure 1-4	Topography Map.....	1-6
Figure 3-1	Flowchart for conducting the ESDD study .....	3-1
Figure 4-1	Topography of the Project site .....	4-2
Figure 4-2	DEM Map of the Project site.....	4-3
Figure 4-3	Drainage Map of the Project site .....	4-5
Figure 4-4	Land use pattern .....	4-12
Figure 4-5	Land use and land cover map of the Project site.....	4-13
Figure 4-6	Eco-sensitive Map.....	4-23
Figure 4-7	Categorization of Avifauna and Terrestrial fauna under IUCN red list Global.....	4-31

Figure 4-8	Categorization of Avifauna and Terrestrial fauna under IUCN red list Bangladesh.....	4-32
Figure 4-9	Categorization of Aquatic fauna under IUCN red list Global .....	4-32
Figure 4-10	Categorization of fauna under IUCN red list Bangladesh .....	4-32
Figure 4-11	Categorization of fauna under IUCN red list Bangladesh .....	4-33
Figure 4-12	Administrative Hierarchy of the Government of Bangladesh .....	4-35
Figure 4-13	Male and Female population of Savar Union .....	4-36
Figure 4-14	Literacy Status.....	4-37
Figure 4-15	Educational Institutions of Savar Union .....	4-37
Figure 4-16	Types of Workers .....	4-37
Figure 4-17	Ownership of agricultural land .....	4-38
Figure 4-18	Sources of drinking water .....	4-38
Figure 4-19	Sources of drinking water .....	4-39
Figure 4-20	Sources of drinking water .....	4-39
Figure 5-1	Proposed Transmission Line Route.....	5-4
Figure 14-1	Project Site.....	A-1
Figure 14-2	Consultation with Site Worker.....	A-1
Figure 14-3	Consultation with Rag Pickers.....	A-1
Figure 14-4	Regional Office of CMEC.....	A-1
Figure 14-5	Consultation with Ward Office (Round 1) .....	A-1
Figure 14-6	Consultation with Ward Office (Round 2) .....	A-1
Figure 14-7	Chinese Labour Camp .....	A-2
Figure 14-8	CMEC Officials.....	A-2
Figure 14-9	Consultation with Fishery Department.....	A-2
Figure 14-10	Agriculture Officer of Savar Upazila.....	A-2
Figure 14-11	Grid Substation (Galaxy Apartment).....	A-2
Figure 14-12	Consultation with Rag Pickers and Non-title Holders.....	A-3
Figure 14-13	Agricultural Land Survey by Team .....	A-3
Figure 14-14	Local Labor Camp.....	A-3
Figure 14-15	Local Labour Camp.....	A-3
Figure 14-16	Consultation with Community Youth .....	A-3
Figure 14-17	Consultation with Shyamoli WTP.....	A-4
Figure 14-18	Consultation with Shyamoli WTP.....	A-4
Figure 14-19	Members of Health Committee.....	A-4
Figure 14-20	Local Community .....	A-4
Figure 14-21	Primary School .....	A-4
Figure 14-22	TL Survey.....	A-4

## Special Notice

Acceptance of this report, or use of any information contained in this report, by any party receiving this report (each a “Recipient”) shall constitute an acknowledgement and acceptance by such Recipient of, and agreement by such Recipient to be bound by, the following:

1) This Environment and Social Due Diligence report was prepared for China Machinery Engineering Corporation, CMEC Green Energy Investment Limited, WtE Power Plant North Dhaka Private Limited (“Client”) by Black & Veatch (Beijing) Engineering Design Co., Ltd. and Black & Veatch Management Consulting, LLC (collectively as “Consultant”) and is based on information not within the control of Consultant. In preparing this report, Consultant has assumed that the information, both verbal and written, provided by others is complete and correct. Consultant does not guarantee the accuracy of the information, data or opinions contained in this report and does not represent or warrant that the information contained in this report is sufficient or appropriate for any purpose.

2) This report should not be construed as an invitation or inducement to any Recipient or other party to engage or otherwise participate in the proposed or any other transaction, to provide any financing, or to make any investment. Recipient acknowledges and agrees that it is not reasonably feasible for Consultant to conduct a comprehensive investigation and make definitive determinations for the compensation provided and without thorough verification of the information upon which the Services were performed, and therefore Consultant can offer no guarantee or assurances that any facts, observations, analysis, Projections, opinions, or other matters contained in the report will be more accurate, either at the time the report is issued or at any other time.

3) Recipient is not entitled to make any copies of any portion of this report, use extracts therefrom or transmit any part thereof to any other party in any form, including without limitation electronic or printed media of any kind.

4) TO THE FULLEST EXTENT PERMITTED BY LAW, CONSULTANT'S TOTAL LIABILITY, ON A CUMULATIVE AND AGGREGATE BASIS, TO CLIENT AND ALL RECIPIENTS AND OTHER PARTIES, RESULTING FROM CONSULTANT'S ACTIONS IN RELATION TO THE CREATION AND DISSEMINATION OF THIS REPORT, WILL BE LIMITED TO THE AMOUNT OF COMPENSATION (EXCLUSIVE OF THE REIMBURSEMENT OF COSTS AND EXPENSES) ACTUALLY RECEIVED BY CONSULTANT FROM CLIENT FOR THE CREATION OF THIS REPORT UNDER THE MCSA. Recipient hereby waives any right to seek or collect damages in excess thereof and releases Consultant from any and all damages or losses which, if required to be paid to Recipient, would result in Consultant paying total damages to any and all parties, including Client and all Recipients, in an amount that would exceed the limit set forth in the previous sentence.

The interpretation of this Agreement, and the parties' rights and obligations established by this Agreement, shall be governed by the laws of England, excluding any conflict or choice of law rule, statute or court decision that would require the application of the law of another jurisdiction.

IF ANY RECIPIENT IS NOT WILLING TO ACKNOWLEDGE AND ACCEPT, OR AGREE TO, THE TERMS SET FORTH ABOVE, IT MUST RETURN THIS REPORT TO CONSULTANT IMMEDIATELY WITHOUT MAKING ANY COPIES THEREOF, EXTRACTS THEREFROM OR USE (INCLUDING DISCLOSURE) THEREOF. A RECIPIENT'S FAILURE SO TO RETURN THIS REPORT SHALL CONSTITUTE ITS ACKNOWLEDGEMENT AND ACCEPTANCE OF AND AGREEMENT TO THE TERMS SET FORTH ABOVE

## Abbreviations

Term	Description
AAQ	Ambient Air Quality
AAS	Atomic Absorption Spectroscopy
AC	Alternating Current
ACC	Advanced Combustion Control
ADB	Asian Development Bank
AIDS	Acquired Immune Deficiency Syndrome
AIIB	Asian Infrastructure Investment Bank
ALARP	As Low as Reasonably Practicable
AOI	Area of Influence
APC	Air Pollution Control
APHA	American Pharmacists Association
AQM	Air Quality Monitoring
ARAP	Aquatic Resource Alteration Permit
ARIPA	Acquisition and Requisition of Immovable Property Act
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
BARC	Bangladesh Agricultural Research Council
BAT	Best Available Techniques
BBS	Bangladesh Bureau of Statistics
BCSIR	Bangladesh Council of Scientific and Industrial Research
BDT	Bangladesh Taka
BFIDC	Bangladesh Forest Industries Development Corporation
BFRI	Bangladesh Forest Research Institute
BIWTA	Bangladesh Inland Water Transport Authority
BMD	Bangladesh Meteorological Department
BNH	Bangladesh National Herbarium
BOD	Biological Oxygen Demand
BS	Bangladesh Survey
BSTI	Bangladesh Standards and Testing Institution
BWDB	Bangladesh Water Development Board
CCL	Cash Compensation Law
CDM	Clean Development Mechanism
CEET	Carbon Emission Estimation Tool
CETP	Common effluent treatment plant
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMEC	China Machinery Engineering Corporation
CNG	Compressed Natural Gas
CO	Carbon Monoxide
COD	Chemical Oxygen Demand
CRM	Closed Reflux Method

**China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence**

<b>Term</b>	<b>Description</b>
CSR	Corporate Social Responsibility
DAE	Department of Agricultural Extension
DC	Deputy Commissioner
DCS	Distributed Control System
DD	Deputy Director
DEM	Digital Elevation Model
DG	Director General
DMP	Dhaka Metropolitan
DNCC	Dhaka North City Corporation
DO	Dissolved Oxygen
DOE	Department of Environment
DPHE	Department of Public Health and Engineering
DSW	Department of Social Welfare
DTRO	Disk Tubular Reverse Osmosis
EC	Electrical Conductivity
ECA	Ecologically Critical Areas
ECC	Environmental Clearance Certificate
ECR	Environment Conservation Rules
EDI	Electronic Data Interchange
EFCC	Economic and Financial Crimes Commission
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
ELV	Emission Limit Values
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPC	Engineering, Procurement and Construction
EPR	Extended Producer Responsibility
EQS	Environmental Quality Standards
ERP	Emergency Response Plan
ESE	East- Southeast
ESEL	Environmental and Social Exclusion List
ESF	Environmental and Social Framework
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESP	Environmental and Social Policy
ESS	Environmental and Social Standards
ETP	Effluent Treatment Plan
EU	European Union
FCPS	Fellow of the College of Physicians and Surgeons
FD	Forest Department
FGD	Focus Group Discussion

**China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence**

<b>Term</b>	<b>Description</b>
FI	Financial Intermediary
FPIC	Free, Prior, and Informed Consultation
FS	Feasibility Study
GAP	Gender Action Plan
GB	Garbage Bowl
GBV	Gender-Based violence
GC	Gas Chromatography
GHG	Greenhouse Gas
GIS	Geographic Information System
GOB	Government of Bangladesh
GPS	Global Positioning System
GR	Grievance Redress
GRC	Governance, Risk, and Compliance
GRM	Grievance Redress Mechanism
GSB	Geological Survey of Bangladesh
GWP	Global Warming Potential
HDPE	High-Density Polyethylene
HF	Hydrogen Fluoride
HFC	Hydrofluorocarbon
HG	Mercury
HH	Household
HIES	Household Integrated Economic Survey
HIV	Human Immunodeficiency Virus
HRIA	Human Rights Impact Assessment
HSC	Higher Secondary School Certificate
HSE	Health, Safety, and Environment
HZ	Hertz
IAP	Identify Affected People
IBA	Important Bird and Biodiversity Area
ID	Induced Draught
IEC	Important Environmental Components
IED	Industrial Emissions Directive
IEE	Initial Environmental Examination
IFC	International Finance Corporation
ILO	International Labor Organization
IPP	Indigenous Peoples Plan
IPPF	Indigenous Peoples Planning Framework
IPS	Instant Power Supply
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency



Term	Description
JTU	Jackson Turbidity Unit
KII	Key Informant interviews
KM	Kilometre
LA	Land Acquisition
LAP	Land Acquisition Plan
LAPF	Land Acquisition Policy Framework
LARP	Land Acquisition and Resettlement Plan
LARPF	Land Acquisition and Resettlement Policy Framework
LC	Least Concern
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LRP	Livelihood Restoration Plan
LS	Lump-Sum
LULC	Land Use and Land Cover
MBBS	Bachelor of Medicine, Bachelor of Surgery
MBR	Membrane Bioreactor
MoEFCC	Ministry of Environment, Forest, and Climate Change
MRF	Material Recovery Facilities
MSW	Municipal Solid Waste
MT	Metric Ton
MVA	Megavolt-Amperes
MW	Megawatts
NA	Not Applicable
NE	Not Evaluated
NEMAP	National Environment Management Action Plan
NEQS	National Environmental Quality Standards
NF	Nanofiltration
NGO	Non-Governmental Organization
NL	Noise Level
NOC	No Objection Certificate
NO <sub>x</sub>	Nitrogen Oxides
NSR	National Skills Registry
NT	Near Threatened
NTU	Nephelometric Turbidity Units
NWMP	National Water Management Plan
OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Administration
PA	Primary Air
PAH	Polycyclic Aromatic Hydrocarbons
PAP	Project Affected People
PATC	Public Administration Training Centre

**China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence**

<b>Term</b>	<b>Description</b>
PCDDS	Polychlorinated Dibenzodioxins
PCDFS	Polychlorinated Dibenzofurans
PCM	Public Consultation Meeting
PCU	Platinum-cobalt Units
PFC	Perfluorocarbons
PGCB	Power Grid Company of Bangladesh
PH	Potential of Hydrogen
PIU	Project Implementation Unit
PM	Particulate Matter
PP	Project Proponent
PPA	Power Purchase Agreement
PPE	Personal Protective Equipment
PPP	Public-Private Partnership
PV	Photovoltaic Cell
PWD	Public Works Department
RAP	Resettlement Action Plan
RF	Reserved Forest
RMG	Ready-Made Garment
RO	Reverse Osmosis
RP	Resettlement Plan
SA	Secondary Air
SCR	Silicon-controlled Rectifier
SDA	Spray Dry Absorber
SEA	Strategic Environmental Assessment
SEP	Stakeholder Engagement Plan
SMA	Statistical Metropolitan Area
SMP	Social Monitoring Plan
SNCR	Selective Noncatalytic Reduction
SO <sub>x</sub>	Sulphur oxides
SPARRO	Space Research and Remote Sensing Organization
SPM	Suspended Particulate Matter
SQ	Soil Quality
SRDI	Soil Resource Development Institute
SRTM	Shuttle Radar Topography Mission
SS	Suspended Solids
SSC	Secondary School Certificate
STS	Secondary Transfer Station
SUDS	Sustainable Drainage Systems
SW	Surface Water
SWM	Solid Waste Management
TC	Total Coliform

**China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence**

<b>Term</b>	<b>Description</b>
TDS	Total Dissolved Solids
TEQ	The Toxic Equivalency
TL	Total Loss
TOC	Total Organic Carbon
TOR	Terms of Reference
TSS	Total Suspended Solids
UASB	Up flow Anaerobic Sludge Blanket
UK	United Kingdom
UNO	Upazila Nirbahi Officer
UP	Upazila Parishad
USA	United States America
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
UVS	Ultraviolet–visible spectroscopy
VC	Very Common
VOC	Volatile Organic Carbon
VU	Vulnerable
WARPO	Water Resources Planning Organization
WB	World Bank
WHO	World Health Organization
WNW	West-North-West
WTE	Waste to Energy
ZLD	Zero Liquid Discharge

## Executive Summary

### Background

In response to the growing environmental challenges associated with waste management in Dhaka, Bangladesh, a comprehensive Environmental and Social Due Diligence (ESDD) was conducted for a proposed Waste-to-Energy (WtE) power plant in North Dhaka. Black & Veatch was appointed to perform this study, which was instrumental in developing key documents such as Aspect Wise Gap Assessment, Environmental and Social Corrective Action Plan, along with a non-technical summary.

Urbanization and economic development in Dhaka have led to a significant increase in waste production, currently estimated at 6500 tons per day. The existing waste management infrastructure is inefficient, characterized by a labor-intensive collection system that often fails to keep pace with the volume of waste generated. This inefficiency has resulted in substantial environmental degradation, including pollution and health hazards, particularly in underserved areas.

Given these challenges, the WtE technology presents a viable solution, converting waste into energy while addressing the critical issue of waste management. However, implementing this technology in a sustainable manner requires an integrated approach that considers environmental, institutional, financial, economic, and social dimensions.

Community-based initiatives, such as Waste Concern's composting projects, have demonstrated the potential for waste reduction and job creation, particularly for women. These initiatives have successfully extended the lifespan of landfills and reduced the volume of waste. Scaling these projects across Dhaka could significantly improve waste management outcomes.

### Project Overview

The Project Description provides an overview of the Project, detailing its features and activities that could impact the environment. WtE Power Plant North Dhaka Private Limited plans to establish a waste-to-energy power plant in the Dhaka district of Bangladesh, situated on the north side of the Dhaka-Aricha Highway. The plant's primary purpose is to generate electricity based on the national electricity demand. The electricity generated will be transmitted to the existing Savar 132/33 kV Substation through a double-loop 132 kV line, extending approximately 6 kilometers.

This Project is in line with the country's initiatives to produce electricity from waste, diversify renewable energy sources, and enhance waste management practices. By effectively managing municipal solid waste, the Project aims to contribute to a cleaner city and increase the share of electricity from renewable sources in the national energy mix.

The proposed power plant, with a capacity to generate 42.5 megawatts of electricity, will require 3,000 metric tonnes of solid waste per day. Implementation of the Project is expected to take 24 months from the required financial closing date, which is anticipated to occur within nine months of the Project's commencement.

### Applicable AIIB ESF 2022

**Applicable for this Project:**

- ESS 1: Environmental and Social Assessment and Management
- ESS 2: Involuntary Resettlement

**Not applicable for this Project:**

- ESS 3: Indigenous Peoples

## **ESS 1: Environmental and Social Assessment Management**

The proposed project would involve construction and operation of a WTE plant and its associated facilities. ESS 1 is applicable for the proposed project as the project is required to ensure their Environmental and Social assessment and management measures are proportional to project risks and impact are implemented. Furthermore, the project has been involved in acquisition of land for setting up plant to generate electricity from the waste as a result, the likelihood of adverse environmental as well as social impact is envisaged due to the operation of the Project. Therefore, given the severity of negative impacts on the environment and social aspect of the Project, ESS-1 is applicable in this Project context.

## **ESS2: Involuntary Resettlement**

ESS 2 is applicable for the project since the proposed project was involved in land acquisition activity that resulted in economic displacement of the landowners and non-titled holders of the acquired land parcel in Project area.

## **ESS3: Indigenous People**

Safeguard requirement regarding indigenous people would not be applicable to present project as none of the project affected people belongs to indigenous people category. Primary data shows that all belong to Bengali Muslim population. Therefore, ESS 3 is not applicable in this Project context.

## **List of Documents**

- ESIA Report
- Project Location Map
- Project Site Layout
- Water Balance Diagram
- Pipe Layout Map
- Primary Observations for the Transmission Line (TL) Routing
- Waste Analysis Report

- Water Resources Investigation Report by CEGIS
- CMEC HSE Manual
- CMEC CSR Report
- Lender's Technical Due-Diligence Report
- Water Intake Permit by WARPO
- Award Book from DC Office
- List of 20 ragpickers provided by DNCC

## Findings of Document Review

### Environment

- Air Quality: The report includes meteorological data, ambient air quality testing results, and stack emission predictions. The Project may impact ambient air quality within 500 meters from the Project site, with pollutants dispersing up to 1 km from the power plant stack.
- Water Quality: The report includes details of surface water and groundwater sampling locations, water analysis methods, and testing results. Surface water bodies within 1 km of the Project footprint and groundwater within a 1-2 km radius may be affected.
- Soil and Sediment Quality: The report includes details of soil and sediment sampling locations and analysis results. Soil and sediment quality analysis has been conducted at specific locations to evaluate potential impacts on these environmental components.
- Noise: The report includes details of noise level measurement sampling locations and noise level parameters. The Project may cause noise pollution within a defined area, detectable up to 500 meters from the power plant center and 100 meters from the access road.
- Predicted Concentration of Pollutants: The report includes predictions of pollutant concentrations at receptor locations to assess the potential environmental impact.
- Water Pollution: Disposal of construction waste and hazardous materials into water bodies during construction, as well as fly ash deposition and sludge disposal in water bodies during the operation phase, may degrade water quality and impact aquatic ecosystems.
- The report outlines that approximately 1312 cubic meters per day of wastewater will be generated during the plant's operation and discharged into a nearby water body. This discharge has the potential to directly impact water quality.
- The report states that during the monsoon season, the Aminbazar Waste to Energy (WTE) Project will extract 349.5 m<sup>3</sup>/h of water primarily from surface water sources, especially the Karnatali River to the north of the Project. Groundwater will be used as a backup source during the dry season when surface water becomes insufficient, or its quality degrades. The Project will use 3 deep bore wells, each with a depth of 260 meters and a capacity of 190 m<sup>3</sup>/h, with two wells in regular operation and one as a reserve. Water intake for the Project requires permits from both WARPO

and the local authority. The Project proponent has already secured these necessary permits from WARPO and the local Union Parishad Chairman. For a comprehensive understanding of the water intake conditions, refer to 14.0Appendix D & 14.0Appendix E, which contains detailed information.

### Socio Economic

- The ESIA report lacks clarity in defining the Area of Influence (Aoi) for social sensitivity, particularly concerning Core and Buffer areas and their proximity to the Project footprint.
- While the ESIA reports 242 impacted landowners, only 146 were surveyed. The remaining 96 landowners, including 55 who could not be contacted due to various reasons such as landowners staying abroad, address mismatches etc. and 41 preferred not to respond, which has been confirmed and noted during interaction with the local village administration and the representative from the DC office at the time of site visit.
- The ESIA report identifies 5 non-titled holders and 40 vulnerable rag pickers (including 9 women) as Project-impacted people due to land acquisition. The assessment emphasizes the need for an external consultant to evaluate compensation for loss of structures, business income, and wages, aligning with AIIB's ESS-2 guidelines.
- The current information disclosure mechanism regarding social impacts, mitigation measures, and social benefits is inadequate. A project specific Stakeholder Engagement Plan (SEP) is recommended to enhance transparency, facilitate collaboration, and address social concerns.
- The assessment has also highlighted the importance of engaging external consultant for appropriate evaluation of compensation amount encompassing the loss of structure, loss of business income, loss of wages related to the adverse impact of the Project under proposed Income and Livelihood Restoration Plan in support of non-titled holders as well as enlisted rag-pickers in line with AIIB's ESS-2 guidelines.
- As per report, the Project has mentioned the presence of labour camp, but the details of gaps in the functioning of labour camp have been furnished under aspect-wise gap analysis based on the outcome of site visit and interaction with the local labourers at labour camp.
- The proposed Entitlement Matrix in ESDD, includes the calculation of compensation, eligibility criteria, resettlement assistance, transitional allowances, loss of structures, loss of trees, loss of income/wage, for affected landowners and business units, non-titled holders and vulnerable rag pickers.
- The total number of workers engaged in 5 non-title holder petty shops and 5 title-holder large businesses, including Shyamoli Water & Beverages, were shared in the report but no resettlement plan has been proposed for large businesses as they have received satisfactory compensation. In case of small non-titled holders of business units, the compensation as well as Income restoration plan needs to be developed to address the issue of adverse impact on livelihoods. Moreover, the non-titled holders of business unit as well as impacted rag pickers to be covered under proposed entitlement matrix in support of compensation and livelihood promotion initiative.
- The ARIPA Act doesn't consider non-titled holders as well as rag pickers as eligible for appropriate compensation, but all the impacted individuals need to be considered for appropriate compensation as per AIIB's ESS 2 guidelines as a result it is proposed to hire an independent consultant for valuation of loss of asset, structures, business income and wages for impacted non-titled holders as well as vulnerable rag-pickers line with AIIB's guidelines. The development of

detailed Income cum Livelihood Restoration Plan has been proposed in ESDD with special inclusion of vulnerable rag pickers.

- The status of applicable licences obtained from the respective department in connection with the operation of the Project is not shared in the report as requirement for mandatory compliance.
- The project is affecting the livelihoods of five non-titled holders, and compensation for all of them was not addressed in the Environmental and Social Impact Assessment (ESIA). The Environmental and Social Due Diligence (ESDD) has advised that suitable compensation be provided in accordance with the Asian Infrastructure Investment Bank's Environmental and Social Standards (ESS-2) guidelines.
- As per ESIA report, 10 out of 21 people have been identified with vision problems but no action and follow up mechanism have been defined in the report.
- The Emergency Response Plan (ERP) defines Level-3 emergencies but lacks a specific individual responsible for handling off-site emergencies, relying solely on district administration.
- Jogadish Ghosh, the owner of Plot No. 3323 (BS), along with landowner Nilesh Ghosh, has expressed their inability to engage in agricultural activities on this plot due to waste from the landfill. They have sought compensation for the damages incurred; however, this issue has not been addressed in the report. Additionally, Mohiuddin Mia, a shop owner, has requested assistance for relocation, but the document does not provide any details regarding his compensation.
- The total number of the staff in the entire factory is reported 130 but the classification of both local and migrant worker has not been explained in the report to understand the significance of engagement of local workers.
- The CSR implementation plan, which is a key component in addressing the safeguard requirements related to social responsibility and community development, has not been included in the ESIA report. This plan is essential for ensuring that the Project's social commitments and mitigation measures are adequately outlined and monitored by CSR officer of the Project proponent as stated in ESMP.
- The EHS, and Administrative Department's roles with responsibility have been defined in the report but monitoring frequency and follow-up mechanism is missing for timely review of different activities under both departments including emergency response to natural disaster.
- The interaction with the fisheries extension officer and local forest officer have revealed that there are no recorded fish species linked to the community's livelihood of the local community in the Project areas that indicated that the fishing community will not be affected by the proposed Project.
- The information sharing mechanism on PPM (Project-Affected People's Mechanism) has not been defined clearly with absence of shared responsibility and frequency of reporting.
- Budgetary Plan for Land asset and livelihoods outlined in 10. 12 sections of the ESIA report provides an overview of budgetary allocations for land assets and livelihoods but lacks detailed breakdowns for individual affected persons, hindering a clear understanding of compensation against losses.
- According to the Electricity Act of 2018 and the Electricity Rules of 2020 (as amended in 2022), the proponent is required to compensate landowners at the prevailing market rate for transmission



lines (TL). Following a market assessment, the proponent will ensure that the compensation provided is at least equal to or exceeds the Replacement Cost, in compliance with the AIIB's Environmental and Social Framework (ESF) guidelines. Furthermore, as stipulated in Section 10, Subsection 6 of the Electricity Rules 2020, landowners are permitted to utilize their land post-TL construction, provided that they do not cause damage to the towers and associated equipment.

- No specific information or section dedicated to the Human Rights Risk Assessment (HRRRA) was found in the Environmental and Social Impact Assessment (ESIA) report only gender responsive GRM has been stated in the ESIA report to cater to the needs of gender aspect throughout the Project cycle.

#### ■ Ecology and Biodiversity

- The report states that the aquatic ecosystem within the area of influence (AOI) comprises the Riverine Habitat of Karnatali River and Turag River, some natural drainage canals, floodplain area, beels, and ponds. A total of 47 species of fish under 18 families were recorded in the study area, including five endangered species and four vulnerable species. Additionally, six species of Prawn and shrimps under two families were recorded. Ten aquatic macrophyte species were recorded from the shallow water of the Karnatali River, floodplains, ponds, and swamps around the proposed Project site. During the study period, no aquatic mammals were seen at the Project site or AOI, but consultation with local people, fishermen, and senior Upazila Fisheries officers revealed the rare presence of the Ganges River Dolphin (*Platanista Gangetic*) in the Karnatali River during monsoon and post-monsoon periods.
- Bangladesh National Zoo is located within 5 km radius of the Project site.
- The ESIA report does not include a comprehensive survey of avifauna, and it also falls short in providing a detailed depiction of the ecology and biodiversity scenarios.

### Site Visit Observations

According to the DC office, out of total 242 impacted landowners, 138 landowners have received compensation in line with ARIPA, 2017 act and remaining 104 landowners yet to receive compensation from DC office due to various reasons such as residing abroad, litigation and land mortgage as stated during site visit and consultation with the local village administration.

Furthermore, ARIPA 2017 does not provide compensation to impacted non-titled holders, which leaves a gap in addressing the needs of this group. In contrast, the rag pickers affected by the Project were identified as vulnerable based on their livelihood and income dependency. These individuals rely on the landfill for their daily earnings and were observed to be impacted by the Project.

Regarding information related to land acquisition for Transmission Line, a total of 27 Tower wise land details such as type of land, price of land, details of vegetable grown and other relevant technical details are presented in TL Section 2.18.6 of the revised ESIA report but it lacks the details of impacted landowners, area of land parcel against each land owners, socio-economic condition and compensation amount for each landowner as well as share cropper not mentioned in the ESIA report. An Environmental and Social Management Framework (ESMF) has been developed and included in ESIA as an Appendix.

In a consultation with workers residing in the labour camp, it was observed that the camp lacks several basic amenities required under the ILO regulations and national labour standards. This includes issues related to inadequate living conditions that do not meet the minimum regulatory requirements. The absence of these basic necessities has been noted during site visits and worker interactions.

Additionally, feedback from community stakeholders highlighted concerns about a persistent foul odour emanating from the Project area. This issue has been reported by several members of the local community as a source of discomfort. Furthermore, it was observed that the TL will cross the Karnatali River at two points. The presence of black kites and raptors, particularly near the landfill area, raises concerns about the potential risk of bird electrocution. These species are frequently observed in the vicinity of the proposed TL route, particularly near the landfill.

### **Aspect Wise Gap Assessment**

This report identifies significant gaps across various Project aspects, including compensation disbursement, land acquisition, social impact, regulatory compliance, and stakeholder engagement. Out of total 242 landowners, only 138 landowners have received compensation but remaining 104 landowners yet to receive compensation from DC office due to various reasons such as residing abroad, litigation and land mortgage. Many landowners are unaware of additional compensation provisions under ARIPA, 2017 Act. The land acquisition process for the TL is ongoing, leaving the impact on landowners undetermined. CMEC does not have formal stakeholder engagement plan, grievance mechanisms, and proper waste management. Labour camps are inadequately equipped with poor health and safety measures. Capacity building and training initiatives are absent, and there is a lack of robust monitoring and reporting mechanisms. Addressing these issues is crucial for compliance, stakeholder satisfaction, and Project sustainability.

### **Conclusion and Recommendation**

The ESDD for the waste-to-energy Project has meticulously addressed key implementation aspects particularly Land acquisition involved 242 landowners, where 138 landowners have received compensation and remaining 104 landowners yet to receive compensation from DC office in line with ARIPA Act, 2017 based on the revised ESIA report.

The site visit has also confirmed that the adverse impact on the income and livelihood of the 5 identified Non-Titled Holders due to the land acquisition activity, hence, the inclusion of those impacted Non-Titled Holders (NTHs) can be considered under income cum livelihood restoration plan to address the adverse impact on income and existing livelihood activity of those impacted non-titled holders.

Therefore, an Income and Livelihood Restoration Plan (LRP) has been proposed in line with entitlement matrix to address the issue of non-titled holders as well as vulnerable rag pickers adhering to AIIB's ESS-2 guidelines. Given the impact on the income associated with livelihood aspect of the identified non-titled holders and rag-pickers including vulnerable female ragpickers as a result of land acquisition activity, a robust mitigation strategy is required to address the potential income cum livelihood impact of the identified vulnerable individuals.

The proposed Project will also include the construction of a transmission line of length ~5.9 km, and 27 towers is proposed to be constructed in accordance with Power Grid Corporation guidelines. It was noted that the process for securing land for tower footing and right-of-way corridor is currently in

progress during the site assessment; therefore, detailed information regarding the total number of affected land parcels, the number of impacted landowners, any dependent sharecroppers, and their socio-economic status could not be obtained at that time. Hence, the extent of impact due to TL could not be ascertained. The project proponent is advised to formulate a Resettlement Planning Framework (RPF) due to the possible adverse effects associated with the proposed transmission line. The RPF will delineate the land acquisition/procurement plan intended for the tower footprint, RoW corridor and access road if required. The RPF will identify all potential categories of impacts including both titleholders and non-titleholders due to land acquisition/procurement. Furthermore, the RPF will assess the potential consequences stemming from limitations on land use and the impacts of livelihood loss, whether permanent or temporary and will establish a framework for compensation and income restoration measures where applicable.

Extensive stakeholder consultations informed the requirement of robust mitigation strategies, addressing concerns like substandard labour camp conditions and language barriers with Chinese guidelines.

Socio-economic studies identified economically stable titled landowners, with no representation from the BPL category. Local community concerns regarding odour and traffic congestion have been mitigated through comprehensive management plans.

Environmental assessments highlighted risks such as bird electrocution and prompting precautionary measures for wildlife protection which showcases the Project's environmental stewardship. Ongoing commitments to land acquisition and compensation for affected agricultural landowners including dependent sharecroppers demonstrate the Project's responsibility towards affected communities and its commitment to social responsibility.

In summary, this initiative offers significant advantages by fulfilling electricity demands and updating waste management practices, thereby supporting sustainable development goals and climate preservation efforts for a positive impact on both the community and the environment. Additionally, the Project proponent can consider the above recommendations to address the identified issues encompassing both environment as well as social aspect of the project from the Environment & Social perspective of the WtE project.

This Executive Summary should be read in conjunction with the full report and reflects an assessment of the site based on information received by Black & Veatch at the time of reporting.

## 1.0 Introduction

China Machinery Engineering Corporation (CMEC) is undertaking a significant initiative in power generation through the development of a Waste-To-Energy Power Plant Project at Amin Bazar, Dhaka, Bangladesh. This Project aims to convert waste into a sustainable energy source, contributing to both waste management and energy generation in the region.

The power plant is strategically situated in Baliarpur village, within the Bongaon Union of Savar Upazila in the Dhaka District. Its precise geographical coordinates are 23°47'39.80"N latitude and 90°17'48.86"E longitude. This location has been carefully selected to efficiently serve the surrounding area and maximize the Project's impact on local waste management and energy production.

With a net capacity of 42.5 MW, the power plant is set to make a significant contribution to the local power supply. The Project has been planned with a tenure of 20 years, demonstrating a long-term commitment to sustainable energy production in the region. This initiative underscores CMEC's dedication to sustainable development and innovative energy solutions, addressing pressing environmental concerns while meeting growing energy demands in Bangladesh.

To ensure the Project's environmental and social responsibility, the Environmental and Social Due Diligence (ESDD) process was conducted, which included a thorough review of the Project's Environmental and Social Impact Assessment (ESIA) report. This review examined the ESIA's scope, ensuring it comprehensively identified and analyzed significant environmental and social impacts associated with both the construction and operation phases of the Project, as well as any legacy risks. The assessment evaluated the ESIA's approach to impact mitigation, verifying that it followed the hierarchy of prevention, minimization, mitigation, and compensation for adverse impacts. Furthermore, the review assessed the ESIA's compliance with the Applicable Reference Framework, encompassing relevant regulations, standards, and requirements. This critical component of the ESDD provides valuable insights into the Project's environmental and social risk management strategy and its alignment with applicable standards, supporting informed decision-making for stakeholders.

### 1.1 Project Background

Human activities, such as economic development, urbanization, and improving living standards, inevitably result in waste generation. The escalating quantity and complexity of waste, combined with the rapid growth of population and industrialization, have caused significant environmental degradation and strained natural resources, thereby undermining equitable and sustainable development. The inefficient management and disposal of solid waste further exacerbate the problem, leading to uncollected waste on roads and other public places, particularly in developing countries.

To tackle this challenge, a sustainable waste management system is necessary, which requires environmental, institutional, financial, economic, and social sustainability. Waste-to-Energy technology is a widely recognized approach for managing waste sustainably. In the case of Dhaka, the capital city of Bangladesh, which is expanding rapidly, generating waste at an accelerated rate, and facing significant constraints in solid waste management, such as a lack of financial resources, inadequate trained manpower, inappropriate technology, and insufficient community awareness, a sustainable waste management system is imperative.

Dhaka generates approximately 6500 tons of waste daily, with only 40-50 percent being collected efficiently. The traditional waste collection system in Dhaka is labor-intensive, involving three main

collection stages: primary collection, secondary collection, and a final journey to the landfills. The primary stage involves child waste collectors and rickshaw vans that collect waste from buildings, which is then dumped into giant bins and often remains uncollected for days, creating conditions for the spread of waste-borne diseases.

Community-based composting Projects, such as the one initiated by Waste Concern in 1995, have shown promising results in addressing the waste management problem in Dhaka. The Project promotes the concept of the '4 Rs' – reuse, recycle, and recover waste – in urban areas, and has been successful in reducing disposal costs and prolonging the lifetime of landfill sites. Composting all organic waste in Dhaka would create new jobs for about 16,000 poor people, especially women.

## 1.2 Project Details

The Project Description outlines the scope of the Project, including its features and activities that may impact the environment. The Project involves the establishment of a waste-to-energy power plant by WtE Power Plant North Dhaka Private Limited in the Dhaka district of Bangladesh, located north side of the Dhaka-Aricha Highway. The plant will generate electricity based on national electricity demand and will evacuate the generated electricity to the Savar 132 /33 kV existing Substation with a double loop 132kV line, which is about 6 km long. This Project aligns with the country's efforts to generate electricity from waste, diversify renewable energy sources, and manage waste effectively.

The Project will aid the government in enhancing the city's reliance on sustainable, clean energy sources, promoting a healthier and cleaner urban environment through efficient municipal solid waste management. The proposed plant, with a capacity to generate 42.5MW of electricity, will require 3,000 metric tonnes of solid waste daily. It is anticipated that the Project will be implemented within 24 months after the financial closing date, which is expected to occur within nine months of the Project's commencement. The basic data of the WtE Power Plant North Dhaka Private Limited are furnished in **Table 1-1**.

**Table 1-1 Basic Information of WtE Power Plant Project**

Particulars	Basic Project Data
<b>Company Name</b>	China Machinery Engineering Corporation (CMEC)
<b>Project Name</b>	Waste-To-Energy Power Plant Project at Amin Bazar, Dhaka, Bangladesh
<b>Project Director</b>	Liu Fangzhou
<b>Address</b>	F11, Anamika Concord, 583 Rokeya Sarani, Dhaka 1216
<b>Email</b>	<a href="mailto:liufz@cmecc.com">liufz@cmecc.com</a>
<b>Contact No</b>	01905659871 and 01957088066
<b>Project Location</b>	Village: Baliarpur, Union: Bongaon, Upazila: Savar, District: Dhaka
<b>GPS Location</b>	23°47'39.80"N, 90°17'48.86"E
<b>Type of Business</b>	Power Generation
<b>Project Tenure</b>	20 years
<b>Net Plant Capacity</b>	42.5 MW (NET)
<b>Transmission line</b>	132 kV

Particulars	Basic Project Data
GSS	The Savar 132/33kV substation

### 1.2.1 Location

The proposed site for the Power Plant Project is located at Bongaon Union under Savar Upazila of Dhaka District, which is on the north side of the Amin Bazar landfill site. The Project site is situated on the west side of North Dhaka, approximately 17 km away from the Dhaka city center. The table containing the geographical coordinates of the proposed waste-to-energy Project site is labeled as **Table 1-2**.

**Table 1-2 Geographic Coordinates of the Proposed Project**

Points	Direction/Corner	Latitude	Longitude
1	South-West	23°47'39.80"N	90°17'48.86"E
2	South-East	23°47'35.62"N	90°18'4.64"E
3	North-East	23°47'44.63"N	90°18'7.37"E
4	North-West	23°47'48.10"N	90°17'51.16"E

The land designated for the proposed power plant is classified as null land (নাল জমি) and low-lying areas. The Project area does not contain any permanent water bodies or hills. This Project will not involve filling any ponds, canals, or other water bodies, nor will it require cutting through any hills. The proposed Project site is located near the Aminbazar landfill and Karnatali River to the north, agricultural land to the east and west, and the Dhaka-Aricha Highway to the south.





Figure 1-1 Sand piling at Project site



Figure 1-2 Sand piling at Project site

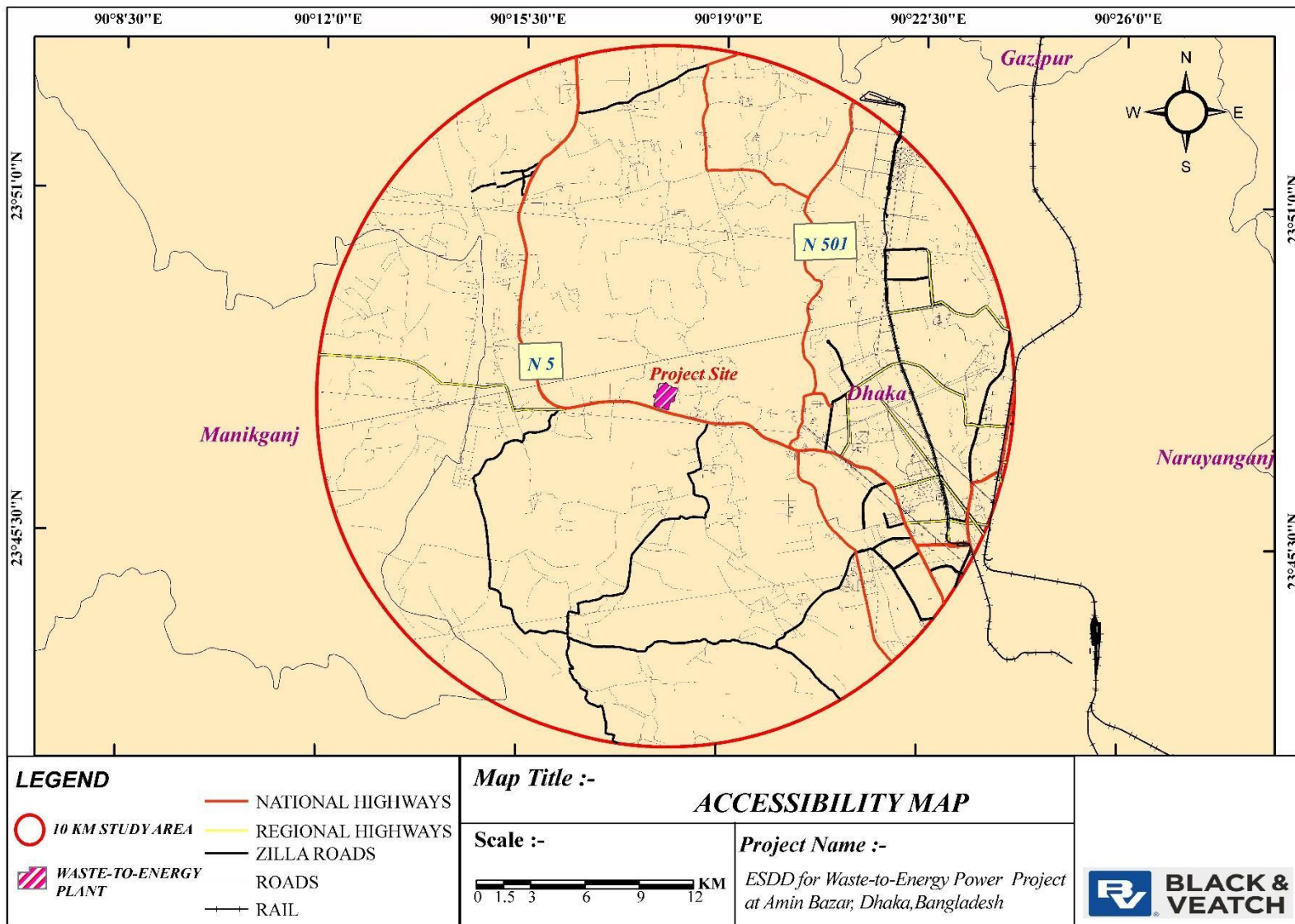


Figure 1-3 Accessibility Map



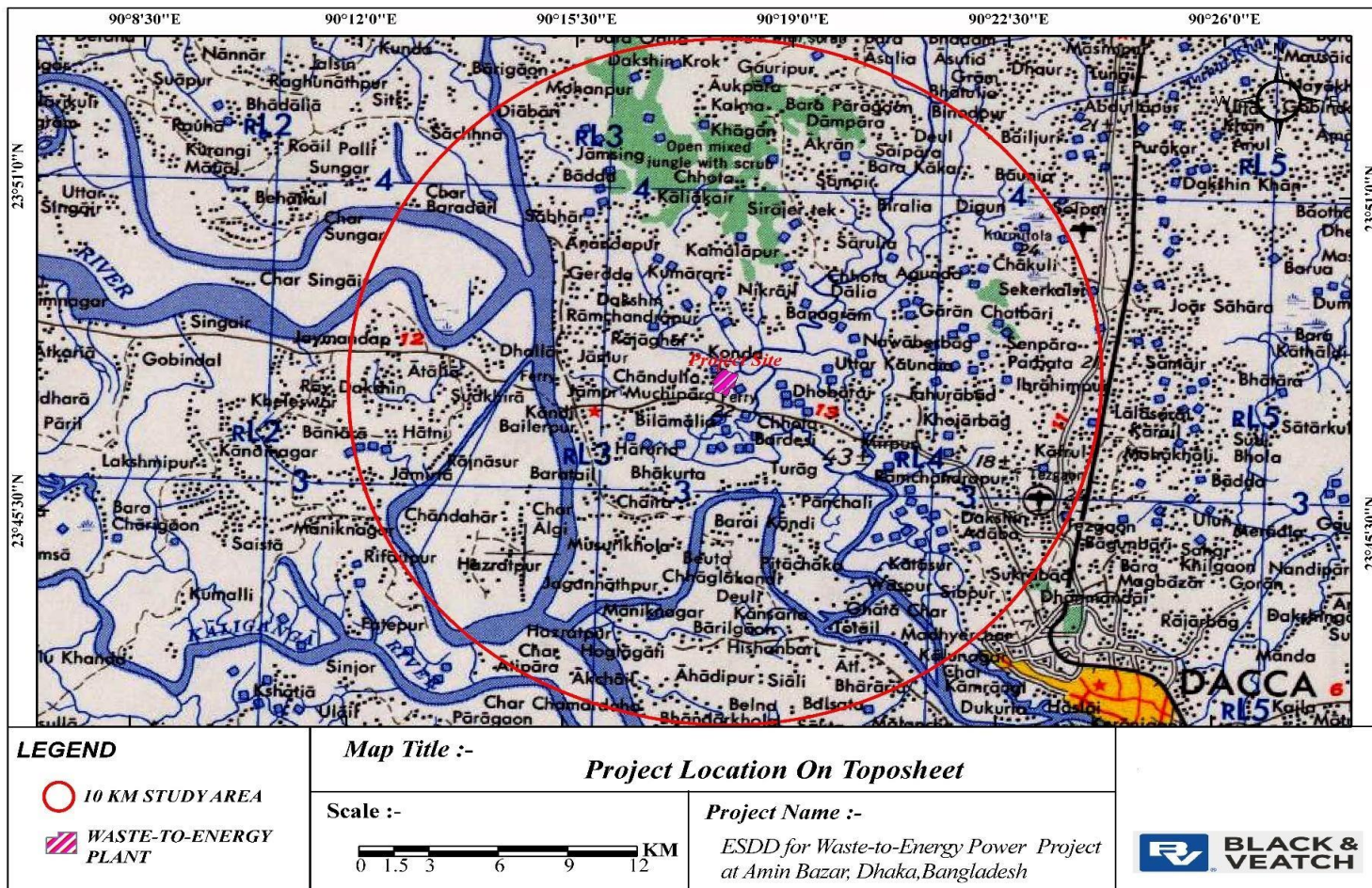


Figure 1-4 Topography Map

## 1.2.2 Structure

The Waste-to-Energy (WtE) power plant at Amin Bazar, Dhaka, Bangladesh, is composed of several key structures and components that are integral to its operation. Below is a detailed overview of the plant's structures:

### 1.2.2.1 Main Project Components

#### ■ Incinerator

The incinerator is a mechanical grate furnace responsible for the combustion of municipal solid waste (MSW). It ensures efficient burning of waste by mechanically stirring and moving it, maximizing contact with the combustion air.

#### ■ Waste Heat Boiler

Post-incineration, the hot gases pass through a waste heat boiler. This boiler captures the heat from the combustion gases to produce steam, which is used for electricity generation or other industrial processes. It is designed to handle high temperatures and transfer heat efficiently from the flue gases to the water/steam system.

#### ■ Turbine Generator

The steam generated in the waste heat boiler is directed to a turbine generator, where it drives the turbine blades to produce electricity. This component is crucial for converting thermal energy from waste into electrical energy.

#### ■ Cooling Tower

The cooling tower removes excess heat from the system by cooling the water used in the steam cycle. It works by exposing the water to air, allowing heat to dissipate through evaporation, ensuring efficient operation of the steam cycle and preventing equipment overheating.

#### ■ Stack

The stack or chimney is the final emission point for the flue gases after they have been treated. Designed to release gases at a height that minimizes their environmental impact, it is equipped with monitoring systems to ensure compliance with environmental regulations.

### 1.2.2.2 Process Flow of Waste to Energy

#### ■ Weighing and Receiving

The process begins with the weighing and receiving of waste materials. This ensures that the plant accurately records the amount of waste processed and manages its input effectively. The waste is then moved to storage areas or directly to the incinerator feed system.

#### ■ Mechanical Grate Furnace

In the mechanical grate furnace, waste is incinerated on a moving grate. This design facilitates thorough mixing and combustion of the waste, enhancing the efficiency and completeness of the incineration process.

- **Air Combustion System**

An efficient air combustion system is crucial for maintaining the correct temperature and oxygen levels in the furnace. This system ensures complete combustion of the waste, reducing the production of harmful emissions and maximizing energy recovery.

- **Waste Incineration Process**

The incineration process involves burning waste at high temperatures to reduce its volume and generate heat. This process is closely monitored and controlled to ensure optimal combustion conditions and minimize the release of pollutants.

- **Flue Gas Process**

Flue gases generated during incineration are treated to remove pollutants. The flue gas treatment system includes multiple stages, such as semi-dry and dry methods, activated carbon injection, and bag filters, to capture and neutralize harmful substances before the gases are released through the stack.

### 1.2.2.3 Description of the Treatment Process

- **Flue Gas Treatment System**

The flue gas treatment system utilizes several processes to clean the gases produced during incineration. This includes selective non-catalytic reduction (SNCR) for nitrogen oxide reduction, semi-dry and dry scrubbing methods for acid gas removal and activated carbon injection for dioxin and heavy metal adsorption. The cleaned gases are then passed through bag filters before being emitted through the chimney.

- **Flying Ash Collection and Treatment System**

Fly ash, a byproduct of flue gas treatment, is collected and stabilized. This involves combining the fly ash with other materials to prevent the release of harmful substances. The stabilized fly ash can be utilized in construction materials or safely disposed of in designated landfills.

- **Slag Treatment System**

The slag generated from the incineration process is collected and processed. This involves separating metal residues for recycling and utilizing the remaining inert material for construction purposes or safe disposal. The slag treatment process helps minimize waste and recover valuable materials.

- **Leachate Treatment Process**

Leachate, the liquid that drains from waste, is treated to remove contaminants. The treatment system is designed to handle large volumes, especially during peak periods. The process includes anaerobic and aerobic treatments, followed by membrane filtration techniques like ultrafiltration and reverse osmosis. This ensures that the treated leachate meets environmental standards before being released or reused.

### 1.2.2.4 Main Buildings and Structures

Table 1-3 Main Buildings and Structures

Buildings and Structures	Base Elevation (meters)	Height (meters)
Tripping Hall	4.82	20.9
Waste Pit	3.84	48.2
Main Building	2.15	54.3
Flue Gas Purification Unit	4.77	43
Cooling Tower	4.77	12.2

### 1.2.2.5 Building Structure and Air Flow

The plant's design considers the influence of air streams on building structures. When air streams encounter buildings, they can become disrupted, generating turbulent eddies in the building's wake. These eddies can potentially lead to plume downwash and higher emission concentrations in the vicinity of the emission source. To mitigate these potential effects, the AERMOD model was employed, as outlined in the ESIA report. This model was used to calculate direction-specific building dimensions, ensuring accurate modeling analysis and minimizing the risk of downwash.

### 1.2.2.6 Bag Filter System

The bag filter system is crucial for flue gas cleaning, featuring components such as:

- Ash Hopper
- Bag and Cage
- Maintenance and Overhaul Passageway Devices
- Isolation Baffles for Inlet and Outlet Flue of Each Chamber
- Bypass Flue and Baffle Devices
- Ash Hopper Heating and Bag Sweep Controllers
- Pulse Valves

This detailed structure ensures the efficient and environmentally compliant operation of the Waste-to-Energy plant, maximizing energy recovery and minimizing environmental impact.

## 1.2.3 Plant Technology

### 1. Capacity and Scope:

- Net Plant Capacity: 42.5 MW (NET)
- Land: 31.182 acres
- Treatment Capacity: 3000-3600 tons/day, totaling 1.095 million tons annually.
- Incinerators: 4 sets of 750 t/d



- Boilers: 4
- Turbine Generator Sets: 2 sets of 35 MW
- Steam Turbines: 2
- Annual Operation Time:  $\geq 8,000$  hours

The facility boasts a considerable waste-to-energy capacity of 42.5 MW, addressing dual objectives of waste management and power production. Its expansive site provides sufficient room for current operations and potential future developments.

## 2. Waste Management and Environmental Impact:

Waste and By-products

- Source of Waste: DNCC
- Wet Slag Volume: 182,500 tons annually
- Flying Ash: 24,911 tons annually
- Leachate Treatment Capacity: 1200 m<sup>3</sup>/day

The plant will handle waste from DNCC, converting up to 1.095 million tons of waste annually. The significant amounts of wet slag and flying ash produced will need efficient disposal or recycling methods to minimize environmental impact.

## 3. Infrastructure and Operations

Key Systems:

- Furnace Type: Mechanical grate furnace with 4×750t/d incineration line
- Flue Gas Treatment: SNCR (urea water injection)
- Cooling Towers: 3 sets with 7000 t/h cooling water capacity
- Stack Height: 100m with 1 stack (2.2m diameter, 4 sections)

The plant employs advanced incineration and flue gas treatment technologies to manage emissions and environmental impact. The 100m stack ensures dispersion of flue gases at a higher altitude, reducing ground-level pollution.

## 4. Resource Requirements

Fuel and Electricity:

- Fuel: Diesel, sourced locally
- Diesel Consumption: 320 tons annually for start-ups and shutdowns
- Electricity Consumption:  $0.73 \times 10^8$  kWh annually

Water Usage:

- Industrial Water: 332 m<sup>3</sup>/h and 7968 m<sup>3</sup>/day

- Domestic Water: 44 m<sup>3</sup>/day

The diesel requirement for ignition is notable, and efforts should be made to optimize start-up and shutdown processes to minimize fuel consumption. Water requirements are significant, necessitating sustainable sourcing strategies.

## 5. Economic and Employment Impact

### Cost and Employment

- Project Cost: BDT 1,131.16 crore

### Employment:

- Construction phase: 1860 persons
- Operation phase: 198 persons

The Project involves substantial financial investment, indicating a long-term commitment to waste management and energy production. Employment opportunities created during both construction and operational phases will positively impact the local economy.

## 6. Power Evacuation

### Connectivity:

- Power Evacuation: 132 kV to Savar Substation

Efficient power evacuation ensures the generated electricity is seamlessly integrated into the grid, enhancing the reliability and distribution of power.

**Table 1-4 Basic Project Data**

Particulars	Basic Project Data
Net Plant Capacity	: 42.5 MW (NET)
Planned land	: 31.182 acres (126,187.41 m <sup>2</sup> ) (Including incineration plant land and new access roads)
Treatment capacity	: 3000~3600 ton/day (entry capacity) with an annual waste disposal capacity of 1.095 million tons
Source of Waste	: Dhaka North City Corporation (DNCC)
Incinerators	: Four (4) sets of 750 t/d incinerators
Boilers	: Four (4)
Turbine generator sets	: Two (2) sets of 35 MW turbine generator sets
Steam turbine	: Two (2)
Annual operation time	: Not less than 8,000 hours
Leachate treatment station with a treatment capacity	: 1200 m <sup>3</sup> /day
Wet slag volume	: 182,500 t/a
Amount of flying ash	: 24911 t/a
Cooling tower	: Three (3) sets, Cooling water 7000 t/h
Furnace type	: Mechanical grate furnace with 4×750t/d incineration line
Flue gas treatment system	: Selective non-catalytic reduction (SNCR) (urea water injection in the furnace)
Stack Height	: 100m

Particulars		Basic Project Data
Number of Stack/Stack Inside Diameter	:	1 Stack/2.2m*4
Fuel Name	:	Diesel fuel
Source of Fuel	:	Local Market
Fuel Requirement	:	About 40-ton of diesel will be consumed for each start and shutdown. Diesel consumption by ignition throughout the year = $40 \times 2 \times 4 = 320$ ton Electricity consumption: $0.73 \times 108 \text{kWh/a}$
Water Requirement	:	The main industrial water source will be both surface water and groundwater and will also be used as a reserve water source for industrial water purposes. The total industrial water supply scale of this Project is approx. $332 \text{ m}^3/\text{h}$ and $7968 \text{ m}^3/\text{d}$ and the total domestic water scale is $44 \text{ m}^3/\text{d}$ .
Employment	:	Construction phase – 1860 persons Operation phase - 198 persons
Power Evacuation	:	132 kV Savar Substation
Project Cost	:	BDT 1,131.16 crore

#### 1.2.4 Site and Interconnection

- **Site Overview:** The proposed Waste-to-Energy (WtE) power plant is situated in Bongaon Union, near Savar Upazila in Dhaka District. Located approximately 17 kilometers from Dhaka's city center, the site lies south of the Amin Bazar landfill and west of North Dhaka. The Project area consists of fallow land and low-lying regions. Importantly, the site and its immediate surroundings lack permanent water bodies or hills. The development plans do not require the filling of any existing ponds, canals, or other water features, minimizing potential impacts on local hydrology.
- **Access Roads and Transportation:** The Project site benefits from its proximity to the Dhaka-Aricha Highway (N5), a key factor in facilitating the transport of fuel and equipment for the plant. The Government of Bangladesh is enhancing this infrastructure through an expansion program, upgrading about 20 kilometers of the highway from Gabtoli to Nabinagar. This initiative increases the number of lanes from four to ten and includes significant improvements to major bridges:

  - Gabtoli Bridge: Expanded from four to eight lanes.
  - Salehpur Bridge-2: Upgraded from two to four lanes.

To ensure direct site access from the highway, plans include a 360-meter-long access road along the eastern side of the Project area. This road will feature:

- A pavement width of approximately 7.0 meters.
- A turning radius of 12.0 meters within the main plant area.

These specifications are designed to facilitate smooth vehicular movement and efficient logistics operations for the plant.

- **Key Features and Surroundings:** The proposed Project site primarily consists of low-fallow land and hosts five business entities, including a transportation depot with a repair workshop and a cattle farm. Five non-titleholders also operate petty shops within the site boundaries. The immediate surroundings include scattered commercial structures such as brickfields (the nearest about 200 meters east) and CNG filling stations (N.R. CNG Filling Station 30 meters south). The Karnatali River flows approximately 600 meters north, while agricultural land begins about 300 meters west. Within a 1.2 km radius, several community features are present, including Beraid Government Primary School (1.2 km northwest), Konda Bazar (750 meters northwest), and Konda High School (870 meters northwest). The area also encompasses the Nandonik Housing Society, additional brick fields, agricultural activities, and local settlements, creating a diverse landscape that combines residential, commercial, educational, and natural elements in close proximity to the Project site.
- **Transmission Route:** To integrate the proposed Waste-to-Energy (WtE) power plant with the national grid, a new transmission line will be constructed. This crucial infrastructure will facilitate power evacuation from the plant to the broader electrical network. Key characteristics of the transmission line include:
  - **Length:** The line will span approximately 6 kilometers from the WtE plant to the connection point with the national grid.
  - **Route characteristics:** The transmission line will traverse an area predominantly featuring agricultural and residential land use patterns.
  - **Land requirement:** The Project estimates a total land need of about 1 acre for the entire transmission line corridor.

### 1.2.5 Project Schedule

The Project's total duration is estimated at 36 months from the commencement of construction to full operation. This timeline is divided into three main phases:

**Table 1-5 Project Duration**

Milestone	Duration
Land acquisition and site preparation	6 months
Construction of the WtE plant	24 months
Installation and commissioning of the plant	6 months
<b>Total Project duration</b>	<b>36 months</b>

By the end of this 36-month period, the WtE power plant is scheduled to be fully operational. This carefully planned implementation schedule is designed to ensure the timely construction and commissioning of the facility. Once operational, the plant will begin generating electricity from municipal solid waste, contributing to Bangladesh's energy supply and waste management efforts.

## 1.3 Purpose/Scope of the Study

The main purpose of the ESDD study is to identify, evaluate and manage potential environmental and social impacts that may arise due to the land acquisition, development and operation of the Project. The ESDD study complies with the requirements of AIIB's ESF, IFC's Performance Standards, World Bank/IFC's general guidelines of Environment, Health, and Safety. The purpose of the ESDD study are:



- The land acquisition and relocation of affected persons was at its final stages during the preparation of the ESIA. It was determined that the RAP, which was initially developed to mitigate the social and environmental impacts of the LA & Relocation project, was no longer applicable given the current status of the project. Hence, the need arose to prepare the ESDD to capture the existing gaps associated with the environment as well as social aspect of the project along with proposed measures to address those gaps in line with applicable guidelines focusing AIIB's ESF.
- Review of applicable E&S policies and framework, particularly that of AIIB's ESF, for assessment of compliance requirements specific to the Project and carrying out gap analysis.
- Review the existing Environment and Social (ES) documents and other relevant Project documentation available, including (but not limited to) those related to: Environment and Social Impact Assessment (ESIA) report, site-specific Environment and Social Management Plan (ESMP) (if any), monitoring reports, documents related to current status of acquisition of land and assets, and relocation, including surveys and inventories, eligibility and entitlements, valuation, compensation awards, Replacement Cost estimation, compensation payments including top ups, etc., public disclosure and consultation documents, Stakeholder Engagement Plan, Gender Action Plan, as may be relevant, planning and construction permit applications, supporting documentation and permits/clearances from line agencies, various permitting processes, community impacts and risks, and institutional arrangements for E&S monitoring.
- Review all regulatory and statutory permits and clearances obtained by the developer/contractor and check status of compliance with conditions of these permits and clearances by respective parties.
- Conduct a media search about WtE Plant, developers, Client, sector, country, etc. to determine the extent to which there has been relevant news coverage and, if so, whether any of the issues will require additional verification during the initial review and site visit. If no relevant issues are identified through this process the Consultants will include a statement to this effect within its results.
- Identify and document any litigation by stakeholders and complaints / concerns / controversies involving relevant networks through interactions with local communities, NGOs/CSOs, and media persons. The litigation/complaints/concerns may be regarding impacts on communities, vulnerable communities and impacts on forests/eco-sensitive zones.
- Review relevant WtE plant development activities and procedures undertaken following the E&S documents preparation to date, to assess whether all potential environmental and social impacts, issues and risks have been assessed and mitigated. Activities and procedures to be reviewed could include (but are not limited to) those related to selecting the site, land acquisition process (including voluntary and involuntary relocation, economic displacement), status of compensation, assessment of Project impacted individuals, labor management, stakeholder engagement, biodiversity and cultural heritage issues.
- In case of public consultations already held, review and summarize the recommendations made by stakeholders on the E&S documents and identify where and how they were addressed. This is

presented in a tabular format identifying the source, issue of concern, response and document reference.

- Review of appropriateness of Institutional arrangement for implementation of E&S component of the Project across the Project cycle.
- Review of compensation and need for external consultant for valuation of lost structures, loss of business income, loss of wages particularly for non-titled holders as well as vulnerable rag pickers.
- Review records of the stakeholder consultation results and engagement activities/plans.
- Review of Grievance Redress Mechanism (GRM) for various categories of stakeholders and their appropriateness in addressing and resolving various types of probable grievances and review the GRM records and other communications between the developer and stakeholders. The GRM for workers will also be reviewed to ensure the complaints from workers are properly documented and addressed.
- Review contractor's agreement if the ESMP of ESIA are included, if not, further review if any other guidance is required.
- For ongoing Project works, review environmental, health and safety documentation being prepared by the Client including monthly progress reports and environmental and social monitoring reports.

#### 1.4 Rationale for ESDD

- Environmental and Social Due Diligence (ESDD) is considered a key process to verify that the Project proponent has followed relevant environmental and social standards during the land acquisition phase for the proposed Waste-To-Energy (WtE) Project following the national, AIIB's ESF and other relevant applicable regulatory requirements. The Environmental and Social Due Diligence (ESDD) exercise aims to address crucial aspects of the project during its pre-construction phase. It focuses on understanding the status of land acquisition, compensation payments to affected landowners, and exploring reasons for compensation delays. Additionally, it considers relocation assistance for titled business holders, compensation for non-titled holders and vulnerable individuals, and proposals for livelihood impact assessment and restoration plans due to project impacts. The ESDD process seeks to identify potential challenges faced by impacted individuals and develop solutions to address these issues, ensuring successful project implementation. In view of the above, the rationale for conducting ESDD are defined below covering various critical aspects of the Project.
- Identifying Environmental Risks: ESDD facilitates the identification of possible environmental risks. This involves evaluating factors like soil, water & air contamination, proximity to ecologically delicate zones, and adherence to regulatory criteria, ensuring the Project's environmental sustainability.
- Assessing Social Impacts and offer appropriate mitigation measures for impacted individuals: ESDD evaluates potential social impacts of WtE Projects, such as lives & livelihoods of impacted landowners, land-use, changes in livelihood pattern, and explore potential areas to address those impacts and uphold the rights and well-being of impacted community and stakeholders respectively through proposed Income cum Livelihood Restoration Plan in line with AIIB's ESS-2 guidelines.

- Compliance with Regulatory Requirements: ESDD ensures adherence to the National and International regulations for land acquisition and environmental protection, pre-emptively addressing compliance issues to mitigate legal risks and prevent delay in execution of planned activities from the perspective of regulatory compliance.
- Enhancing Stakeholder Engagement: ESDD offers insights into the concerns and expectations of affected stakeholders, including impacted landowners, local communities, service providers, vulnerable groups, government departments. Engaging with these groups builds trust, promotes linkages, and addresses grievances, improving social acceptance and reducing conflict throughout the Project life cycle.
- Assessing Institutional arrangement: ESDD intends to review the existing institutional arrangement and capacity of the Project proponent and associated stakeholders in execution of the WtE Power Plant aligning with national, international and AIIB’s ESF guidelines.
- Consolidating gaps: The ESDD seeks to identify and collate aspect-wise implementation gaps in line with AIIB’s ESF guidelines and other relevant national and international protocols in connection with land acquisition activity of the proposed WtE Project.
- Offering appropriate mitigation measure: The ESDD intends to develop a comprehensive mitigation strategy to address aspect-wise identified gaps aligning with national and AIIB’s ESF guidelines to facilitate successful operation of WtE Project throughout Project life cycle.

## 1.5 Reporting Format

The structure of the report is as given below in **Table 1-6**.

**Table 1-6 Structure of the report**

Chapters	Title	Description
<b>Chapter 1</b>	Introduction	Introduction to the Project, as well as the ESIA scope and methodology used.
<b>Chapter 2</b>	Applicable Regulatory Framework	Discusses the Project's relevance and the applicable environmental and social regulatory framework.
<b>Chapter 3</b>	Methodology	Overview of the approach or procedure used to conduct research or investigations, outlining the methods employed to gather data or information.
<b>Chapter 4</b>	Findings of Document Review	Summary of key discoveries or conclusions drawn from reviewing relevant documents such as reports, studies, or literature.
<b>Chapter 5</b>	Site Visit Observations	Concise description of notable observations made during visits to specific locations or sites relevant to the subject under study.

Chapters	Title	Description
<b>Chapter 6</b>	Aspect Wise Gap Assessment and Priority Matrix	Analysis of identified gaps or deficiencies in various aspects, along with a matrix indicating the priority of addressing these gaps based on their significance.
<b>Chapter 7</b>	Stakeholder Consultation and Engagement	Synthesize engagement efforts with various stakeholders, outlining their primary concerns and feedback. Evaluate whether these concerns have been adequately addressed and incorporated into the mitigation plan.
<b>Chapter 8</b>	Environment and Social Action Plan	A plan outlining specific actions to mitigate environmental and social impacts associated with a Project or activity, ensuring compliance with relevant regulations and standards.
<b>Chapter 9</b>	Categorization of Projects as per AIIB Guidelines	Classification of Projects based on criteria specified by the Asian Infrastructure Investment Bank (AIIB), facilitating better understanding and management of Projects according to their characteristics and requirements.
<b>Chapter 10</b>	Conclusion and Recommendation	Summary of impacts identified for the Project and conclusion of the study.

## 1.6 Limitation

The study relies on Project planning information and documents supplied by the Project proponent. The baseline condition is derived by extrapolating from the surrounding areas to the site. It's important to note that any significant changes in the proposed activities may lead to variations in outcomes. The presented information and facts have been thoroughly analyzed, and inferences have been drawn through professional judgment.

- Unavailability of impacted landowners who were reluctant to divulge any information pertaining to the status of award or pending compensation at the time of site assessment.
- The community consultation and subsequent discussions with the DC office representative have clarified several reasons for the delay in compensation cases. These include: some landowners residing abroad, ongoing property disputes and discrepancies in property titles. Inadequate information exists regarding the current status of landowners who have received compensation and those who are still awaiting compensation during stakeholder consultation exercise.
- During the site assessment, it was a challenging task to obtain information on the annual turnover of the titled landowners' businesses, loss of income, wages of workers, and the exact number of employees across different business units due to the absence of key informants.
- Absence of clarity amongst impacted individuals with respect to calculation of market value, infrastructure and relocation assistance of impacted business units.

- Unavailability of key representative of business units to procure information related to replacement or relocation assistance provided as a part of compensation.
- The District Commissioner's office showed non-cooperation in providing the necessary information concerning the status of compensation for affected households as well as pending cases of compensation.
- The connection between CMEC and the Chairman of Savar Union Parishad is not sufficiently strong to gather information effectively from the community in connection with the Project.
- The site consultation encountered a challenge as several guidelines and regulatory requirements related to the Project are only available in Chinese, making them inaccessible to Non Chinese people.

CONFIDENTIAL

## 2.0 Applicable Legal Frameworks

This section describes regulations, statutory guidelines and obligatory standards that are applicable to the social and environmental performance of the Project.

### 2.1 Applicable Local and Bangladesh Regulation

Legal provisions relevant to environmental protection applicable to the planning, construction, and operation of waste-to-energy Projects have been identified and summarized in Table 2-1, including their applicability to the proposed Project.

CONFIDENTIAL



**Table 2-1 Applicable Environmental, Health, Safety and Social Regulation**

Sr.No	Act/Rules/Law/Ordinance	Responsible Agency-Ministry/Authority	Key Features/Remarks	Applicability
1.	Environment Conservation Act, 1995 and its amendment in 2000, 2002 and 2010	Ministry of Environment, Forest, and Climate Change	<ul style="list-style-type: none"> <li>• Declaration of Ecologically Critical Areas (ECAs).</li> <li>• Obtaining an Environmental Clearance Certificate (ECC).</li> <li>• Regulation for vehicles emitting smoke which is harmful to the environment.</li> <li>• Regulation of development activities from an environmental perspective.</li> <li>• Promulgation of standards for quality of air, water, noise, and soil for different areas and different purposes.</li> <li>• Promulgation of acceptable limits for discharging and emitting waste.</li> <li>• Formulation of environmental guidelines relating to the control and mitigation of environmental pollution, conservation, and improvement of the environment.</li> </ul>	<p><b>Applicable</b></p> <p>According to the Act “no industrial unit or Project shall be established or undertaken without obtaining an ECC from the DoE”. Therefore, the provisions of the act apply to all the Project intervention phases during the Project life cycle.</p>
2.	Environment Court Act, 2010	Ministry of Environment, Forest, and Climate Change. Judiciary	<ul style="list-style-type: none"> <li>• Establishment of one or more environmental courts in each district and one or more special magistrate courts in each district.</li> <li>• Also provides the jurisdictions of the environment court, the penalty for violating courts order, a trial procedure in special magistrate court, power of entry and search, a procedure for investigation, procedure and power of the environment court, the authority of</li> </ul>	<p><b>Applicable</b></p> <p>The court has jurisdiction, under the act’s provisions, over a trial for an offense or compensation under environmental law, imposing penalties for violation, etc.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<p>the environment court to inspect, appeal /procedure and formation of the environment appeal court.</p>	
3.	Noise Pollution (Control) Rules, 2006	Ministry of Environment, Forest, and Climate Change	<ul style="list-style-type: none"> <li>• The Rules have been established to manage noise-generating activities, which have the potential to impact the health and well-being of workers and the surrounding communities.</li> <li>• An area up to a radius of 100 meters around hospitals, educational institutions, offices, or similar types of institutions is designated as a silent area. The acceptable sound limit in the silent areas is 50 dB(A) for daytime and 40 dB(A) for nighttime.</li> <li>• The residential areas are primarily occupied by dwellings. The acceptable sound limit in residential areas is 55 dB(A) for daytime and 45 dB(A) for nighttime.</li> <li>• Mixed areas with a mix of residential, commercial and industrial land use. The acceptable sound limit in the mixed areas is 60 dB(A) for daytime and 50 dB(A) for nighttime.</li> <li>• Commercial areas are primarily occupied by businesses and officers. The acceptable sound limit in commercial areas is 70 dB(A) for daytime and 60 dB(A) for nighttime.</li> </ul>	<p><b>Applicable</b></p> <p>The Project will create noise within the Project boundary and surroundings. Incremental noise can impact human and terrestrial faunal species. Therefore, it requires complying with these rules.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<ul style="list-style-type: none"> <li>Industrial areas are used for industry or manufacturing. The acceptable sound limit in the industrial areas is 75 dB(A) for daytime and 70 dB(A) for nighttime.</li> <li>An area between 500 meters from the last limit of a residential area for construction-related activity use of brick and stone crusher machine is prohibited and operation of mixture machine and construction-related machinery and equipment are prohibited from 7 PM to 7 AM.</li> <li>The guidelines say exceeding the maximum noise level in certain areas is a punishable offense.</li> </ul>	
4.	Air pollution (Control) Rules 2022	Ministry of Environment, Forest, and Climate Change	<ul style="list-style-type: none"> <li>Aiming to protect environmental health, the government has published a new rule based on section 20 of The Bangladesh Environment Conservation Act, 1995.</li> <li>The main objectives of this rule are to prevent, control, and reduce air pollution.</li> <li>The government will appoint a director general who will be responsible for managing and maintaining the environmental issue.</li> <li>The Rule specified several types of pollution such as pollution caused by factories, vehicles, construction, garbage, etc.</li> </ul>	<p><b>Applicable</b></p> <p>The Project will create air pollution within the Project boundary and surroundings. Air pollution can impact human and terrestrial faunal species. Thus, the rules is applicable for the project and the project proponent should ensure compliance to the Air Pollution (Control) Rules.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<ul style="list-style-type: none"> <li>According to the new rule, there will be a committee that will impose damages and punishment for such pollution.</li> <li>As stated by the rule, the government will give rewards to those who will protest against pollution and do not cause any type of pollution.</li> </ul>	
5.	Ecologically Critical Areas (ECAs) Management Rules, 2016	Ministry of Environment, Forest, and Climate Change	<ul style="list-style-type: none"> <li>The ECA Management Rule, 2016 has enabled the government to form a "National Committee" headed by the Secretary of MoEFCC.</li> <li>To implement the decision of the Directorate, District and Upazila committee may be formed. For the conservation and development of the ecologically critical area, one or more teams may be formed. The responsibility of the team would be to implement the decision and planning of the Government to improve the Environment for Ecology.</li> <li>The Rule also prohibited many activities and processes which are detrimental to the natural condition of habitat, tranquility, biodiversity, etc.</li> </ul>	<p><b>Applicable</b></p> <p>The proposed Project is located approximately 4 km away from the nearest ECA (Turag River). Due to extraction of surface water and other activities during operation, it is envisaged that the project can potentially have an impact on Karnatali River and Turag River as well. Therefore, this rule must apply to this Project.</p> <p>The developer must take necessary action to minimize the impacts on the natural condition of habitat, tranquility, and biodiversity, etc.</p>
6.	Biodiversity Act, 2017	Ministry of Environment, Forest, and Climate Change	<ul style="list-style-type: none"> <li>The Act has enabled the government to form a "National Committee on Biodiversity". The functions of the committee are to conserve biodiversity, genetic biodiversity, identification of</li> </ul>	<p><b>Not Applicable</b></p> <p>The Project will be established in the Amin Bazar landfill area at Savar. During construction and operation, the Project activities will have an impact on the surrounding environment. However, since no endangered species is</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<p>biodiversity-related important areas, heritage, etc.</p> <ul style="list-style-type: none"> <li>The government is empowered to declare, in consultation with local communities and bodies and coordination with concerned ministries or departments, any place or area significant for its biological heritage as “Biodiversity Heritage Sites”.</li> <li>Prohibiting the taking of activities that may have an adverse effect on endangered animals or organisms, etc. No person shall take any such activity, viz (a) adversely affect, or may effect on endanger species; (b) adversely affect or may affect the environmental characteristics of the endangered ecological community; or (c) In accordance with the Ramsar Convention, the wetland may adversely affect or affect the environment and environmental characteristics of the declared area.</li> </ul>	<p>present in the Project influence area. Therefore, this act is not applicable.</p>
7.	Forests Act, 1927 and its amendment in 1982, 1989, 2000 and 2018	Ministry of Environment, Forest, and Climate Change	<ul style="list-style-type: none"> <li>The government can prohibit certain activities in the declared Reserved Forest area, causing any damage by negligence in felling any tree or cutting or dragging any timber, etc.</li> <li>The act makes various provisions for the conservation of forests.</li> <li>It defines the procedure to be followed for declaring an area to be a Reserved</li> </ul>	<p><b>Not Applicable</b></p> <p>The proposed power plant is going to be established in Amin bazar, Dhaka, and no forest (reserve, protected, social, mangrove, etc.) is found within the Project site and a 10 km radius.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<p>Forest, a Protected Forest, or a Village Forest.</p> <ul style="list-style-type: none"> <li>• It defines what a forest offense is, what are acts prohibited inside an RF, and penalties leviable on violation of the provisions of the act.</li> <li>• Act gives the government power to make any relevant rules to protect the forest.</li> <li>• Guidelines for social forestry practice; and</li> <li>• Control and collection of timber and other forest produces, and duties on those.</li> </ul>	
8.	Wildlife (Conservation and Security) Act, 2012	Ministry of Environment, Forest, and Climate Change	<ul style="list-style-type: none"> <li>• Prohibition is related to capturing, killing, shooting, or trapping wildlife. No person shall hunt any wild animal without a license.</li> <li>• Determination of threatened flora and fauna in four (4) schedules.</li> <li>• Prohibitions, entry, and declaration procedure of protected areas (sanctuary, national park, community conservation area, safari park, eco-park, botanical garden, wild animal breeding center, landscape zone or corridor, buffer zone, core zone, special biodiversity conservation area, national heritage, memorial tree, sacred tree, and kunja ban, etc.).</li> </ul>	<p><b>Applicable</b></p> <p>The project site is within a 5 km radius of the National Botanical Garden, making it subject to the Wildlife (Protection) Act. Therefore, the project proponent must ensure compliance with all mitigation measures related to wildlife conservation.</p>



Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<ul style="list-style-type: none"> <li>No person, institution, or company shall establish or operate any industrial factory or brickfield within 2 (two) kilometers from the boundary of a sanctuary.</li> </ul>	
9.	Protected Area Management Rules, 2017	Ministry of Environment, Forest, and Climate Change	<ul style="list-style-type: none"> <li>The legal basis for the management and co-management of forest-protected areas.</li> <li>Structures, functions, and obligations of management of some of the protected areas, but excluding safari-park, zoo, botanical garden, private park, and wildlife fertility center from their application.</li> <li>The Rules have 33 sections and provide a model for participatory co-management, consisted of forest-dependent communities, forest departments, civil administration, and civil society organizations.</li> <li>The rules provide for financial benefits and income incentives to shareholders through participatory social forestry programs to be planted in buffer and landscape areas, and eco-tourism.</li> </ul>	<p><b>Applicable</b></p> <p>The project site is within a 5 km radius of the National Botanical Garden, making it subject to the Wildlife (Protection) Act. Thus, the rules is applicale for the project.</p>
10.	Bangladesh Water Act, 2013	Ministry of Water Resources	<ul style="list-style-type: none"> <li>Any infrastructure or landfilling activities over any natural watercourses, stopping the natural flow or creating obstacles or diverting or attempting to divert the direction is strictly prohibited.</li> </ul>	<p><b>Applicable</b></p> <p>The project will utilize both surface and groundwater resources. As a result, the project's proponent must adhere to all necessary measures to guarantee the safe extraction of water resources.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<ul style="list-style-type: none"> <li>• According to the provision of section-43, all the costs may be incurred for the removal of infrastructure or landfilling materials from the person liable for making infrastructure or carrying on landfilling activities.</li> <li>• Any area or any part or any land connected with water resources can be declared as a Water Stress Area.</li> <li>• Ensuring safe abstraction of water from aquifers and executive authority may subject to the lowest safe yield of surface and groundwater.</li> <li>• Any infrastructure shall not be established in the immediate premises of the flood control embankment and ensure the sustainability and protection of the control structure.</li> <li>• No person shall store, preserve, or divert the water of any water source in any natural or artificial reservoir.</li> </ul>	
11.	Bangladesh Water Rules, 2018	Ministry of Water Resources	<ul style="list-style-type: none"> <li>• Provision of No Objection Certificate for the establishment of Projects related to flood control and management Project; surface water extraction, supply and use related Project and part of the Project; irrigation Project using surface water; construction of hydraulic structures; water conservation Project; flood-affected plain land and wetland development Project; groundwater for industrial use; riverbank protection and</li> </ul>	<p><b>Applicable</b> As the Project will use both surface and groundwater. The Project will require NOC from relevant authorities for surface water and groundwater extraction for industrial use.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<p>river control; river excavation and dredging Project; canal excavation and re-excavation Project; fisheries development in surface water Project; groundwater extraction, supply, and use related Project and part of the Project; and others Project;</p> <ul style="list-style-type: none"> <li>According to Clause-16 of the rules, a NOC should be taken from the DG of WARPO, District Committee/DC, Upazila Committee/UNO, and Union Committee/Chairman based on the total investment of the specific Project.</li> </ul>	
12.	National River Protection Commission Act, 2013	Ministry of Water Resources	<ul style="list-style-type: none"> <li>An act to establish a Commission for preventing illegal occupation of rivers, pollution of water and environment, pollution of rivers caused by industrial factories, illegal constructions, and various irregularities and ensuring multidimensional use of rivers for socio-economic development including restoration of the normal flow of rivers, proper maintenance thereof and making them navigable.</li> </ul>	<p><b>Applicable</b></p> <p>The Project site is located near to Karnatali river which may impact the water quality during the construction and operation phase.</p>
13.	Protection and Conservation of Fish Act, 1950 and its amendment in 1982 and Rules, 1985	Ministry of Fisheries and Livestock	<ul style="list-style-type: none"> <li>The act was enacted to provide for the protection and conservation of fish. Under the Act, the Protection and Conservation of Fish Rules were adopted in 1985.</li> <li>No person shall destroy or make any attempt to destroy any fish by explosives, gun, bow, and arrow in</li> </ul>	<p><b>May be Applicable</b></p> <p>The Project site is situated in low-lying land near the Aminbazar landfill site, which falls under the jurisdiction of the Dhaka North City Corporation. According to the Environmental and Social Impact Assessment (ESIA) report, there is no designated fishing zone in close</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<p>inland waters or within coastal waters. During the Project intervention, it should be noted that if waste effluent is not treated then it may cause significant damage to the local fishery and thus violate the provision of the law.</p> <ul style="list-style-type: none"> <li>No person shall destroy or make any attempt to destroy any fish by poisoning of water or the depletion of fisheries by pollution, by trade effluents or otherwise in inland waters; and</li> <li>Protection and conservation of fish in government-owned water bodies.</li> </ul>	<p>proximity to the plant. However, a media search<sup>1</sup> has revealed the presence of a fishing community in the area, and it is anticipated that their livelihoods may be disrupted by the Project.</p>
14.	Electricity Act, 2018	Ministry of Power, Energy, and Mineral Resources	<ul style="list-style-type: none"> <li>If the land acquisition is required for the establishment of a power generation plant or sub-station, it shall be deemed to have been necessary for public interest and the existing laws and regulations on an acquisition of land shall have to be followed.</li> <li>If any private company holding license requires any land for constructing any connection line with the power station. sub-station or grid substation the licensee may purchase or acquire such land from the concerned landowner in accordance with the existing laws and regulations regarding land acquisition.</li> </ul>	<p><b>Applicable</b> As the Project will be subject to the act of generating electricity and supply through a transmission line.</p>

<sup>1</sup> <https://www.tbsnews.net/environment/aminbazar-landfill-ruined-lives-54643>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<ul style="list-style-type: none"> <li>No licensee shall harm or obstruct or interfere with railways, highways, airports, waterways, canals, docks, wharves and jetties and pipes, during power generation, transmission, supply, or distribution.</li> <li>The licensee shall take all logical precautions during the construction of power supply lines and doing civil works so as not to have any harmful effect on the communication system of the telegraph, telephone, or electromagnetic signal emitting lines by way of induction or any other means.</li> </ul>	
15.	Bangladesh Energy Regulatory Commission Act, 2003	Ministry of Power, Energy, and Mineral Resources	<ul style="list-style-type: none"> <li>To determine the efficiency and standard of the machinery and appliances of the institutions using energy.</li> <li>To ensure efficient use, quality services, determine tariff and safety enhancement of electricity generation.</li> <li>If anybody obstructs any license or his authorized representative in the works of installation or repair of an electricity line or gas pipeline or the construction or repair of associated equipment, installations, he shall be liable to be sentenced with imprisonment.</li> </ul>	<p><b>Applicable</b></p> <p>The proposed project is related to primary energy. Hence aspects related to compliances and regulation for obtaining required permits and licenses would be applicable for the project.</p>
16.	Acquisition and Requisition of Immovable	Ministry of Land	<ul style="list-style-type: none"> <li>Current GoB Act, relating to acquisition and requisition of land.</li> </ul>	<p><b>Applicable</b></p> <p>Upon request of the proponent, DNCC will procure the required land through the Deputy Commissioner (DC).</p>

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
	Property Act (ARIPA), 2017		<ul style="list-style-type: none"> <li>According to the law, the affected person will get an additional 200 % of the assessed value for land and an additional 100 % for structures, trees, crops, and other assets.</li> <li>This law deals with the social and economic impacts because of land acquisition.</li> </ul>	DNCC is the requiring body, and the DC is the acquiring body in the acquisition procedure. WtE Power Plant North Dhaka Private Limited will lease the land from DNCC.
17.	Boiler Act, 1923	Ministry of Industries	<ul style="list-style-type: none"> <li>Prohibition of use of the unregistered or uncertificated boiler.</li> <li>Renewal of boiler certificate upon the expiry, accidents, moves, structural alteration, or any dangerous condition.</li> <li>Regulating the inspection and examination of boilers and steampipes.</li> <li>Prescribing the duties of the owner at an examination, and production and transfer of certificates.</li> <li>Exclusion of any specified area from the boiler operation.</li> <li>Impose local limits and the power of an authorized person to oversee the limit.</li> <li>Prescribing the maximum pressure at which a boiler may be used and describing the method of determining the maximum pressure.</li> <li>Revocation of certificate or provisional order if the certificate is fraudulently</li> </ul>	<p><b>Applicable</b></p> <p>As the proposed Project will use “waste firing in boilers”. Hence, the Act is applicable for the project.</p>



Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<p>obtained or the boiler is not in good condition.</p> <ul style="list-style-type: none"> <li>• Restriction on alterations and renewals of any registered boilers without written sanction of such alteration, addition, or renewal.</li> <li>• Reporting of accidents to boilers or steampipe must be made by the owner within twenty-four hours of the accident in written form.</li> <li>• Registration number allotted to the boiler must be marked on the boiler otherwise penalties apply. Any kind of invisibility of register number by remove, alter or deface is also punishable; and</li> <li>• Prescribed penalties for illegal use of a boiler or use the boiler at a higher speed than the allowed limit.</li> </ul>	
18.	Fatal Accidents Act, 1855	Ministry of Law, Justice, and Parliamentary Affairs	<ul style="list-style-type: none"> <li>• Provide compensation to families for loss occasioned by the death of a person caused by actionable wrong. It is mentioned in s.1, whenever the death of a person shall be caused by a wrongful act, neglect or default, and the act, neglect or default is such as would (if death had not ensued) have entitled the party injured to maintain an action and recover damages in respect thereof, the party who would have been liable if death had not ensued shall be liable to an action or suit for damages,</li> </ul>	<p><b>Applicable</b></p> <p>The proposed project involves engaging workers and employees for both the construction and operational phases. Considering the potential for unforeseen and accidental events that could lead to fatal accidents, the project falls within the scope of the Act. It is crucial for the project proponent to ensure compliance with the Act in the event of any fatal accidents, as specified in the provisions for unlikely and accidental events.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			notwithstanding the death of the person injured, and although the death shall have been caused under such circumstances as an amount in law to a felony or other crime.	
19.	The Penal Code, 1860	Ministry of Law, Justice, and Parliamentary Affairs	<ul style="list-style-type: none"> <li>• Valid provisions related to pollution management, environment protection, and protection of health and safety. Chapter XIV of the Penal Code provides offenses effective public health, safety, convenience, decency, and morals:</li> <li>• Section 277: Falling Water or Public Spring or Reservoir.</li> <li>• Section 278: Making Atmosphere Noxious to Health.</li> <li>• Section 284: Negligent Conduct with respect to Poisonous Substance.</li> <li>• Section 285: Negligent Conduct with respect to Fire or Combustible Matter; and</li> <li>• Section 286: Negligent Conduct with respect to Explosive Substance.</li> </ul>	<p><b>Applicable</b></p> <p>The proposed project has the potential to impact the surrounding environment in terms of air pollution from construction and operational activities, such as dust and emissions from heavy equipment and generators. In addition, the project could generate water pollution from construction and operational activities, such as sediment runoff and spills of hazardous materials and discharges of wastewater and stormwater. This impact could be significant if the project is not properly designed and implemented.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
20.	Fire Prevention and Extinguish Act, 2003 and Rules, 2014	Ministry of Home Affairs	<ul style="list-style-type: none"> <li>Regulatory enactments regarding the prevention, the successful extinguishing of fire, and reduction of damages and consequences of fire.</li> <li>States to obtain a license from the Director-General of Fire Service and Civil Defense in case of any warehouse.</li> </ul>	<p><b>Applicable</b></p> <p>During the construction and operation phases, the proposed project will store fuels. During the operation phase, approximately 40 tons of Diesel will be utilized with each startup and shutdown of the incinerator. There is a potential for fire incidents during both construction and operation phases if appropriate measures are not taken. WTE Power Plant North Dhaka Private Limited will adhere to all relevant provisions outlined in the ACT.</p>
21.	<ul style="list-style-type: none"> <li>The Factories Act, 1965, and the Factories Rules, 1979</li> <li>Bangladesh Labor Act, 2006 and amendments 2009, 2010, 2013 and 2018</li> <li>Bangladesh Labor Rules, 2015</li> </ul>	Department of Labor/Department for Inspection of Factories and Establishment/ Ministry of Labor and Employment	<ul style="list-style-type: none"> <li>Pertains to the occupational rights and safety of factory workers and the provision of a comfortable work environment and reasonable working conditions.</li> <li>Provides health, safety, and well-being of the workforce during the Project life cycle.</li> <li>Children under 18 years are not allowed to be employed during the Project life cycle.</li> <li>Safety precautions regarding explosive or inflammable dust/gas, protection of eyes, protection against fire, work with cranes and other lifting machinery, and lifting of excessive weight.</li> <li>Safety measures like appliances of first aid, maintenance of safety record books, rooms for children, housing</li> </ul>	<p><b>Applicable</b></p> <p>During the project's life cycle, this law ensures the health, safety, and well-being of the workforce. Additionally, it explicitly states that employing children under 18 is prohibited throughout the project's life cycle, necessitating strict compliance with this legal requirement.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<p>facilities, medical care, group insurance, etc.</p> <ul style="list-style-type: none"> <li>No building, wall, chimney, bridge, tunnel, road, gallery, stairway, ramp, floor, platform, staging, or other structure, whether a permanent or temporary character, shall be constructed, situated or maintained in any factory in such a manner as to cause risk of bodily injury (Rule 38) of factory rules 1979, etc.</li> </ul>	
22.	EIA Guideline for Industries 2021	Department of Environment	<ul style="list-style-type: none"> <li>The EIA Guidelines for Industry, 2021, introduced by the Department of Environment, Bangladesh, is the only guideline for conducting an Environmental Impact Assessment in Bangladesh. It is not only for industries but also for all types of development works. It includes EIA procedures, methodology, guidelines for impact identification, forecasting and evaluation, plans for mitigation measures, and monitoring programs.</li> </ul>	<p><b>Applicable</b></p> <p>The Project activities can create environmental, social and ecological impacts during construction and operation phase. EIA Guideline for Industries 2021 is the only guideline for conducting an Environmental Impact Assessment in Bangladesh that includes guidelines for impact identification, prediction, and evaluation, plans for mitigation measures, and monitoring program.</p>
23.	National 3R Strategy for Waste Management, 2010	Department of Environment	<ul style="list-style-type: none"> <li>The concept of this strategy is minimizing waste impacts in terms of quantity or ill-effects, by reducing the quantity of waste products with simple treatments and recycling the waste by using them as resources to produce the same or modified products. The principle of “3R” is stated as reducing</li> </ul>	<p><b>Applicable</b></p> <p>This strategy is applicable for the Project for the management of waste (i.e., solid wastes) to minimize/ reduce environmental, social, and economic problems.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<p>waste, reusing, and recycling resources and products.</p> <ul style="list-style-type: none"> <li>Reducing means choosing to use items with care to reduce the amount of waste generated.</li> <li>Reusing involves the repeated use of items or parts of items that still have usable aspects.</li> <li>Recycling means the use of waste itself, as resources.</li> <li>It suggests ISO 14001 or any other EMS structure which is significant for the development of strategies relevant to the industry and its social and environmental setting. ISO 14001 is increasingly important in international trade.</li> </ul>	
24.	Solid Waste Management Rules 2021	Department of Environment	<ul style="list-style-type: none"> <li>When recovering resources from waste, the principles of management that consider the waste hierarchy, such as the 3Rs, segregation, and reduction, must be followed at all stages from waste generation to the final disposal.</li> <li>Responsibilities of waste generators, consumers, and users: Dispose of waste in accordance with the regulations of authorities including local government; Dispose of waste separately; Do not dump, store, or burn waste outdoors.</li> </ul>	<p><b>Applicable</b> This rule is applicable for the Project for the management of waste (i.e., solid wastes) to minimize/reduce environmental, social, and economic problems.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<ul style="list-style-type: none"> <li>Responsibilities of manufacturers (*not defined) and importers of products: Collect non-biodegradable products such as glass, plastic, polyethylene, multi-layered packaging, bottles, and cans from consumers and recycle or dispose of them if appropriate; Determine work plans and implementation procedures for recycling and disposal; Ensure that Extended Producer Responsibility (EPR) is properly implemented; Submit an annual report to the Department of Environment (DOE) on the amount of plastic recycled; Raise public awareness of proper waste management.</li> <li>Any violation of the above provisions shall be subject to imprisonment for not more than two years or a fine not exceeding 200,000 Taka (BDT), or both. The Regulations also include provisions for the treatment of solid waste such as composting and energy recovery.</li> </ul>	
25.	Antiquities Act, 1968 and Antiquities Preservation Rules, 1986	Department of Archaeology, Ministry of Cultural Affairs	<ul style="list-style-type: none"> <li>No person shall deal in antiquities except under and in accordance with a license granted by the Director.</li> <li>No person shall remove any object of the immovable protected antiquity.</li> <li>No person shall damage, alter, deface, or imperil immovable protected antiquity.</li> </ul>	<p><b>Not Applicable</b> There are no archaeological and cultural sites on the Project site.</p>

Sr.No	Act/Rules/ Law/Ordinance	Responsible Agency- Ministry/Authority	Key Features/Remarks	Applicability
			<ul style="list-style-type: none"><li>Any person preserving or storing any kind of movable antiquity without a license shall produce it to the Director on demand for verification of the source of its possession.</li></ul>	

CONFIDENTIAL



## 2.2 AIIB ESF 2022

The objective of this overarching policy is to facilitate the achievement of development outcomes by integrating sound environmental and social management into Projects. This policy consists of two main components. The Environmental and Social Policy (ESP) and the Environmental and Social Standards (ESSs).

**Table 2-2 Applicability of AIIB ESS to this Project**

Environmental and Social Standards		Applicability	Triggering Status
ESS 1	Environmental and Social Assessment and Management	ESS 1 is applicable if the Project is likely to have adverse environmental risks and impacts or social risks and impacts (or both)	Yes, since the proposed Project is likely to have negative environmental and social impacts. Hence, ESS1 is applicable both for construction and operation phase.
ESS 2	Involuntary Resettlement	ESS 2 is applicable if the Project is likely to cause involuntary resettlement impacts.	Yes. The Project involves economic displacement due to the setting of the Project. Given such impacts, though low intensity in nature, ESS 2 is triggered.
ESS 3	Indigenous Peoples	ESS 3 is applicable if Indigenous People are present in the Project area	No, since no Indigenous people, as defined in the ESS 3 are present in the Project area and no impact is envisaged by the Project. Hence, ESS3 is not applicable.

## 2.3 IFC – EHS Guidelines

The International Finance Corporation has laid down a set of eight Performance Standards (PS) and Project developers need to comply with applicable PS while establishing the Project. The provisions of the Performance Standards relevant to the WtE Power Plant are summarized below:

**Table 2-3 IFC's Environmental and Social Performance Standards**

Title of Performance Standard	Requirement of PS in brief	Applicability in the Project	Actions Taken
<b>PS1:</b> Social and Environmental Assessment and Management System	Assessment and Management of Environmental and Social Risks and Impacts	The PS 1 requires Social and Environmental Assessment and Management Systems for managing social and environmental performance throughout the life cycle of this Project	The Project would require carrying out regular assessment of the potential social and environmental risks and impacts and consistently try to mitigate and manage the impacts on an ongoing basis. <b>Hence, PS1 is applicable to the Project.</b>

Title of Performance Standard	Requirement of PS in brief	Applicability in the Project	Actions Taken
		and runs through all subsequent PSs. The social and environmental performance is a continuous process to be initiated by the management and would involve communication between the organization, its workers and local communities directly affected by the Project.	
<b>PS2:</b> Labour and Working conditions	Labor and Working Conditions	The economic growth through employment creation and income generation is recognized along with protecting the basic rights of workers. PS 2 is guided by the various conventions of the International Labor Organization (ILO) and outlines the minimum requirements of working conditions, protection to the workforce (including issues of child and forced labor) and ensuring occupational health and safety of both its 'employees' as well as 'nonemployees' working through contractors.	The proposed Project would require conducting its activities in a manner in accordance with the four core labor standards (child labor, forced labor, non-discrimination, and freedom of association and collective bargaining) and address the areas such as working conditions and terms of employment, retrenchment, and occupational health and safety issues. <b>Hence, PS 2 is applicable to the Project.</b>
<b>PS3:</b> Resource Efficiency and Pollution Prevention	Resource Efficiency and Pollution Prevention	PS 3 outline a Project level approach to resource efficiency and pollution prevention and control in line with internationally disseminated technologies and practices	Due to the Project activities the ambient environmental conditions would be changed. Measurement of ambient conditions and application of technically and financially feasible resources with pollution prevention principles and techniques to avoid or to minimize adverse impacts on environment and human health during the entire Project lifecycle would be needed. <b>Hence, PS3 is applicable to the Project.</b>

Title of Performance Standard	Requirement of PS in brief	Applicability in the Project	Actions Taken
<p><b>PS4:</b> Community Health, Safety and Security</p>	<p>Community Health, Safety and Security</p>	<p>PS 4 concentrates on the responsibility that must be undertaken by the client to avoid or minimize the risks and impacts to the community's health, safety and security that may arise from Project activities.</p>	<p>The Project has to evaluate risks and impacts to the health and safety of the affected community during the Project life cycle and establish measures to avoid, minimize and reduce risks and impacts from the Project. <b>Hence, PS4 is applicable to the Project.</b></p>
<p><b>PS5:</b> Land Acquisition and Involuntary Resettlement</p>	<p>Land Acquisition and Involuntary Resettlement</p>	<p>PS 5 require a Project to consider various processes and systems to avoid /minimize social and economic impacts related to land acquisition and involuntary resettlement.</p>	<p>The Project involves disruption of economic activities during the Project life cycle which are permanent and irreversible in nature. Some impacts on structures are also envisaged within the Project boundary. During the site visit, the Project proponent informed that land acquisition for the main Project site has been completed and some construction activities have already begun. However, they also disclosed that the land required for the transmission line has not yet been finalized. <b>Hence, PS5 is applicable to the Project.</b></p>
<p><b>PS6:</b> Biodiversity Conservation and Sustainable Natural Resource Management</p>	<p>Biodiversity Conservation and Sustainable Management of Living Natural Resource</p>	<p>PS 6 aims at protecting and conserving biodiversity, maintaining ecosystem services, the variety of life in all its forms, including genetic, species and ecosystem diversity and its ability to change and evolve, is fundamental to sustainable development.</p>	<p>The study area encompasses the Riverine Habitat of Karnatali River and Turag River, as well as natural drainage canals, floodplain areas, beels, and ponds, which collectively support a diverse and abundant fisheries resource. A comprehensive survey revealed the presence of 47 fish species across 18 families within the study area, including five endangered species and four vulnerable species. Furthermore, ten species of aquatic macrophytes were identified in the shallow waters of the Karnatali River, floodplains, ponds, and swamps surrounding the proposed Project site. Rare sightings of the Ganges River Dolphin have been reported in the Karnatali River during the monsoon and post-monsoon periods, as documented in the Environmental and Social Impact Assessment (ESIA) report. This indicates</p>

Title of Performance Standard	Requirement of PS in brief	Applicability in the Project	Actions Taken
			<p>the presence of this species, which is classified as 'Endangered' according to the IUCN Red List.</p> <p><b>Hence, PS6 is applicable to the Project.</b></p>
<p><b>PS7:</b> Indigenous Peoples</p>	<p>Indigenous Peoples</p>	<p>PS 7 acknowledges the possibility of vulnerability of indigenous people owing to their culture, beliefs, institutions and living standards, and that it may further get compromised by one or other Project activity throughout the life cycle of the Project.</p>	<p>This PS delineates the requirement of avoiding / minimizing adverse impacts on indigenous people in a Project area, respecting the local culture and customs, fostering good relationship and ensuring that development benefits are provided to improve their standard of living and livelihoods.</p> <p>However, no indigenous people are residing in and around the Project area;</p> <p><b>Hence, PS 7 is not applicable for the present Project.</b></p>
<p><b>PS8:</b> Cultural Heritage</p>	<p>Cultural Heritage</p>	<p>PS 8 aims to protect the irreplaceable cultural heritage and to guide clients on protecting cultural heritage in the course of their business operations. In addition, the requirements of this PS on a Project's use of cultural heritage are based in part on standards set by the Convention on Biological Diversity.</p>	<p>The Project site does not have any ancient monuments and/or archaeological site(s), protected. If they (antiques/cultural heritage) are found, they need to be relocated, and provisions must be made by the Project Company.</p> <p>Chance find procedures will be incorporated in the ESMP.</p> <p><b>Hence, PS 8 is not applicable for the present Project.</b></p>

## 2.4 Equator Principles

The Equator Principles consist of a group of ten principles adopted by the Equator Principle Financial Institutions (EPFIs) to ensure that the Projects funded by them are developed in a manner that is socially responsible and reflect sound environmental management practices. The applicability of each of the principles with respect to the Project is detailed as follows:

**Table 2-4 Compliance to Equator Principles**

Equator Principle	Applicability	Project Information/Application
<b>Principle 1:</b> Review and Categorization	As the Project is seeking financing from EPFIs, the Project must be categorized based on the magnitude of its potential impacts and risks in accordance with the environmental and social screening criteria of IFC (Exhibit I).	Based on the IFC environmental and social screening criteria in carrying out ESDD for WtE Project in Bangladesh is identified as a “Category A” Project with irreversible adverse social or environmental impacts associated with the nature of the Project is envisaged due to the operation of the Project.
<b>Principle 2:</b> Environmental and Social Assessment	An Environmental and Social Due Diligence (ESDD) must be carried out for the Project that addresses relevant social and environmental impacts and risks of the Project (illustrative list of issues as found in Exhibit II) and propose mitigation and management measures relevant and appropriate to the nature and scale of the Project based on the identified gaps covering social and environmental component.	The initial desktop assessment report of the Environmental and Social Due Diligence (ESDD) has been prepared based on the available ESIA report shared by the client and the final report of ESDD report will encompass a corrective action plan to mitigate any additional E&S risk identified during the ESDD.
<b>Principle 3:</b> Applicable Environmental and Social Standards	This Principle requires the Environmental and Social Due Diligence (ESDD) to refer to the applicable IFC Performance Standards and the then applicable Industry Specific EHS Guidelines including the Project’s overall compliance with, or justified deviation from, the respective Performance Standards and EHS Guidelines.	The ESDD report has been prepared including the requirements of IFC performance standards, Environmental and Social Policy Statement, and EHS guidelines.
<b>Principle 4:</b> Environmental and Social management system and equator principles action plan	EP4 requires an assessment of potential adverse human rights impacts for every Project regardless of whether the risk merits a full ESDD. EPFI borrowers should refer to the UNGPs when assessing human rights risks and impacts. The Preamble to EP4 recognizes that EPFIs have a role to play with respect to the 2015 Paris Agreement as well as efforts to improve the availability of climate-related	Project proponent will take responsibility to ensure to respect human rights throughout the life cycle of the Project. Project Proponent will ensure that there is no- <ul style="list-style-type: none"> <li>● Forced labour, child labour and human trafficking.</li> <li>● Poor or unsafe working conditions</li> <li>● Underpayment of workers</li> </ul>

Equator Principle	Applicability	Project Information/Application
	<p>information (referencing the recommendations of the Task Force on Climate-related Financial Disclosures (the TCFD)).</p> <p>The Climate Change Risk Assessment undertaken for Category A and Category B Projects must analyze climate “physical” risks, including those arising from changes in acute or long-term climate patterns. For Projects expected to exceed the cap on greenhouse gas emissions, the Climate Change Risk Assessment must review climate “transition” risks, such as those arising from a move to a low carbon economy and evaluate potential alternatives to the Project that are less greenhouse gas intensive. EP4 also indicates that ESIA’s must consider Project compatibility with the relevant climate and energy policies of the host country, including its NDCs.</p> <p>EP4 indicates that EPFI’s must require borrowers to report annually on greenhouse gas emission levels and provide a greenhouse gas efficiency ratio where appropriate</p>	<ul style="list-style-type: none"> <li>● Discrimination against employees (e.g., by race, gender or sexuality)</li> <li>● Breaching workers’ rights to freedom of association and collective bargaining</li> <li>● Forced or involuntary displacement of communities, including indigenous communities.</li> <li>● Damage to people’s health through pollution, environmental accidents and health and safety failures</li> <li>● Depletion or contamination of water sources that local communities are relying on.</li> <li>● Failure to provide workers and communities with access to grievance mechanisms.</li> <li>● Discrimination against employees</li> <li>● Use of excessive force by private and public security guards protecting assets etc.</li> <li>● Assessment on Climate Change Risk assessment is included along with this ESDD report under section Impact Assessment (Chapter 8).</li> </ul>
<p><b>Principle 5:</b> Stakeholder Engagement</p>	<p>It is required to demonstrate effective Stakeholder Engagement, as an ongoing process in a structured and culturally appropriate manner, with Affected Communities, Workers and, where relevant, Other Stakeholders including indigenous people (if any).</p> <p>For Projects with potentially significant adverse impacts on Affected Communities, an Informed Consultation and Participation process to be conducted.</p>	<p>Stakeholder consultation exercise had been carried out by EQMS Consulting firm (Bangladesh) for the proposed WtE Project and all the collected details have been incorporated in the ESIA report shared for carrying out desktop review of the report by the third party prior to the site assessment to carry out ESDD exercise.</p>
<p><b>Principle 6:</b> Grievance Mechanism</p>	<p>As part of this Principle, it is imperative that the proponent maintains regular dialogue with communities through implementation of site-specific GRM initiatives.</p>	<p>Project Proponent will ensure that grievances raised particularly by the project affected People (PAPs) and the local community will be addressed by the project proponent using its proposed Tier-2 GRM protocol whereas , complaints raised by the workers related to the Project to be addressed by the contractor</p>

Equator Principle	Applicability	Project Information/Application
		through general grievance redressal process throughout the Project cycle.
<b>Principle 7:</b> Independent review	An independent social or environmental expert not directly associated with the Project Proponent is required to review the Assessment, action plans and consultation process documentation to assist EPFI's due diligence and assess Equator Principles compliance.	Black & Veatch has been appointed to assess the environment and social impact of the Project as per IFC safeguards through ESDD study.
<b>Principle 8:</b> Covenants	The covenants would be a part of the contract documents between the Project Proponent and financing agency as well as contractors and technology suppliers.	E&S Covenants should be embedded within the contracts drawn between Project Proponent and the contractors hired for construction activities and technology providers and waste handlers. Periodic reporting to the Project developers.
	EPFIs will, for all Category A Projects, and as appropriate, for Category B Projects, require appointment of an independent environmental and/or social expert, or require that the borrower retain qualified and experienced external experts to verify its monitoring information which would be shared with EPFIs.	Black & Veatch has been appointed to assess the environment and social impact of the Project as per IFC safeguards as an ESDD study. The requirements of the principle are also met by adhering to requirements of PS 1.
	This should be prepared by the Project Proponent.	Based on the outcome of field assessment to carry out ESDD study and corrective action plan submitted by independent agencies, the Project Proponent will report the findings publicly at least once a year.
<b>Principle 9:</b> Independent Monitoring and Reporting	To ensure ongoing monitoring and reporting over the life of loan, EPFIs will, for all Category A Projects and, as appropriate for Category B Projects, require appointment of an independent environmental and/or social expert, or require that the proponent retain qualified and experienced external experts to verify its monitoring information which would be shared with EPFIs.	The Project will fall under Category A and the periodic reporting mechanism will be done as agreed between EPFI and Project Proponent.
<b>Principle 10:</b> Reporting and Transparency	The EPFI will report according to the minimum reporting requirements, taking into account appropriate confidentiality considerations.	Project Proponent would ensure that at a minimum, a summary of the ESDD is accessible at Project site as well as on their web-portal for public viewing to promote transparency in reporting practice.



## 2.5 WBG Environmental, Health and Safety Guidelines, 2007

The Environmental, Health, and Safety (EHS) Guidelines serve as technical reference materials providing general and sector-specific instances of Good International Industry Practice (GIIP). These guidelines are implemented as per the policies and standards of World Bank Group members when they participate in a Project. The General EHS Guidelines are intended for use in conjunction with the applicable Industry Sector EHS Guidelines, which offer sector specific EHS guidance. More complex Projects may require the application of multiple industry-sector guidelines.

**Table 2-5 Applicability of Environmental, Health, and Safety General Guidelines, 2007**

Sl. No.	EHS Guidelines	Applicability	Key Requirements	Compliance Measures
<b>Environmental</b>				
1	Air Emissions and Ambient Air Quality	Applicable	Control emissions of air pollutants to meet applicable national or international standards	Installation of air pollution control devices, regular monitoring of emissions
2	Energy Conservation	Applicable	Optimize energy use, improve energy efficiency	Use of efficient energy systems, regular maintenance to ensure optimal operation
3	Wastewater and Ambient Water Quality	Applicable	Manage wastewater discharge to prevent contamination	Installation of wastewater treatment facilities, regular monitoring of discharge quality
4	Water Conservation	Applicable	Implement measures to reduce water consumption	Adoption of water-saving technologies and practices, recycling of treated wastewater
5	Hazardous Materials Management	Applicable	Proper handling, storage, and disposal of hazardous materials	Implementation of hazardous materials management plan, training of personnel
6	Waste Management	Applicable	Manage solid waste generated by the facility	Segregation of waste, recycling and reuse where possible, proper disposal of residual waste
7	Noise	Applicable	Control noise levels to prevent adverse impacts on nearby communities	Installation of noise barriers, regular monitoring of noise levels
8	Contaminated Land	Applicable	Prevent and manage land contamination	Regular soil quality monitoring, implementation of measures to remediate any contamination
<b>Occupational Health and Safety</b>				
1	General Facility Design and Operation	Applicable	Ensure safe design and operation of facilities	Implementation of safety management systems, regular safety audits
2	Communication and Training	Applicable	Provide training and communicate safety	Regular training sessions, dissemination of safety manuals

Sl. No.	EHS Guidelines	Applicability	Key Requirements	Compliance Measures
			procedures to workers	
3	Physical Hazards	Applicable	Identify and mitigate physical hazards to workers	Use of personal protective equipment (PPE), implementation of safety protocols
4	Chemical Hazards	Applicable	Control exposure to hazardous chemicals	Proper storage and handling of chemicals, use of PPE
5	Biological Hazards	Applicable	Manage exposure to biological agents	Implementation of health and safety measures, regular health check-ups for workers
6	Radiological Hazards	Applicable	Protect workers from exposure to radiological hazards	Implementation of radiation protection measures, monitoring of radiation levels
7	Personal Protective Equipment (PPE)	Applicable	Provide appropriate PPE to workers	Regular provision and maintenance of PPE, training on correct use
8	Special Hazard Environments	Applicable	Manage environments with unique hazards	Implementation of specialized safety measures, regular risk assessments
9	Monitoring	Applicable	Regularly monitor health and safety conditions	Implementation of a comprehensive monitoring program
<b>Community Health and Safety</b>				
1	Water Quality and Availability	Applicable	Ensure community access to safe water	Protection of local water sources, provision of alternative water supplies if necessary
2	Structural Safety of Project Infrastructure	Applicable	Ensure the safety of structures used by the community	Regular inspections and maintenance of structures, adherence to building codes
3	Life and Fire Safety	Applicable	Implement measures to protect life and prevent fire	Installation of fire detection and suppression systems, regular fire drills
4	Traffic Safety	Applicable	Manage traffic to prevent accidents and injuries	Implementation of traffic management plans, regular traffic safety audits
5	Transport of Hazardous Materials	Applicable	Safely transport hazardous materials	Compliance with regulations for the transport of hazardous materials, use of trained personnel
6	Disease Prevention	Applicable	Implement measures to prevent disease spread	Provision of health services, vaccination programs, sanitation measures
7	Emergency Preparedness and Response	Applicable	Prepare for and respond to emergencies	Development and implementation of emergency response plans, regular emergency drills
<b>Construction and Decommissioning</b>				

Sl. No.	EHS Guidelines	Applicability	Key Requirements	Compliance Measures
1	Environment	Applicable	Minimize environmental impacts during construction and decommissioning	Implementation of construction and decommissioning management plans
2	Occupational Health & Safety	Applicable	Ensure the safety of workers during construction and decommissioning	Implementation of health and safety management plans, regular safety training
3	Community Health & Safety	Applicable	Protect community health and safety during construction and decommissioning	Implementation of measures to manage community impacts, regular communication with the community

## 2.6 Others Key Standards

Here is a summary table of other key standards that may be triggered for the Waste-to-Energy Power Project in Amin Bazar, Dhaka, Bangladesh. Other international standards might be used as reference points for best practices; however, these would not be legally binding unless incorporated into Project agreements or local regulations.

**Table 2-6 Other Key Standards**

Sl. No.	Standard	Key Points	Triggered for Bangladesh Project
1	Environmental, Health, and Safety Guidelines for Waste Management Facilities, 2007	<ul style="list-style-type: none"> <li>Covers municipal solid waste and industrial waste management.</li> <li>Addresses air emissions, ash management, water effluents, noise, and occupational health and safety.</li> <li>Provides specific measures for MSW incineration facilities</li> </ul>	Yes. These guidelines are part of the World Bank Group's Environmental, Health, and Safety (EHS) Guidelines, which are often used as a reference for international Projects, especially in developing countries. They would likely be applicable for a waste management Project in Bangladesh.
2	European Union 2010/75/EU (Industrial Emissions Directive)	<ul style="list-style-type: none"> <li>Sets emission limit values for various pollutants.</li> <li>Introduces permitting system for industrial installations.</li> <li>Covers energy production, manufacturing, and waste management.</li> </ul>	No, not directly triggered. However, it may be used as a reference for international best practices, especially if the Project involves international funding or partnerships.

Sl. No.	Standard	Key Points	Triggered for Bangladesh Project
		<ul style="list-style-type: none"> <li>Requires monitoring, reporting, and public access to information.</li> </ul>	
3	UK Environmental Agency's Air Emission Risk Assessment Guidance	<ul style="list-style-type: none"> <li>Provides a framework for conducting air emission risk assessments.</li> <li>Includes steps for identifying sources, characterizing emissions, assessing risks, and implementing control measures.</li> </ul>	No, not directly triggered. However, the methodology could be used as a reference for conducting air emission risk assessments if local guidelines are not available or less comprehensive.
4	UK Environmental Agency Environmental Standards	<ul style="list-style-type: none"> <li>Sets standards for environmental permits, waste management, and air quality.</li> <li>Regulates activities with potential to pollute the environment.</li> <li>Monitor's compliance and enforces standards.</li> </ul>	No, not directly triggered. These standards might be used as a reference point, however, local Bangladesh environmental standards would take precedence.
5	Chinese Standard GB for Landfill	<ul style="list-style-type: none"> <li>Includes Technical Code for Municipal Solid Waste Sanitary Landfill (GB 50869-2013).</li> <li>Covers Standard for Pollution Control on the Landfill Site of Municipal Solid Waste (GB16889-2008).</li> <li>Provides guidelines for treating and disposing of incineration fly ash and medical waste residues.</li> </ul>	No, not directly triggered. However, the methodology could be used as a reference for conducting air emission risk assessments if local guidelines are not available or less comprehensive.

### 3.0 Methodology

This methodology framework provides a structured approach to conducting an Environmental and Social Due Diligence (ESDD) for the Waste to Energy Project, ensuring a comprehensive understanding of potential impacts and effective management of environmental and social risks throughout the Project lifecycle.

#### 3.1 Approach and Methodology

The approach to conducting the Environmental and Social Due Diligence (ESDD) for the Waste to Energy Project was comprehensive and systematic. It involved a combination of desk research, field investigations, stakeholder consultations, and rigorous analysis to ensure a thorough understanding of the Project's potential impacts. The flowchart of the methodology adopted for undertaking the ESDD is presented in Figure 3-1 below:

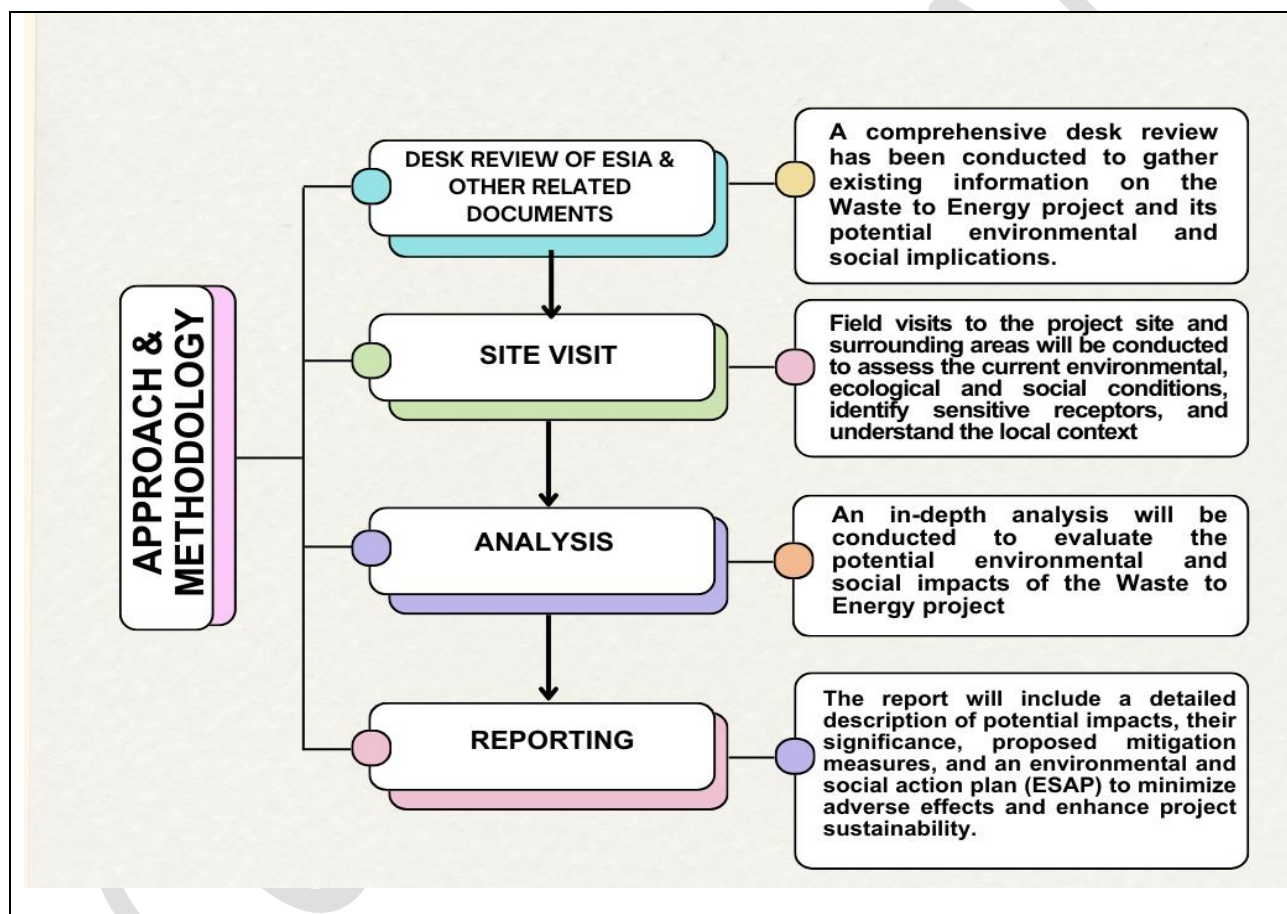


Figure 3-1 Flowchart for conducting the ESDD study

The socio-economic baseline has been developed on the basis of integrating existing quantitative data with some additional qualitative assessments that were undertaken through primary data collection. In particular, the key components of the methodology included:

- **Approach and Methodology in stakeholder mapping:**

Mapping of stakeholders to carry out Environmental and Social Due Diligence (ESDD) exercise at WtE Project-Bangladesh in identifying, analyzing and engaging various stakeholders while understanding their level of interest and influence on the Project.

**Objectives:**

The primary objective of the stakeholder mapping is to identify and engage with all relevant stakeholders to gather their insights and inputs which will help in:

- Assessing social and environmental impacts
- Mitigating potential risks
- Enhancing Project benefit facilitating active engagement of stakeholders

The step-by-step approach associated with stakeholder mapping exercise is furnished below:

**A. Identification and classification of stakeholders**

▪ **Desk-based research:**

After a comprehensive review of the ESIA report, relevant Project documents, and secondary data, the level of impact and influence on the Project was meticulously analyzed. As a result, all stakeholders with varying degrees of relevance were categorized into primary and secondary groups. This analysis guided in carrying out stakeholder consultation exercise at the community level to capture their perspective concerning the Project. Detailed information is provided below.

**Table 3-1 Classification of Stakeholders**

Sl. No.	Stakeholder Group	Primary Stakeholders	Secondary Stakeholders
1	Community Stakeholders	<ul style="list-style-type: none"> <li>● Landowners</li> <li>● Non-titled holder with dependency on livelihood</li> <li>● Businessmen/Shop-owners</li> <li>● Workers of affected businesses</li> <li>● Local Community</li> </ul>	<ul style="list-style-type: none"> <li>● Vulnerable Community, if any</li> <li>● Women/Youth Group</li> <li>● Rag pickers at Landfill site</li> <li>● Rag pickers at STS.</li> </ul>
2	Institutional Stakeholders	<ul style="list-style-type: none"> <li>● Project proponent</li> <li>● Workers at Labour camp (Chinese and Local workers)</li> <li>● Contractor/subcontractor</li> <li>● Ward member and representative of Savar Union</li> </ul>	<ul style="list-style-type: none"> <li>● Teachers</li> <li>● Health workers</li> <li>● Nandonik Housing Society</li> </ul>
3	Government Bodies	<ul style="list-style-type: none"> <li>● DNCC</li> <li>● Social Forestry Department, Bongaon Parishad, Savar Upazilla</li> <li>● National Botanical Garden, Dhaka</li> <li>● Fishery Department, Bongaon Parishad, Bongaon Parishad, Savar Upazilla</li> <li>● Agriculture department, Bongaon Parishad, Savar Upazilla</li> </ul>	

**B. Analysis of stakeholder:**

Stakeholder analysis exercise is a process to understand the category of stakeholders and their level of engagement (either direct or indirect in nature) in the Project to assess their interest, influence and impact on the Project during Project lifecycle. This analysis assists in categorizing stakeholders according to their relevance facilitating their engagement strategy in the Project. A list of Stakeholder Influence and Interest Matrix is furnished below

**Table 3-2 A List of Stakeholder Influence and Interest Matrix**

Sr. No.	Stakeholder	Influence	Interest	Category
1	Landowners/non-titled holder/local community	Medium	High	Key player
2	Social Forestry Department, Bongaon Parishad, Savar Upazilla National Botanical Garden, Dhaka Fishery Department, Bongaon Parishad, Bongaon Parishad, Savar Upazilla Agriculture department, Bongaon Parishad, Savar Upazilla	High	High	Key player
3	DNCC	High	High	Key Player
4	Local shop-owner (non-titled holder) /businessmen owners	Medium	High	Key player
5	Workers of affected businesses	Medium	High	Key player
6	Workers at Labour Camp	Medium	High	Key player
7	Ragpickers	Low	Medium	Keep satisfied
8	Contractor/Sub-contractor	High	High	Key Player
9	Teacher/Health worker/Youth/Women’s group/Nandonik Housing society	Low	High	Keep informed

- **Site visit:** Conducted site assessment through initial observations followed by preliminary discussion with Project proponent and stakeholder consultation exercise with relevant stakeholders between 21<sup>st</sup> May to 28<sup>th</sup> May,2024

**Methodology applied to carry out stakeholder consultation exercise at the site are as follows:**

- Key informant interview (KII)
- Meetings/Discussion
- Focus group discussion (FGD)
- Site observation
- **Documentation:** The documentation of key findings from the stakeholder consultation exercises assisted the consultant in identifying potential gaps related to the Project activities. This subsequently supported in developing a corrective action plan that aligns with regulatory compliance requirements, thereby enhancing the quality of the report in accordance with the Terms of Reference (TOR) for the Environmental and Social Due Diligence (ESDD) study.

### 3.2 Review of ESIA and Other Related Documents

A comprehensive desk review has been conducted to gather existing information on the Waste to Energy Project and its potential environmental and social implications. This included:

- Environmental and Social Impact Assessment (ESIA) report, including Environmental and Social Management Framework (ESMF) for Transmission Line
- Environmental and Social Management Plans (ESMPs)
- Permits, clearances, and approvals.



- Project feasibility studies
- Design documents and drawings
- Stakeholder engagement records
- Applicable national and local environmental and social laws, regulations, and policies
- Review of Award Book procured from DC office.

### 3.3 Site Visit

Field visits to the Project site and surrounding areas were conducted to assess the current environmental, ecological and social conditions, identifying sensitive receptors, and understanding the local context. This included:

- Verifying the information gathered during the desk review.
- Assessing the current environmental and social conditions at the Project site and its surroundings.
- Observing the Project activities and operations.
- Interacting with Project personnel, contractors, and local stakeholders.
- Identifying potential environmental and social risks and impacts.

### 3.4 Analysis

An in-depth analysis was conducted to evaluate the potential environmental and social impacts of the Waste to Energy Project. This included:

- Evaluating the Project's compliance with applicable environmental and social laws, regulations, and standards.
- Assessing the adequacy and effectiveness of the existing environmental and social management measures.
- Identifying gaps and non-compliances, if any.
- Determining the significance of potential environmental and social risks and impacts.
- Proposing mitigation measures and corrective action plans, as necessary.

### 3.5 Reporting

The findings of the ESIA study were documented in a comprehensive report that outlines the methodology, data sources, analysis procedures, and results of the assessment. The report includes a detailed description of potential impacts, their significance, proposed mitigation measures, and an environmental and social corrective action plan (ESCAP), which proposes development of an Income cum Livelihood Restoration Plan, Resettlement Policy Framework to minimize adverse effects on the Project affected persons with special focus on vulnerable individuals and enhance Project sustainability. The report is prepared in accordance with relevant regulatory requirements and international best practices, ensuring transparency, accuracy,

and credibility. Stakeholder feedback and comments are incorporated into the final report to ensure alignment with community concerns and expectations.

- Preparing a detailed report outlining the methodology, findings, and recommendations.
- Presenting the ESDD study results in a clear and concise manner, highlighting key insights and actionable steps.
- Ensuring transparency and accuracy in reporting to facilitate informed decision-making regarding the waste-to-energy Project.

CONFIDENTIAL

## 4.0 Findings of Document Review

The findings presented in this document provided a comprehensive overview of the Environmental and Social Impact Assessment (ESIA) report for the Waste to Energy Project, which has been assessed as part of the Environmental and Social Due Diligence (ESDD) Project.

### 4.1 Baseline Findings

The term "baseline" pertains to the existing physical, biological, cultural, and human conditions that would be present in the absence of the Project, encompassing the interactions among these factors. Establishing a baseline is crucial as it aids in comprehending the current environmental, ecological, and socio-economic status of the study area. This process furnishes decision-makers with essential information about the biophysical and social environment, enabling them to make informed decisions and take appropriate measures concerning the Project.

Establishing baseline provides the background environmental and social conditions for prediction of the future environmental characteristics of the area before setting up of the Project. It also helps in environmental and social management planning and provides a basis to finalize a strategy for minimizing any potential impact due on surrounding environment due to setting up of the Project.

#### 4.1.1 Environment

Secondary information regarding geology, hydrology, and prevailing natural hazards such as floods and earthquakes was gathered from literature reviews and provided by relevant government departments. Primary surveys were conducted to assess and document the biological environment in the area, which was cross-verified by forest officials and compared against published information and literature.

##### 4.1.1.1 Meteorology and Climate

The historical climate and meteorology of Aminbazar, Dhaka, Bangladesh, reveal a humid subtropical climate with wide seasonal rainfall variations, moderately warm temperatures, and high humidity. Aminbazar, like the rest of Bangladesh, experiences four distinct seasons: winter from December to February, pre-monsoon from March to May, monsoon or rainy season from June through September, and the post-monsoon season from October to November. The mean temperature in Aminbazar ranges from 26°C in the east to 28°C in the western part of the country, with maximum temperatures reaching up to 40°C in the western regions, particularly in May, the hottest month. The region has observed an increasing trend in average temperatures, with significant warming trends noted over the years. Rainfall in Aminbazar and Bangladesh as a whole is substantial, with the mean precipitation ranging from 1400 mm in the western region to 4400 mm in the eastern region annually. The climate is influenced by pre-monsoon, monsoon, and post-monsoon circulations, with high humidity throughout the year, peaking during the monsoon season from June to October.

Additionally, Bangladesh frequently experiences heavy precipitation and tropical cyclones, impacting the region's climate and meteorological patterns.<sup>2 3 4</sup>

##### 4.1.1.2 Topography

The topographical features of Aminbazar, a part of Dhaka in Bangladesh, are characterized by a low-elevation area with heights ranging from 4 to 5 meters above mean sea level (msl), and it predominantly lies within the floodplains. This region is susceptible to tidal inundation, and during heavy monsoon periods,

---

<sup>2</sup> <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0292668>

<sup>3</sup> <https://climateknowledgeportal.worldbank.org/country/bangladesh/climate-data-historical>

<sup>4</sup> <https://www.bmd.gov.bd/p/WEATHER-FORECAST-FOR-DHAKA-AND-NHOOD>

nearly 70 percent of the country, including Aminbazar, experiences flooding. The land area of Bangladesh, encompassing Aminbazar, has been classified into twenty major physiographic units, with the majority of the terrain falling under floodplain areas categorized into six levels based on the depth of flooding. The area is crisscrossed by numerous rivers and their tributaries, with extensive alluvial soil deposits covering nearly 80 percent of the land, originating from the Brahmaputra, Ganges, and Meghna river systems.<sup>5</sup>



**Figure 4-1** Topography of the Project site

#### 4.1.1.3 Geomorphology

The geomorphological features of Aminbazar in Dhaka, Bangladesh, are influenced by its location at the southeastern edge of the Madhupur Tract, situated between the Balu and Sitalakhya rivers. The area is classified into two broad geomorphic units based on landforms, their origin, evolution, and morpho dynamic processes.

The first unit is the Fluvio-tidal/Alluvial/Depositional landform, which is further subdivided into several units, including meander channels, natural levees, point bars, channel bars, lateral bars, back swamps, swamps/depressions, floodplains, shallow alluvial gullies, deep alluvial gullies, and valleys/abandoned channels.

The second unit is the Erosional/Denudational landform, which is separated into the upper Madhupur Terrace, lower Madhupur Terrace, Madhupur slopes, and gully heads. This classification highlights the influence of fluvial processes, tidal actions, erosion, and denudation in shaping the diverse landforms present in the Aminbazar region of Dhaka.

---

<sup>5</sup> [https://unfccc.int/sites/default/files/resource/Updated\\_percent20BUR1\\_percent20Report\\_15\\_11\\_2023.pdf](https://unfccc.int/sites/default/files/resource/Updated_percent20BUR1_percent20Report_15_11_2023.pdf)



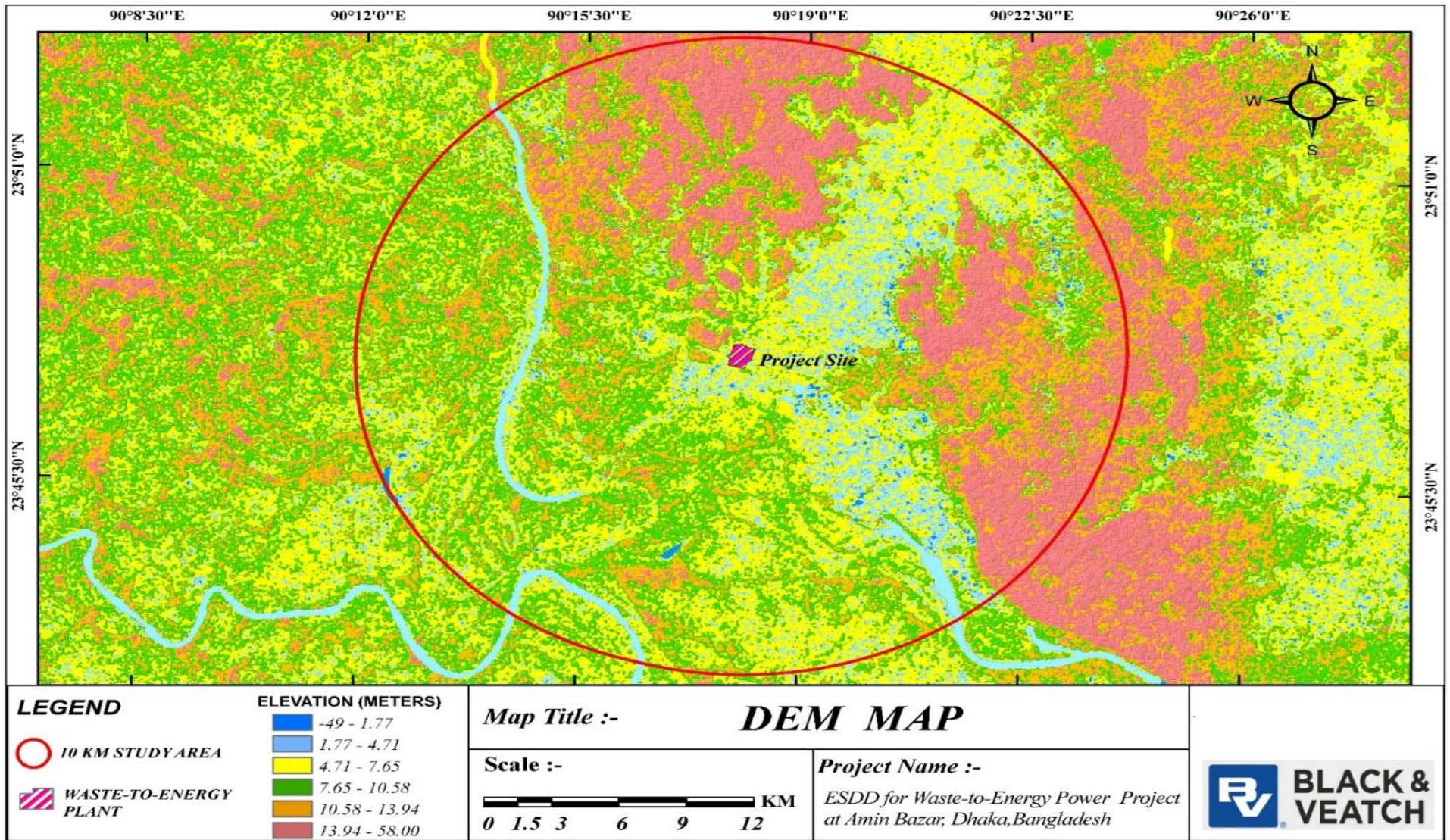


Figure 4-2 DEM Map of the Project site

#### 4.1.1.4 Drainage

The major rivers flowing through Amin Bazar and in close proximity to the Project area are the Karnatali, Buri, and Turag rivers. Notably, the Karnatali River, situated approximately 595 meters north of the proposed plant site, has a substantial water volume. It maintains a minimum monthly water supply of 0.48 cubic meters per second and a minimum water level of 0.86 meters, which is sufficient to meet the water demand requirements of the Project. The drainage pattern of the study area is shown Figure 4-3.

CONFIDENTIAL



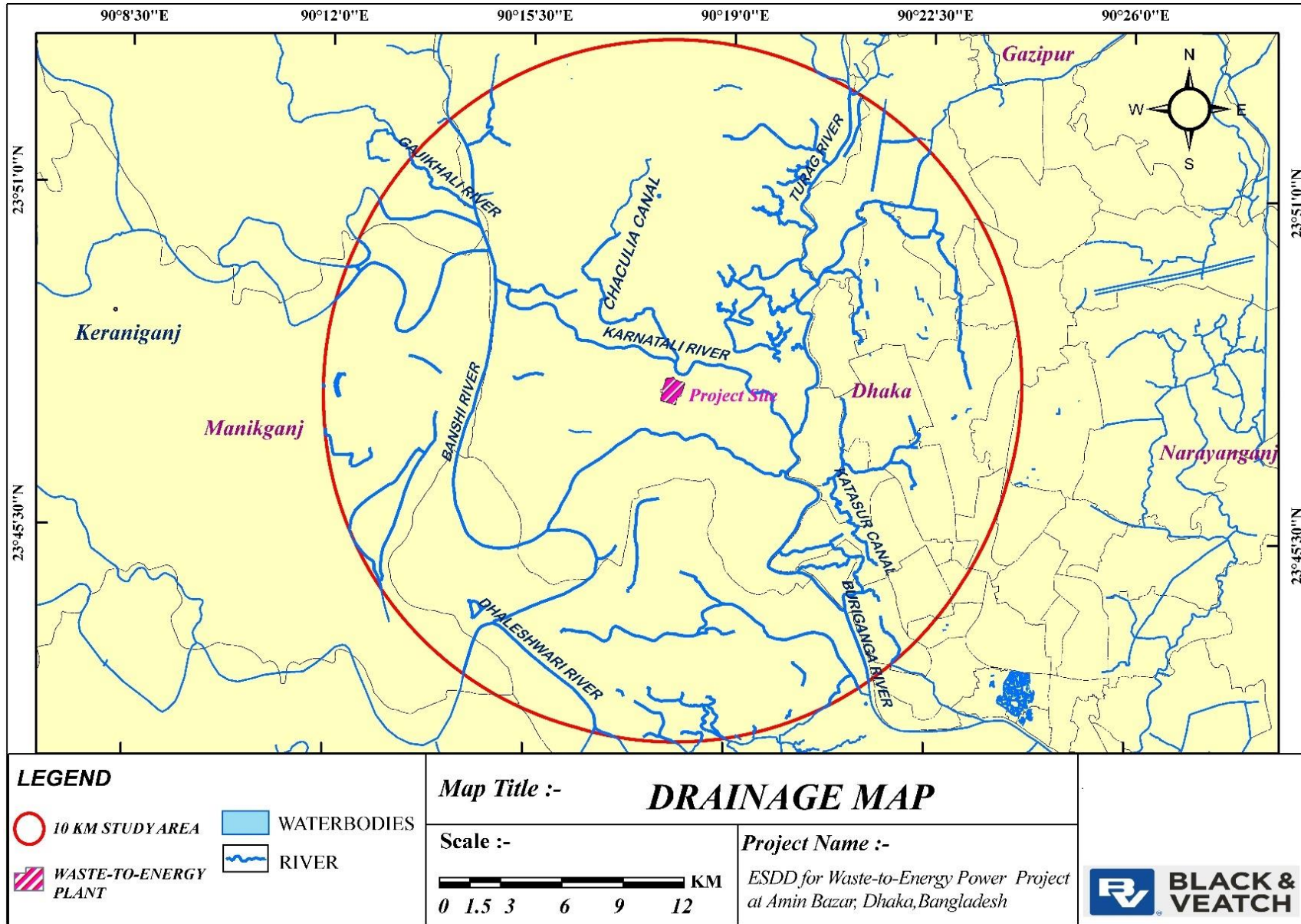


Figure 4-3 Drainage Map of the Project site

#### 4.1.1.5 Ground Water Resources

Bangladesh faces significant challenges related to groundwater depth and conditions. With approximately 98 percent of the population relying on groundwater for drinking water and irrigation, the country's extensive use of this resource has led to concerning trends. Groundwater levels, particularly in the greater Dhaka area, are depleting rapidly, with Projections indicating a drop of 3 to 5.1 meters per year by 2030, significantly faster than the current rate. This depletion poses risks such as saltwater intrusion in coastal areas and diminishing freshwater availability for various sectors.

#### 4.1.2 Geology

The geological composition of Aminbazar in Dhaka, Bangladesh, is predominantly characterized by Pleistocene terrace deposits, which are subdivided into Upper and Lower Madhupur Clay deposits. The Upper Madhupur Clay deposits consist of reddish-brown to pale yellow sticky clay and silty clay, containing ferruginous nodules and dark manganese spots. These deposits are highly compacted, weathered, and oxidized residual materials. The Lower Madhupur Clay deposits primarily comprise pale yellowish to yellowish-brown sandy clay, clayey sand, and silty sand.

The area also features Holocene deposits, further classified into alluvial floodplain deposits. These include natural levee deposits, bar deposits, point bar deposits, back swamp deposits, floodplain deposits, and valley fill deposits. The floodplain deposits mainly consist of grey to dark grey sticky clay to clayey silt, with discontinuous sand, oxidized roots, rootlets, and organic matter. The valley fill deposits are composed of dark grey to yellowish to olive brown silty clay, clay, marshy clay, and peat. Underlying the Madhupur Clay deposits is a sequence of fine to coarse-grained micaceous quartz of felspathic sands containing the Dupi Tila Formation of Pliocene age, hydro geologically known as the Dupi Tila aquifers. However, these aquifers are not exposed anywhere within the city.

The region is prone to tidal flooding, with elevations ranging from 4 to 5 meters above mean sea level (msl).<sup>6</sup>

#### 4.1.3 Natural Hazards

The Project area falls under Seismic Zone II, as per the seismic zoning map of Bangladesh, indicating a moderate earthquake risk zone. Historical seismic events, such as the 1988 Srimangal earthquake, highlight the region's susceptibility to earthquakes. It is crucial to design the Project infrastructure to withstand seismic activities in compliance with relevant building codes and standards.

Amin Bazar, Dhaka, Bangladesh is situated in a flood-prone region, making it susceptible to flood hazards. Historical records indicate that the area has experienced significant flood events in the past, including the 2020 flood. Floods in the region can be caused by heavy monsoon rainfall, overflowing of nearby rivers and water bodies, and potential breaching of flood control embankments.

The Waste-To-Energy Power Project at Amin Bazar, Dhaka, Bangladesh faces potential risks from various natural disasters such as floods, seismic activities, seasonal storms and cyclones, salinity intrusion, and erosion. These hazards, identified in the Environmental and Social Impact Assessment (ESIA) report, pose significant threats to the Project's infrastructure and operations. To address these risks, the report emphasizes the importance of developing an Emergency Response Plan to mitigate the impacts of natural disasters and ensure the safety of personnel and the surrounding community. By proactively planning for

---

<sup>6</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10569571/>



and addressing these potential disasters, the Project can enhance its resilience and minimize disruptions caused by unforeseen events.

#### 4.1.3.1 Seismic Zones of Bangladesh

Bangladesh is divided into four seismic zones based on seismic intensity and the seismic zone coefficient (Z). The classification is as follows:

- **Zone 1:** Southwestern part, including Barisal, Khulna, Jessore, Rajshahi (Low seismic intensity,  $Z=0.12$ ).
- **Zone 2:** Lower Central and Northwestern part, including Noakhali, Dhaka, Pabna, Dinajpur, and Southwestern corner including Sundarbans (Moderate seismic intensity,  $Z=0.20$ ).
- **Zone 3:** Upper Central and Northwestern part, including Brahmanbaria, Sirajganj, Rangpur (Severe seismic intensity,  $Z=0.28$ ).
- **Zone 4:** Northeastern part, including Sylhet, Mymensingh, Kurigram (Very severe seismic intensity,  $Z=0.36$ ).

#### Historical Earthquakes in Bangladesh

The report provides a historical list of major earthquakes in Bangladesh, highlighting the frequency and impact of seismic activities in the region. Notable entries include:

- **2023-12-02:** Chittagong, 5.5 Mw, 0 deaths, 200+ injuries (Minor damage).
- **2021-11-26:** Chittagong, 6.2 Mw, 0 deaths, 5 injuries (Slight damage).
- **2012-03-18:** Dhaka, 4.5 Mw, 0 deaths, 0 injuries.
- **2010-09-10:** Chittagong, 5.1 Mw, 0 deaths, 0 injuries (Slight damage).
- **2008-07-26:** Dhaka, 4.8 Mw, 0 deaths, 25 injuries.
- **2007-11-07:** Chittagong, 5.5 Mw, 0 deaths, 10 injuries (Minor damage).

#### Project Site Seismic Risk

The Project site is located in Zone II, which has a basic seismic coefficient of 0.5g, indicating a low risk of earthquakes. There have been no major earthquakes reported in the Project area in recent years or the recent past.

#### 4.1.3.2 Flood Risks in Bangladesh

Bangladesh is among the countries most vulnerable to climate-related hazards, with floods being a significant threat due to the country's geographical and climatic conditions. Floods in Bangladesh can be categorized into flash floods, riverine floods, and coastal floods. These floods have profound impacts on the population, infrastructure, agriculture, and overall economic stability. The Project site for the Waste-to-Energy Project at Amin Bazar, Dhaka, is situated in a low river flooding area. However, lower areas beside the highway can become inundated for short periods during the rainy season.<sup>7</sup>

---

<sup>7</sup> Climate Risk Country Profile, WBG (2024)

■ **Frequency and Severity:**

- Flooding is an annual phenomenon in Bangladesh, with the most severe floods typically occurring in July and August.
- Regular river floods during the monsoon season affect about 20 percent of the country, which can increase to 67 percent in extreme years like the flood of 1998.

■ **Historical Major Floods:**

- In the 19th century, major floods were recorded in 1842, 1858, 1871, 1875, 1885, and 1892.
- In the 20th century, significant floods occurred in 1951, 1987, 1988, and 1998. The floods of 1987 and 1988 were particularly catastrophic.<sup>8</sup>

■ **Catastrophic Floods:**

- **1987 Flood:** Affected 57,300 square kilometers (about 40 percent of the country) and was considered a once-in-30-to-70-year event. The western side of the Brahmaputra, the area below the confluence of the Ganges and the Brahmaputra, and regions north of Khulna were severely affected.
- **1988 Flood:** Inundated about 82,000 square kilometers (about 60 percent of the country) and had a return period of 50 to 100 years. This flood severely affected Dhaka and lasted for 15 to 20 days.
- **1998 Flood:** Over 75 percent of the country, including half of Dhaka, was flooded. It was similar in extent to the floods of 1988, caused by heavy rainfall and synchronization of peak flows of major rivers.
- **2004 Flood:** Similar to the floods of 1988 and 1998, with two-thirds of the country under water.

■ **Types of Floods**

1. **Flash Floods:**

- Typically occur along the northern and eastern borderlands.
- Caused by intense rainfall over a short period, often exacerbated by deforestation and land use changes.
- These floods can occur rapidly and with little warning, causing significant damage to homes, roads, and crops.

2. **Riverine Floods:**

- Primarily affect areas along the Ganges, Brahmaputra, and Meghna rivers.
- Result from the overflow of these major rivers, usually during the monsoon season.
- Riverine floods can inundate vast areas, affecting millions of people and large tracts of agricultural land.

3. **Coastal Floods:**

- Affect the southern coastal regions, exacerbated by storm surges from tropical cyclones.
- Sea-level rise and tidal conditions in the Bay of Bengal contribute to the severity of these floods.

---

<sup>8</sup> <http://bmd.wowspace.org/> - Bangladesh Meteorological Department

- Coastal flooding not only impacts human settlements but also damages critical ecosystems like the Sundarbans mangrove forest.
- **Impact on Population and Economy**
  - Population Exposure:
    - Over 90 million people, or 56 percent of the population, live in high climate exposure areas, making them vulnerable to multiple hazards, including floods.
    - Frequent flooding leads to displacement, loss of livelihoods, and increased health risks due to waterborne diseases.
  - Economic Losses:
    - Floods result in substantial economic losses, with annual damages running into billions of dollars.
    - For example, the 1998 flood, one of the worst in recent history, caused damages amounting to 4.5 percent of the GDP.
    - Agricultural losses are significant, with major floods destroying crops and disrupting food supply chains, thus threatening food security.
- **Future Projections and Challenges**
  - Increased Frequency and Intensity:
    - Climate change is expected to increase the frequency and intensity of floods. Monsoon rainfall patterns are likely to become more erratic, with intense precipitation events becoming more common.
    - The return periods for extreme precipitation events are Projected to shorten, increasing the likelihood of severe floods.
  - Sea-Level Rise:
    - Projected sea-level rise of 0.5 meters by midcentury could nearly double the assets exposed to coastal flooding.
    - This rise will also exacerbate the impact of storm surges, leading to more extensive and severe coastal flooding.

Flood risks in Bangladesh are a significant concern due to the country's high vulnerability to climate-related hazards. The combined effects of riverine, coastal, and flash floods pose severe threats to the population and economy. Proactive adaptation and mitigation strategies are crucial to manage these risks and protect the livelihoods of millions of people in Bangladesh.

#### **4.1.3.3 Droughts in Bangladesh**

Bangladesh faces considerable risk from droughts, which negatively impact crop yields and food availability. Government estimates indicate that yearly, varying intensities of drought affect between 3 to 4 million hectares of cultivable land. Agricultural droughts, linked to insufficient rainfall or water resources, mainly occur before the monsoon in northwestern areas like Rangpur and Rajshahi, continually threatening food security. A notable example is the 1997 drought, which caused \$500 million in agricultural losses.

From 1979 to 2018, the northwest experienced more frequent and severe droughts during wet monsoon and post-monsoon periods, as shown by the Effective Drought Index (EDI), particularly evident in 2010. That year, Bangladesh's monsoon rainfall was 19 percent below average. World Bank Projections suggest that agricultural drought likelihood will remain higher from 2041 to 2060 compared to the 1995-2014 baseline.

Areas such as Rangpur, Rajshahi, and Khulna, historically prone to extended dry periods annually, are predicted to experience more brief dry spells under higher emission scenarios. The potential connections between El Niño-Southern Oscillation (ENSO) and water shortages in the Ganges River basin, as well as between the Indian Ocean Dipole (IOD) and rainfall deficits, warrant special focus on agriculture, water management, and public health sectors.

Droughts in Bangladesh, especially in the northwest, represent a mounting challenge with major consequences for agriculture and food security. Climate change is anticipated to worsen these conditions, requiring preemptive strategies to lessen their effects.

#### 4.1.4 Water Resources

The surface and ground water quality results and analysis presented are derived from the Environmental and Social Impact Assessment (ESIA) report for the Project which was previously submitted. The ESIA report is the authoritative source for these findings, containing comprehensive evaluations of potential environmental and social impacts. These assessments are crucial for understanding how emissions from the proposed facility might interact with local atmospheric conditions and affect surface and water quality in the surrounding area.

##### 4.1.4.1 Surface Water Quality

###### ■ Standards:

The surface water quality assessment is compared against national and international standards. Key parameters typically analyzed include pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), heavy metals, and nutrient levels. The standards often referenced are those set by the Department of Environment (DoE) of Bangladesh, as well as guidelines from the World Health Organization (WHO) and the United States Environmental Protection Agency (USEPA).

###### ■ Analysis:

Surface water samples are collected from various locations within the Project area. The analysis generally includes:

- **pH:** Indicates the acidity or alkalinity of water, with a standard range of 6.5 to 8.5.
- **Dissolved Oxygen (DO):** Measures the amount of oxygen available in water, essential for aquatic life. A minimum of 5 mg/L is generally required for healthy aquatic ecosystems.
- **Biochemical Oxygen Demand (BOD):** Indicates the amount of organic matter in water, with lower values suggesting better water quality. Standard values should typically be below 3 mg/L.
- **Chemical Oxygen Demand (COD):** Measures the total quantity of oxygen required to oxidize both organic and inorganic substances in water. Values should be lower than 10 mg/L for good quality water.
- **Total Suspended Solids (TSS):** High levels can affect aquatic life and water quality. Acceptable limits are generally below 30 mg/L.
- **Heavy Metals:** Parameters such as lead, mercury, cadmium, and arsenic are analyzed due to their toxicity. Each metal has specific permissible limits, e.g., lead should be below 0.01 mg/L according to WHO standards.
- **Nutrients:** Levels of nitrates and phosphates are assessed to understand potential eutrophication risks. Nitrate levels should generally be below 10 mg/L.

#### 4.1.4.2 Groundwater Quality

■ **Standards:**

Groundwater quality is evaluated against drinking water standards, primarily those set by the WHO and the Bangladesh Standards and Testing Institution (BSTI). Key parameters include pH, total dissolved solids (TDS), hardness, heavy metals, and microbiological indicators such as coliform bacteria.

■ **Analysis:**

Groundwater samples are collected from boreholes and wells within the Project vicinity. The analysis typically includes:

- **pH:** Drinking water should have a pH between 6.5 and 8.5.
- **Total Dissolved Solids (TDS):** Indicates the concentration of dissolved substances in water. WHO recommends a maximum of 500 mg/L.
- **Hardness:** Caused by dissolved calcium and magnesium, affecting water quality and usability. WHO suggests a maximum limit of 200 mg/L.
- **Heavy Metals:** As in surface water, groundwater is analyzed for toxic metals with permissible limits (e.g., arsenic below 0.01 mg/L).
- **Microbiological Quality:** Presence of coliform bacteria indicates potential contamination. Drinking water should have zero coliform bacteria per 100 mL sample.

#### 4.1.4.3 Summary of Findings

The ESIA report indicates that the surface water quality generally meets the regulatory standards for most parameters, although some locations show elevated levels of BOD and COD, suggesting the presence of organic pollutants. Heavy metals are within acceptable limits; however, a continuous monitoring is recommended.

Groundwater quality meets drinking water standards for key parameters, including pH, TDS, hardness, and heavy metals. The absence of coliform bacteria suggests no significant microbiological contamination.<sup>9</sup>

**Table 4-1 Findings of Water Quality Results**

Sl. No.	Parameter	Standard (DoE, WHO, USEPA)	Surface Water Findings	Groundwater Findings
1	pH	6.5 - 8.5	Within standard range	Within standard range
2	Dissolved Oxygen (DO)	≥ 5 mg/L	Generally met	N/A
3	Biochemical Oxygen Demand (BOD)	≤ 3 mg/L	Some locations exceeded	N/A
4	Chemical Oxygen Demand (COD)	≤ 10 mg/L	Mostly within limits, some higher	N/A
5	Total Suspended Solids (TSS)	≤ 30 mg/L	Within limits	N/A
6	Total Dissolved Solids (TDS)	≤ 500 mg/L	N/A	Generally below limit
7	Hardness	≤ 200 mg/L	N/A	Within limit

<sup>9</sup> Laboratory Analysis, EQMS laboratory, 2022

Sl. No.	Parameter	Standard (DoE, WHO, USEPA)	Surface Water Findings	Groundwater Findings
8	Lead	≤ 0.01 mg/L	Below limit	Below limit
9	Mercury	≤ 0.001 mg/L	Below limit	Below limit
10	Cadmium	≤ 0.003 mg/L	Below limit	Below limit
11	Arsenic	≤ 0.01 mg/L	Below limit	Below limit
12	Coliform Bacteria	0 per 100 mL	N/A	Not detected

### 4.1.5 Land use, Soil

The land use and land cover (LULC) analysis reveal a landscape dominated by built-up areas and crop lands, constituting 45.72 percent and 29.27 percent of the surveyed area, respectively. This distribution highlights extensive urbanization and intensive agricultural practices, indicative of urban sprawl and agricultural reliance. Vegetation covers 18.05 percent, crucial for biodiversity and ecological balance, while waterbodies, comprising 4.57 percent, provide essential habitats and water resources. Barren, scrub, and rangelands collectively occupy smaller percentages, reflecting diverse but less utilized land types. The data underscores challenges in balancing urban development, agricultural sustainability, and conservation efforts to maintain ecosystem services and mitigate environmental impacts effectively.

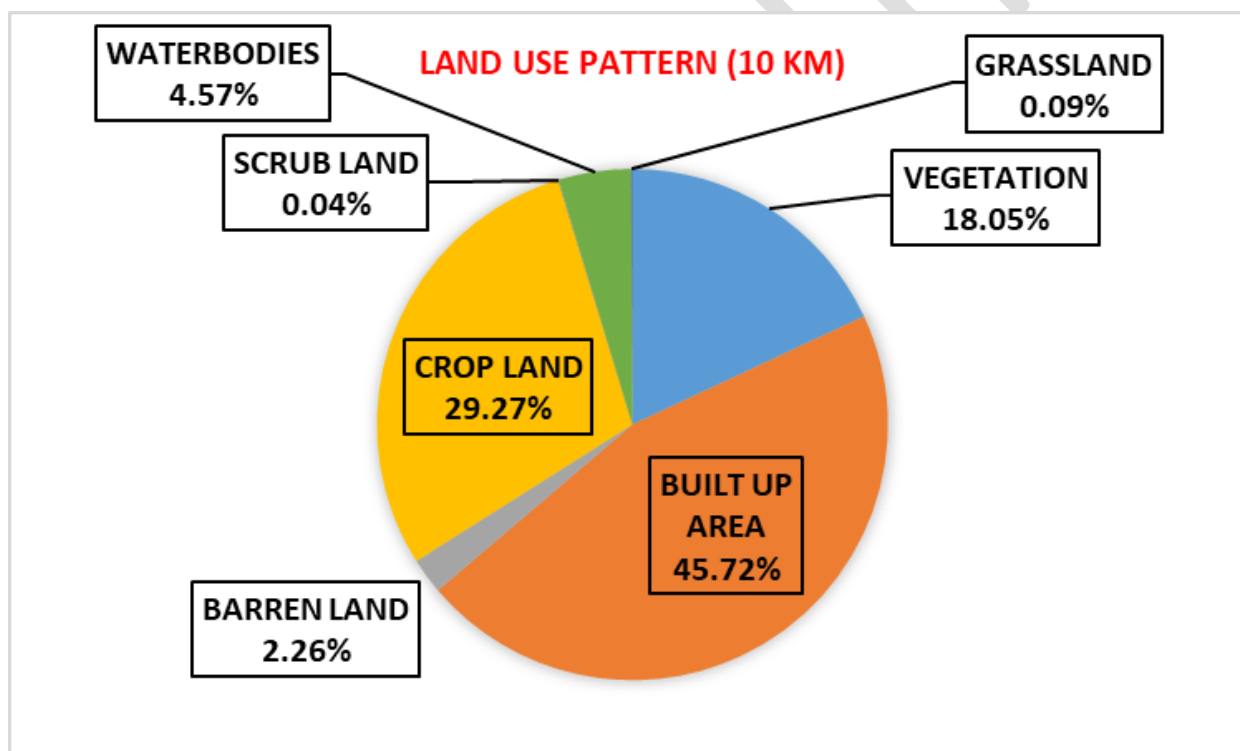


Figure 4-4 Land use pattern



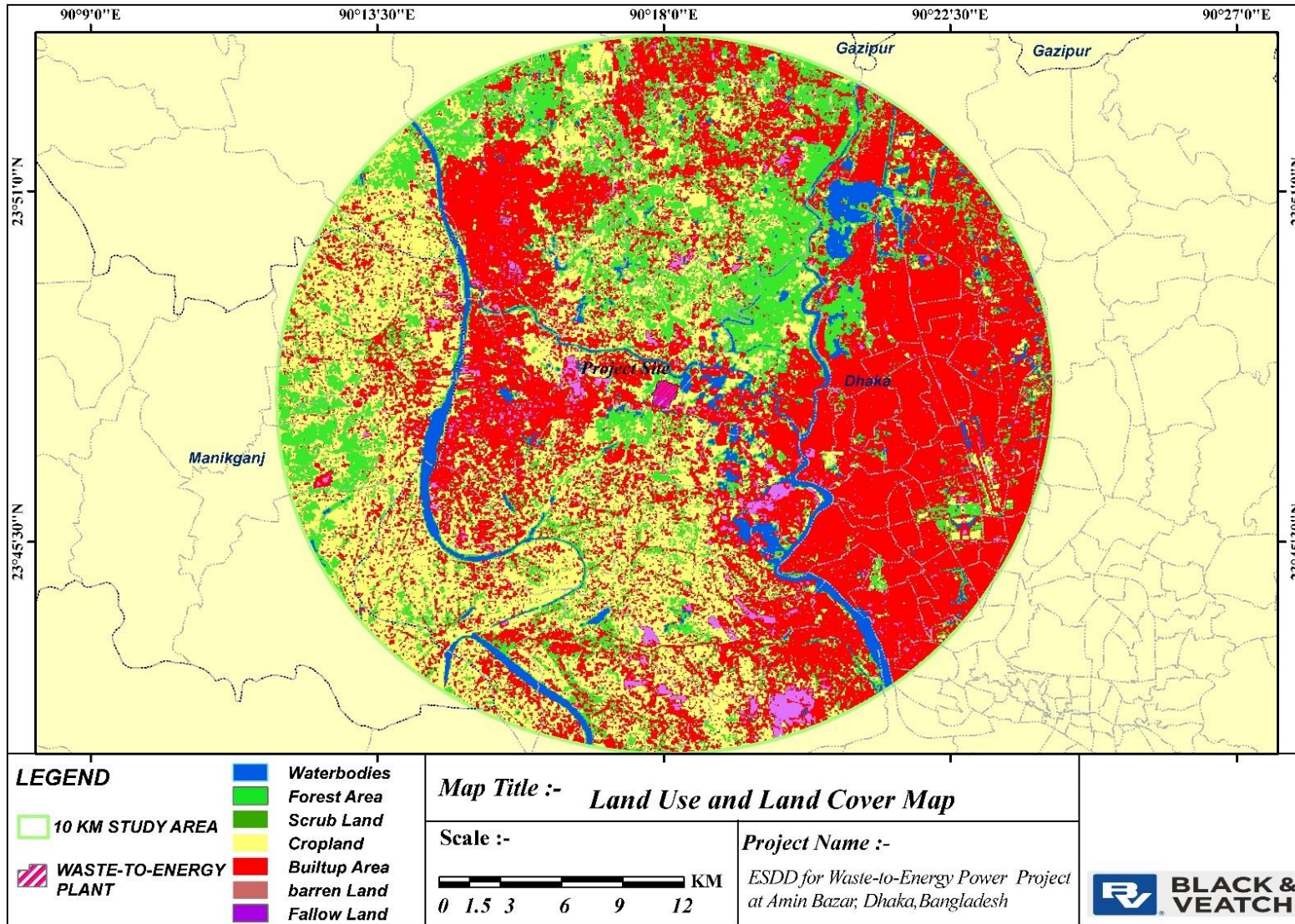


Figure 4-5 Land use and land cover map of the Project site

The predominant soil type in the Dhaka region, including Aminbazar, is sandy in nature. The soil classification is based on the Soil Behavior Type (SBT) Chart developed by Robertson, which categorizes the soil types as a mixture of coarse-grained, clean, or fine sand, reflecting the heterogeneous soil conditions prevalent in Dhaka. The soil types identified in the region include sensitive fine-grained soils, silty clay to clay, silty sand to sandy silt, gravelly sand to sand, organic material, clayey silt to silty clay, sand to silty sand, and others. The study emphasizes the importance of in-situ data from subsurface investigations to accurately understand the actual soil properties. Furthermore, the soil in Dhaka is described as predominantly sandy, necessitating the addition of fine-grained soil to achieve a balanced composition. The study suggests considering laboratory data in conjunction with in-situ data to obtain a comprehensive understanding of the soil composition in Dhaka.<sup>10</sup>

The soil and sediment quality results and analysis presented are derived from the Environmental and Social Impact Assessment (ESIA) report for the Project which was previously submitted. The ESIA report is the authoritative source for these findings, containing comprehensive evaluations of potential environmental and social impacts. These assessments are crucial for understanding how emissions from the proposed facility might interact with local atmospheric conditions and affect soil and sediment quality in the surrounding area.<sup>11</sup>

#### 4.1.5.1 Parameters Evaluated

##### ■ Physical Properties:

- Texture: The relative proportions of sand, silt, and clay.
- Bulk Density: The mass of soil per unit volume.
- Porosity: The percentage of the soil volume that is pore space.

##### ■ Chemical Properties:

- pH: The acidity or alkalinity of the soil.
- Organic Matter Content: The amount of decomposed plant and animal residues.
- Nutrient Levels: Concentrations of essential nutrients like nitrogen (N), phosphorus (P), and potassium (K).
- Heavy Metals: Levels of contaminants such as lead (Pb), cadmium (Cd), arsenic (As), and mercury (Hg).

##### ■ Biological Properties:

- Microbial Activity: The presence and activity of soil microorganisms.
- Organic Carbon: A measure of the carbon stored in soil organic matter.

#### 4.1.5.2 Findings

##### ■ Physical Properties:

- **Texture:** The soil in the Project area is primarily sandy loam, with a higher proportion of sand (50-70 percent), moderate silt (20-40 percent), and low clay content (10-20 percent). This texture supports good drainage, however it may require organic amendments to improve water retention.

---

<sup>10</sup> <https://www.fao.org/3/ar834e/ar834e.pdf>

<sup>11</sup> Laboratory Analysis, EQMS laboratory, 2022



- **Bulk Density:** The bulk density ranges from 1.3 to 1.6 g/cm<sup>3</sup>, which is within the normal range for agricultural soils but may indicate compaction in certain areas.
- **Porosity:** Porosity values are generally adequate, supporting good root growth and water infiltration.
- **Chemical Properties:**
  - **pH:** Soil pH ranges from 6.5 to 7.5, which is optimal for most crops and indicates no significant acidity or alkalinity issues.
  - **Organic Matter Content:** The organic matter content ranges from 2 percent to 5 percent, suggesting moderate fertility. Soils with higher organic content are more fertile and support better plant growth.
  - **Nutrient Levels:**
    - **Nitrogen (N):** Sufficient for most crops, with levels ranging from 0.1 percent to 0.3 percent.
    - **Phosphorus (P):** Adequate, with levels between 15 to 30 mg/kg.
    - **Potassium (K):** Good, with levels ranging from 100 to 200 mg/kg.
  - **Heavy Metals:**
    - **Lead (Pb):** Detected levels are below the threshold of 0.01 mg/kg.
    - **Cadmium (Cd):** Concentrations are within the acceptable range of 0.003 mg/kg.
    - **Arsenic (As):** Levels are below the permissible limit of 0.01 mg/kg.
    - **Mercury (Hg):** Detected levels are below the threshold of 0.001 mg/kg.
- **Biological Properties:**
  - **Microbial Activity:** Healthy microbial activity is indicated by the presence of beneficial soil microorganisms, supporting nutrient cycling and organic matter decomposition.
  - **Organic Carbon:** Levels of organic carbon range from 0.5 percent to 1.5 percent, supporting soil structure and fertility.

**Table 4-2 Findings of Soil and Sediment Quality Results**

Sl. No.	Parameter	Standard (Typical Values)	Findings
1	Texture	-	Sandy loam (Sand: 50-70 %, Silt: 20-40 %, Clay: 10-20 %)
2	Bulk Density	1.1 - 1.6 g/cm <sup>3</sup>	1.3 - 1.6 g/cm <sup>3</sup>
3	Porosity	30-60 %	Adequate
4	pH	6.0 - 7.5	6.5 - 7.5
5	Organic Matter Content	3% - 5 % (for fertile soil)	2 % - 5 %
6	Nitrogen (N)	0.1 % - 0.3 %	0.1 % - 0.3 %
7	Phosphorus (P)	10 - 30 mg/kg	15 - 30 mg/kg
8	Potassium (K)	100 - 200 mg/kg	100 - 200 mg/kg
9	Lead (Pb)	≤ 0.01 mg/kg	Below limit
10	Cadmium (Cd)	≤ 0.003 mg/kg	Below limit
11	Arsenic (As)	≤ 0.01 mg/kg	Below limit
12	Mercury (Hg)	≤ 0.001 mg/kg	Below limit
13	Microbial Activity	Healthy activity	Healthy activity
14	Organic Carbon	0.5 % - 1.5 %	0.5 % - 1.5 %

## 4.1.6 Air Quality

The ambient air quality was monitored at eight locations around the proposed Waste-to-Energy (WtE) power plant site. The monitoring was conducted over six weeks, with data collected using the Air Quality Monitoring (AQM)-09 system. The key pollutants monitored included Oxides of Nitrogen (NO<sub>x</sub>), Carbon Monoxide (CO), Sulfur Dioxide (SO<sub>2</sub>), and Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

### 4.1.6.1 Standards and Guidelines:

Air quality data were analyzed and compared against several standards:

1. **Bangladesh National Ambient Air Quality Standards (NAAQS):** These standards are stipulated in the Air Pollution Control Rules 2022.
2. **World Health Organization (WHO) Ambient Air Quality Guideline Values 2021:** These guidelines provide international benchmarks for air quality to safeguard public health.
3. **UK Environmental Agency Environmental Standard:** These standards are used for comparative purposes to ensure compliance with international norms.

The key parameters and their respective standards are summarized below:

**Table 4-3 Key Parameters and their Standards**

Sl. No.	Parameter	National Standard (24-hour)	WHO Guideline (24-hour)	UK EA Standard (24-hour)
1	PM <sub>2.5</sub>	15 µg/m <sup>3</sup>	10 µg/m <sup>3</sup>	-
2	PM <sub>10</sub>	50 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>	-
3	NO <sub>2</sub>	100 µg/m <sup>3</sup>	200 µg/m <sup>3</sup>	40 µg/m <sup>3</sup> (annual)
4	SO <sub>2</sub>	140 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>	125 µg/m <sup>3</sup>
5	CO	10 mg/m <sup>3</sup> (8-hour)	10 mg/m <sup>3</sup> (8-hour)	10 mg/m <sup>3</sup> (8-hour)

### 4.1.6.2 Results and Analysis

The ambient air quality data presented has been extracted from the Environmental and Social Impact Assessment (ESIA) report. This report serves as the primary source for the air quality measurements and analysis discussed. The ESIA, a comprehensive document evaluating the Project's potential environmental and social impacts, includes detailed ambient air quality assessments conducted as part of the overall environmental baseline study for the Project area.

**Table 4-4 Ambient Air Quality Results**

Sl. No.	Monitoring Code	CO	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	O <sub>3</sub>
		(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )
1	AQ1 (Dry Season)	1.12	82.24	95.33	37.51	57.07	36.25
2	AQ1 (Wet Season)	0.59	36.35	47.68	22.33	42.93	31.94
3	AQ2 (Dry Season)	0.43	58.17	61.84	22.62	50.83	35.87
4	AQ2 (Wet Season)	0.34	34.46	37.50	22.95	33.52	27.51
5	AQ3 (Dry Season)	0.62	70.35	147.11	34.40	62.42	38.22
6	AQ3 (Wet Season)	0.43	40.48	54.93	24.06	44.71	30.79
7	AQ4 (Dry Season)	0.70	92.02	93.18	48.92	52.02	36.14
8	AQ4 (Wet Season)	1.07	54.32	69.37	37.56	69.94	32.89
9	AQ5 (Dry Season)	0.59	63.46	64.57	38.80	39.40	34.97
10	AQ5 (Wet Season)	0.68	47.54	40.58	26.24	40.15	32.65

Sl. No.	Monitoring Code	CO	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	O <sub>3</sub>
		(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )
11	AQ6 (Dry Season)	0.48	57.87	65.23	24.98	52.83	36.05
12	AQ6 (Wet Season)	0.32	28.76	55.11	21.66	43.62	31.38
13	AQ7 (Dry Season)	0.44	53.13	58.84	23.19	50.65	33.54
14	AQ7 (Wet Season)	0.16	30.18	48.00	20.70	39.44	29.39
15	AQ8 (Dry Season)	0.42	52.83	58.27	22.06	51.64	33.53
16	AQ8 (Wet Season)	0.16	26.63	48.47	17.39	34.90	27.21
17	Duration (Hours)	8	24	24	24	24	8
18	Weather	Sunny					
19	Bangladesh Standard	5	80	150	65	80	100
20	WHO Standard	10	25	45	15	40	100

#### ■ Particulate Matter (PM10 and PM2.5)

- **24-hour Average:** The maximum 24-hour PM10 concentration was recorded at 1.46 µg/m<sup>3</sup>, which is 0.97 percent of the national standard and 3.24 percent of the WHO guideline value. For PM2.5, similar patterns were observed as PM10 was assumed to equal PM2.5.
- **Annual Average:** The annual average for PM10 was 0.07 µg/m<sup>3</sup>, representing 0.14 percent of the national standard and 0.47 percent of the WHO guideline value.
- **Observation:** The particulate matter levels were significantly below both national and international standards, indicating a negligible impact on ambient air quality.

#### ■ Nitrogen Dioxide (NO2)

- **24-hour Average:** The NO2 levels were within acceptable limits, with the highest concentration well below the national and WHO guidelines.
- **Observation:** NO2 emissions from the Project are not expected to significantly affect air quality, remaining within safe limits.

#### ■ Sulfur Dioxide (SO2)

- **24-hour Average:** SO2 concentrations were monitored and found to be within the permissible limits set by both national and international standards.
- **Observation:** The SO2 emissions are controlled and are not likely to pose a health risk or environmental concern.

#### ■ Carbon Monoxide (CO)

- **8-hour Average:** The CO levels were monitored for an 8-hour period, with results showing compliance with national and WHO standards.
- **Observation:** CO emissions from the Project site are within safe exposure levels for human health.

#### 4.1.6.3 Review of Air Dispersion Model

The air dispersion modelling results and analysis presented are derived from the Environmental and Social Impact Assessment (ESIA) report for the Project which was previously submitted. The ESIA report is the authoritative source for these findings, containing comprehensive evaluations of potential environmental and social impacts. These assessments are crucial for understanding how emissions from the proposed facility might interact with local atmospheric conditions and affect air quality in the surrounding area.

An air dispersion modeling study was conducted for a proposed waste-to-energy power plant in North Dhaka, Bangladesh. The AERMOD dispersion model (Version 11.2.0), developed by the United States Environmental Protection Agency (USEPA), was used to predict ground-level concentrations (GLCs) of various air pollutants resulting from the plant's emissions. The modeling assessed both the Project's individual contribution and cumulative impacts when combined with background concentrations.

#### 4.1.6.4 Modeling Methodology

##### ■ Model Selection and Setup

- **Model:** AERMOD Version 11.2.0
- **Meteorological data:** 3 years (2019-2021) from Lakes Environment WRF data.
- **Terrain:** Flat terrain considered, with elevations ranging from 0.20 to 27.65 m.
- **Study area:** 10 km x 10 km centered on the plant location.

##### ■ Receptor Grid A multi-tier grid system was established:

- **Tier 1:** 1km x 1km grid with 50m spacing
- **Tier 2:** 3km x 3km grid with 100m spacing
- **Tier 3:** 10km x 10km grid with 300m spacing
- 19 discrete sensitive receptors were also included

##### ■ Emission Sources

- Four stacks, each 100 m high with 2.2 m internal diameter
- **Exit temperature:** 413 K
- **Exit velocity:** 16 m/s
- **Flue gas flow rate:** 39.4 Nm<sup>3</sup>/s per stack

##### ■ Pollutants Modeled PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, SO<sub>2</sub>, CO, Pb, HCl, Hg, HF, Dioxins/Furans

##### ■ Scenarios

- **Scenario 1:** Project Contribution Only.
- **Scenario 2:** Project Contribution + Background Concentration.

##### ■ Building Downwash:

The inclusion of building downwash effects in the modelling is a significant aspect, as it ensures a more accurate prediction of pollutant dispersion. The Building Profile Input Program (BPIP) was utilized to analyze the influence of each building based on wind direction, providing a comprehensive understanding of how structures within the plant site can affect the dispersion of pollutants.

#### 4.1.6.5 Analysis of Results:

##### ■ Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>):

- **Project Contribution:** The maximum 24-hour PM10/PM2.5 concentration was 1.46  $\mu\text{g}/\text{m}^3$  (0.97 percent of national standard, 3.24 percent of WHO guideline).
  - **Cumulative Impact:** Background levels are already very high (335.0  $\mu\text{g}/\text{m}^3$  for 24-hour average), far exceeding standards. The plant's contribution is minimal in comparison.
  - **Analysis:** While the plant's PM emissions are well-controlled, it's operating in an already heavily polluted airshed for particulates.
- **Nitrogen Dioxide (NO<sub>2</sub>):**
- **Project Contribution:** Maximum annual NO<sub>2</sub> of 1.3  $\mu\text{g}/\text{m}^3$  (3.3 percent of national standard), 24-hour maximum of 22.8  $\mu\text{g}/\text{m}^3$  (28.5 percent of national standard).
  - **Cumulative Impact:** Background levels exceed standards. With Project, 24-hour concentrations reach 233.2  $\mu\text{g}/\text{m}^3$  (291.5 percent of national standard).
  - **Analysis:** The plant's NO<sub>2</sub> contribution is more significant than for PM, especially for short-term concentrations. While not solely responsible for exceedances, it notably adds to a degraded airshed.
- **Carbon Monoxide (CO):**
- **Project Contribution:** Maximum 1-hour CO of 87.8  $\mu\text{g}/\text{m}^3$  (0.4 percent of national standard).
  - **Cumulative Impact:** Even with background levels, standards are not exceeded for 1-hour averages.
  - **Analysis:** CO emissions from the plant are not a significant concern.
- **Sulfur Dioxide (SO<sub>2</sub>):**
- **Project Contribution:** Maximum 1-hour SO<sub>2</sub> of 87.8  $\mu\text{g}/\text{m}^3$  (35.1 percent of national standard), 24-hour maximum of 7.38  $\mu\text{g}/\text{m}^3$  (9.2 percent of national standard).
  - **Cumulative Impact:** With background, levels exceed standards (e.g., 24-hour concentration of 88.4  $\mu\text{g}/\text{m}^3$ , 110.5 percent of national standard).
  - **Analysis:** SO<sub>2</sub> emissions from the plant are substantial and contribute significantly to exceedances when combined with background levels.
- **Heavy Metals and Other Pollutants:**
- Generally, the plant's contributions are within applicable standards where they exist.
  - For lead, the 24-hour maximum reaches 15 percent of the national standard, which is notable.
  - For pollutants like HCl, Hg, HF, and dioxins/furans, contributions are low relative to available guidelines.

#### **Spatial Distribution:**

The maximum concentrations for most pollutants occur within 1 km of the plant, often within the plant boundary. This suggests that the 100m stack height is effective in dispersing pollutants, but nearby areas may still be impacted.

#### **Sensitive Receptors:**

The model assessed impacts at 19 sensitive receptor locations. Generally, concentrations at these points are lower than the overall maximum, but some receptors (e.g., AQ1, AQ5) consistently show higher levels.

#### 4.1.6.6 Analysis

The modelling results indicate that while the waste-to-energy plant's emissions are generally well-controlled, it will be operating in an already degraded airshed. The plant's contributions to PM and CO are minimal, but its impacts on NO<sub>2</sub> and SO<sub>2</sub> levels are more substantial. The study identifies that receptors to the north of the plant are more susceptible to higher pollutant concentrations due to prevailing wind patterns. This highlights a potential area of concern for local communities and ecosystems situated in that direction. Long-term exposure to these pollutants can lead to respiratory and cardiovascular diseases, emphasizing the need for continuous monitoring.

#### 4.1.7 Noise

To establish a baseline and assess potential acoustic impacts of the proposed Waste-to-Energy (WtE) power plant, ambient noise measurements were conducted in the vicinity of the Project site. The monitoring program was designed to capture noise level variations across different times of day and night. This comprehensive approach allows for a thorough evaluation of the existing acoustic environment and provides a foundation for assessing how the WtE plant's operations might affect local noise conditions.

##### 4.1.7.1 Standards and Guidelines

The noise data were compared against the following standards:

1. **Bangladesh National Noise Standards:** These are outlined in the Noise Pollution (Control) Rules, 2006.
2. **World Health Organization (WHO) Guidelines:** These provide international benchmarks for community noise exposure.

The specific noise standards are summarized below:

**Table 4-5 Specific Standards**

Sl. No.	Area Type	Daytime Standard (dBA)	Nighttime Standard (dBA)
1	Residential Area	55	45
2	Commercial Area	70	60
3	Industrial Area	75	70

##### 4.1.7.2 Results and Analysis

The ambient noise quality data presented has been extracted from the Environmental and Social Impact Assessment (ESIA) report. This report serves as the primary source for the noise quality measurements and analysis discussed. The ESIA, a comprehensive document evaluating the Project's potential environmental and social impacts, includes detailed ambient noise quality assessments conducted as part of the overall environmental baseline study for the Project area.

**Table 4-6 Ambient Noise Quality Results<sup>12</sup>**

Sl. No.	Area Type	Period	Measured Noise Level (dBA)	Bangladesh Standard (dBA)	WHO Standard (dBA)	Compliance with Bangladesh Standard	Compliance with WHO Standard
1	Residential Area	Daytime	50 - 60	55	55	Mostly compliant,	Compliant

<sup>12</sup> Laboratory Analysis, EQMS laboratory, 2022

Sl. No.	Area Type	Period	Measured Noise Level (dBA)	Bangladesh Standard (dBA)	WHO Standard (dBA)	Compliance with Bangladesh Standard	Compliance with WHO Standard
						occasional exceedances	
		Nighttime	40 - 50	45	45	Mostly compliant, occasional exceedances	Compliant
2	Commercial Area	Daytime	65 - 75	70	70	Mostly compliant, occasional exceedances	Mostly compliant, occasional exceedances
		Nighttime	55 - 65	60	60	Generally compliant, occasional exceedances	Generally compliant, occasional exceedances
3	Industrial Area	Daytime	70 - 80	75	75	Mostly compliant, occasional exceedances	Mostly compliant, occasional exceedances
		Nighttime	65 - 75	70	70	Generally compliant, occasional exceedances	Generally compliant, occasional exceedances

■ **Residential Areas**

- **Daytime Noise Levels:** The measured noise levels during the daytime ranged from 50 to 60 dBA. While generally within the national standard of 55 dBA, there were occasional exceedances due to traffic and nearby commercial activities.
- **Nighttime Noise Levels:** Noise levels at night ranged from 40 to 50 dBA, mostly within the 45 dBA standard but with some instances of exceedance. These exceedances were typically attributed to intermittent noise sources such as vehicle movement.

■ **Commercial Areas**

- **Daytime Noise Levels:** Noise levels during the day ranged from 65 to 75 dBA, generally compliant with the 70 dBA standard but occasionally exceeding it. This is primarily due to ongoing commercial activities and traffic congestion.
- **Nighttime Noise Levels:** Nighttime levels ranged from 55 to 65 dBA, which are generally compliant with the 60 dBA standard. Occasional exceedances were noted, typically from late-night commercial operations or traffic.

■ **Industrial Areas**

- **Daytime Noise Levels:** The recorded daytime levels ranged from 70 to 80 dBA, generally within the 75 dBA standard but occasionally exceeding it due to industrial activities.
- **Nighttime Noise Levels:** Nighttime levels ranged from 65 to 75 dBA, mostly compliant with the 70 dBA standard but with occasional exceedances. These were attributed to 24-hour industrial operations.



## 4.1.8 Ecology

### 4.1.8.1 Area of the proposed Project

- The land proposed for WtE Project is a landfill site and is devoid of any revenue land or any forest land.
- The buffer area's land use features rivers, grasslands, fallow lands, wetlands, gardens, agricultural lands, and woodlands, along with scattered plantations.
- The study area is part of the Bio-ecological Zones '3. Madhupur Sal Tract' and '4c. Brahmaputra Jamuna Floodplain.'
- The proposed Project's buffer area includes the Turag River, which is designated as an Ecologically Critical Area (ECA). The Department of Environment declared the Turag River an ECA in 2009. The river is situated approximately 4 km northeast of the Project area, as measured by aerial distance.
- Within the proposed Project's Area of Interest (AOI) lies a Protected Area (PA). The closest PA is the National Botanical Garden in Mirpur, Dhaka, situated about aerial distance of 4.8 km northeast of the Project site.
- The Project's AOI does not include any Important Bird and Biodiversity Areas (IBAs). The closest IBA is the Jamuna-Brahmaputra River, situated about 57 km west by aerial distance.

Following Table 4-7 highlights nearest Eco-sensitive areas from the proposed Project:

**Table 4-7 Protected areas in 50-60 km radial zone**

Sl. No.	Name of the area	Designation	Distance from the Project site
1	Turag River	ECA	4 km NE
2	National Botanical Garden in Mirpur	Protected Area	4.8 km NE
3	Jamuna-Brahmaputra River	IBA	57 km W
4	Bhawal National Park	Protected Area	28.5 km N

Referring to the secondary data and consultation with forest officials, it is evident that there are no records of any critical species in the study area.



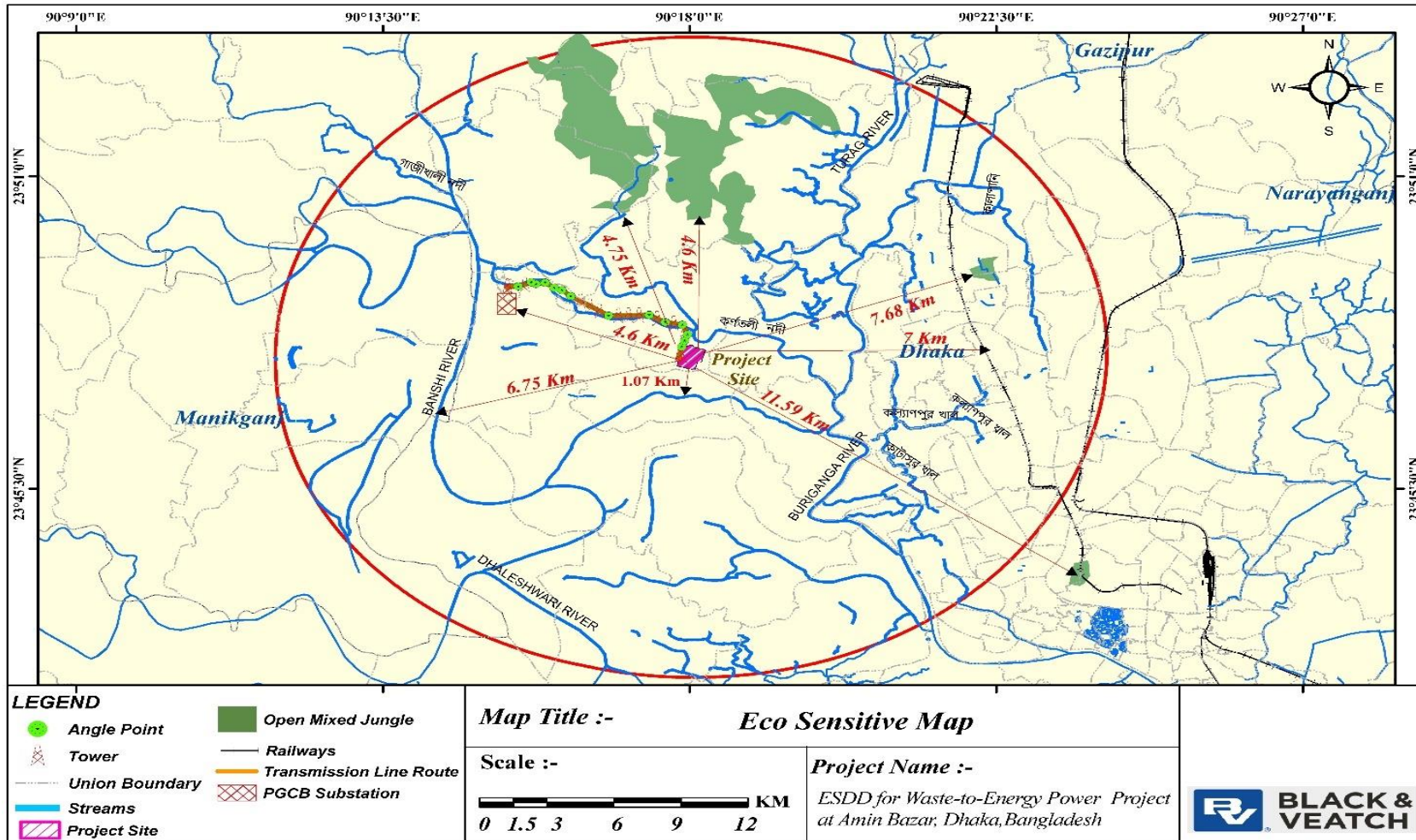


Figure 4-6 Eco-sensitive Map

#### 4.1.8.2 Flora and Fauna of the study area

On the basis of secondary data, consultations and primary survey, a preliminary list of flora and fauna in the study area was prepared. Table 4-8 enlists predominant flora of the study area.

**Table 4-8 Predominant flora of the study area**

Sr.No.	Local Name	Common name	Scientific Name	Family	Uses	Local Status*
1	Aam	Mango	<i>Mangifera indica</i>	Anacardiaceae	Fruit	C
2	Aamra	Hog Palm	<i>Spondias mombin</i>	Anacardiaceae	Fruit	C
3	Akashmoni	Earleaf acacia	<i>Acacia auriculiformis</i>	Fabaceae	Timber	C
4	Amlaki	Indian gooseberry	<i>Phyllanthus emblica</i>	Euphorbiaceae	Fruit, Medicinal	C
5	Arjun	Arjun tree	<i>Terminalia arjuna</i>	Combretaceae	Medicinal	C
6	Ashwath	Sacred fig	<i>Ficus religiosa</i>	Moraceae	Fruit	C
7	Ata	Custard apple	<i>Annona reticulata</i>	Annonaceae	Fruit	C
8	Bansh	Bamboo	<i>Bambusa spp.</i>	Poaceae	Timber	VC
9	Bel	wood apple	<i>Aegle marmelos</i>	Rutaceae	Fruit	C
10	Bohera	Bohera	<i>Terminalia belerica</i>	Combretaceae	Medicinal	R
11	Boroi	Indian plum	<i>Ziziphus mauritiana</i>	Rhamnaceae	Fruit	C
12	Bot	Banyan	<i>Ficus benghalensis</i>	Moraceae	Fruit	C
13	Chalta	Chalta	<i>Dillenia indica</i>	Dilleniaceae	Fruit	R
14	Chatim	Blackboard tree	<i>Alstonia scholaris</i>	Apocynaceae	Medicinal	R
15	Dalim	Pomegranate	<i>Punica granatum</i>	Punicaceae	Fruit	R
16	Debdaru	False ashoka	<i>Polyalthia longifolia</i>	Annonaceae	Aesthetic	C
17	Deshi Gaab	Indian persimmon	<i>Diospyros peregrina</i>	Ebenaceae	Fruit	C
18	Dumur	Cluster fig	<i>Ficus racemosa</i>	Moraceae	Fruit	C
19	Jam	Java plum	<i>Syzygium cumini</i>	Myrtaceae	Fruit	C
20	Jambura	Pomelo fruit	<i>Citrus maxima</i>	Rutaceae	Fruit	C
21	Kala Koro	Shirish	<i>Albizia lebbeck</i>	Fabaceae	Timber	VC
22	Kath Badam	Indian almond	<i>Terminalia catappa</i>	Combretaceae	Fruit	R
23	Kathal	Jackfruit	<i>Artocarpus heterophyllus</i>	Moraceae	Fruit	VC
24	Kathbel	Wood Apple	<i>Feronia limonia</i>	Rutaceae	Fruit	R
25	Khejur	Date palm	<i>Phoenix dactylifera</i>	Arecaceae	Fruit	VC
26	Kodom	burflower tree	<i>Anthocephalus indicus</i>	Rubiaceae	Aesthetic	C
27	Kola	Banana	<i>Musa acuminata</i>	Musaceae	Fruit	VC
28	Koroy	Lebbek tree	<i>Albizia lebbeck</i>	Fabaceae	Timber	VC
29	Krishnochura	Flame tree	<i>Delonix regia</i>	Fabaceae	Medicinal	C
30	Lebu	Lemon	<i>Citrus spp.</i>	Rutaceae	Fruit	VC
31	Madar	Purple coral tree	<i>Erythrina fusca</i>	Fabaceae	Medicinal	C
32	Mahaguni	Mahaguni	<i>Swietenia mahagoni</i>	Meliaceae	Timber	VC
33	Narikel	Coconut	<i>Cocos nucifera</i>	Arecaceae	Fruit	VC
34	Neem	Neem tree	<i>Antelaea azadirachta</i>	Meliaceae	Medicinal	C

Sr.No.	Local Name	Common name	Scientific Name	Family	Uses	Local Status*
35	Pepe	Papaya	<i>Carica papaya</i>	Caricaceae	Fruit	VC
36	Peyara	Guava	<i>Psidium guajava</i>	Myrtaceae	Fruit	VC
37	Pitali	False White Teak	<i>Trewia nudiflora</i>	Euphorbiaceae	timber	VC
38	Sajna	Drumstick tree	<i>Moringa oleifera</i>	Moringaceae	Medicinal	R
39	Shegun	Teak tree	<i>Tectona grandis</i>	Verbenaceae	Timber	VC
40	Shimul	Cotton tree	<i>Bombax ceiba</i>	Malvaceae	Fruit	R
41	Shishu	Indian rosewood	<i>Dulbergia sissoo</i>	Fabaceae	Timber	VC
42	Supari	Betel palm	<i>Areca catechu</i>	Arecaceae	Fruit	C
43	Tal	Palm	<i>Borassus flabellifer</i>	Palmae	Fruit	C
44	Tetul	Tamarind tree	<i>Tamarindus indica</i>	Fabaceae	Fruit	VC

Birds documented in the study area during the site visit are listed in Table 4-9.

**Table 4-9 Birds documented in the study area**

Sl.No.	Common Name	Scientific Name	IUCN(Global)	IUCN(Bangladesh)
1	Alexandrine Parakeet	<i>Psittacula eupatria</i>	NT	
2	Ashy Woodswallow	<i>Artamus fuscus</i>	LC	LC
3	Asian Emerald Dove	<i>Chalcophaps indica</i>	LC	
4	Asian Koel	<i>Eudynamys scolopaceus</i>	LC	
5	Asian Palm Swift	<i>Cypsiurus balasiensis</i>	LC	
6	Black Drongo	<i>Dicrurus macrocercus</i>	LC	LC
7	Black Kite	<i>Milvus migrans</i>	LC	LC
8	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	LC	
9	Black-hooded Oriole	<i>Oriolus xanthornus</i>	LC	LC
10	Black-rumped Flameback	<i>Dinopium benghalense</i>	LC	
11	Black-winged Cuckooshrike	<i>Lalage melaschistos</i>	LC	
12	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	LC	
13	Brahminy Kite	<i>Haliastur indus</i>	LC	LC
14	Bronzed Drongo	<i>Dicrurus aeneus</i>	LC	
15	Bronze-winged Jacana	<i>Metopidius indicus</i>	LC	LC
16	Brown Shrike	<i>Lanius cristatus</i>	LC	
17	Chestnut-tailed Starling	<i>Sturnia malabarica</i>	LC	
18	Cinereous Tit	<i>Parus cinereus</i>	LC	
19	Common Cuckoo	<i>Cuculus canorus</i>	LC	
20	Common Hawk-Cuckoo	<i>Hierocossus varius</i>	LC	
21	Common Iora	<i>Aegithina tiphia</i>	LC	
22	Common Kingfisher	<i>Alcedo atthis</i>	LC	LC
23	Common Myna	<i>Acridotheres tristis</i>	LC	LC

Sl.No.	Common Name	Scientific Name	IUCN(Global)	IUCN(Bangladesh)
24	Common Tailorbird	<i>Orthotomus sutorius</i>	LC	LC
25	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	LC	
26	Coppersmith Barbet	<i>Psilopogon haemacephalus</i>	LC	
27	Dusky Warbler	<i>Phylloscopus fuscatus</i>	LC	
28	Fulvous-breasted Woodpecker	<i>Dendrocopos macei</i>	LC	
29	Greater Coucal	<i>Centropus sinensis</i>	LC	LC
30	Green-billed Malkoha	<i>Phaenicophaeus tristis</i>	LC	
31	Greenish Warbler	<i>Phylloscopus trochiloides</i>	LC	
32	House Crow	<i>Corvus splendens</i>	LC	LC
33	House Sparrow	<i>Passer domesticus</i>	LC	LC
34	Indian Cuckoo	<i>Cuculus micropterus</i>	LC	
35	Indian Paradise-Flycatcher	<i>Terpsiphone paradisi</i>	LC	
36	Indian Pied Starling	<i>Gracupica contra</i>	LC	
37	Indian Pond-Heron	<i>Ardeola grayii</i>	LC	LC
38	Indian White-eye	<i>Zosterops palpebrosus</i>	LC	
39	Jungle Babbler	<i>Argya striata</i>	LC	LC
40	Jungle Myna	<i>Acridotheres fuscus</i>	LC	LC
41	Large-billed Crow	<i>Corvus macrorhynchos</i>	LC	LC
42	Large-billed Leaf Warbler	<i>Phylloscopus magnirostris</i>	LC	
43	Large-tailed Nightjar	<i>Caprimulgus macrurus</i>	LC	
44	Lineated Barbet	<i>Psilopogon lineatus</i>	LC	
45	Little Cormorant	<i>Microcarbo niger</i>	LC	LC
46	Orange-headed Thrush	<i>Geokichla citrina</i>	LC	
47	Oriental Magpie-Robin	<i>Copsychus saularis</i>	LC	LC
48	Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchos</i>	LC	
49	Plaintive Cuckoo	<i>Cacomantis merulinus</i>	LC	
50	Purple Sunbird	<i>Cinnyris asiaticus</i>	LC	
51	Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>	LC	
52	Red-vented Bulbul	<i>Pycnonotus cafer</i>	LC	LC
53	Rock Pigeon	<i>Columba livia</i>	LC	
54	Rose-ringed Parakeet	<i>Psittacula krameri</i>	LC	
55	Rufous Treepie	<i>Dendrocitta vagabunda</i>	LC	LC
56	Rufous Woodpecker	<i>Micropternus brachyurus</i>	LC	
57	Scaly-breasted Munia	<i>Lonchura punctulata</i>	LC	
58	Shikra	<i>Accipiter badius</i>	LC	
59	Spotted Dove	<i>Spilopelia chinensis</i>	LC	LC
60	Stork-billed Kingfisher	<i>Pelargopsis capensis</i>	LC	

Sl.No.	Common Name	Scientific Name	IUCN(Global)	IUCN(Bangladesh)
61	Streak-throated Woodpecker	<i>Picus xanthopygaeus</i>	LC	
62	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	LC	LC
63	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	LC	LC
64	Yellow-footed Green Pigeon	<i>Treron Phoenicopterus</i>	LC	

Mammals reported in the study area are listed in Table 4-10. This list is prepared on the basis of stakeholder consultations.

**Table 4-10 Mammals in the documented in the study area**

Sl. No.	Common Name	Local Name	Scientific Name	Family	IUCN Red List of Bangladesh, 2015	IUCN Red List Version 2022-1
1	Common Indian Field Mouse	Metho Idur	<i>Mus booduga</i>	Muridae	LC	LC
2	Small Indian Mongoose	Choto beji	<i>Urva auropunctata</i>	Herpestidae	LC	LC
3	Common House Rat	Idur	<i>Rattus rattus</i>	Muridae	LC	LC
4	Indian Fruit Bat	Badur	<i>Pteropus giganteus</i>	Pteropodidae	LC	LC
5	Irrawaddy Squirrel	Hoary-bellied Himalayan Squirrel	<i>Callosciurus pygerythrus</i>	Sciuridae	LC	LC
6	Large Indian Civet		<i>Viverra zebitha</i>	Viverridae	NT	LC

Sighting rate of herpetofauna is very low. The species listed in Table 4-11 are documented on the basis of secondary data and consultations.

**Table 4-11 Herpetofauna documented in the study area**

Sl. No.	Common Name	Local Name	Scientific Name	IUCN Bangladesh Status, 2015*	IUCN Red List Version-2022-1
<b>Amphibians</b>					
1	Asian Common Toad	Kuno bang	<i>Duttaphrynus melanostictus</i>	LC	LC
2	Indian BullFrog	Kola bang	<i>Hoplobatrachus tigerinus</i>	LC	LC
3	Indian Skipper Frog	Katkati bang	<i>Euphlyctis cyanophlyctis</i>	LC	LC
4	Bombay Wart Frog	Dakshinatter Jhi-Jhi Bang	<i>Fejervarya syhadrensis</i>	LC	LC
<b>Reptiles</b>					
1	Common Garden Lizard	Rokto chosa	<i>Calotes versicolor</i>	LC	LC
2	Checkered Keelback	Dhora Shap	<i>Xenochrophis piscator</i>	LC	LC
3	Indian Rat snake	Daraj Shap	<i>Ptyas mucosus</i>	LC	LC
4	Spectacled Cobra	Gokhra Shap	<i>Naja naja</i>	NT	NT



Sl. No.	Common Name	Local Name	Scientific Name	IUCN Bangladesh Status, 2015*	IUCN Red List Version-2022-1
5	Common House Gecko	Pati Tiktiki	<i>Hemidactylus frenatus</i>	LC	LC
6	Common Smooth-scaled Water Snake	Painna Shap	<i>Enhydris enhydris</i>	LC	LC
7	Indian Mabuya	Achil	<i>Eutropis carinata</i>	LC	LC
8	Bengal Monitor Lizard	Gui shap	<i>Varanus bengalensis</i>	NT	NT

On the basis of primary and secondary data, a checklist of aquatic fauna is prepared as follows: Table 4-12 represents Fishes, Table 4-13 represents Prawns and Table 4-14 represents Macrophytes.

**Table 4-12 Fishes documented in the study area.**

Sl. No.	Local Name	Common Name	Family	Scientific Name	IUCN Bangladesh Status, 2015*	IUCN Global Status 2022-1*
1	Ayre	Long Whiskered	Cobitidae	<i>Sperata aor</i>	VU	LC
2	Bata	Bata Labeo	Cyprinidae	<i>Labeo bata</i>	LC	LC
3	Bailla	Tank Goby	Gobiidae	<i>Glossogobius giuris</i>	LC	LC
4	Bheda	Mottled Nandus	Nandidae	<i>Nandus nandus</i>	NT	LC
5	Bighead	Bighead Carp	Cyprinidae	<i>Aristichthys nobilis</i>	LC	LC
6	Boal	Wallago	Siluridae	<i>Wallago attu</i>	LC	VU
7	Carpu	Common carp	Cyprinidae	<i>Cyprinus carpio</i>	LC	LC
8	Cenia	Indian Gagata	Synbranchidae	<i>Gagata cenia</i>	LC	LC
9	Chalapunti	Swamp Barb, Chola Barb	Cyprinidae	<i>Puntius chola</i>	LC	LC
10	Chapila	Indian River Shad	Clupeidae	<i>Gudusia chapra</i>	VU	LC
11	Chital	Humped Featherback	Notopterid	<i>Chitala chitala</i>	EN	NT
12	Foli	Grey Featherback	Notopteridae	<i>Notopterus notopterus</i>	LC	LC
13	Cheng	Walking Snakehead	Channidae	<i>Channa orientalis</i>	LC	LC
14	Gajar	Great Snakehead	Channidae	<i>Channa marulius</i>	EN	LC
15	Garua Bacha	Garua Bacha, Gagra	Schilbeidae	<i>Clupisoma garua</i>	EN	LC
16	Ghania	Boggut Labeo	Cyprinidae	<i>Labeo boggut</i>	VU	LC
17	Guchi Baim	Striped Spinyeel	Mastacembelidae	<i>Macrognathus pancalus</i>	LC	LC
18	Gulsha Tengra	Day's Mystus	Cobitidae	<i>Mystus tengara</i>	LC	LC
19	Gutum	Guntea Loach	Cobitidae	<i>Lepidocephalichthys guntea</i>	LC	LC
20	Ilish	Hilsa Shad	Clupeidae	<i>Tenulosa ilisha</i>	LC	LC
21	Kajuli	Gangetic Ailia	Schilbeidae	<i>Ailia coila</i>	LC	NT

Sl. No.	Local Name	Common Name	Family	Scientific Name	IUCN Bangladesh Status, 2015*	IUCN Global Status 2022-1*
22	Kalibaus	Black Rohu, Kalbasu	Cyprinidae	<i>Labeo calbasu</i>	LC	LC
23	Kakila	Needle Fish	Belonidae	<i>Xenentodon cancila</i>	LC	LC
24	Katla	Catla	Cyprinidae	<i>Catla catla</i>	LC	NE
25	Khalisha	Stripled Gourami	Mastacembelidae	<i>Colisa fasciata</i>	LC	LC
26	Koi	The Climbing Perch	Anabantidae	<i>Anabas testudineus</i>	LC	LC
27	Kuchia	Cuchia	Synbranchidae	<i>Monopterus cuchia</i>	VU	VU
28	Lal Chanda	Highfin Glassy Perchlet	Abbasside	<i>Pseudambassis lala</i>	LC	NE
29	Mola	Mola carplet	Cyprinidae	<i>Amblypharyngodon mola</i>	LC	LC
30	Mrigal	Mrigal carp	Cyprinidae	<i>Cirrhinus cirrhosus</i>	NT	VU
31	Nilotica	Nile Tilapia	Cichlidae	<i>Oreochromis niloticus</i>	LC	LC
32	Poa	Pama Croaker, Pama	Sciaenidae	<i>Otolithoides pama</i>	LC	NE
33	Potka	Green puffer fish	Cichlidae	<i>Tetraodon fluviatilis</i>	LC	LC
34	Pungas	Pungas	Pangasiidae	<i>Pangaius pangaius</i>	LC	LC
35	Jat Punti	Spotfin Swamp Barb	Cyprinidae	<i>Puntius sophore</i>	LC	LC
36	Rani	Bengal Loach	Cobitidae	<i>Botia dario</i>	EN	LC
37	Rui, Rohit	Rohu, Rohu Carp	Cyprinidae	<i>Labeo rohita</i>	LC	LC
38	Sal Baim	Tire-track Spiny Eel	Mastacembelidae	<i>Mastacembelus armatus</i>	EN	LC
39	Sar Punti	Olive Berb	Cyprinidae	<i>Puntius sarana</i>	NT	NT
40	Shing	Stinging Catfish	Heteropneustidae	<i>Heteropneustes fossilis</i>	LC	LC
41	Shol	Common Snakehead	Channidae	<i>Channa striata</i>	LC	LC
42	Silver Carp	Silver Carp	Cyprinidae	<i>Hypophthalmichthys molitrix</i>	LC	LC
43	Taki	Spotted Snakehead	Channidae	<i>Channa punctatus</i>	LC	LC
44	Tara Baim	Lesser Spiny Eel	Mastacembelidae	<i>Macrogathus aculeatus</i>	NC	NE
45	Tengra	Stripped Dwarf catfish	Cobitidae	<i>Mystus vittatus</i>	LC	LC
46	Thai Sarpunti	Java Barb	Cyprinidae	<i>Barbonymus gonionotus</i>	LC	LC
47	Tilapia	Tilapia	Cichlidae	<i>Oreochromis mossambicus</i>	LC	LC



**Table 4-13 Prawns documented in the study area.**

Sl. No.	Local name	Family	Common name	Scientific name	IUCN Red List of Bangladesh, 2015*	IUCN Red List Version 2022-1**
1	Bagda Chingri	Penaeidae	Giant Tiger Shrimp	<i>Penaeus monodon</i>	LC	NE
2	Golda Chingri	Palaemonidae	Giant Freshwater prawn	<i>Macrobrachium rosenbergii</i>	LC	LC
3	Kucho Chingri	Penaeidae	Jinga Shrimp	<i>Metapenaeus affinis</i>	DD	NE
4	Loilla Chingri	Penaeidae	Brown Shrimp	<i>Metapenaeus monoceros</i>	LC	NE
5	Chotka icha	Palaemonidae	Monsoon river prawn	<i>Macrobrachium malcomsonii</i>	LC	LC
6	Gura Icha	Palaemonidae	Indian whisker prawn	<i>Macrobrachium lamarrei</i>	LC	LC

**Table 4-14 Macrophytes documented in the study area.**

Sl. No.	Local Name	Common name	Scientific Name	Family	Local Status
1	Kochuripana	Common water hyacinth	<i>Eichhornia crassipes</i>	Pontederiaceae	VC
2	Topapana	Water lettuce	<i>Pistia stratiotes</i>	Araceae	VC
3	Khudipana	common duckweed	<i>Lemna minor</i>	Araceae	C
4	Pata Jhajji	Tape grass	<i>Vallisneria spiralis</i>	Hydrocharitaceae	R
5	Shapla	Water lily	<i>Nymphaea nouchali</i>	Nymphaeaceae	C
6	Kolmi	Water spinach	<i>Ipomoea aquatica</i>	Convolvulaceae	VC
7	Helenchaa	Buffalo spinach	<i>Enhydra fluctuant</i>	Asteraceae	VC
8	Dhol kolmi	Pink morning glory	<i>Ipomoea fistulosa</i>	Convolvulaceae	VC
9	Kasari	Greater club rush	<i>Actinoscirpus grossus</i>	Cyperaceae	C
10	Maloncho	Alligator weed	<i>Alternanthera philoxeroides</i>	Amaranthaceae	VC

#### 4.1.8.3 Species of Conservation Importance

Based on the collected data, species of conservation importance have been identified with reference to the IUCN Red List version 16.0 of March 2024. This analysis highlights the presence of several significant species within the study area, each with varying levels of protection and conservation status. Only one endangered tree species, Teak, was found in the study area, emphasizing the need for targeted conservation efforts to preserve this valuable species.

Regarding avifauna, one Near-threatened bird species, the Alexandrine Parakeet, was observed.

During the survey, seven species of herpetofauna were documented. Among these, one species of snake, the Indian Cobra, is listed under the Near-threatened category of the IUCN Red List version 16.0 of March 2024.

Additionally, fifty-three aquatic fauna species were documented. Of these, based on the IUCN Red List (Bangladesh) version 16.0 of March 2024, five species are listed as Endangered: Chital, Gajar, Garua Bacha, Rani, and Sal Baim. Four species are listed as Vulnerable: Ayre, Chapila, Ghania, and Kuchia. According to the IUCN Red List (Global) version 16.0 of March 2024, three species are listed as Vulnerable: Boal, Kuchia, and Mrigal.

The following Figure 4-7 and Figure 4-8 provides the data for faunal Species in the study area.

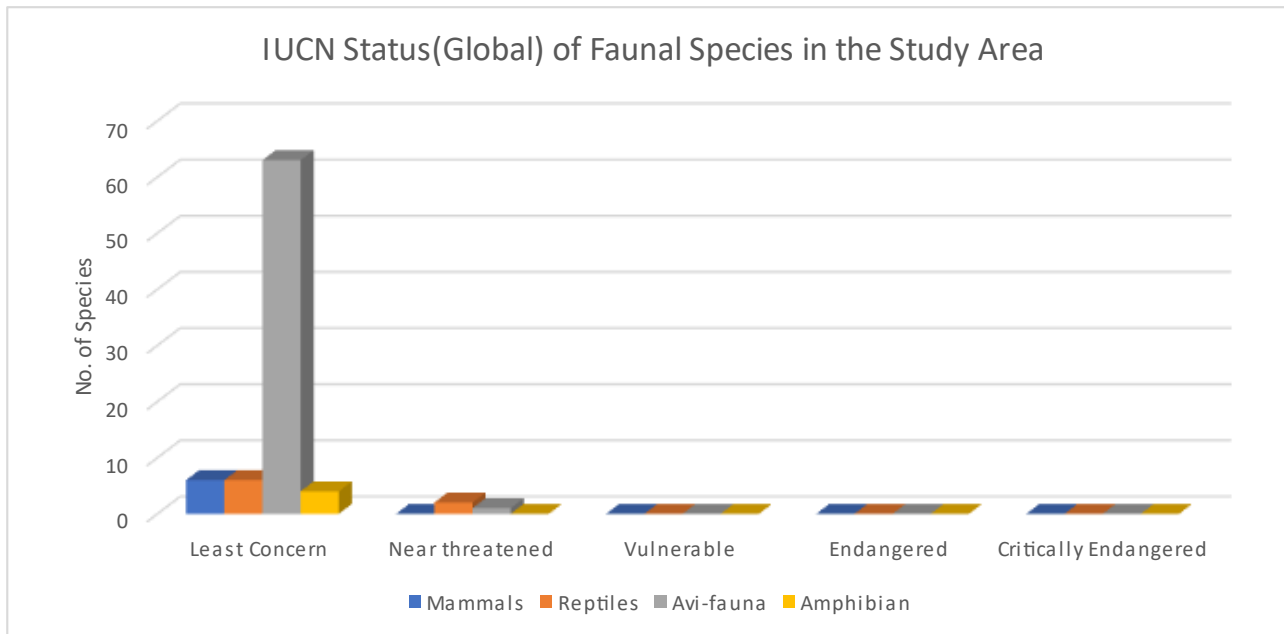


Figure 4-7 Categorization of Avifauna and Terrestrial fauna under IUCN red list Global

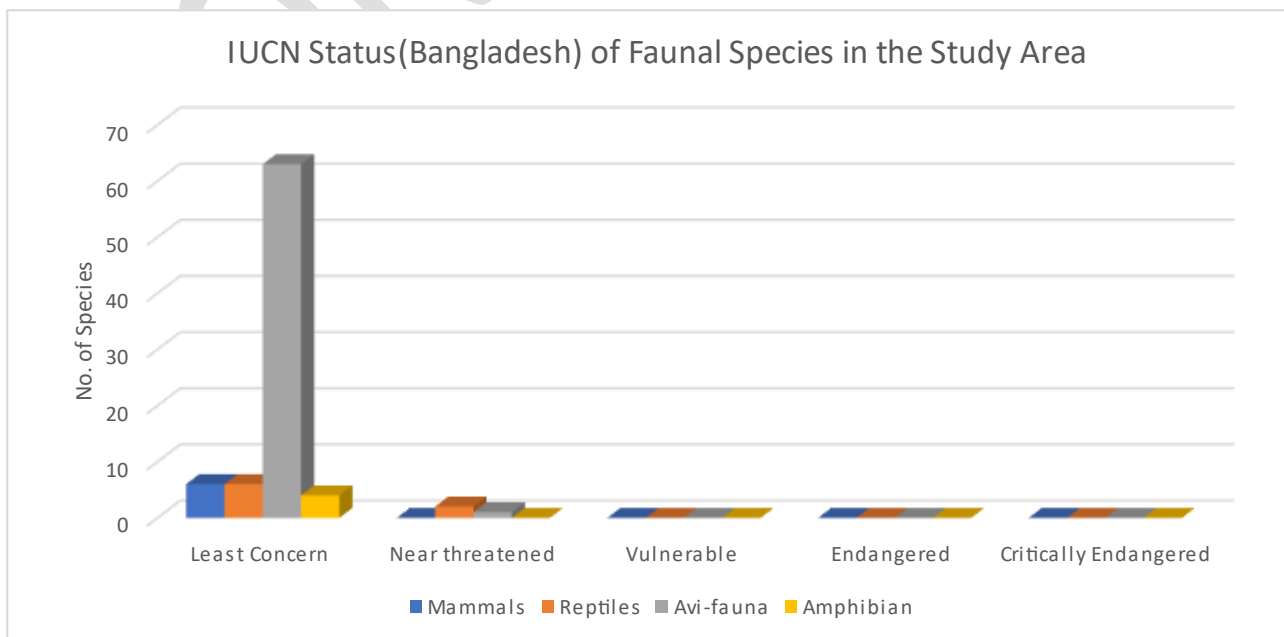


Figure 4-8 Categorization of Avifauna and Terrestrial fauna under IUCN red list Bangladesh

In the similar regard, Figure 4-9 and Figure 4-10: gives categorization of Aquatic fauna under IUCN red list of Global assessment and Bangladesh, respectively.

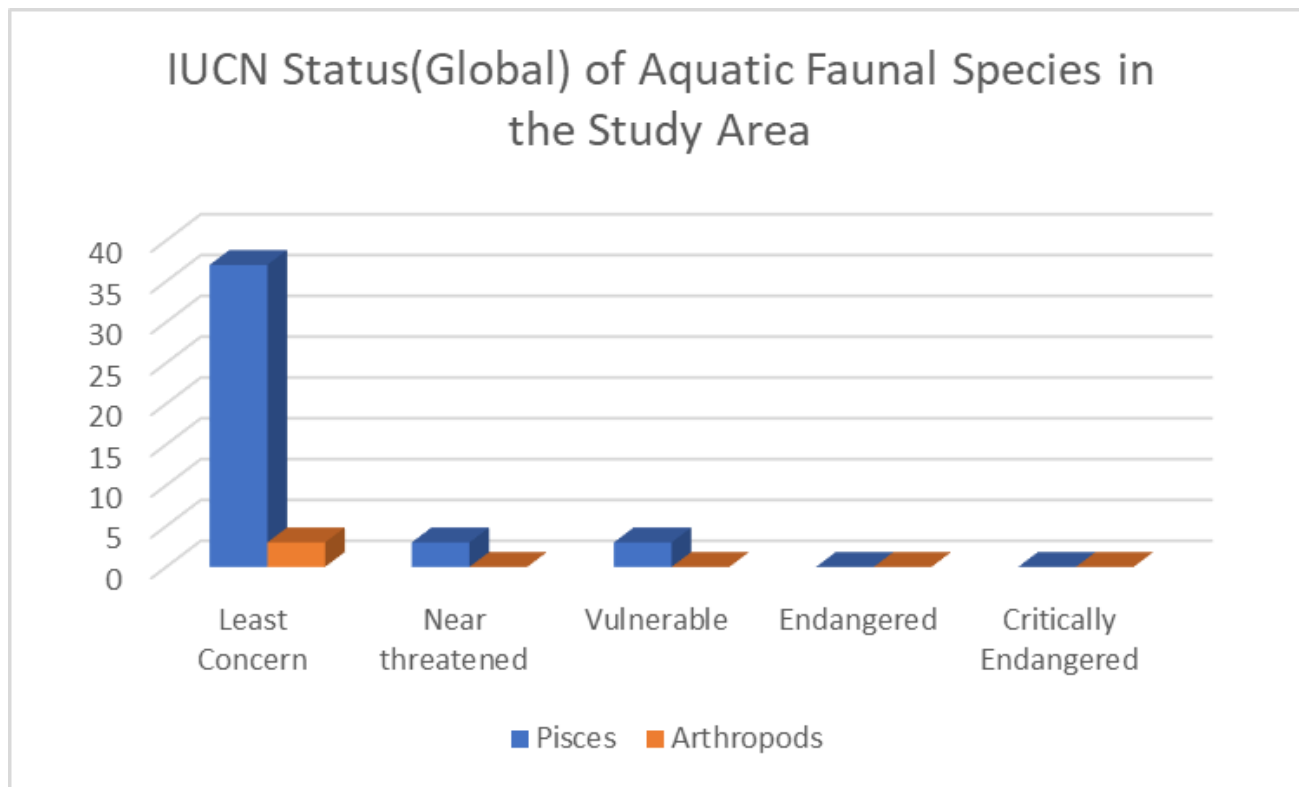


Figure 4-9 Categorization of Aquatic fauna under IUCN red list Global

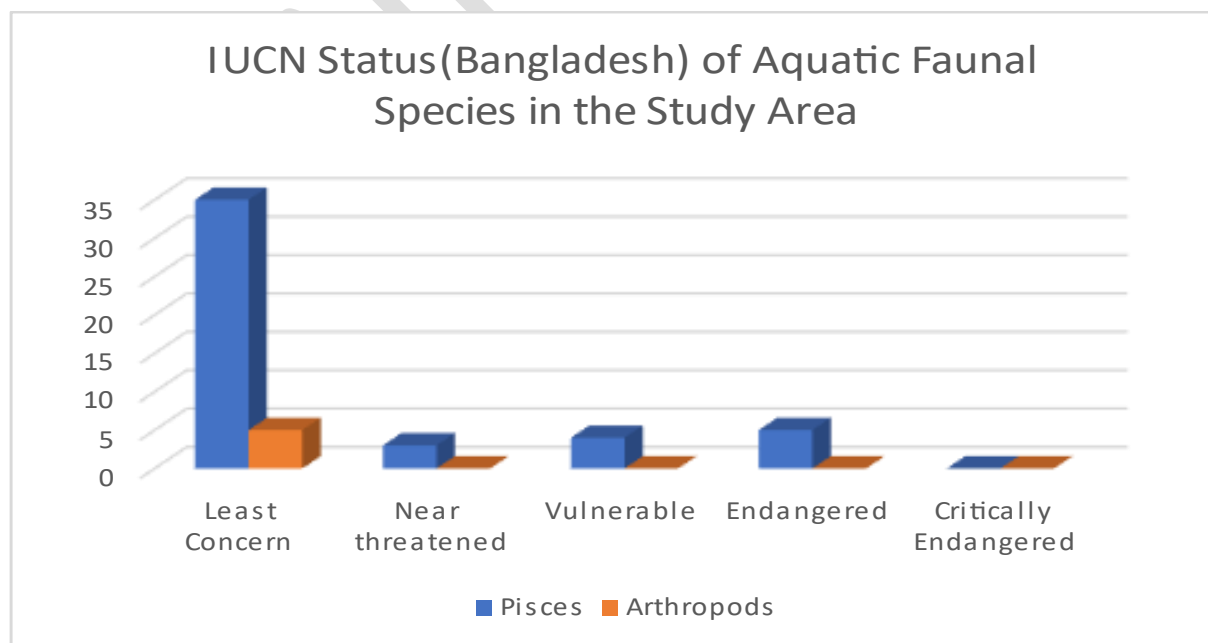


Figure 4-10 Categorization of fauna under IUCN red list Bangladesh

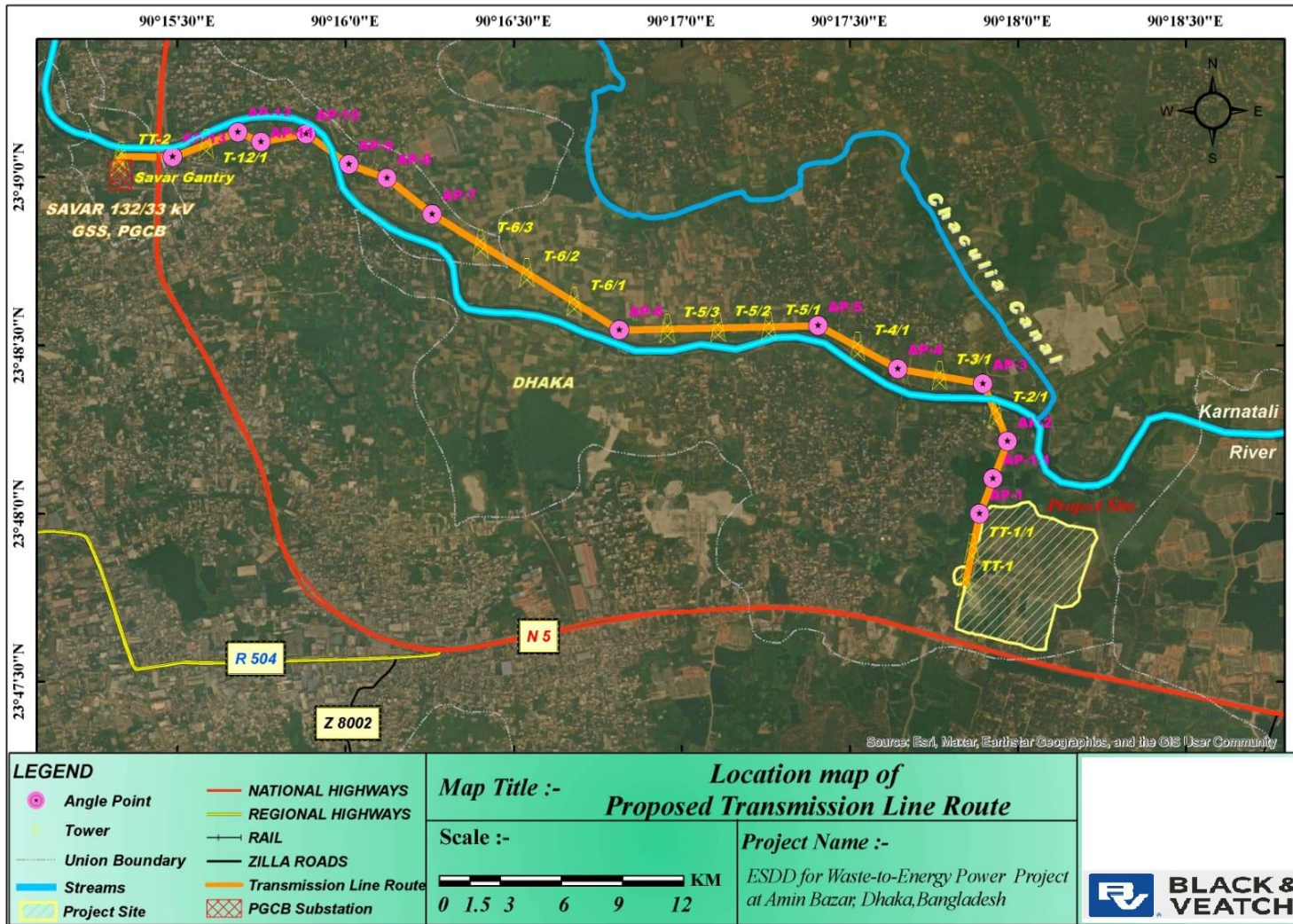


Figure 4-11 Categorization of fauna under IUCN red list Bangladesh

The transmission line of the Project runs very close to the Turag River and passes over it on two occasions. The Turag River is an ecologically critical area in Bangladesh, playing a vital role in the local ecosystem and supporting a diverse range of flora and fauna. This river is a crucial waterway for agricultural activities, fisheries, and transportation, and it also serves as a source of water for various industrial and domestic uses. However, the Turag River faces significant environmental challenges, including pollution, encroachment, and habitat fragmentation.

#### **4.1.9 Socio-economic (Land Acquisition and Stakeholder Management)**

##### **4.1.9.1 Administrative structure of Bangladesh:**

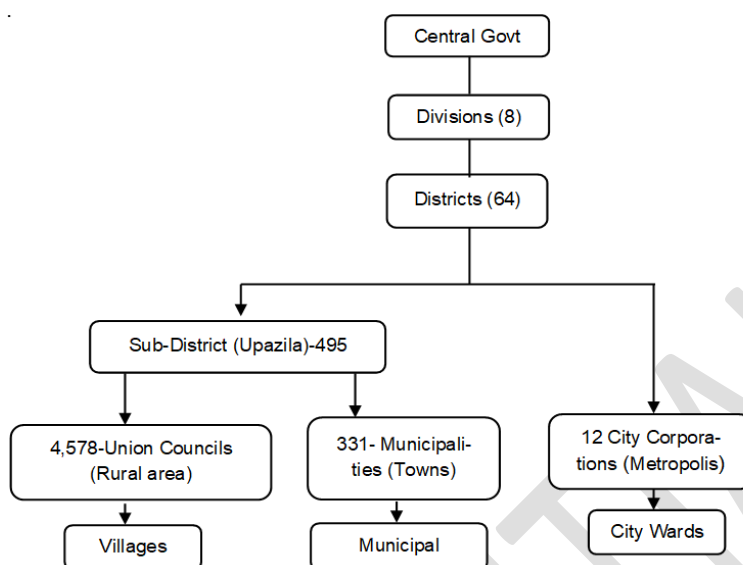
The administrative structure of Bangladesh is organized into several hierarchical levels. As per the convenience of administration, the country is divided into eight administrative divisions; each is placed under a Divisional Commissioner. Each division is further sub-divided into zilas (Districts). Each zila is further divided into a number of 495-Upazilas (Sub district). The representatives of the government at zila and Upazila level are Deputy Commissioner (DC) and Upazila Nirbahi Officer (UNO) respectively. Further, Upazila is sub-divided into 4,578-Union Parishads (or Union Councils) which are the smallest rural administrative units and these Unions Parishads typically encompass several villages.

The tiers of Local Government in Bangladesh cover Union Parishad, Upazila Parishad and Zila Parishad but in the urban areas, two types of local government system are in operation: namely-Pourashava (Municipality) and City Corporation respectively. The local government bodies are constituted by the representatives directly elected by the people.

At present, Upazilas are segmented into 12 City Corporations and 331 municipalities based on population and economic factors, with the former divided into city wards and the latter into municipal wards, both of which are further subdivided into Mahallas to encompass local communities.



**Administrative Hierarchy of the Government of Bangladesh**



**Figure 4-12 Administrative Hierarchy of the Government of Bangladesh**

**About Savar Upazilla:**

Savar<sup>13</sup> is an Upazila of Dhaka District in the division of Dhaka, Bangladesh and is located at a distance of about 24 km to the northwest side of Dhaka city. Savar is mostly famous for the National Martyrs' Memorial, the national monument for the martyrs of the Liberation War of Bangladesh.

Savar is located at 23°51'30"N 90°16'00"E / 23.8583°N 90.2667°E / 23.8583; 90.2667. It has 66,956 households covering a total area of 280.11 sq.km. It is bounded by Kaliakair and Gazipur Sadar Upazilas on the north, Keraniganj Upazila on the south, Mirpur, Mohammadpur, Pallabi, and Uttara thanas of Dhaka City on the east, and Dhamrai and Singair Upazilas on the west. The land of the Upazila is composed of alluvium soil of the Pleistocene period. The main rivers are Bangshi, Turag, Buriganga, and Karnatali.

According to the 2011 Bangladesh census, Savar Upazila had 3,59,084 households covering a total population of 13,85,910 residing within a total 280.11 sq.km. area. Savar had a literacy rate of 68 percent (age 7 and over), compared to the national average of 51.8 percent, and a sex ratio of 876 females per 1000 males.

The religious breakdown was Muslim 93.86 percent, Hindu 5.35 percent, Christian 0.58 percent, Buddhist 0.20 percent, others 0.01 percent, and ethnic minority group nationals numbered 319 including Buno, Garo, Chakma (Sangma), and Burman. The main occupations are Agriculture 24.34 percent, agricultural labourer 12.84 percent, wage labourer 4.44 percent, cattle breeding, forestry and

<sup>13</sup> Source: Bangladesh population census, 2001 & 2011, Bangladesh Bureau of Statistics, Cultural Survey Report of Savar Upazila, 2007.

fishing 1.90 percent, industry 1.37 percent, commerce 17.35 percent, service 20.68 percent, construction 1.66 percent, transport 3.96 percent and other 11.46 percent.

#### 4.1.9.2 Demographic profile

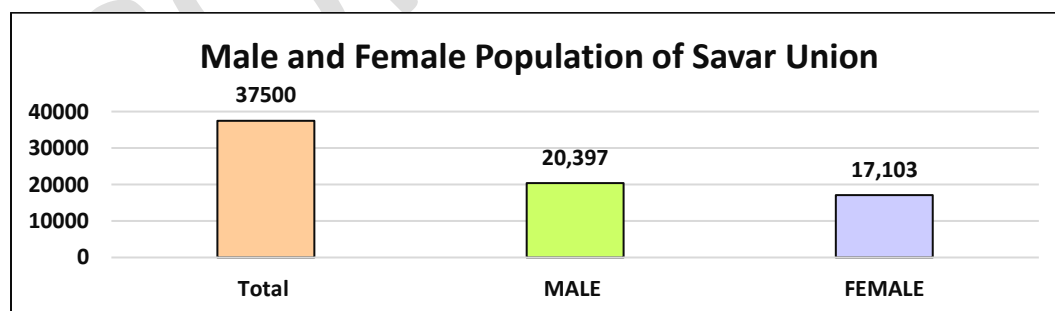
Savar Upazila is divided into Savar Municipality and 13 union parishads namely, Aminbazar, Ashulia, Banogram, Bhakurta, Birulia, Dhamsona, Kaundia, Pathalia, Savar, Shimulia, Tetuljhora, and Yearpur. The union parishads are subdivided into 220 mauzas and 380 villages. Savar Municipality is subdivided into nine wards and 57 mahallas. The demographic details of Savar Upazila, Savar Municipality, Amin Bazar union and Baliarpur Mouza are furnished below:

**Table 4-15 Demographic profile of Savar Upazila, Municipality and Union**

Savar Upazila								
Municipality	Union	Mouza	Village	Population		Density (per.sq.km)	Literacy	
				Urban	Rural		Urban	Rural
1	12	216	380	2,96,851	10,89,059	4,948	74.9	66.1

Savar Municipality					
Area (sq.km)	Ward	Mahalla	Population	Density (per sa.km)	Literacy rate ( % )
13.54	9	56	2,96,851	21,924	74.9

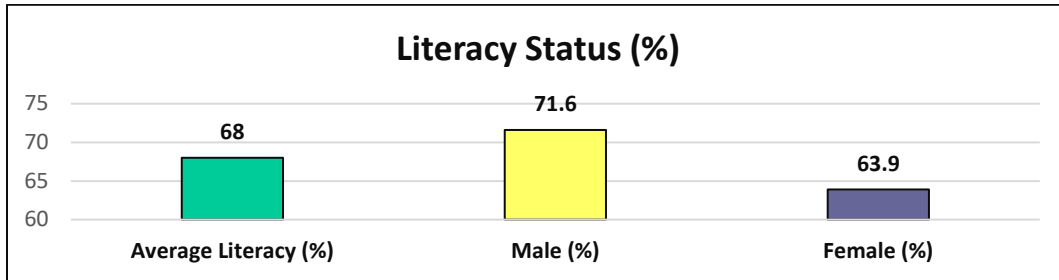
Savar Union			
Area (acre)	Total households	Total population	Population density (sq.km)
2,521	11,981	45,887	4498



**Figure 4-13 Male and Female population of Savar Union**

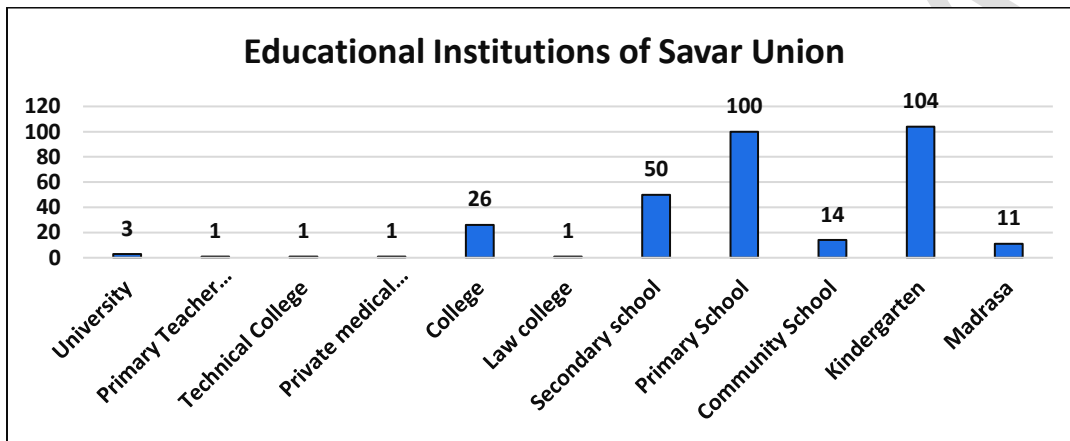
The above table defines distribution of male and female population across Savar Union with higher concentration of male (20,397) over female (17,103).





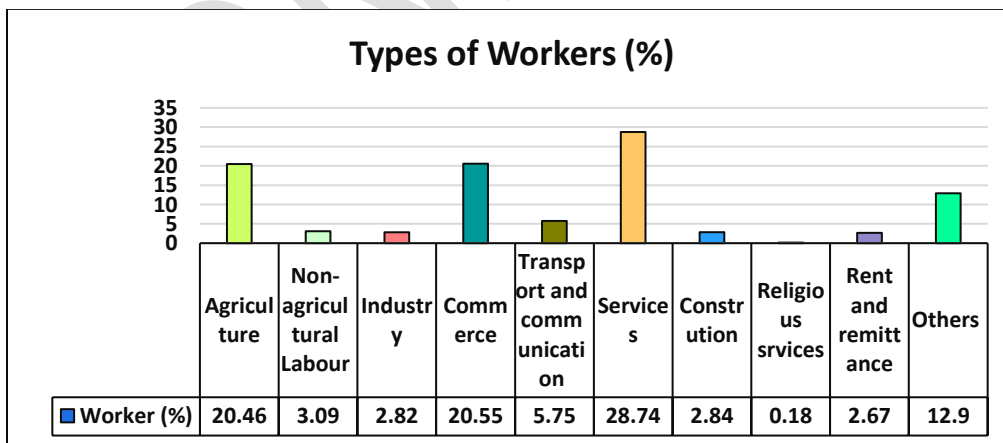
**Figure 4-14 Literacy Status**

The above table talks about literacy status of Savar Union with 71.6 percent male and 63.9 percent female with an average literacy 68 percent.



**Figure 4-15 Educational Institutions of Savar Union**

The above reflects status of educational institutions across Savar Union that comprise university (3), primary teachers’ training institute (1), Technical college)1), Private medical college (1), College (26), Law college(1), Secondary school (50), Primary school (100), Community school (14), Kindergarten (104) and Madrasa (11).



**Figure 4-16 Types of Workers**

The above depicts the picture of type of workers across Savar Union that include Agriculture (20.46 percent), Non-agricultural labour (3.09 percent), Industry (2.82 percent), Commerce (20.55 percent),

Transport and communication (5.75 percent), Service (28.74 percent), Construction (2.84 percent), Religious services (0.18 percent), Rent and remittance (2.67 percent) and Others (12.9 percent). It can be concluded that, service sector captured highest concentration of workers (28.74 percent) followed by commerce (20.55 percent) and agriculture (20.46 percent) respectively.

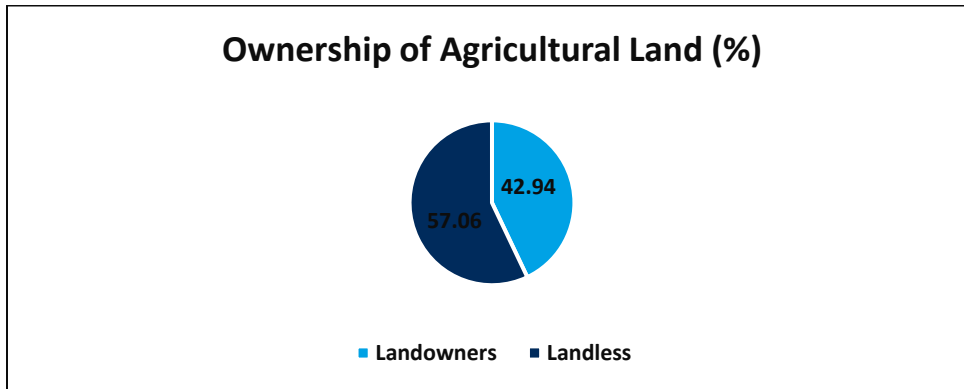


Figure 4-17 Ownership of agricultural land

The above table explains the ownership of agricultural land across Savar Union with ownership of 57.06 percent followed by 42.94 percent landless.

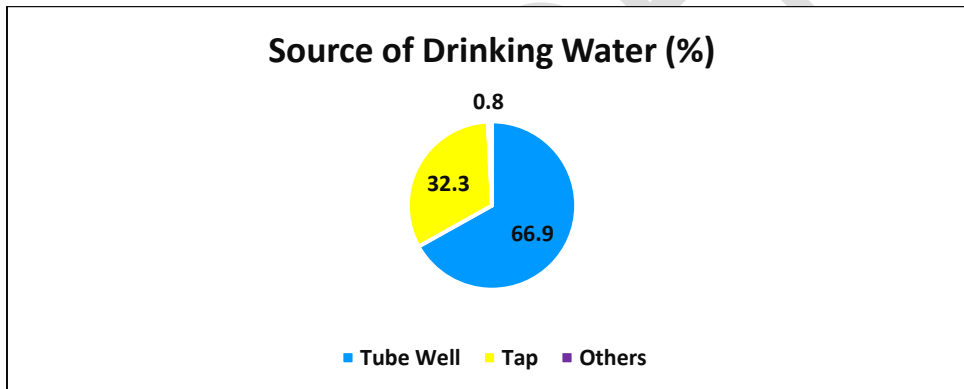
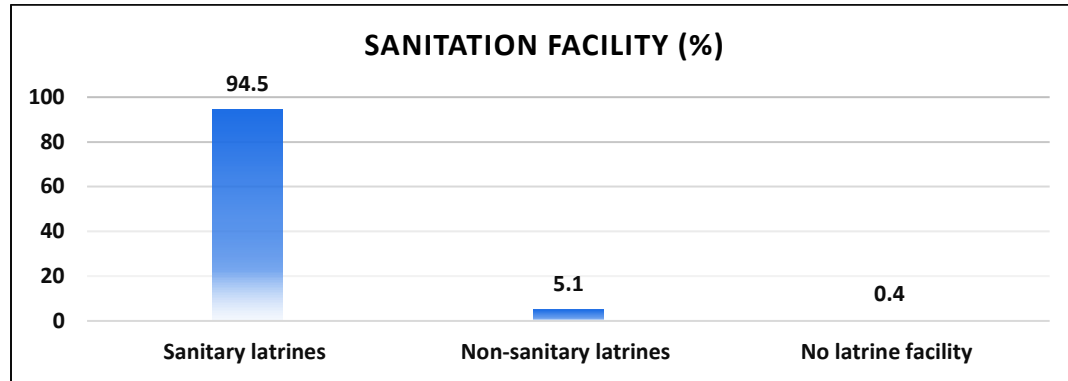


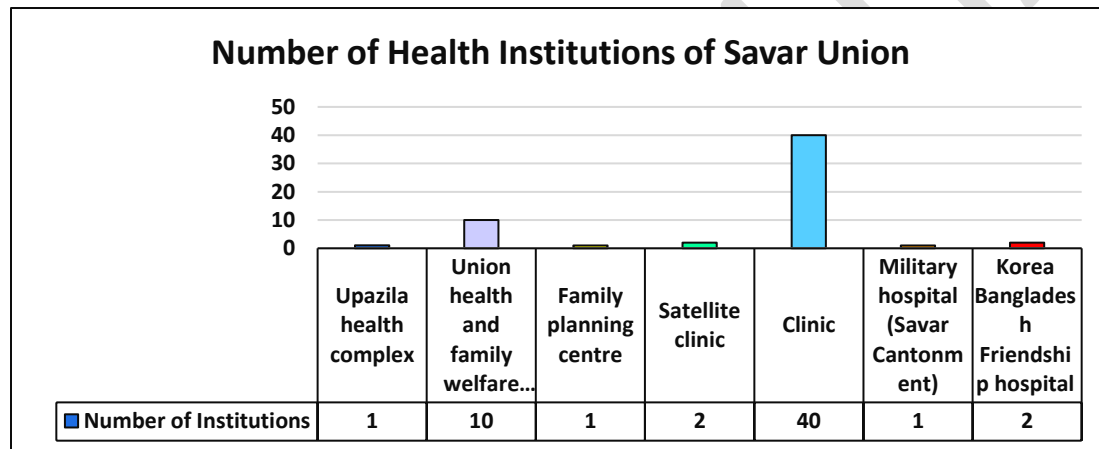
Figure 4-18 Sources of drinking water

The above table defines the source of drinking water across Savar Union where 66.9 percent households are brought under tubewell facility, 32.3 percent come under tap water connection and rest 0.8 percent belong to another category. Hence, major source of drinking water across Savar Union is Tubewell.



**Figure 4-19 Sources of drinking water**

The above table depicts sanitation facility across Savar Union with 94.5 percent households have access to sanitary latrines facility, followed by 5.1 percent non-sanitary latrines and rest 0.4 percent no latrine. Hence, access to sanitary latrines is reported maximum coverage across households in Savar Union.



**Figure 4-20 Sources of drinking water**

The above table shares the status of health institutions found across Savar Union that include Upazila health complex (1), Union Health and Family Welfare Centre (10), Family Planning Centre (2), Satellite Clinic (2), Clinic (40), Military hospital (Savar Cantonment) and Korea Bangladesh Friendship Hospital (2). Therefore, it can be concluded that, clinic is easily accessible to majority of household at the community level followed by Union health and family welfare Centre.

#### 4.1.9.3 Summary of demography, details of Project affected persons with status of compensation, socio-economic and gender aspect of Project Affected Peoples (PAPs)

**Review of Socio-Economic status of Project impacted households shared in the ESIA report.**

■ **Project Affected Households:**

Based on the data provided in ESIA report, a total of 242 landowners are impacted due to the land acquisition of the proposed Project but out of it, only 146 PAPs have been surveyed by the consultant and rest 96 PAPs have not been surveyed. Out of 96, 55 could not be found and 41

did not respond to survey and were not willing to take up the survey. Based on the information from the DC office representative, of the 242 households, 138 have received compensation while 104 have not yet received. The reasons stated for pending cases of compensation are as follows:

- 88 landowners are involved in litigation (mostly among property shareholders).
- 9 landowners residing abroad.
- 7 landowners' land is mortgaged to a bank; they will receive compensation once they obtain a NoC from the bank.

The following table shows the data for landowners as per the recipient and non-recipients of compensation along with the quantum of land holding.

**Table 4-16 Quantum of land as per the recipients and non-recipients from the owners**

Status of Payment Disbursement as per Quantum of Land					
	Recipient	Non-recipient owners, land Parcel & Money			Total
		Litigation	Mortgage	Overseas	
No of Owners	138	88	7	9	242
Quantum of Land (Acres)	17.745	10.1535	1.204	0.8975	30
Amount of Money (BDT)	<b>199,68,50,492.00</b>	<b>48,96,72,726.00</b>	<b>5,80,65,294.48</b>	<b>4,32,83,722.00</b>	<b>2,58,78,72,234.48</b>
<b>Total Project Budget: 336,34,68,952.87 BDT</b>					

Source: ESIA Report, 2022.

Review of the ESIA report stated that , the total estimated budget for this Project is 336,34,68,952.87 BDT, of which 199,68,50492.00 BDT has already been disbursed to the 138 awarded persons against 17.745 acres of land which translates to 59.36% of the total land price. Review of the Award Book obtained from the District Authority as part of the Due Diligence study carried out for the project reveals that the total award amounting of 336,34,68,952.87 BDT includes compensation for land (2,587,872,234.48 BDT), Structure (539,760,193.80 BDT)<sup>14</sup>, tree loss (5900 BDT), and business loss (117,000,0 BDT).

■ **Analysis of gender-wise age group:**

The analysis of age-wise gender category of impacted households is mentioned in the report. The representation of females in adolescent age group (11-18 years) is reported 7.91 percent which is higher than male counterpart(5.60 percent), representation of females in youth category ( 19 – 30 years) is reported 10.87 percent which is also higher than the male (9.23 percent) but in age

<sup>14</sup> This amount include Structure Transfer and Reconstruction Grants as per provisions provided in the ARIPA Act.

category of 31- 40 years, the concentration of males is 10.71 percent, which is higher than the female (9.06 percent) and the concentration of males in 41 – 50 years age category is reported 8.24 percent which is little higher than the female counterpart (7.58 percent) and the concentration of male in 51- 60 years age category is reported 6.92 percent which is predominantly higher than the female (3.29 percent) but 4.94 percent of female in 60+ and above age category is reported higher than the male counterpart (3.29 percent).

■ **Religious Affiliation:**

A total of 607 persons were identified from 146 HHs for survey to understand their religious affiliation. Out of it, 95 percent (575 members) people are identified as Muslims and rest 5 percent (30 members) represent Hindu community. Therefore, majority of PAP households belong to Muslim community.

■ **Marital Status:**

Out of total surveyed population in Project area, the concentration of married population is comparatively higher than the unmarried whereas, representation of married males is reported higher than the females but the representation of separated female is higher than the male counterpart. Moreover, the concentration of both widow and divorced population is reported very minimal.

■ **Education:**

The analysis of education status amongst Project impacted population has highlighted the higher representation of female over male in primary category whereas, male over female in secondary category and the percentage of illiterate population is very less as compared to literate population. On the other hand, almost equal representation of both male and female students reported in higher secondary category. Looking at both the graduate level, the representation of male is little higher than the female whereas, representation of male is significantly higher than the female in master degree level. It was also reported that higher concentration of male population in Hafez E Quran study over female counterpart. The reported vocational training is very minimal in amongst Project impacted population.

■ **Occupation:**

Out of total 607 members represented 146 HHs in Project area, the study highlights diverse range of occupation covering agriculture, business, private job, govt. job, electrician, foreign employment, mechanic. Driver, wage labour, rent collector, teacher and professional sectors. Amongst surveyed households, the majority of male members (101) are engaged in business followed by private job (32), agriculture (17) and foreign job (16) and on the other hand, majority of female members (150) belong to housewives, followed by business (12) and private job (11) but interestingly, no female is engaged in agricultural activity whereas, the representation in other occupation is very minimal as per the survey report.

■ **Monthly Household Income of Household head from Primary Source as well as secondary source:**

Socio economic survey reveals that the average annual income of the landowner households is 275615 BDT and average annual income generated from procured land was 26810 BDT which is approximately

10% of annual income of the landowner households. Following Table 4-17 shows the range of income of 146 HHHs of the project affected family from their primary occupation. The socio-economic survey data reveals that 18.49 percent of the household heads are earning monthly income ranges between BDT 5000 to 11,000 whereas, again 18.49 percent of the households are earning between BDT 21,000 to 30,000 per month. On the other hand, 17.81 percent of the household heads are earning more than BDT 1 lakh per month, About 14.38 percent household heads are earning between BDT 50,000 to 1 lakh per month and 17.12 percent between BDT 11,000 to 20,000 per month.

**Table 4-17 Income range of Household Head from Primary Occupation**

Amount of income range	No	%
5000 to 10000	27	18.49
11000 to 20000	25	17.12
21000 to 30000	27	18.49
31000 to 40000	11	7.53
41000 to 50000	9	6.16
50000 to 1 lakh	21	14.38
More than 1 lakh	26	17.81
<b>Total</b>	<b>146</b>	<b>100.00</b>

Source: EQMS's Socio-economic survey August 2022

■ **Monthly Household Income from secondary occupation of HHH's**

Socio-economic survey data shows that, household head who are involved in agricultural activity often participate in secondary occupational activity such as livestock rearing which is a common practice in agricultural families as secondary sources of income. The survey revealed that 9 out of 17 household heads have income from cattle rearing and milk selling. On an average each household sells 3–5-liter milk every day with pricing of 80 BDT per liter, which is almost 7000 BDT per month.

■ **Monthly Household Income from Other family members**

Socio-economic survey data shows that apart from 146 Household Head, there are numerous numbers of people from the family members who are involved with income generating activities. From the gender segregated occupational data in table we found that, there are 26 women from surveyed household who is involved in income generating activities. From those 26 women, 11 are involved in private sector job with average monthly income 20500 BDT, 12 women involved in business with average monthly income 40000 BDT, 1 woman involved in govt. job, 1 teaching and 1 rent collection with monthly income 22000 BDT, 25000 BDT and 32000 BDT respectively.

Apart from the women those who are involved in income generating activities, there are 60 men found from the surveyed household involved in income generating activities in different sector.

Following Table 4-18 illustrates professional involvement from other family members in income generating activities with monthly average income.

**Table 4-18 Involvement with income from family members and amount of income**

SL	Income generating activities	No. of person involved	Average Monthly Income (each) BDT
1	Agriculture	2	10000
2	Private Job	7	23000
3	Business	24	28000
4	Government Job	1	30000
5	Electrician	2	12000
6	Remittance	16	30000
7	Mechanic	2	15000
8	Driver	3	12000
9	Professional	3	100000

Source: EQMS's Socio-economic survey August 2022

### ■ Monthly Household Income

The analysis of household income among the surveyed populations indicates that a significant portion, specifically 54 households (36.99%), falls within the income bracket of BDT 25,001 to BDT 30,000. Additionally, 34 households (23.29%) report incomes ranging from BDT 30,001 to BDT 40,000. The socio-economic survey further demonstrates that as income levels rise, the number of households tends to decline. A total of 10.27% of households earn between BDT 100,001 and BDT 200,000. It is noteworthy that there is a limited number of households with higher income levels, with only 4 households (2.74%) reporting incomes exceeding BDT 500,000. A detail of household's income from the primary and secondary sources is given in the Table 4-19 below.

**Table 4-19 Monthly Household Income**

Range	Monthly Income	
	No	%
Lowest to 25,000	0	0
25,001 to 30,000	54	36.99
30,001 to 40,000	34	23.29
40,001 to 50,000	8	5.48
50,001 to 60,000	9	6.16
60,001 to 70,000	2	1.37
70,001 to 80,000	7	4.79
80,001 to 90,000	2	1.37
90,001 to 100,000	4	2.74
100,001 to 200,000	15	10.27
200,001 to 300,000	3	2.05
300,001 to 400,000	3	2.05
400,001 to 500,000	1	0.68
Above 500,001	4	2.74



Range	Monthly Income	
	No	%
Total	146	100

**Key findings on income level of the impacted households:**

It was noted that, majority of head of the households are involved in primary and secondary income earning activities and some have other family members also contribute to household income. As a result, it can be concluded that, none of the 146 impacted and surveyed landowners fall under Bangladesh Government’s defined BPL category given the cumulative income of each household as stated above. Additionally, consultations with the affected landowners revealed that they are generally well-off, possessing concrete houses and land, and are engaged in either business or employment. It was also observed that a significant number of members from the impacted households reside abroad, providing regular financial support through remittances. Focus group discussion reveals that most of the landowners agreed that they have been provided with a good price for their land and they can buy better quality of land with the land compensation provided.

- **Monthly Household expenditure:**

According to survey data, the majority of 68 households have reported monthly higher food consumption expenses followed by 28 households on health care, education, clothing and entertainment and 24 households on electricity, gas, transport and telephone expenses respectively. The amount of expenses ranges between BDT 5,000 to 10,000 per month.

- **Disability:**

The disability in context of this Project has been defined in four categories such as; i. single woman headed household with dependents and low incomes, ii. Household headed by either elderly or disabled without any means of support, iii. Households living in nationally defined below poverty line and iv. Households with indigenous community or ethnic group. According the survey report, a total 21 persons have been identified under disabled category and out of them, majority of them (10) are suffering from poor eye sights problems and rest of them didn’t report any health complications. . Hence, it can be concluded that out of total 21 identified persons, only 10 persons have been considered vulnerable due to their eye-sight problem as stated in ESIA report. The project proponent to further confirmed the disability status for considering for assistance.

- **Accessibility:**

The households have stated that they enjoy easy access to various facilities such as schools, local market, hospitals with improved road connectivity as they are located within 1 km distance from their residences. In case of accessing specialized health care facility, people need to travel to 5 to 10 km average distance to avail specialized treatment.

- **Status of Basic Amenities:**

The outcome of survey has identified areas of basic amenities which are being enjoyed by the Project impacted households. They are as follows:

- **Access to electricity:**

All the households have easy access to electricity with few households have instant power supply (IPS) facilities for backup power supply during power cut. The prepaid card system is being used to pay electricity rent. Majority of the households (64 percent) pay electricity rent ranging between BDT 100 to 1,000 per month, followed by 27 percent of households pay electricity rent ranging between BDT 1,100 to 2,000 per month.

- **Access to safe drinking water:**

The majority of Project impacted households (91 percent) are using deep tubewell water for drinking purpose whereas rest 9 percent are using water from tube well. The major source of drinking water in Baliarpur Mouza is tube-well or deep tube well as shared in the report.

- **Access to cooking fuel:**

The survey has indicated three major sources of cooking fuel being used in Project impacted area that include supply gas, LPG and firewood. Out of three sources, supply gas is identified as prime source cooking fuel followed by LPG but very negligible percentage of people are using firewood.

- **Access to sanitation:**

The socio-economic survey has revealed access to cent percent sanitation facility to impacted households where 78 percent households have access to water-sealed sanitary latrines and rest 22 percent are non-water-sealed sanitary latrine facility.

- **Access to mobile network and internet:**

The survey has highlighted that all the impacted households have access to mobile networks and out of them, 50.68 percent of people are using broadband connection as internet users.

- **Access to Health Care Facilities:**

The survey has noticed that all the people in Project area have easy access to basic health care facilities at community clinic. In addition to community clinic, people are also dependent upon local pharmacies and traditional medicines for primary health care facility. In case of any complicated or specialized treatment, most of the people travel to a distance of 10 km to avail specialized treatment from hospital during emergency health crisis.

#### **4.1.9.4 Status of elderly:**

The consultation has identified a total of 39 elders (who are above 60 years old) from total Project impacted households but no plan has been shared for those identified elders in the report. The 39 elders can be considered as vulnerable owing to their old age criteria and it can be proposed that these 39 elders will be given priority under community development initiative of the Project proponent focusing elderly care intervention.

#### **4.1.9.5 Engagement of gender in decision-making process:**

The socio-economic survey has revealed that 98.5% women identified from Project impacted households didn't have land related decision-making power at household level whereas rest 1.5% of them have said that they possess decision making power in family and other affairs. It said analysis transpires that majority of the women at Project impacted households' level do not

have right to exercise their decision over property, hence, women empowerment program can be proposed for women across Project impacted villages to address the issue of gender discrimination as well as women empowerment program.

#### **4.1.9.6 Socio-economic conditions of non-titled holders:**

The survey has identified 5 non-titled holders in Project footprint area, who are running small-scale business such as tea stall, small restaurant, medicine and mobile recharge shop. The tentative income from 5 identified business units ranges between minimum BDT 15,000 to a maximum BDT 35,000 per month. Out of 5 business units, 4 business units have engaged workers/employee on a temporary basis and rest one business unit's details of employee was not furnished in the report. The Bangladesh government follows internationally defined poverty standard like many other countries, the poverty threshold is set at USD 1.9 (177 BDT) per person per day. Families earning below this amount per person daily, which translates to approximately USD 256.5 (23854 BDT) per month for an average household size of 4.5, are deemed vulnerable. Without proper mitigation measures during Project implementation, these households are at risk of their economic conditions deteriorating further. As per the ESIA Report, it was understood that 3 out of 5 households (non-titled holder shop owners) are under vulnerable conditions in terms of income ranging between BDT 15000 to 20,000 as confirmed during stakeholder consultation.

#### **4.1.9.7 Businessmen with land holding:**

The socio-economic survey has highlighted the details of five business units who are operating on Project foot-print area such as Shyamoli Transport, NR Travels and Cow Farm. Under Shyamoli Transport banner- there are three business units namely, CNG, Bus repair and maintenance and Water Treatment Plant where 55 employees are working under CNG plant, 450 are working at Bus repair and maintenance work and 85 people are working at water treatment plant. Under NR Travels business unit, 20 people are working as registered officials and 180 people are engaged in bus repair and maintenance work and 11 persons are engaged in Cow Farm unit (total 801 workers) but no information has been furnished for them under proposed relocation and resettlement plan of the Project proponent.

#### **4.1.9.8 Knowledge about the proposed Project:**

The consultation with 146 project affected peoples (PAPs) during field survey has noted that, 115 people out of total 146 PAPs have shared positive view about the proposed Project whereas, 25 people possessed limited knowledge about the Project and rest 6 persons do not have any idea about the proposed Project.

#### **4.1.9.9 Expectation from the Project:**

The consultation with the 146 Project affected peoples (PAPS) during the field survey has revealed that, 13 percent of them prefer potential employment opportunity, 28 percent of them expect improved health of the community and rest 59 percent of them have stated improved waste management system due to the operation of the proposed Project.

#### **4.1.9.10 Preference to use compensation amount:**

The consultation with 146 project affected peoples (PAPs) during field survey has noted that 48 percent of the impacted households would invest their money to start new business, followed

by 24 percent would keep money in bank, 16 percent would repay their loans as well as family purpose and rest 12 percent would buy new land.

#### **4.1.9.11 Interest in skill development training:**

The interaction with 146 project affected peoples (PAPs) during field survey has highlighted few potential areas for skill development training program in support of livelihood generation program but no plan for proposed skill development program has been reflected in the report. The following trades are shared for skill development program are:

- Computer-Based Training (Graphics and Photoshop)
- Driving
- Tailoring
- Cooking
- Technical/Mechanical
- Livestock
- Agro based.

#### **4.1.9.12 Income Below Poverty Line:**

Bangladesh follows internationally defined poverty standard like many other countries, the poverty threshold is set at USD 1.9 (177 BDT) per person per day. Families earning below this amount per person daily, which translates to approximately USD 256.5 (23854 BDT) per month for an average household size of 4.5, are deemed vulnerable. Without proper mitigation measures during Project implementation, these households are at risk of their economic conditions deteriorating further. As per the ESIA Report, 3 out of 5 non-titled holders are under vulnerable conditions in terms of income ranging between BDT 15000 to 20,000 who could be considered under proposed Income and Livelihood Restoration Plan.

#### **Key findings from socio-economic baseline of Project impacted households:**

- A total of 242 households have been identified as project impacted households due to land acquisition activity for the proposed WTE project. Out of it, 146 project affected households were surveyed and remaining 96 impacted households could not be surveyed at the time of ESIA study due to multiple reasons such as, inadequate information against their address, reluctance to respond and not available at the present address stipulated in the gazette prepared and published by government; and the land acquisition section of DC office was reluctant to provide the contact details of awardees as per the information provided in the ESIA report.
- The female population ranging between 11-18 years and 19-30 years category is little higher than the male population whereas, female aged 60 years and above is reportedly higher than the male counterpart but male aged between 31-60 years category is found to be higher than the female population.
- 95 percent of Project impacted households belong to Muslim community.
- The representation of separated female population is reported amongst Project impacted households.

- The incidence of illiteracy rate is very minimal as compared to literacy status but the representation of impacted households in vocational training program is very minimal.
- Majority of male members are engaged in business followed by private job, agriculture and foreign job but interestingly, no female members are engaged in agricultural activity. Hence, the dependency on agriculture and allied activity is found to be absent amongst impacted household.
- Majority of the households are earning between minimum of BDT 25,000 to BDT 40,000 per month, which underscores financial viability amongst impacted households.
- Majority of the impacted household expenses on food consumption ranges between BDT 5,000 to BDT 10,000 per month.
- As per defined vulnerability criteria, the survey had identified 21 vulnerable people and out of them, 10 are suffering from eye-sight complication but no plan for those identified vulnerable was shared in the report.
- The access to road connectivity happens to be satisfactory but in case of availing specialized treatment, households need to travel to an average 5 to 10km distance from their residence.
- All the impacted household are availing basic amenities that include safe drinking water (hand pump), electricity connection, sanitation, cooking fuel (supply gas and LPG), health care facilities whereas, 50 percent of households have access to mobile network as highlighted in the ESIA report.
- A total of 39 elders have been identified amongst Project impacted household but no plan associated with them is defined in the ESIA.
- 98.5 percent women of impacted household do not have decision making power at households as stated in the ESIA.
- The details of 5 identified big business units (titled holders) are furnished in the report.
- The information about total 5 identified small business units are present in the report but 3 out of 5 non-titled holders have been identified as vulnerable based on Bangladesh's poverty standard. (i.e. \$1.9 per day per person).
- The survey had identified area of interest for potential skill development program amongst impacted household that include computer-based training (Graphics and Photoshop), driving, tailoring, cooking, technical/mechanical, livestock and agro-based.
- No titled impacted landowners have been identified living below poverty line as per Bangladesh's defined poverty guideline or standard.

**Table 4-20** Synopsis of Stakeholder consultation exercise carried out by consultant in support of ESIA study

Sl. No.	Stakeholders' details	Category	Mode of consultation	Outcome of consultation
1	Land landowner	Primary stakeholder (PAP)	FGD	<ul style="list-style-type: none"> <li>Landowners are aware about the proposed Project and welcomed this Project in their area.</li> <li>The primary occupation of impacted landowners is identified as business as well as agriculture where community practice mixed farming to grow mainly rice and vegetables. In support of household expenses, community also involved in rearing livestock mainly cattle, sheep and goat but few households have raised issue of impact on grazing/farming land due to the proposed Project. Moreover, rearing of poultry rearing was also observed amongst few households.</li> <li>Landowners were satisfied with the determined price of their land parcel and quite upbeat about the potential employment opportunity to be created due to the operation of the proposed Project.</li> <li>Few landowners have requested for additional compensation for the loss of their crop production due to adverse impact of waste plant.</li> <li>Majority of landowners have inherited land rights and some of them have acquired land rights through execution of sale deed.</li> <li>The entire land procurement was carried out through execution of sale deed without involvement of any third party or broker.</li> <li>Landowners are well aware about the adverse impact on their land parcel due to the operation of the Project and also raised concern of odor management issue due to the operation of the proposed Project.</li> </ul>
2	Women's group	Secondary	FGD	<ul style="list-style-type: none"> <li>Majority of the womenfolk in Baliarpur are engaged in household chores such as cooking, children rearing and taking care of domestic animals.</li> <li>The day of every woman starts between 6 a.m. to 7 a.m. that involve cooking, cleaning, taking care of children, feeding the cattle and other livestock. Besides household work, some of the women are involved in business and private jobs.</li> <li>Although 80 % of the female have completed primary level of education but drop-out rates amongst girls is quite common owing to poverty compounded with higher cost of education. Girls mostly drop-out after completing</li> </ul>

Sl. No.	Stakeholders' details	Category	Mode of consultation	Outcome of consultation
				<p>secondary education and getting married is the common trend identified in Project area. The most common age of marriage for girls is between 19 to 20 yrs.</p> <ul style="list-style-type: none"> <li>• There are no cases of domestic violence and rape reported in the Project area as stated during consultation. Women in the Project area do not take part in community-level decision-making activity. Most of the participants opined that gender-wise employment opportunities for males and family members would benefit the local community due to the operation of the proposed Project.</li> <li>• The women also have expressed interest in receiving vocational training like tailoring, boutique, animal husbandry as part of income generating activity.</li> <li>• The women groups also requested to control the odour generated from the waste in their locality.</li> </ul>
3	Local youth	Secondary stakeholder	FGD	<ul style="list-style-type: none"> <li>• The youth group adjacent to the Project area are found in studying higher secondary and undergraduate level as one high school is identified in the village where most of them are studying and 50 % of the students interacted, have reported that they travel to Mirpur which is 6 to 8 km away from their village for study.</li> <li>• The consultation has informed that some of the youths are involved in small scale business (mainly online based clothing) and private job at RMG sector. This youth group is identified as one of the largest groups in consideration of age-based grouping of population in that area.</li> <li>• The youth also expressed their interest in receiving vocational training like digital marketing, entrepreneurship, mechanical or electrical training etc. and further requested to consider them for any potential employment opportunity in the proposed Project.</li> </ul>
4	Md. Saiful Islam, Chairman of Bongaon, Savar Upazila	Local Administration (Institutional stakeholder)	Public consultation	<ul style="list-style-type: none"> <li>• The Chairman has expressed his cooperation for the Project and expects the same from the Project authority.</li> </ul>



Sl. No.	Stakeholders' details	Category	Mode of consultation	Outcome of consultation
				<ul style="list-style-type: none"> <li>Mr. Chairman has also suggested maintaining proper waste management system and obtaining all relevant NOCs from respective departments and trade license as well.</li> <li>He also expects potential employment opportunity for the qualified locals from the Project during construction and operation phase of the proposed Project based on their skills.</li> </ul>
5	Chandan Ghosh, Director	Businessowner cum landowner of Shyamoli Food and Beverage (Business entity)	Public consultation	<ul style="list-style-type: none"> <li>The businessman wanted to know the duration of their stay on the acquired land as the company has given 3-4 months' time to evacuate this place.</li> <li>He has also shared that removing and dislocating heavy machinery is time consuming and critical as many employees are dependent on the income of this factory for their livelihoods. So, what would be the appropriate steps to minimize such kind of impacts as shared by the owner of this business unit.</li> <li>In case of dislocating factory and other equipment, electric connection, shed and land preparation involve time consuming with huge expenses, so they need that time from both DNCC and WTE Power Plant North Dhaka Private Limited for smooth transition.</li> <li>In case of proposed interim period of relocation, the company will not be able to produce any products and will not be in a position to pay salary to its employees. If so, then what would be the steps to mitigate such loss of the company during interim period of relocation?</li> </ul>
6	Jagadish Ghosh	Businessman cum landowner (Business entity)	Public consultation	<ul style="list-style-type: none"> <li>Plot no 3324 (BS) has half of it under acquisition, if authority buys the entire plot or left the acquired half will be better for the owner.</li> <li>Plot no 3323 (BS) has been impacted due to waste from the land fill, and no agricultural activity is performed due to waste materials. What will be the steps from the authority to compensate that damage?</li> </ul>
7	Mohiuddin Mia	Shopkeeper (Business entity)	Public consultation	<ul style="list-style-type: none"> <li>4 Shops (tea stall, mobile recharge and mobile banking, restaurant) are going to be impacted due to the Project and those shops are made of with small tin</li> </ul>

Sl. No.	Stakeholders' details	Category	Mode of consultation	Outcome of consultation
				<p>and wood. All the shop owners are poor, and their families are dependent upon the income earned through selling of products from the shops.</p> <ul style="list-style-type: none"> <li>The owners have asked for relocation assistance of their shops so that minimum damage will happen, and they can bear that minimum amount of loss.</li> </ul>
8	Nitesh Ghosh (Landowner)	Businessman cum landowner (Business entity)	Public consultation	<ul style="list-style-type: none"> <li>Some of my land parcels have been damaged by waste from the landfill as a result, the landowner could not grow any crops on that impacted land parcel.</li> <li>The landowner also proposes compensation for the loss of his productive land.</li> </ul>
9	Tofayel Ahmed, Plant Engineer	Employee of Shyamoli Water	Public consultation	<ul style="list-style-type: none"> <li>The water plant is a big industry with heavy machinery that is automated and cannot relocate without proper precaution and place.</li> <li>Company needs time for proper relocation.</li> <li>Any compensation will be better to minimize the loss of production during the shifting time.</li> </ul>

CONFIDENTIAL

Based on the stakeholder’s consultation exercise (above), following key findings from Public Consultation Meetings (PCM) in presence of DNCC, WtE Project and ESIA Consultant are furnished below:

**Table 4-21 Key Findings from Public Consultation**

Response of DNCC	Response of WtE	Response of ESIA Consultant	Gap identified against issues shared by stakeholder vs responses of PCM
<ul style="list-style-type: none"> <li>• Company will take necessary steps to avoid and control any kind of odour that can be created from the waste during Project life cycle.</li> <li>• Govt has given satisfactory amount of money for the procured land and there will be no more compensation regarding land or any other facilities.</li> <li>• All of the landowners have been notified to collect their compensated amount from DC office, if any complexity arises DNCC will cooperate.</li> <li>• Those who are doing business in the Project area are requested to remove all the facilities timely as they are already notified several times to evacuate the place.</li> </ul>	<ul style="list-style-type: none"> <li>• Company will take necessary steps to manage the odor</li> <li>• Company will ensure no waste will go outside the boundary, and no more damage will occur to any land</li> <li>• A proper safety protocol will be taken to control any kind of hazard to the environment and to the people as well.</li> <li>• Company has no provision to give any money to anyone regarding their claimed issue, DNCC or DC office may look after this.</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate time given to the landowners and other associated facilities to remove and vacate the place. Due to the time and Project deadline no additional time will be given for staying within the Project boundary.</li> <li>• Waste and wastewater will be treated as per the DoE’s guideline and safeguard policy of landers and national policy. No harm or issue will arise from the Project.</li> <li>• This Project will use very much advance technology so that no environmental pollution will occur and no fly ash or any harmful material will affect the community.</li> <li>• Cooperation is requested from the people of community to ensure smooth implementation of the Project.</li> </ul>	<ul style="list-style-type: none"> <li>• The report didn’t state the duration of time for relocation of business unit but the outcome of interaction has reported 3 to 4 months’ time given for relocation. Is it sufficient time to relocate bigger business units or not?</li> <li>• The report didn’t highlight the compensation for loss of agricultural produce/damage crops/land of business units.</li> <li>• What mitigation measure has been adopted by the company to meet loss of productivity of the business unit during relocation period?</li> <li>• How the GRM will act to address these issued raised by the community during PCM?</li> <li>• The report didn’t state the details of any interim relocation plan for business units as shared by Shyamoli Food and Beverages.</li> <li>• Both women’s and Youth groups have expressed their intention to undergo vocational training course in support of their livelihood but the report did not share any skill development program for youth and women in</li> </ul>

Response of DNCC	Response of WtE	Response of ESIA Consultant	Gap identified against issues shared by stakeholder vs responses of PCM
<ul style="list-style-type: none"> <li>Due to Project timeline, no additional time will be given to the persons for staying within the Project boundary.</li> </ul>			<p>Project area except for sharing a list of potential trades.</p> <ul style="list-style-type: none"> <li>In response to the concern shared by the Chairman of Bongaon Savar Upazila, the report didn't state detailed plan for generation of employment for locals according to their skills during construction and operation phase of the proposed Project.</li> </ul>

Review of the consultation carried out as part of the ESIA scoping reveal the major concerns and issues raised by the different stakeholders such as the concerns raised by the landowners on the potential impact on their agricultural practices and livelihoods. Specifically, they highlighted the potential impact of loss of grazing and farming land due to the project's development. Landowners those who are relying on agriculture and livestock for their income are seeking additional compensation for anticipated crop losses and disruptions to their farming activities. The Landowners whose properties have been impacted by waste from the existing landfill are demanding compensation for the damage caused and the loss of productive land.

The local communities including landowners had also raised concern regarding the odor arising from the waste plant especially for those residing near the landfill. They are apprehensive about the potential negative effects on their quality of life and are seeking assurances that effective odor control measures will be implemented.

Other major concerns raised are challenges faced by women and youth in the area due to high dropout rates among girls due to poverty and early marriage. Lack of skill set and opportunities for youth to take up skill training program for income generation and economic empowerment.

The local administrative authority emphasized the need for implementing a robust waste management system to ensure environmental sustainability and public health. Furthermore, they expect the project to create employment opportunities for qualified local residents, both during the construction and operation phases.

Business Owners and Landowners whose properties are being acquired for the project express concern and challenges related to relocation. They are seeking clarity on the timeline for relocation and adequate support during the transition period. Further, the business unit with heavy machinery and infrastructure face particular difficulties in relocating and are seeking assistance to minimize disruptions and financial losses. They emphasized the need for communication and transparency regarding land acquisition processes, including whether partial or full plots will be acquired.

Review of the mitigation measures showed that the concern raised by the direct stakeholders such as the landowners and impacted commercial unit have been covered under the existing framework and they are being provided compensation for land, structure and crops/trees as per the replacement cost. Furthermore, relocation cost which has the concern raised by the commercial have been suggested as part of the entitlement for compensation. For the Non-titleholder a Livelihood Restoration Plan have been suggested for restoration of income of the non-titleholders.

The existing ESIA also suggests developing and implementing an odor and waste management plan on site throughout the project cycle to address issues related to odor and waste as raised by stakeholders. The project is also expected to create employment opportunities where during construction, approximately 1,835 male and 25 female local workers will be provided with employment opportunities through construction work. It is also proposed to implement a community development initiative under the project's Community Development Programs initiative.

#### **4.1.10 Summary of Demography, Socio-Economic and Gender Aspect of Project-Affected Peoples (PAPs):**

- **Demography:**

The Project affected population due the land acquisition activity associated with the proposed WtE Project consists of both titled as well as non-titled holders, such as landowners, owners of business units, small shops and rag pickers. The demographic breakdown of those Project impacted population typically reflects a varied age groups with a significant portion likely to be middle-aged and elderly individuals, particularly among the titled holders. On the other hand, non-titled holders encompass younger adults to middle-aged individuals engaged in running small shops in support of their livelihood whereas, rag-pickers community significantly cover young adult to middle- aged individuals with very meagre representation of elder and female individuals.

- **Socio-economic status:**

The socio-economic status of the Project-affected people varies significantly across different categories of impacted individuals. The titled holders represent a spectrum of income groups ranging from high, to low based on factors such as their land holding status, farming activity, employment status, income derived from business and related activities but the majority of the landowners who have been consulted during site assessment represent middle to higher-income group with possession of substantial portion of land resources other than the acquired land parcel. On the other hand, few titled holders are involved in businesses such as transportation, bus workshop maintenance, cow farming, and operating a drinking water plant, which generally cater to higher-income groups. In contrast, the five identified non-titled holders who run small shops and were interviewed represent the lower income bracket. Furthermore, rag pickers at both the landfill area and STS were interviewed and found depending entirely upon inconsistent and informal income from collecting and recycling waste. This vulnerable group is generally characterized by limited access to consistent/formal income sources and social security benefits.

- **Gender Aspect:**

Understanding the gender dynamics within the affected community is essential. Women in both titled and non-titled households typically fulfill diverse roles, including childcare and household responsibilities. In some cases, women are involved in decision-making at the household level. However, the land acquisition process did not threaten the lives and livelihoods of female titled holders, as their acquired land parcels were identified as inherited ancestral property. It was also observed that all interviewed women in this group belong to higher income brackets, with stable household incomes from remittances, business ventures, and government employment.

■ **Vulnerability Context:**

The vulnerability of the community arises from their reliance on land-based livelihoods or waste collection for their livelihoods. Titled holders are expected to suffer business losses affecting their main source of income due to displacement and the relocation of their businesses. Conversely, non-titled holders operating small shops, which are their sole source of income, are also likely to face business losses due to the land acquisition activity, rendering them vulnerable and affecting their socio-economic status. Specifically, rag-pickers are considered the most vulnerable due to the informal and inconsistent nature of their work, insufficient income, lack of legal recognition, and limited access to alternative employment opportunities or resettlement support.

**4.1.11 Policy Gap analysis of AIB and ARIPA,2017**

**Table 4-22 Policy Gap Analysis (ARIPA, 2017 Vs AIB’s ESS guidelines with respect to Land Acquisition activity)**

Sl. No.	Criteria	Govt. of Bangladesh, ARIPA, 2017	AIB’s ESF Guidelines	Gap identified with measures
1	Avoidance of impacts	The ARIPA,2017 does not recognize the importance of avoidance and minimized Project impacts	Identify actions to avoid, minimize, offset or compensate for environmental and social impacts of Projects.	It is recommended to have policy in place to avoid or minimize any avoidable impacts due to the Project, if not, then policy to off-set the impact of the Project.
2	Resettlement Action Plan (RAP) or Resettlement Assistance (RA)	ARIPA 2017 does not require the preparation of resettlement plan or resettlement action plan (RAP).	A land acquisition and resettlement plan/land acquisition plan/resettlement plan (LRP) in accordance with ESS 2 is required to prepare for ESIA study	The preparation of RAP has become redundant due to near completion of LA and relocation, and hence the ESDDR is prepared with proposal for Income cum Livelihood Restoration Plan for impacted individuals particularly non-titled holders and ragpickers including female vulnerable rag pickers and Resettlement Planning Framework for Transmission line in accordance with AIB’s ESS-2 guidelines.
3	Livelihood Restoration (LR)	ARIPA does not mention specifically about livelihood loss, however it pays compensation for loss	AIB ESS 2 mandates either improve or at least restore the livelihoods of all the	PP would consider the impacted or displaced individuals to be brought under proposed Income cum

Sl. No.	Criteria	Govt. of Bangladesh, ARIPA, 2017	AIIB's ESF Guidelines	Gap identified with measures
		of crops and trees. Compensation and allowance during relocating and rental allowances during transition period. The Act doesn't consider Livelihood Restoration of displaced or impacted persons due to the Project.	persons displaced by the Project through appropriate replacement value including transitional costs or provide full replacement cost to enhance the livelihoods or providing support for alternative sources of livelihoods that includes skill training or access to credit or potential job opportunities.	Livelihood Restoration Plan initiative complying ESS-2 mandate
5	Negotiated settlement	ARIPA 2017 recognize titled owners only; informal settlers are not covered. DC declare cut-off date only for title-holders.	AIIB's ESF Guidelines allows for Negotiated Settlement, but is not mandatory; and if done, it should be in transparent, consistent and equitable manner ensuring that the landowners who enter into negotiated settlement maintain the same or better income and livelihood status.	In response to addressing issue of both titled and non-titled holders, PP would facilitate participatory consultation for amicable settlement in a transparent manner to witness satisfactory compensation provided to the impacted individuals in line with AIIB's policy. In addition, PP will take further initiative to deal with any outstanding issues and compensation related to landowners, Non-titled holders as may be necessary in a participatory manner.
6	Persons without title or legal rights	The Act doesn't provide /consider compensation or assistance to non-titled holders/ squatters/ illegal occupants	AIIB's ESS-2 spells out in support of providing assistance or compensation for loss of assets and associated costs at Replacement cost and any assistance for restoration on livelihoods to affected non-titled holders or illegal occupants.	PP would take measures to provide compensation and assistance through proposed Livelihood Restoration Plan to all the affected Non-titled Holders in accordance with ESS-2 guidelines, In addition, PP would also take initiative to address any pending compensation issues or complaints of titled holders in resolving their issues in a collective manner while facilitating the implementation of GRM at the community level.
7	Compensation and entitlement	According to ARIPA,2017, the	AIIB's ESS-2 clearly states the	Project Proponent would provide appropriate



Sl. No.	Criteria	Govt. of Bangladesh, ARIPA, 2017	AIIB's ESF Guidelines	Gap identified with measures
		compensation mode follows the (LA) which doesnot provide for lost income, transfer assistance, rehabilitation and resettlement for non-titleholders.	compensation should cover lost income, transfer assistance, rehabilitation and resettlement components.	compensation for all losses and assistance as envisaged under ESS2 to all the impacted titled and non-titled holders.in line with ARIPA,2017.
8	Standard of Living	The Act doesn't recognize the importance of standard of living of impacted or displaced persons due to land acquisition activity.	AIIB's ESS-2 specifically states the Improvement of the standards of living of the poor or other vulnerable displaced people including women, children and persons with disabilities, to at least national minimum standards including access to social security and appropriate income sources.	PP would ensure minimum standard of living for impacted or vulnerable individuals through promotion of applicable social security, skill building and income generation program.
9	Social support to vulnerable groups	ARIPA,2017 doesn't recognize social support to impacted vulnerable.	AIIB requires special attention will be undertaken by the Project for the vulnerable groups for i.e. additional grant, livelihood training, job opportunities, seed grant for small businesses, during construction under social support category.	PP would adopt special plan to facilitate various initiative in terms of providing additional grant, skill training, seed money for business and support in getting employment to vulnerable groups impacted due to the Project under its development initiative.
11	Compensation to special groups	ARIPA, 2017 doesn't consider special provisions specific groups such as vulnerable groups. women, disabled, disadvantaged groups.	AIIB's policy considers that special compensation for vulnerable groups such as women, disabled and disadvantaged groups	PP would ensure that compensation must be given to impacted vulnerable under its special initiative under its development initiative to address the issue of impacted vulnerable.
12	Replacement cost (RC) principle	The Act doesn't place emphasis while considering valuation of lost assets in line	AIIB places importance on valuation of lost assets in line with	The project proponent would ensure that the RC principle is applicable to

Sl. No.	Criteria	Govt. of Bangladesh, ARIPA, 2017	AIIB's ESF Guidelines	Gap identified with measures
		with replacement cost principle.	replacement cost principle.	land and assets lost by all types of PAPs including Non-titled holders.
13	Proportionality of compensation	ARIPA 2017 provides for flat or fixed rates which may not cover all negative impacts due to land acquisition or displacement.	AIIB emphasizes the application of proportionality of compensation to cover all the negative impacts due to land acquisition or displacement activity.	The ESIA and ESDDR propose measures to mitigate negative impacts on all affected parties in proportion to the extent and degree of impacts aligning with AIIB's ESS-2 guidelines.
14	Additional resettlement assistance for titled holders.	The Act provides no additional resettlement assistance for the restoration of livelihoods of affected persons except for legal compensation.	AIIB ESF Guidelines requires that additional resettlement assistance should be considered to those likely to lose livelihoods.	Additional resettlement assistance would be considered for those likely to lose livelihoods particularly focusing non-titled holders and rag pickers, including identified female rag pickers who are considered as vulnerable.
15	Gender-based violence (GBV)	The Act doesn't address the issue of Gender Based Violence (GBV).	Under ESS2, a GBV study and analysis of the impact caused by land acquisition activities are required. Additionally, ESS-1 mandates that Project-related grievances, including risks of GBV, be effectively addressed.	Preventive measures would be adopted to ensure zero incidences of GBV throughout the Project lifecycle and also ensuring effective implementation of Gender Action Plan. This includes raising awareness, conducting regular GBV risk assessments, and ensuring strict enforcement of codes of conduct for workers and contractors. An effective gender-responsive Grievance Redress Mechanism (GRM) in line with ESS-1 guidelines, which should be capable of addressing GBV-related grievances both proactively and reactively would be established.
16	GRM	The law does not specifically mention about GRM but has provisions for filing arbitration cases for titleholders.	But ESS2 required for preparation of GRM to address grievances of impacted persons. Bank also requires GRM at workplace as per ESS1 guidelines.	A gender responsive GRM would be developed and implemented at project site for project staff and labourers in line with ESS-1 guidelines for effective and transparent resolution of any grievances

Sl. No.	Criteria	Govt. of Bangladesh, ARIPA, 2017	AIB's ESF Guidelines	Gap identified with measures
				throughout the Project lifecycle. Two-tier GRM would be developed and implemented to redress any complaints raised by the project affected persons (PAPs) and local community in a transparent, unbiased and timebound manner. .
17	Meaningful consultation	The law doesn't emphasis on meaningful public consultation, stakeholder engagements in Project planning and execution and to monitoring of Project affected persons as it only refers to limited scale of engagement.	ESS2 requires meaningful consultation with Project stakeholders to promote enhanced and consistent engagement with relevant stakeholders.	PP would ensure that meaningful consultation in a participatory is carried out with all the relevant stakeholder to strengthen linkages and consistent exchange of information pertaining to the Project across Project cycle.
18	Consultation with affected communities.	Consultation with affected communities not legally required under ARIPA 2017	The consultation with affected communities is necessary requirement of ESS-2.	PP would facilitate consultation with affected communities to resolve any issues or grievances associated with compensation and land acquisition to improve community relationship.
19	Raising further complaint by titled holders	. The ARIPA does have provisions for filing arbitration cases for titleholders ( <i>Section-29, 30 and 34 of the ARIPA Act, 2017</i> )	ESS2 ensures consideration of any objections raised by the titled holders in connection with compensation as well as land acquisition activity.	The Project Proponent would coordinate with District Authority related to land and compensation related grievances. Furthermore, the project proponent would assist the landowners for filing the land related grievances with the district authority, if necessary, for appropriate and timely resolution.
20	Restriction of compensation on income/livelihood restoration	The ARIPA Act does provide Cash compensation for loss of assets and crops is impacted. However, there is no provision for income restoration measure.	ESS2 requires actual compensation for impacted individuals in line with current market prices and not restricted to 100 % compensation.	Based on the gaps identified, the project proponent would take necessary measures to restore income / livelihood of the impacted individuals as per proposed Income cum Livelihood Restoration Plan in line with ESS-2 guidelines.

Sl. No.	Criteria	Govt. of Bangladesh, ARIPA, 2017	AIIB's ESF Guidelines	Gap identified with measures
21	Absence of any policy against land restriction and force eviction	The Act doesn't have any policy against land restriction and force eviction.	ESS2 places emphasis to respect the policy against land restriction and force eviction.	This proposed WTE plant would not result in any forced eviction, and the land required for the project is being obtained following due procedure and by paying appropriate compensation as per ARIPA, 2017 Act. However, land use restriction is envisaged for Transmission line. The Project proponent would ensure that any associated impacts due to land use restriction resulting in livelihood impact, if any, will be addressed and a Resettlement Planning Framework (RPF) will be developed to address impacts associated with land acquisition, land use restriction, impact on livelihood loss etc. .
22	Impact on associate facilities and related compensation	In this case the Transmission line is being considered as an associated facility. The ARIPA 2017 doesn't consider / recognize impacts imposed by the associate facilities. However, any land acquisition will have to comply as per provision laid down in the ARIPA. The act even does not explicitly cover restriction of access as an impact that would require compensation or resettlement.	As per AIIB's ESP, associated facilities of a Project is required to be identified and considered.	The proposed project includes construction of ~5 km Transmission line. The alignment is yet to be finalized and the number of impacted landowners including land users, if any are yet to be identified. The project may require land for associated facilities such as water intake/outlet. However, details regarding the alignment and actual impacts are yet to be finalized at this stage. The Project proponent would formulate a Resettlement Planning Framework (RPF) to address potential impacts arising from land acquisition for the construction of the transmission line and any associated facilities. The RPF will establish a framework for

Sl. No.	Criteria	Govt. of Bangladesh, ARIPA, 2017	AIIB's ESF Guidelines	Gap identified with measures
				compensation for various categories of losses experienced by affected individuals.
23	Income loss from business during construction period	ARIPA 2017 recognizes full compensation for damage, detriment or inconvenience caused by the Project but compensation doesn't cover for lost income, transfer assistance, rehabilitation and resettlement.	AIIB's ESF Guidelines requires provision of appropriate compensation for any loss incurred by parties for temporary periods due to lack of access, restriction on use etc. during the construction period	The Project Proponent would provide compensation for all temporary losses, if any, incurred due to restrictions related to construction activity during the construction period In line with AIIB's ESS 2 guidelines.
24	Disclose of information on the impacted individuals and other documents including bank signage.	There are no requirements under the Act, of disclosure of the any documentation or study report as it only gives initial notification for the land to be acquired.	The AIIB's ESS2 requires disclosure of environmental and social information as it facilitates dissemination of lessons learned from Projects to improve environmental and social management practices as well as impacted individuals along with Bank signage on strategic locations. Moreover, the information of documentation required to be disclosed by the client pursuant to ESS1.	The Project Proponent would ensure the disclosure of ESIA & ESDDR and other project documents, and their summaries in local languages, on web-site and other project activity related information (e.g. brochures, handouts) on project location, related Govt. offices etc.
25	Project-affected Mechanism (PPM)	The Act doesn't recognize the importance of implementation of PPM with respect to addressing grievances of Project affected individuals.	AIIB's requires client to inform Project-affected people about the availability and easy accessibility of PPM in local language for the resolution of their potential risks/complaints associated with the	The Project Proponent would ensure disclosure of AIIB's PPM to all project affected parties in an appropriate manner in local language (e.g. in project brochures and handouts shared with PAPs) in line with ESS-1 guidelines.

Sl. No.	Criteria	Govt. of Bangladesh, ARIPA, 2017	AIIB's ESF Guidelines	Gap identified with measures
			Project in accordance with ESS1.	
26	Application of principle of replacement cost for calculation of compensation	As per the ARIPA Act, the affected person will get additional 200% of assessed value for land and additional 100% for structures, trees and crops and other assets. The compensation is made based on predetermines government prices and are usually lower than the marker prices. Thus, the methods do not necessarily ensure full replacement cost.	AIIB emphasizes the use of current market rates in the Project area while determining compensation of replacement cost.	The compensation against land and other assets is being provided by complying with Replacement Cost and PP would provide additional assistance, if so necessary, in line with AIIB's ESS-2 guidelines.

## 4.2 Impacts Findings (Construction and Operations)

### 4.2.1 Environment

#### 4.2.1.1 Air Quality

##### 4.2.1.1.1 Construction Phase

During construction phase, various Project components such as site preparation, transmission cable laying, switchgear, approach roads, internal road network and porta cabin construction will require land clearing, levelling, excavation, grading activities, vehicle movement and DG set operation. This results in an increased level of dust and particulate matter emissions, which in turn will directly and temporarily impact ambient air quality. If improperly managed, there is a risk of health effects to construction workers onsite and to a lesser extent to nearby receptors from wind-blown dust (on the villages nearby to the Project site) due to transportation of raw materials. However, most of these Project activities are expected to be restricted within the Project boundary. Further, the movement of vehicles carrying raw materials on unpaved area within the Project site and on access road causes fugitive dust emission and may extend to surrounding of Project site like nearest settlements. Hence, the distribution of impact can be considered medium, duration of impact is short and intensity of the impact as medium. Since the impact is widespread, but for short duration and of low intensity, the impact can be termed of a Moderate significance but the impact is reversible, and temporary in nature, if the following mitigation measures are adopted.

#### Mitigation Measures

- Dust suppression techniques such as water spraying.
- Covering of materials and stockpiles.
- Maintaining construction equipment in good condition.
- Limiting vehicle speeds on-site to reduce dust generation.

#### 4.2.1.1.2 Operational Phase

During operational phase, there would be minimal vehicular movement. Project vehicles for O&M purpose. Emissions from combustion processes, including PM, NO<sub>x</sub>, SO<sub>x</sub>, and CO.

#### Mitigation Measures

- Installation of electrostatic precipitators, fabric filters, and flue gas desulfurization units.
- Regular monitoring of emissions to ensure compliance with air quality standards.
- Routine maintenance of air pollution control equipment.
- Implementing a continuous emissions monitoring system (CEMS).

### 4.2.2 Water Resources Including Groundwater

#### 4.2.2.1 Impacts on Surface Water

##### 4.2.2.1.1 Construction Phase

During the construction phase, surface water quality may be affected by inappropriate disposal of construction waste and wastewater generated from the power plant construction site, transmission line, water intake, and outfall structure construction. Wastewater from the site may contain suspended materials, spillages, and washings from various areas. Furthermore, the presence of laborers and other workers will also generate significant amounts of sanitary wastewater. Approximately 232 m<sup>3</sup>/day of wastewater will be generated during construction phase, containing suspended solids and organic matter. Without proper treatment, this could be discharged off-site, impacting the environment.

Other potential impacts include runoff of loose construction materials (sand, cement, debris) into the nearby river during heavy precipitation, which may increase suspended solids in the water body. The construction of the transmission line crossing the Karnatali River may cause temporary impacts, particularly from access roads and foundation construction near water bodies. Chemical and waste storage and handling during construction, and unplanned events such as hazardous material leakage, could also impact surface water quality. These impacts are expected to be short-term and localized.

#### Mitigation Measures for Surface Water:

- Phase dust-generating activities to minimize exposed ground area and the volume of handled soil and construction materials.



- Implement waste management measures to contain and dispose of construction wastes properly, prohibiting waste discharge on the ground or any surface watercourse, and practicing recycling as much as possible.
- Maintain equipment and machinery regularly to prevent fuel spillage or leakage.
- Properly store and manage hazardous materials away from surface water resources. Use bunded areas for chemicals and fuels, limit on-site storage, and ensure proper labeling.
- Provide spill kits and train personnel in hazardous material handling and disposal. Ensure spill kits are available where equipment and machinery are stored and used.
- Use oil and grease separators for wastewater from cleaning activities.
- Conduct refueling, oil changes, and maintenance of machinery in designated areas with containment measures, located at least 100 m from any watercourse.
- Cover temporary stockpiles with tarpaulin when not in use.
- Re-vegetate exposed ground as soon as possible to stabilize surfaces.
- Control water use during excavation and earth handling to minimize excess water and sediment disposal into surface water.
- Prohibit the discharge of wastewater from excavation into surface water bodies.
- Prohibit the disposal of construction wastes into waterbodies.
- Conduct vehicle maintenance and repairs in dedicated areas designed to capture and control spills.
- Provide adequate sanitary facilities for the construction workforce.
- Train workers in the use of designated waste disposal areas and encourage toilet use.
- Monitor surface water quality in designated laboratories according to National Water Quality Standards.
- Ensure all sewage and liquid effluent are treated to meet the standards specified in the Environmental Conservation Rules (ECR), 2023.

#### **4.2.2.1.2 Operational Phase**

During the operational phase, the surface water quality may be impacted by the discharge of treated effluent, runoff from waste storage areas, and accidental spills or leaks. The plant's operation could generate wastewater containing contaminants such as suspended solids, heavy metals, and other pollutants.

#### **Mitigation Measures for Surface Water:**

- Treat all wastewater to meet the standards specified in the ECR, 2023, before discharge.

- Regularly monitor the quality of effluent and surface water to ensure compliance with environmental standards.
- Implement stormwater management systems to control and treat runoff from waste storage areas.
- Develop and implement spill response plans to manage accidental spills and leaks.
- Use containment measures such as bunds and liners for storage areas to prevent contamination of surface water.
- Conduct regular maintenance of wastewater treatment facilities to ensure optimal performance.
- Recycle and reuse treated wastewater for non-potable purposes to reduce discharge volumes.

#### 4.2.2.2 Impacts on Groundwater

##### 4.2.2.2.1 Construction Phase

Construction activities likely to affect groundwater include land compaction, diversion of underground utilities, construction of aboveground and underground structures, and leakage or spillage of fuels, chemicals, and waste materials stored on-site. The water requirement during peak construction is approximately 280 m<sup>3</sup>/day, and with 2320 staff, groundwater abstraction could further decline groundwater levels, impacting local water availability.

##### Mitigation Measures for Groundwater:

- Ensure proper spill control and management on-site.
- Properly store hazardous materials and dispose of waste in a hazardous waste landfill.
- Collect contaminated surface runoff or extracted groundwater with silt and suspended solids via an on-site drainage system and discharge into storm drains.
- Monitor the groundwater aquifer condition periodically.
- Conduct regular monitoring of water quality and quantity to ensure compliance with regulations.
- Identify and use alternative surface water sources to reduce groundwater pressure.
- Monitor groundwater quality in designated laboratories according to National Water Quality Standards.
- Ensure immediate mitigation measures and compensation for any adverse impacts on the nearby community due to groundwater abstraction.

##### 4.2.2.2.2 Operational Phase

**Impacts on Groundwater:** During the operational phase, the primary impacts on groundwater could include potential contamination from leachate generated by waste storage areas and effluent discharge, as well as the continued abstraction of groundwater for operational needs. The contamination risks are

associated with accidental spills, leaks from storage tanks, and improper handling of hazardous materials.

**Mitigation Measures for Groundwater:**

- Implement a comprehensive groundwater monitoring program to detect any contamination early.
- Install and maintain liners and leachate collection systems in waste storage areas to prevent leachate from reaching groundwater.
- Treat all effluent to meet regulatory standards before discharge.
- Develop and implement spill response plans to manage accidental spills and leaks.
- Conduct regular maintenance of storage tanks and pipelines to prevent leaks.
- Use containment measures such as bunds and liners for storage areas to prevent contamination.
- Encourage water conservation and recycling practices to reduce groundwater abstraction.
- Ensure immediate mitigation measures and compensation for any adverse impacts on the nearby community due to groundwater abstraction.

### 4.2.3 Waste

#### 4.2.3.1 Construction Phase

During the construction phase, various types of waste are likely to be generated. These include:

- **Hazardous Wastes:** Solvents, thinners, cleaners, cutting oils, paints, contaminated rags, packaging and containers, adhesives, light bulbs, and batteries.
- **Non-Hazardous Wastes:** Food and canteen waste, scrap metal waste, wastepaper, wood, and cardboard packaging.
- **Other Wastes:** Glass, uncontaminated soil and rubble, plastics, and rubber.

The potential spread of construction debris to areas outside the Project boundary could contaminate the nearby river, wells, and agricultural land. Sanitary waste from workers also poses a significant environmental risk if not managed properly. The improper handling of these wastes may lead to potentially significant environmental impacts.

**Mitigation Measures:**

- **Waste Management Plan:** Establish a comprehensive waste management plan at the Project construction site.
- **Specific Dumping Areas:** Designate specific areas within the Project site for dumping construction waste, which should be promptly removed to an approved site.

- **Solid Waste Collection and Disposal:** Ensure proper collection and disposal of solid wastes within construction camps and the construction site.
- **Prohibition of Waste Burning:** Prohibit the burning of solid waste at the construction site.
- **Waste Separation:** Insist on waste separation by source, with organic wastes in one container and inorganic wastes in another.
- **Organic Waste Management:** Cover organic wastes with a thin layer of sand to prevent attraction of flies, mosquitoes, and scavenging animals.
- **Debris Removal:** Remove construction debris from the site immediately after construction activities are completed, leveling the site to its original state.
- **Storage Area Management:** Properly demarcate all storage areas, label hazardous materials, and ensure security at the facility.
- **Hazardous Material Management:** Properly store and manage hazardous materials, limiting on-site storage to minimize spill risks. Use bunded areas for storage and ensure proper labeling.
- **Debris Disposal:** Dispose of debris and waste in designated areas. Instruct workers on proper waste disposal practices.
- **Waste Segregation:** Segregate waste according to type and store in separate, labeled bins.
- **Regular Monitoring:** Conduct regular monitoring by the contractor to record waste generation and disposal daily.
- **Hazardous Waste Disposal:** Sell hazardous solid waste to authorized vendors.

#### 4.2.3.2 Operational Phase

During the operational phase, waste generation will include both hazardous and non-hazardous wastes. Hazardous wastes may include oils, chemicals, and batteries, while non-hazardous wastes could include packaging materials, food waste, and general office waste. Improper management of these wastes can lead to environmental contamination and health hazards.

##### Mitigation Measures:

- **Operational Waste Management Plan:** Implement a comprehensive waste management plan for the operational phase, similar to the construction phase.
- **Waste Segregation:** Continue waste segregation practices, ensuring that hazardous and non-hazardous wastes are appropriately separated and managed.
- **Recycling Programs:** Establish recycling programs for suitable materials to minimize waste.
- **Hazardous Waste Management:** Properly store, label, and dispose of hazardous wastes according to regulatory standards.

- **Training and Awareness:** Train operational staff on waste management practices and the importance of proper waste disposal.
- **Regular Monitoring and Reporting:** Conduct regular monitoring of waste generation and disposal, maintaining records for compliance purposes.
- **Emergency Response Plans:** Develop and implement emergency response plans for accidental spills or improper disposal incidents.

## 4.2.4 Noise and Vibration

### 4.2.4.1 Construction Phase

The major noise generating sources in the Project are operation of vehicular traffic, and construction equipment like dozer, scrapers, concrete mixers, generators, pumps, compressors, rock drills, pneumatic tools, and vibrators. The Project site is located amongst barren fields with no continuous noise generating sources in the vicinity of the Project site.

#### Mitigation:

- Scheduling construction activities during daytime hours.
- Use of noise barriers and soundproofing materials.
- Regular maintenance of equipment to reduce noise levels.
- Providing advance notice to the local community about construction schedules.

### 4.2.4.2 Operational Phase

Noise from machinery, waste processing, and transportation.

#### Mitigation:

- Use of soundproofing materials and enclosures for noisy equipment.
- Regular maintenance of machinery to ensure optimal operation.
- Implementation of operational controls to minimize noise.
- Continuous monitoring of noise levels to ensure compliance with standards.

## 4.2.5 Alteration of Natural Drainage Pattern

### 4.2.5.1 Construction Phase

During construction phase, site levelling activities, construction of underground reservoir will be carried out which in turn may result in change of contour level and natural drainage system. Therefore, change in contour level may affect the flow of surface runoff from Project site. After the levelling and paving, increment in surface runoff is expected which should be diverted to the natural drainage/canal exists in nearby area.

Considering the extent of impact inside and outside of Project boundary following mitigation measures are suggested for implementation:

**Mitigation Measures:**

- Site levelling should be done with minimum alteration in contour level.
- Natural drainage pattern of the site should be followed as much as possible. It would be beneficial not to disturb the existing drainage pattern.
- The exit of runoff from the Project site in the adjacent surrounding land area should be restricted.

**4.2.5.2 Operational Phase**

- Increased risk of flooding and waterlogging.
- Maintain and regularly inspect drainage systems to ensure proper function.
- Long-term erosion and sedimentation affecting water quality.
- Permanent disturbance to local aquatic ecosystems.
- Impacts on agricultural land and local communities' livelihoods.
- Alteration of groundwater recharge patterns.

**Mitigation measures**

- Implement a stormwater management plan to capture and divert surface runoff, preventing localized flooding or water logging.
- Implement permanent erosion control measures (e.g., riprap, vegetative cover).
- Monitor groundwater levels and quality regularly.
- Adopt sustainable land management practices to enhance groundwater recharge.
- Ensure ongoing protection and restoration of riparian zones.
- Regularly monitor and maintain the drainage channels to ensure unobstructed water flow.

**4.2.6 Ecology**

Impacts to biodiversity are defined as the changes to any components of biodiversity, including genes, species, or ecosystems, whether adverse or beneficial, wholly, or partially, resulting from a Project's actions. Biodiversity loss describes the decline in the number, genetic variability, and variety of species, and the biological communities in a given area. This loss can in turn lead to a breakdown in the functioning of the ecosystem and the services it provides to people.

#### 4.2.6.1 Construction Phase

- Minor loss of vegetation and habitats due to access road construction, site clearance and power line construction etc. will take place. It may cause limited destruction and disturbance for animal and plant environments.
- Construction activities can cause the contamination of water sources, produce airborne particles, generating excessive noise and light disturbances. These factors may cause the relocation of Black kites and other raptors and alternation of local vegetations.
- The Project will have direct, indirect, and induced impacts on Karnatali river and its surrounding area. There is a potential short term to long term impacts on aquatic ecosystem due to the construction activities, waste disposal and potential oil spills.
- The overall habitat degradation due to construction activities can lead to the reduced availability of foods and nesting sites for species such as Black Kites and other raptors.

#### Mitigation Measures

- Implement dust and noise control measures using machinery with lower noise production, water spraying for dust control and placing high noisy equipment away from the sensitive area.
- Avoid excessive lighting at night to reduce the disturbances to nocturnal bird species.
- Develop greenbelts around the sites to provide alternative habitat for avian species.
- Educate workers on importance of the natural resources and wildlife to avoid unnecessary harms to birds and their habitats.
- Construction activities should be avoided during the breeding season of ground dwelling birds and reptiles.
- Regular monitoring of Project areas and transmission towers for any bird nesting activity and terrestrial mammal breeding activities. Raptors also use transmission line structures as vantage point to locate their prey sometimes. Staff should be trained and promoted to discourage the nesting/denning via regular monitoring and clearing the potential nesting areas. Above ground wiring should be provided with markers to avoid chances of perching of birds and avoid electrocution
- No hunting, trapping or injuring of local fauna should be communicated to labour through a workshop or formal training exercise.
- Waste generated from the solar plant during construction and operation should be stored in covered containers within the site premises. Uncovered waste may attract fauna to the plant area.
- Hazardous materials and waste should not be stored in any drainage channels or cliff-sides to prevent contamination of the surrounding environment and impact on local flora/fauna.
- General awareness regarding wildlife shall be enhanced through trainings, toolbox talk, posters, etc. among the staff and labour



- Work should be under ISO14001 accreditation for environmental management which also be imposed on all the subcontractors; and cover each spot where excavated material is stored when climate conditions require to effect dust control by usage of dust suppression substances.

#### 4.2.6.2 Operational Phase

In the operational phase, the Project will continue to have direct, indirect and induced impacts on local biodiversity. However, the impact intensity will be less than the construction phase of the Project.

- Electrocutation and collision caused to birds and bats when perched on, or flying into, the powerline structure.
- Continuous operation may cause noise and airborne particles still can affect the avian species such as Black Kites. The raptors can experience changing patterns of habitat and food availability due to these disturbances.
- It has been argued that most birds do not have the ability to estimate the distance to a specific object (relative depth) due to the lateral position of the eyes. But this does not apply for “birds of prey” and Vultures, they have a visual acuity 2.5–3 times greater than humans. Hunting behavior of some raptors can increase collision risk, as they entail high-speed flights in pursuit of prey or because they may not be looking ahead when searching for prey on the ground below.

#### Mitigation Measures

- Physical control such as infrastructure modifications and changes in operations can mitigate the impacts on the local ecosystem.
- Since the assumption is that birds collide with overhead cables because they cannot see them, fitting the cables with devices in order to make them more visible to birds in flight has become the preferred mitigation option worldwide. Large number of lines marking devices are available like spheres, swinging plates, spiral vibration dampers, strips, swan flight diverters, bird flappers, aerial marker spheres, aviation balls etc. Birds are believed to collide most often with the earth or shield wire (the thinnest wire at the top of the power line structure), so emphasis should be given to improve the visibility of the earth wire. It is recommended to install barker balls on the topmost earth wire at an interval of 25 m. Line markers should be placed on the conductors at alternate arms of the tower with at least 10 m difference.
- Frequent monitoring of Project areas and transmission corridor should be conducted for any nesting activities of birds and breeding activities of mammals. The raptors often utilize transmission towers as their vantage points for spotting prey. All the personnel should receive training and encouragement to deter the nesting/breeding through frequent surveillance.
- Any dead animals/carcasses should be removed immediately to avoid attraction of raptors and other animals.
- In case of any active nest within the Project area, it should be unharmed or undisturbed. Promptly inform superiors at site to ensure swift and appropriate measures are taken.

- General awareness about wildlife conservation should be spread through trainings, activities among labors and employees.

#### 4.2.7 Socio-economic

##### Land Acquisition:

The land acquisition process for WtE Project has been accomplished adhering to ARIPA 2017 provisions and the disbursement of compensation has been paid to significant number of impacted individuals, but the Project proponent has taken proactive role in resolving pending disbursement cases in collaboration with DNCC and DC office. Pursuant to ARIPA 2017 guidelines, impacted landowners have been compensated to their satisfaction but the compensation for remaining landowners couldn't be disbursed owing to owners living abroad, mortgage as well as litigation issues as confirmed during site assessment and stakeholder consultation exercise, but the Project proponent has given priority to facilitate expediting the process of disbursement of compensation to the remaining landowners. The Titled Holders with commercial units have received satisfactory compensation paid by DNCC as a part of award. The valuation of cost of the structure was calculated as per PWD schedule and another 100% additional amounts are paid as per ARIPA and 25% as structure transfer and reconstruction grants. However, the site assessment has confirmed the presence of 5 non-titled holders, who are operating their petty businesses from the acquired land parcel. In addition, DNCC provided a list of 40 rag pickers, which have also been considered vulnerable due to their land dependency. Moreover, 9 female vulnerable rag pickers are also identified and considered for appropriate compensation inline AIIB's ESS-2 guidelines, as the ARIPA, 2017 doesn't cover compensation of rag pickers as well as non-titled holders. It is advised that an appropriate livelihood restoration plan or alternative source of livelihood options can be explored in case the rag pickers access to landfill site is restricted or their regular income is disrupted due to the proposed project.

The following areas need to be considered while addressing the issue of impact of land acquisition particularly on vulnerable and non-titled holders to ensure restoration of income or promotion of resettlement action plan. They are as follows:

- **Land Acquisition:** The process of acquiring land for development purposes can significantly affect various stakeholders, including landowners, titled holders with business units, non-titled holders with small shops, and vulnerable rag pickers with dependency on land parcel.
- **Resettlement Impacts:** Displacement resulting from land acquisition can disrupt communities and livelihoods. It's crucial to assess and mitigate the social and economic impacts on affected populations, ensuring adequate resettlement and rehabilitation measures pursuant to AIIB's ESS-2 guidelines.
- **Replacement Cost:** Calculation and disbursement of fair compensation and replacement costs for land and structures affected by acquisition is essential. This includes compensating landowners and businesses for lost income, structures, crops, and trees etc.
- **Restoration of Livelihoods:** Effective measures are needed to restore the livelihoods of impacted groups, such as providing alternative employment opportunities, skills training, and support for small businesses. This is particularly critical for vulnerable groups like rag pickers who rely on land-based activities and non-titled holders operating small shops from the acquired land parcel.

In continuation of addressing the issue of restoration of income and assessing the adverse impact of land acquisition on impacted individuals especially non-titled holders and vulnerable community, the following activities need to be ensured under socio-economic perspective. They are as follows:

- **Timely Compensation Disbursement:** Resolve title disputes and mortgage issues promptly to expedite compensation disbursement and facilitate smooth Project implementation.
- **Enhanced Support for Non-Titled Holders:** Ensure timely compensation and support for non-title holders to minimize socio-economic disruption and facilitate their relocation.
- **Rag Picker Rehabilitation:** Develop a comprehensive rehabilitation plan for rag pickers, including skill development and alternative livelihood opportunities, to mitigate the impact on their income vulnerability.
- **Community Engagement:** Maintain open communication with all affected stakeholders, including landowners, business owners, and vulnerable communities like rag pickers, to address concerns and foster cooperation.
- **Monitoring and Mitigation:** Regularly monitor the socio-economic impact of the Project and adjust strategies as needed to minimize adverse effects and maximize benefits for affected communities.

### 4.2.8 OHS and Safety Issues associated with Waste Transport to STS and the Power Plant

Table 4-23 A summary of Impact Findings covering socio-economic, health and safety, OHS and community health component

Sl. No.	Impacts	Preconstruction and Construction	Operation	Mitigation measures
1	Socio-economic	<p><b>Job creation –</b></p> <ul style="list-style-type: none"> <li>Employment opportunities for local workers including skilled and unskilled labour.</li> </ul> <p><b>Local economy boost-</b></p> <ul style="list-style-type: none"> <li>increased demand for local goods and services benefitting local businesses.</li> <li>Skill development through training and upskilling opportunities for works in construction and related fields.</li> </ul> <p><b>Loss of Livelihoods:</b></p> <ul style="list-style-type: none"> <li>Commercial business unit including petty shops (including non-titleholders) may face livelihood at the initial phase of business after relocation due to land acquisition. They will face livelihood loss if they are not considered either for compensation or for relocation assistance. Without alternative livelihood opportunities, affected individuals and families may face economic hardship and increased vulnerability to poverty. Lack of skills or access to alternative employment</li> </ul>	<p><b>Loss of Income and business opportunities:</b></p> <ul style="list-style-type: none"> <li>Rag pickers may lose their primary source of income due to restricted access to materials from the landfill resulting in their exclusion from the workforce. This can lead to loss of livelihoods and disruption of their daily lives.</li> <li>The WtE Project may alter existing waste management practices, reducing the availability of recyclable materials traditionally collected by rag pickers, posing a threat to their regular income.</li> </ul> <p><b>Community Integration and Acceptance:</b></p> <ul style="list-style-type: none"> <li>The waste-to-energy Project may influence community relationship and integration, especially if there is resistance or lack of acceptance of the Project from affected communities.</li> </ul>	<p>Ensure all landowners receive compensation for land and assets lost prior to start of construction.</p> <p>Develop and implement LRP for mitigating impact associated with livelihood loss especially the commercial business unit squatting on the land parcel who will face temporary to permanent livelihood loss in case restoration or assistance are not provided. The LRP to also consider all categories of impacted entity i.e. rag pickers including female rag pickers for assistance who are likely to face livelihood impacted during the operation phase whereby collection of waste is restricted.</p> <p>Regular monitoring and supervision plan pursuant to the AIIB’s ESS-2 guidelines.</p> <ul style="list-style-type: none"> <li>Implement Stakeholder engagement with special focus on application of GRM.</li> </ul>

Sl. No.	Impacts	Preconstruction and Construction	Operation	Mitigation measures
		<p>options can exacerbate their socio-economic challenges.</p> <p><b>Social unrest:</b></p> <ul style="list-style-type: none"> <li>Disruption in social networks and community relation might crop up.</li> </ul>		<ul style="list-style-type: none"> <li>Develop and implement Community Health and Safety Plan. The plan should cover aspects related to risk associated with influx of labour, Gender related issues and violence etc.</li> <li>Develop and implement site specific GRM addressing any issue raised by the impacted persons including local community and workers throughout the project cycle.</li> <li>Health and Safety Program</li> <li>Sustainability Practices</li> <li>Community consultation</li> <li>Routine maintenance</li> <li>Health impact assessment</li> <li>Safety audits</li> <li>Emergency preparedness plan.</li> <li>Monitoring and Reporting</li> </ul>
2	<b>OHS and safety issue</b>	<p><b>Health and Safety of Labour:</b></p> <ul style="list-style-type: none"> <li>Engagement of labour will raise concern associated with their health and safety in line with national, ILO and relevant international guidelines.</li> </ul>	<p><b>Worker Health and Safety:</b></p> <ul style="list-style-type: none"> <li>Operational activities within the waste-to-energy plant involve handling of waste materials, operation of machinery, and maintenance tasks. Risks include exposure to toxic gases, chemicals, and</li> </ul>	<p>Health, safety, and regular health checkup of all the workers should be ensured at the project site as well as the labour camp throughout the project cycle in line with ILO guidelines.</p>

Sl. No.	Impacts	Preconstruction and Construction	Operation	Mitigation measures
		<ul style="list-style-type: none"> <li>Potential for health and sanitation issue of laborer will be witnessed during this phase.</li> </ul> <p><b>Occupational Exposure:</b></p> <ul style="list-style-type: none"> <li>Workers involved in construction may be exposed to dust, fumes, and other airborne pollutants generated during site preparation and building activities.</li> <li>Proper personal protective equipment (PPE) and adherence to safety protocols are essential to mitigate these risks.</li> </ul>	<p>physical hazards associated with the operation of equipment.</p> <ul style="list-style-type: none"> <li>Occupational safety for workers in the plant could be a concern.</li> </ul> <p><b>Regulatory Compliance:</b></p> <ul style="list-style-type: none"> <li>Adherence to OHS regulations and environmental standards is essential to ensure the safety of workers and the community.</li> </ul>	<p>All the workers at the project level as well as at the labor camp should be provided with basic amenities as per ILO guidelines. This must be ensured by hired contractors and timely monitored by the project proponent.</p>
3	<b>Community Health and Safety</b>	<p><b>Community safety</b></p> <ul style="list-style-type: none"> <li>Increased traffic and transportation of construction materials pose accidental risks to locals, pedestrians, and other road users.</li> <li>Noise, dust, and vibration from construction activities can affect the health and safety of nearby residents.</li> </ul>	<p><b>Community Health and Safety:</b></p> <ul style="list-style-type: none"> <li>Proper emission control systems and monitoring are crucial to minimize impacts on the air quality as well as community health in Project surrounding areas.</li> </ul> <p><b>Transportation Risks:</b></p> <ul style="list-style-type: none"> <li>Transporting waste materials to the plant involves logistics that can pose risks such as spills, leaks, and accidents during transit.</li> <li>Routes must be carefully planned to minimize exposure to populated</li> </ul>	<p>The project proponent along with contractors need to ensure basic safety and periodic health check of the workers. Periodic health awareness program should be organized to generate health awareness amongst workers as well as local community.</p> <p>Project Proponent needs to ensure compliance of management of traffic rules to avoid any transportation risks during project cycle.</p>

Sl. No.	Impacts	Preconstruction and Construction	Operation	Mitigation measures
			<p>areas and ensure safe handling practice.</p> <p><b>Odour Control:</b></p> <ul style="list-style-type: none"> <li>The operation of WtE Project will adopt odour management initiative to control foul odour emanating from landfill area.</li> </ul> <p><b>Community Engagement:</b></p> <ul style="list-style-type: none"> <li>Transparent communication and community engagement are crucial to address concerns related to health, safety, and environmental impacts identified during operation of the Project.</li> </ul>	<p>Project Proponent needs to implement odour control program to control foul odour from the land fill area.</p> <p>Community engagement to be strengthened through regular interaction with local village administration and local community. GRM will also be implemented to address any issues raised by the community in a transparent and unbiased manner to build trust and confidence between the project proponent and the local community</p>



### 4.3 Findings from document review with AIIB’s comments

Table 4-24 Findings from document review with AIIB’s comments

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
1	Executive Summary	E-5.11	Socio-economic Environment: Number of HHs surveyed (146) is not mentioned.	-	EQMS has complied accordingly
2	Executive Summary	E-7	E&S Management and Monitoring Plan: Budget for Social mitigation measures not included	Detailed study is needed for budget preparation on E&S management & monitoring plan	EQMS has complied accordingly
3	1	1.6	Non-contact with 55 landowners. In addition, 41 refused to provide information	DC can only share the details	EQMS has complied accordingly with reasons.
4	1	1.4.2	Applicable Reference Framework does not include ARIPA Act	-	Updated accordingly in ESDD
5	2	2.10.2.2	Land Requirement for Transmission Line: This heading is incorrect. Information is about the plant.	-	EQMS has complied accordingly.
6	3	Table 3-2	Legal provisions are not only related to environmental protection, and also include ARIPA Act, Penal Code, Labour Rules, Antiquities Act, etc. Accordingly, title should cover Social Aspects.	To be complied accordingly and to physical displacement included in ESDD	EQMS has complied accordingly
7	3	Table 3-4	Remarks for ESS2 should also include physical displacement as is involved in the Project.	-	

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
8	3	Table 3-5	E&S Policy & Regulation: Should mention absence of Social Policy in Bangladesh & Measures should state compliance to AIIB's Social Policy.	-	EQMS has complied accordingly
9	3	Table 3-5	Screening and Categorization: Should mention absence of categorization based on social risk assessment in Bangladesh & Measures should state compliance to AIIB's ESF.	To be complied accordingly	EQMS has complied accordingly
10	3	Table 3-5	ESIA Report: Should mention non-requirement of SIA in Bangladesh & measures should state that ESIA is prepared.	-	EQMS has complied accordingly
11	3	Table 3-5	ESMP: Should mention non-requirement of SMP in Bangladesh & measures should state that ESMP is prepared.	-	ESMP findings shared in ESDD
12	3	Table 3-5	Alternatives: Should mention non-requirement of minimization of social impacts in Bangladesh and measures should state that study for alternatives is undertaken.	-	EQMS has complied accordingly
13	3	Table 3-5	GRM: The process available under ARIPA Act and AIIB's PPM are not included.	-	EQMS has complied accordingly
14	3	Table 3-5	Preparation of RAP: AIIB requirement not included. Measures of preparation of ESDDR and its coverage needs to be included.		Addressed in ESDD
15	3	Table 3-5	GBV: Non requirement mentioned under Gaps. Need for measures and what actions will be taken should be indicated.	There is absence of any reported GBV incidences in ESIA report as well as outcome of community consultation.	Reflected in ESDD

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
16	3	Table 3-5	Stakeholder Engagement: AIIB requirement should include even identification of Stakeholders & measures should include specific actions proposed.	-	Incorporated in ESDD
17	3	Table 3-5	Public Consultation: Need to correct the words Meeting and Objection. Actions to be removed from Gaps and included in Measures.	-	EQMS has complied accordingly
18	3	Table 3-5	Information Disclosure: Clarity of reference to which National Regulations, Section 8 & Bank Signages is required.	-	Reflected in ESDD
19	3	Table 3-5	Monitoring and Reporting: Clarity on reference to which National Regulations is required.	-	EQMS has complied accordingly
20	3	Table 3-6	Involuntary Resettlement: Specific actions taken or proposed to bridge the Gaps should be specified.	-	Reflected in ESDD under income/livelihood restoration plan
21	3	Table 3-6	Conducting Census: Actions taken in conducting survey as indicated in ESIA not specified.	-	EQMS has complied accordingly
22	3	Table 3-6	Establish GRM: Non-coverage of non-title holders and whether Project GRM will meet AIIB's ESF requirement needs to be specified.	-	EQMS has complied and the same has been reflected in ESDD
23	3	Table 3-6	Restoring Living Standards: Actions – how census survey will have data on <u>loss</u> of income and livelihood is not clear. Actions need to also include how losses will be assessed.	-	A separate Livelihood Assessment along with Proposal for Income and Livelihood Restoration Plan has been proposed in ESDD for non-titled holders and rag pickers in line with AIIB's ESS-2 guidelines.
24	3	Table 3-6	Land based Resettlement Strategy: The statement 'proposal to give land for land, if feasible' is not clear.	--	It is not applicable given the status of land acquisition and land-based livelihood of

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
					impacted households in this Project context.
25	3	Table 3-6	Eligibility Criteria: Gaps should also include non-entitlement of NTHs towards compensation for loss of structures.	-	Considered non-titled holders in ESDD for appropriate compensation through implementation of proposed Income and Livelihood Restoration Plan.
26	3	Table 3-6	Replacement Cost: ARIPA Act – Does wording of point (i) include “Replacement Cost”? Reference to 50% on Replacement Cost is not clear (not additional 200%). Actions should also include assessment of RC of other assets (structures).	According to under sub-section (1) and section b, c, d & of ARIPA Act, (i.e. <b>b. Impact on existing crops and trees on the acquired land parcel; c. Impact of acquisition on other remaining adjacent properties; d. Impact on properties and income from the acquired land parcel; and e. Relocation cost for businesses, residential dwellings, etc.)</b> an <b>additional 100%</b> compensation will be awarded on the existing market rate of the acquired land parcel.	As per ARIPA,2017, the replacement cost is additional 100% of the market value. Hence, there is no 50% as replacement cost and this additional 100% compensation is excluding 200% of awarded compensation against land parcels. This issue has been clarified in the ESIA report.

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
				Clarified 100% as replacement cost in line ARIPA,2017	
27	3	Table 3-6	Relocation Assistance: Actions – It is not clear where the entitlements of shifting allowances, salvaging materials, transition assistance etc. are specified in the ESIA. Non-title holders are not covered.	-	ESDD has considered non-titled holders including vulnerable rag pickers for compensation.
28	3	Table 3-6	Compensation to Non-title holders: Actions – Compensation against lost structures is perhaps not included in ESMP.	-	ESDD has reflected it.
29	3	Table 3-6	Disclosure: Actions – The ESIA, ESDDR and related full documents will have to be disclosed on websites.	-	ESDD has proposed for disclosure.
30	3	Table 3-6	Resettlement Costs to be considered as a <u>part of Project costs</u> and benefits: Text not suitable to the meaning of this requirement.	-	The resettlement cost is conserved is an additional cost over and above the Project cost. The relocation cost for the non-titled holders can be considered top-up cost of the Project as the Project has not yet considered them under proposed compensation package aligning with ARIPA, 2017 Act but it has been considered under AIIB’s ESS-2 protocol.
31	3	Table 3-6	Compensation and benefits before displacement: Gap exists in terms of inability to disburse compensation due to various reasons.	--	The revised ESIA report has clarified accordingly.
32	3	Table 3-6	Monitor and assess outcomes and impacts: Requirement is more than mere monitoring of	-	ESDD has addressed this issue.

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
			RP implementation and includes post RP implementation assessment.		
33	3	Table 3-6	Information Disclosure: Actions – Reference to F1 Project is not clear.	EQMS will comply accordingly	ESIA has addressed this issue.
34	5	5.10.3	Gender: The number of women landowners may be provided, if available.	The ESIA reported has stated the number of women landowners.	The number of women landowners are 73 (49.92% of 146 surveyed landowners).as per section 5.6.5 of the ESIA report under Gender wise age distribution of PAPs in socio-economic section.
35	6	6.2.2.3	Mitigation measures: NTHs are entitled for compensation against lost structures. If they are not considered eligible for the same, reasons should be specified.	Considered under ESDD	The ESIA has stated and the same has already been addressed in ESDD.
			Further, employees of business establishments should be identified as PAPs, and impacts, and necessity, or otherwise, of mitigation measures, should be explained.		Updated in ESIA report accordingly.
36	7	Table 7-1	Stakeholders: Instead of Land Sellers term Landowners should be used. Categories of Non-title holders & business operators need to be included.	-	Updated accordingly in place of land seller and reflected in report accordingly.
37	7	Table 7-3	List of Identified Key Project Stakeholders should include Title holder businessmen, and Land Sellers should be called Landowners.	-	Updated accordingly in report.
38	10	Table 10-1	Loss of Land - Mitigation and Enhancement Measures – Compensation top-up, if necessary, to meet the requirement of Replacement Cost should be added.	-	A separate study on assessment of livelihood impact and preparation of income cum livelihood restoration plan has been proposed in ESDD.

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
39	10	Table 10-1	Impact on Structures - Mitigation and Enhancement Measures – Compensation top-up, if necessary, to meet the requirement of Replacement Cost should be added.	-	A proposal for engagement of external consultant has been proposed for appropriate valuation of loss of asset as well as additional assistance to identified vulnerable in ESDD. It is also proposed additional compensation to meet the requirement replacement cost and loss of business income for non-titled holders under proposed Income cum Livelihood Restoration Plan in line AIIB's ESS-2 guidelines.
40	10	Table 10-1	Impacts on NTHs: Mitigation and Enhancement Measures – Compensation towards Replacement Cost of structures should be added, or non-applicability explained.	-	ESDD has reflected additional compensation for loss of structure including replacement cost for NTHs and are incorporated in proposed Income Livelihood Restoration Plan.
41	10	Table 10-1	Transmission Line: Land Purchase – It is not clear whether <u>alternative agricultural land and other allowances</u> are proposed to be really provided, and what is meant by RPF entitlements.	At the time of site assessment, the details of impacted landowners and sharecroppers along with their total area of acquired land parcel could not be obtained as the land acquisition process was underway.	EQMS has updated it in revised ESIA report. It is also anticipated if any adverse impact is identified on landowners and sharecroppers around TL then, an appropriate compensation is proposed as per applicable ARIPA Act, Bangladesh Power Grid policy/Electricity Act and AIIB's ESS-2 guidelines. In addition to it, impacted sharecroppers will



Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
					also be considered under Resettlement Policy Framework (as the extend of impact is unclear at this stage). The RFP will also consider impact on livelihood loss and other impacts on crops and trees etc.
42	ESMP for Transmission Line Appendix Q	Para 2.2	E&S Legislations in Bangladesh should include ARIPA Act (If used for LA, Electricity Act as well) & related administrative set up.	-	EQMS has updated it accordingly. It is also proposed that appropriate applicability of ARIPA Act, Electricity Act and related administrative guidelines to be referred to while considering compensation to impacted landowners as well as sharecroppers for TL.
43	ESMP for Transmission Line Appendix Q	Para 2.4.3	ESS3 – Is it clear that indigenous peoples are not affected even before carrying out survey of PAPs?	-	The project doesn't have any representation of indigenous people as per SES data and survey of EQMS. Even, EQMS has stated in the report about the absence of any indigenous people in the Project area. Hence ESS 3 is not applicable in this Project context.
44	ESMP for Transmission Line Appendix Q	Para 3.1.4	Land measurement should be expressed in internationally understood units.	-	EQMS has updated it accordingly in the ESIA report.

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
45	ESMP for Transmission Line Appendix Q	Para 4.2.6	OHS: Should also include stay, food, sanitation & health facilities for workers.	-	ESDD has updated it accordingly.
47	ESMP for Transmission Line Appendix Q	Para 4.2.7	Community H&S: Mitigation measures do not cover all the identified potential impacts.	-	ESDD has updated it accordingly.
48	ESMP for Transmission Line Appendix Q	Para 4.3.2.1	Is use of land below installed Tower for agriculture safe? Is it legally allowed?	-	EQMS has updated it accordingly in the ESIA report
49	ESMP for Transmission Line Appendix Q	Para 5.2	Requirement of preparation of ESIA even prior to RAP is not clearly specified.	-	As the land acquisition for the WTE plant has been completed and majority of the impacted landowners were given compensation in line with ARIPA Act to the satisfaction of the landowners. Hence, RAP is not required in this context rather a proposal for Income cum livelihood restoration plan has been proposed for impacted non-titled holders and vulnerable rag pickers who are considered more vulnerable as compared to titled holders. For Transmission line, it is anticipated that land would be required both for tower footing and ROW corridor. However,

Sr. No.	Chapter	Paragraph / Table	Issue Raised by AIIB	Explanation	Present status
					the TL alignment is yet to be finalised and land take is yet to be finalised, hence, A Resettlement Policy Framework is recommended to be formulated fro addressing any potential impact due to Transmission line.
50	ESMP for Transmission Line Appendix Q	Para 5.3.3	Tier 1 GRM: Lack of clarity in its manning (reference to Tier 2)		EQMS has complied it in ESIA report.
51	ESMP for Transmission Line Appendix Q	Table 5-2	Planning and Implementation stages – target stakeholders should include Landowners		EQMS has complied it.

The table above present a comprehensive list of gaps and concerns raised on revised version of ESIA report. The Due Diligence exercise revealed that some of these gaps, particularly data gaps and inconsistencies in the ESIA, such as the number of surveyed households and the lack of a national social policy, have been addressed. Gaps regarding the ESIA's alignment with national and international standards have been raised, particularly in areas like stakeholder engagement and the absence of a Social Impact Assessment in Bangladesh. Furthermore, the adequacy of mitigation measures proposed in the ESIA was questioned, especially concerning compensation for non-title holders, impacts on vulnerable groups, and potential effects of the transmission line.

To address these gaps, the ESDD proposes several actions items as part of the Corrective Action Plan to bridge the gaps identified in the ESIA and ensure the project aligns with social and environmental best practices while adequately addressing the concerns of affected communities:

- Proposing an income and livelihood restoration plan
- Incorporating non-title holders including rag pickers into compensation plans
- Providing compensation for loss of income and structures to impacted non-title holders.

- Implementing post-resettlement monitoring and assessment Ensuring compliance with AIB's standards
- Disclosing information by publishing the ESIA, ESDD, and related documents.

The Due Diligence exercise revealed that while the ESIA has successfully addressed a majority of the identified gaps, there remains a lack of clarity regarding data related to compensation and its disbursement. This ambiguity stems from the ongoing nature of the compensation process. Despite the ESIA reporting compensation figures, the dynamic nature of the process prevents the presentation of definitive data at this time.

CONFIDENTIAL

#### 4.4 Restoration of livelihood to cover income loss and measures adopted for vulnerable PAPs.

The land acquisition activity has adversely impacted the livelihood of non-titled holders. As per the census and socioeconomic survey conducted by the EQMS Team in August 2022 a total of 242 landowners are impacted, including 5 titled holders engaged in businesses, 5 non-titled holders operating petty shops, and 40 ragpickers including 9 female vulnerable rag pickers collecting waste materials from Amin Bazar land fill area. The site visit carried out as part of the DD has identified that the provision under ARIPA,2017 has not considered compensation for non-titled shop owners as well as vulnerable rag pickers. Hence, an income cum livelihood restoration plan has been proposed to address the urgent need of those Project impacted vulnerable adhering to AIIB's ESS-2 requirement.

The proposed Livelihood Restoration Plan that is to be formulated for the project will evaluate various aspects, including but not limited to the following considerations:

- Assessment of socio-economic condition of impacted non-titled holders and rag pickers.
- Assessment of their educational status, skills, and interest with respect to their livelihoods needs.
- Explore any potential alternative source of livelihood for impacted individuals.
- Design livelihood restoration plan for impacted individuals.
- Develop monitoring and evaluation mechanism of livelihood restoration plan.

**The following steps to be adopted in developing Income/Livelihood Restoration Plan for impacted individuals.**

- **Consultation and agreement:**
  - The Project Proponent (PP) with support from hired consultant/NGO to initiate discussion with Project affected peoples in decision making process.
  - PP to facilitate in discussion related with compensation measures, relocation activities and potential Income/livelihood restoration plans.
  - PP to reach agreement that consider the specific needs of impacted peoples through potential livelihood restoration plan.
- **Assessment of Impact:**
  - Conduct a thorough assessment to understand how the land acquisition has affected the livelihoods of non-titled petty shop owners and vulnerable rag pickers.
  - Identify the number of most affected individuals and the extent of their income loss.
- **Engagement and Consultation:**
  - Engage with the impacted non-titled holders as well as affected rag pickers and their communities to understand their needs, concerns, and priorities while exploring feasible solutions that are contextually appropriate and acceptable.

■ **Alternative Livelihood Programs:**

- Explore a potential area for restoration of livelihood of impacted non-titled holders with provision of seed money or one time grant to restore their business loss or providing relocation assistance to address their business loss.
- Develop and implement alternative livelihood programs tailored to the skills and capabilities of rag pickers. This could include vocational training, skill development workshops, or support for transitioning to other forms of informal or formal employment.
- Initiate discussion with DNCC official to explore any opportunity for absorption of vulnerable rag-pickers engaged in waste collection activity at Amin Bazar landfill area.

■ **Access to Social Protection:**

- Explore availability of social support programs of the government linking with business loan support initiative with subsidized interest.
- Ensure rag pickers have access to social protection schemes such as unemployment benefits, social security, or insurance schemes that can provide financial support during transitions or periods of income loss.

■ **Capacity Building and Education:**

- Develop capacity building cum awareness generation plan for impacted non-titled holders on business promotion initiative linking with government as well as non-government organizations engaged in business promotion activity.
- Provide opportunities for capacity building and education, including financial literacy training and access to educational programs, that can empower rag pickers to explore new income-generating activities.

■ **Partnerships and Collaboration:**

- Facilitate a sustainable linkage between impacted non-titled holders and identified department of the government or private organization engaged in business promotion activity.
- Collaborate with local NGOs, community organizations, government agencies, and businesses to leverage resources, expertise, and networks for supporting rag pickers. Partnerships can also facilitate advocacy efforts for their rights and welfare.

■ **Advocacy and Policy Influence:**

- Promote awareness initiative on potential business opportunities, legal implications and its compliance, applicable laws and regulations, financial or subsidy opportunity with subsidized rate of interest against business loan etc. in collaboration with concerned government department as well as identified private institutions or NGOs.
- Advocate for policies that protect the rights and livelihoods of informal workers, including rag pickers. Influence decision-making processes related to urban planning, land use, and development to consider the impact on vulnerable communities.

■ **Monitoring and Evaluation:**

- A systematic monitoring cum evaluation mechanism will be put in place to carry out periodic monitoring of the business activity along with annual evaluation mechanism to ensure the successful implementation of the businesses of non-title holders.
  - Continuously monitor the implementation of support programs and evaluate their impact on rag pickers' and non-title holders livelihoods. Use feedback from the community to make adjustments and improvements as needed.
- **Sustainability and Long-Term Support:**
- The Project proponent will explore areas that need support to boost local business through adoption of various marketing cum business promotion support in collaboration with various marketing companies or organizations. Even, the Project proponent will extend support to enhance the business activity of those impacted non-titled holders under joint collaborative measures if feasible.
  - Aim for sustainable solutions that enable rag pickers to maintain stable livelihoods over the long term. This may involve promoting recycling initiatives, waste management reforms, or integration into formal sectors.
- **Raise Awareness and Empowerment:**
- Generate awareness about business ethics, rights and entitlements along with applicable laws and regulations of small business as per Govt of Bangladesh and ensure compliances of applicable business guidelines.
  - Raise awareness among the wider community about the contributions of rag pickers and advocate for their recognition and inclusion in sustainable development efforts. Empower rag pickers to advocate for their own rights and needs.

By following these steps, the Project proponent can work towards mitigating the business or income loss faced by non-titled holders as well as vulnerable rag pickers due to land acquisition activities, ensuring they have the needed support and resources needed to restore their livelihood or income.



## 4.5 ESMP Findings

Environment and Social Management Plan (ESMP) focuses on executing necessary measures to mitigate or offset the negative impacts while boosting the positive outlook of the Project. The ESMP conform to World Bank EHS Guidelines, AIIB ESF, 2022 framework and Bangladesh national regulations. The conclusions of ESMP have been derived from the WTE ESIA report and direct site visit observation.

**Table 4-25 Aspect wise key findings from ESMP (Construction Phase)**

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
Loss of Land	<ul style="list-style-type: none"> <li>Displacement of communities or individuals dependent on the land for livelihood or residence.</li> <li>Environmental impacts due to land use change.</li> <li>Non-titled holders and vulnerable community found to be worse affected due to the proposed Project activity.</li> </ul>	<ul style="list-style-type: none"> <li>Provide fair compensation based on market rates or replacement cost in line with ARIPA,2017 and AIIB’s ESF guidelines.</li> <li>Ensure adequate resettlement and rehabilitation programs for affected communities.</li> <li>Address the issue of non-titled and vulnerable community through implementation income cum livelihood restoration plan.</li> </ul>	DC Office	WTE Power Plant North Dhaka Private Limited
Loss of Structures (Titleholders)	<ul style="list-style-type: none"> <li>Financial loss for property owners.</li> <li>Disruption of livelihoods or businesses depending on the structures.</li> <li>Social and psychological impacts on affected individuals or families.</li> </ul>	<ul style="list-style-type: none"> <li>Provide fair compensation and relocation assistance in line with ARIPA,2017 guidelines.</li> <li>Ensure clear legal processes for compensation and property acquisition in line with applicable guidelines.</li> <li>Facilitate transparent negotiations and dialogue with affected titleholders in connection with estimation of</li> </ul>	DC office in consultation with PWD	WTE Power Plant North Dhaka Private Limited

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
		loss of property due to land acquisition activity. <ul style="list-style-type: none"> <li>Provide relocation assistance to titled holders of business units to mitigate economic impacts.</li> </ul>		
Loss of Structures (Non-Titleholders)	<ul style="list-style-type: none"> <li>Loss of infrastructure for occupants operating businesses on encroached land area.</li> <li>Economic impacts for businesses or occupiers.</li> <li>Displacement and business loss impacting livelihood of non-titled holders.</li> </ul>	<ul style="list-style-type: none"> <li>Provide alternative area for setting up business units or providing adequate relocation compensation to non-titleholders.</li> <li>Ensure legal protections and support for vulnerable populations towards promoting their businesses to a new locations. .</li> <li>Collaborate with local authorities and NGOs to provide support services to those impacted non-titled holders.</li> <li>Compensation for loss of income from business.</li> <li>Compensation of structure loss at replacement cost.</li> </ul>	Hired Independent Consultant	WTE Power Plant North Dhaka Private Limited

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
Impact on Waste Pickers	<ul style="list-style-type: none"> <li>Loss of livelihood for waste pickers dependent on the acquired land.</li> <li>Absence of any alternative livelihood options for impacted waste pickers.</li> <li>Economic hardship for waste pickers and their families.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct consultations with waste pickers to explore potential income cum livelihood restoration plan for vulnerable rag pickers.</li> <li>Explore and provide alternative livelihood opportunities or vocational training under livelihood restoration plan in line with AIB's ESS-2 guidelines.</li> <li>Ensure access to social protections and services for affected waste pickers in collaboration with concerned government departments.</li> </ul>	CMEC in consultation with DNCC and hired NGO or competent livelihood agency	WTE Power Plant North Dhaka Private Limited
Air Quality	Dust from construction activities	<ul style="list-style-type: none"> <li>Regular watering, concrete batching plant location, restrict material drop height, use dust suppression techniques, cover haul vehicles, schedule activities to avoid high-wind conditions, use water sprays, ensure no waste burning, enforce speed limits</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
Exhaust Emissions	Emissions from construction machinery	<ul style="list-style-type: none"> <li>Minimize vehicle movement, enforce speed limit, regular maintenance of equipment, use low sulfur diesel, control emissions with good practices</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Offensive Odor	Odor from construction activities	<ul style="list-style-type: none"> <li>Develop odor management plan, communicate with residents, manage sewage sludge, use odor-neutralizing agents, cover solid waste, install ventilation systems</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Noise	Increased ambient noise levels	<ul style="list-style-type: none"> <li>Equip machinery with noise reduction materials, regular maintenance, shut down intermittent use equipment, use low noise equipment, reduce simultaneous equipment operation, orient noise-emitting equipment away from receptors, provide temporary noise barriers, restrict nighttime vehicle movement</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Vibration	Vibration from construction activities	<ul style="list-style-type: none"> <li>Use low-vibration equipment, schedule activities to minimize disturbance, use vibration-absorbing materials, regularly monitor vibration levels</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
Water Resources	Surface water contamination	<ul style="list-style-type: none"> <li>Phase dust-generating activities, implement waste management measures, maintain equipment, store hazardous materials properly, use spill kits, use oil and grease separators, provide sanitary facilities, treat wastewater, prevent waste disposal in water bodies</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Groundwater contamination	Potential groundwater contamination	<ul style="list-style-type: none"> <li>Ensure spill control, proper storage and disposal of hazardous materials, collect contaminated runoff, monitor groundwater regularly</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Soil Quality	Soil compaction and erosion	<ul style="list-style-type: none"> <li>Clearly demarcate cleared areas, implement soil conservation measures, schedule activities to avoid extreme weather, define work areas, keep construction vehicles on designated roads</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Soil contamination	Soil contamination from spills	<ul style="list-style-type: none"> <li>Contain storage areas, use spill kits, maintain equipment off-site, prepare spill clean-up guidelines, ensure impermeable storage areas, restore disturbed areas quickly, train staff on</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
		contamination event procedures		
Waste generation	Construction debris and waste	<ul style="list-style-type: none"> <li>Remove debris immediately, demarcate storage areas, label hazardous materials, properly store and manage hazardous materials, dispose of debris in designated areas, segregate waste, prevent littering, encourage waste recycling</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Terrestrial Flora	Vegetation clearance, plant diseases	<ul style="list-style-type: none"> <li>Minimize vegetation clearance, implement dust mitigation measures, educate workers on the importance of natural resources</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Terrestrial Fauna	Habitat degradation, wildlife disturbance	<ul style="list-style-type: none"> <li>Implement dust and noise mitigation measures, limit nighttime work, use non-intrusive lights, educate workers on wildlife protection</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Aquatic Flora and Fauna	Degradation of aquatic habitats	<ul style="list-style-type: none"> <li>Designate waste disposal areas away from water bodies, regularly monitor construction impacts on aquatic resources, train workers on aquatic resource protection, handle hazardous materials safely</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
Avifauna Species	<ul style="list-style-type: none"> <li>• Disturbance to Black kites and raptors</li> <li>• Potential habitat loss and displacement</li> <li>• Increased risk of collision with construction machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Minimize noise and vibrations during nesting seasons.</li> <li>• Avoid construction activities near active nesting sites.</li> <li>• Conduct frequent avifauna monitoring.</li> <li>• Install visibility markers on machinery and structures.</li> <li>• Schedule high-disturbance activities to avoid peak nesting periods.</li> <li>• Educate workers on the importance of protecting avifauna</li> </ul>	CMEC	
Traffic	<ul style="list-style-type: none"> <li>• Increased congestion and traffic jams near the construction site or newly developed area.</li> <li>• Safety concerns for pedestrians, cyclists, and motorists due to increased vehicular movement between dumping ground to STS.</li> <li>• Air pollution and environmental degradation due to vehicle emissions.</li> <li>• Potential risks of accident.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a comprehensive traffic management plan that includes temporary traffic control measures during construction.</li> <li>• Placing of signage with speed restriction to avoid any accident.</li> <li>• Ensure compliance with local regulations and standards for road safety and emissions control.</li> <li>• Traffic guard and signal must be ensured to avoid any</li> </ul>	CMEC	Designated person from WTE Power Plant North Dhaka Private Limited



Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
		untoward incidence in and around Project area.		
Local Conflict of Interest	<ul style="list-style-type: none"> <li>Influx of migrant workers might cause community conflict due to different culture and social values.</li> <li>Lack of transparency leading to distrust among stakeholders.</li> <li>Legal challenges pertaining to disbursement of award to impacted households may delay in Project implementation.</li> </ul>	<ul style="list-style-type: none"> <li>Orient migrant workers about local culture and rituals to avoid any conflict of interest between local community and Project workers.</li> <li>Establish clear guidelines and conflict of interest policies for officials and stakeholders involved.</li> <li>Engage with local communities and civil society organizations to build trust and address community concerns.</li> </ul>	CMEC in consultation with local community and workers and local village administration	Designated person from WTE Power Plant North Dhaka Private Limited
Cultural Heritage and Chance Finds	<ul style="list-style-type: none"> <li>Destruction or disturbance of archaeological sites, artifacts, or cultural landscapes.</li> <li>Loss of historical or cultural significance due to construction activities.</li> <li>Legal and ethical implications regarding the protection of cultural heritage.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct thorough cultural heritage assessments and surveys before construction begins.</li> <li>Implement mitigation measures such as site preservation, relocation of artifacts, or excavation under expert supervision.</li> <li>Collaborate with archaeologists, historians, and local cultural authorities to develop preservation plans.</li> </ul>	CMEC	Designated person from WTE Power Plant North Dhaka Private Limited/Department of Archaeology

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
		<ul style="list-style-type: none"> <li>Educate workers and stakeholders on the importance of cultural heritage preservation and compliance with relevant law</li> </ul>		
Child Rights	<ul style="list-style-type: none"> <li>Disruption of access to healthcare, education, and social services for children in affected communities</li> <li>Impact on child labour and exploitation in informal sectors during construction phases.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct child rights impact assessments to identify vulnerabilities and risks.</li> <li>Establish child protection policies and mechanisms to prevent exploitation and abuse and also implement anti-child labour policy at Project level.</li> <li>Provide educational support and opportunities for children affected by land acquisition and resettlement.</li> </ul>	CMEC	Designated person from WTE Power Plant North Dhaka Private Limited
Infectious Disease	<ul style="list-style-type: none"> <li>Increased risk of infectious diseases due to influx of labourers at the Project site.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure access to healthcare services, periodic health check-up, vaccinations, and sanitation facilities for workers at site and workers' accommodation.</li> <li>Collaborate with local health service providers and government hospital and local authorities to monitor and address infectious disease outbreaks throughout the Project life cycle.</li> </ul>	CMEC in consultation with local community, contractors and networked hospital.	Designated person from WTE Power Plant North Dhaka Private Limited

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
Occupational Health and Safety	<ul style="list-style-type: none"> <li>• <b>Construction Hazards:</b> Potential risks from heavy machinery, construction materials, and working at heights.</li> <li>• <b>Exposure to Hazardous Substances:</b> Handling of waste materials and potential exposure to toxic substances.</li> <li>• <b>Noise and Vibrations:</b> Construction activities leading to noise pollution and vibrations.</li> <li>• <b>Traffic Safety:</b> Increased traffic around the construction site, posing risks to workers and nearby communities.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Safety Training:</b> Mandatory safety training, mock drill and TBT to be imparted to all workers involved in construction.</li> <li>• <b>Personal Protective Equipment (PPE):</b> Provision and enforcement of PPE such as helmets, gloves, and safety shoes.</li> <li>• <b>Regular Inspections:</b> Conduct regular inspections to ensure compliance with safety protocols.</li> <li>• <b>Traffic Management Plan:</b> Implement a traffic management plan to minimize risks around the site.</li> <li>• <b>Health Monitoring:</b> Regular health check-ups for workers exposed to hazardous materials.</li> <li>• <b>Noise and Dust Control:</b> Use of barriers and water spraying to control noise and dust emission</li> </ul>	CMEC in consultation with workers, contractors and networked hospital	EPC Contractor and EHS Manager

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
Community Health and Safety	<ul style="list-style-type: none"> <li>• <b>Air Quality:</b> Potential air pollution from construction activities and waste processing.</li> <li>• <b>Water Quality:</b> Risks to water sources due to leachate or runoff from the site.</li> <li>• <b>Traffic Congestion:</b> Increased traffic around the area affecting local residents and businesses.</li> <li>• <b>Public Health Concerns:</b> Concerns regarding emissions from the waste-to-energy plant.</li> <li>• <b>Odour:</b> Foul smell emanating from landfill area.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Emission Control Systems:</b> Install and maintain state-of-the-art emission control systems to minimize air pollution.</li> <li>• <b>Monitoring Programs:</b> Implement continuous monitoring of air and water quality.</li> <li>• <b>Community Engagement:</b> Engage with local communities to address concerns and provide information about Project impacts.</li> <li>• <b>Emergency Response Plan:</b> Develop and implement an emergency response plan in case of accidents or incidents.</li> <li>• <b>Traffic Management:</b> Coordinate with local authorities to manage traffic flow and minimize disruption to the community.</li> <li>• Implement odour management program.</li> </ul>	CMEC in consultation with local community, local village administration and networked hospital	Designated person from WtE Power Plant North Dhaka Private Limited

Aspect	Key Potential Impacts	Proposed Mitigation/Enhancement Measures	Implementation Responsibility	Supervision Responsibility
Workers Accommodation	<ul style="list-style-type: none"> <li>• <b>Housing:</b> Poor and unhygienic accommodation for workers may cause health as well as infectious diseases amongst workers at the camp.</li> <li>• <b>Health and Hygiene:</b> Ensuring adequate living conditions, adequate drinking water, proper sanitation and disposal garbage facilities for workers at labour camp.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Proper housing:</b> Appropriate housing with easy access to basic amenities in line with ILO’s guidelines must be adhered to.</li> <li>• <b>Health and Safety Standards:</b> Ensure regular health check-up and counselling for workers both at site and labour camp to promote improved health and safety standards at workers’ accommodation in line with applicable guidelines.</li> </ul>	CMEC in consultation with EPC contractors, local workers, and sub- approved contractors if any	Designated person from WTE Power Plant North Dhaka Private Limited

Table 4-26 Aspect Wise key Findings from ESMP (Operations Phase)

Aspect	Key Findings	Mitigation Measures	Implementation responsibility	Supervision responsibility
Air Quality	High emissions of pollutants such as sulfur dioxide, nitrogen oxides, carbon monoxide, dioxins, volatile organic compounds, and greenhouse gases	<ul style="list-style-type: none"> <li>• Exhaust flue gas at 100m stack height Continuous Emission Monitoring System (CEMS).</li> <li>• Ambient air quality monitoring stations.</li> <li>• Regular maintenance of plant equipment.</li> <li>• Bag filter for particulate matter control.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited

Aspect	Key Findings	Mitigation Measures	Implementation responsibility	Supervision responsibility
		<ul style="list-style-type: none"> <li>Selective Non-Catalytic Reduction (SNCR) for nitrogen oxides control.</li> </ul>		
Terrestrial Fauna	Impact on health, behavior, and reproduction	<ul style="list-style-type: none"> <li>Regular monitoring of terrestrial fauna.</li> <li>Rescue, rehabilitation, and relocation.</li> <li>Compliance with existing rules and regulations.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Aquatic Flora and Fauna	Degradation of aquatic habitats	<ul style="list-style-type: none"> <li>Plan for accidental oil spillage.</li> <li>Control of leaching of hazardous chemicals.</li> <li>Regular monitoring of aquatic ecosystem health.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Odor	Malodor pollution from waste	<ul style="list-style-type: none"> <li>Capping of waste loading ramp.</li> <li>Air curtain at inlet and outlet of tipping hall.</li> <li>Negative pressure in waste tank.</li> <li>Use of activated carbon adsorption deodorizer.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
GHG Emission	GHG emissions from diesel fuel	<ul style="list-style-type: none"> <li>Monitoring and recording of CO2 emissions.</li> <li>Maintenance of equipment according to manufacturer's specifications.</li> <li>Improved efficiency of auxiliary drives</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited

Aspect	Key Findings	Mitigation Measures	Implementation responsibility	Supervision responsibility
Noise	Noise pollution from plant equipment	<ul style="list-style-type: none"> <li>• Selection of low-noise equipment.</li> <li>• Central arrangement of high-noise equipment.</li> <li>• Sound insulation and vibration reduction measures.</li> <li>• Use of mufflers and vibration damping devices.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Waste Generation	Improper storage and handling of waste	<ul style="list-style-type: none"> <li>• Hazardous waste plan based on national and WB/IFC guidelines.</li> <li>• Recyclable waste sold to authorized recycler.</li> <li>• Proper storage and disposal of solid and hazardous waste.</li> <li>• Spill management plan.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Surface and Groundwater Contamination	Contamination of surface and groundwater	<ul style="list-style-type: none"> <li>• Monitoring of temperature at discharge point.</li> <li>• Shutdown of discharge system if temperature exceeds standard.</li> <li>• Leak-proof oil transfer mechanism.</li> <li>• Sanitary effluent deposition in septic tank.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Soil Quality	Soil contamination from repair and maintenance	<ul style="list-style-type: none"> <li>• Limiting disturbance to soil.</li> <li>• Proper restoration of soil.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited



Aspect	Key Findings	Mitigation Measures	Implementation responsibility	Supervision responsibility
Terrestrial Flora	Hampering plant growth and causing diseases	<ul style="list-style-type: none"> <li>• Plantation plan for greenbelt development.</li> <li>• Extensive plantation of pollutant-resistant trees.</li> <li>• Regular plant health monitoring.</li> </ul>	CMEC	WTE Power Plant North Dhaka Private Limited
Community Health	<ul style="list-style-type: none"> <li>• Vehicular movement can cause accident in local villages.</li> <li>• Influx of labour can cause infectious diseases amongst community, particularly HIV/AIDS.</li> <li>• <b>Traffic Congestion:</b> Increased traffic around the area affecting local residents and businesses.</li> <li>• <b>Public Health Concerns:</b> Concerns regarding emissions from the waste-to-energy plant.</li> <li>• <b>Odour:</b> Foul smell emanating from landfill area</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic management plan must be implemented throughout the Project cycle.</li> <li>• Traffic awareness initiative should be undertaken on a periodic basis.</li> <li>• Periodic health check-up camp must be organized in collaboration with local hospital for workers as well as local community.</li> <li>• Odour management plan must be implemented to mitigate foul odour from the landfill area.</li> </ul>	CMEC in consultation with local community and networked hospital	EHS manager of WTE Power Plant North Dhaka Private Limited

Aspect	Key Findings	Mitigation Measures	Implementation responsibility	Supervision responsibility
	<ul style="list-style-type: none"> <li>impacting local community</li> </ul>			
Occupational Health and Safety	<ul style="list-style-type: none"> <li>Potential risks likely to witness due to use of heavy machinery and materials at construction site and working at heights.</li> <li>Handling of waste materials with potential risks of exposure to hazardous materials and toxic substances</li> <li>Health and safety of workers is critical area of concern at the plant throughout the Project cycle.</li> </ul>	<ul style="list-style-type: none"> <li>Regular health check up for all workers must be ensured.</li> <li>Use of appropriate PPE for all workers must be mandatory during working hour at the plant.</li> </ul>	CMEC in consultation with workers and contractors.	EHS manager of WTE Power Plant North Dhaka Private Limited
Infectious Disease	<ul style="list-style-type: none"> <li>Influx of migrant workers may enhance risk of infectious diseases such as HIV/AIDS amongst workers during this phase.</li> </ul>	<ul style="list-style-type: none"> <li>Periodic health check-up of workers should be conducted at labour camp as well as at the plant throughout the Project cycle.</li> <li>Health awareness on infectious diseases should be organized on</li> </ul>		EHS manager of WTE Power Plant North Dhaka Private Limited

Aspect	Key Findings	Mitigation Measures	Implementation responsibility	Supervision responsibility
		a regular basis for all the workers as well as contractors. <ul style="list-style-type: none"> <li>A booklet on prevention of infectious disease will be prepared in local language and distributed amongst all workers.</li> </ul>		
Traffic	<ul style="list-style-type: none"> <li>Traffic congestion due to vehicular movement</li> <li>Causing pollution due to heavy traffic movement in and around Project area.</li> </ul>	<ul style="list-style-type: none"> <li>Traffic management plan should be implemented.</li> <li>Proper traffic signage should be placed at strategic locations specially in front of school, hospital.</li> </ul>		WTE Power Plant North Dhaka Private Limited
<ul style="list-style-type: none"> <li>Implementation of Income/Livelihood Restoration Plan for vulnerable rag-pickers and non-titled holders</li> </ul>	<ul style="list-style-type: none"> <li>Easy access to regular income.</li> <li>Improved security of income and livelihood.</li> <li>Improved business income.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of Income/Livelihood Restoration Plan as proposed.</li> <li>Periodic monitoring and annual evaluation of proposed activity.</li> <li>Proposal to carry out Project post evaluation to capture Project status beyond Project timeline.</li> </ul>	<ul style="list-style-type: none"> <li>CMEC in collaboration with either hired consultant or competent institute.</li> </ul>	<ul style="list-style-type: none"> <li>Designated person from WTE Power Plant North Dhaka Private Limited preferably CSR officer (if available)</li> </ul>

## 4.6 Biodiversity Management Plan

Biodiversity (i.e., the variety of ecosystems, species and genes) boosts nature’s ability to provide the ecosystem services we all benefit from, like clean water, pollination of crops by insects, and erosion control. Sectors that benefit from such services include forestry, fishing, farming, tourism and the medical industry. There are also many less immediately visible ecosystem services, such as the climate regulation and natural flood defences provided by forests and carbon storage. Other very important but often less tangible benefits include cultural ecosystem services associated with religious, social, spiritual and indigenous values. But biodiversity is being lost at an alarming rate. A concept that is broader than biodiversity and helpful to include in this context is natural capital. A working definition of natural capital is the value of nature to businesses and the economy, and to people and society. Detailed Biodiversity Management Plan has been given in the below:

A Biodiversity Management Plan aims to help ensure that local ecosystems, species and genes survive in their natural habitat, so that they can continue to provide environmental benefits.

A BMP is a practical site-specific document used to maintain or improve biodiversity values during the construction, operational and post-closure phases, and to determine risks and opportunities before extraction begins. The process for developing a BMP focuses on identifying, evaluating, conserving (and if possible, enhancing) the relevant aspects of biodiversity, and should serve to:

- Avoid or mitigate biodiversity loss, with the objective of maintaining the diversity of species, habitats and ecosystems and the integrity of ecological functions.
- Contribute towards the remediation of significant global, regional and local biodiversity losses caused by expanding human economic activities worldwide.
- Realize the business opportunities that arise from biodiversity management.

**Table 4-27 Applicable Environmental, Health, Safety and Social Regulation**

Sl. No.	Action Points	Responsibility	Monitoring and Record Keeping	Applicable Project phase
1	All Project activities should be undertaken with appropriate noise mitigation measures to avoid disturbance to animal movement in the area.	Site in charge and HSE in charge	Internal monitoring once every week	Construction
	Activities generating high noise should be restricted to daytime and will be mitigated to minimize the noise level outside the site boundary.	Site in charge and HSE in charge	Once daily	Construction
2	Movement of construction and transport vehicles should be restricted to dedicated paths to minimize any harm to wildlife	Site in charge and HSE in charge	Daily and log-keeping of incoming and outgoing vehicles	Construction

Sl. No.	Action Points	Responsibility	Monitoring and Record Keeping	Applicable Project phase
3	Signage is to be placed along the access roads for taking precautions against any encounter with wild animals.	Site in charge	Once	Construction and Operation
4	There should be a speed limit for vehicle using the access roads and there should not be any vehicular movement during night.	Site in charge	Internal monitoring once in every week	Construction and Operation
5	Strict prohibitions on trapping, hunting or injuring wildlife should be implemented and shall bring a penalty clause under contractual agreements. Round-the-clock vigilance should be in place to prevent animals from entering the site	Site in charge and HSE in charge	Once	Construction and Operation
6	DOs and DON'Ts mitigation action to be displayed at all the construction sites particularly towards the grassland areas while erecting transmission lines.	Site in charge	Once	Construction and Operation
7	The footprints of the construction activities should be kept to a minimum to reduce disturbance to flora and fauna.	Site in charge	Daily monitoring	Construction and Operation
8	Camp and kitchen waste (wherever applicable) should be collected and disposed of in a manner that does not attract wild animals.	Site in charge and HSE in charge	Daily monitoring	Construction
10	Awareness programme for the Project personnel and workers to impart knowledge about the birds, their breeding and do's and don'ts on the encounter.	Head Office	Once	Construction and Operation
11	On encounters with wild animals at the proposed site, the forest department and headquarters should be reported immediately. And distance should be maintained from the animal.	Site In-charge and Head office	On encounter only	Construction and Operation
12	Field personnel should always look around the Project area and the transmission route for any signs of bird carcasses during the operation phase and should log and report the findings to the headquarters.	Site in-charge	Internal monitoring once every week	Operation
13	Raptors use Project infrastructure such as transmission towers as vantage points for predation. These structures should be regularly monitored, and nesting of these birds should be discouraged at the early stage only. Vultures, being scavengers, travel a long distance in search of carcasses. Hence if any such carcass is found near the Project area or in the vicinity of the transmission route, it needs to be immediately moved as far away as possible from the area of influence.	Site in-charge	Internal Monitoring once a week	Operation
14	Vigilance should be in place to avoid the entry of wild animals near the Project locations to avoid any kind of harm to the animals.	Site In-charge	Daily Monitoring	Construction
15	Coloured Disks should be installed on transmission line to avoid avifaunal collision.	Site In-charge	Daily monitoring	Construction and Operation

Sl. No.	Action Points	Responsibility	Monitoring and Record Keeping	Applicable Project phase
16	<b>Green Belt Development:</b> While making choice of plant species for cultivation in green belts, weightage has to be given to the natural factor of bio-climate, authorities responsible for plantation should make adequate provisions for watering and protection of the saplings. For effective removal of pollutants following measures have to be adopted. Native species should be selected for plantation.	EHS team	Daily monitoring of saplings	Operation

#### 4.7 Litigation, Complaints and Media Coverage Related to the Project

The Amin Bazar landfill in Dhaka, Bangladesh, has been the subject of numerous studies highlighting its severe environmental and health impacts. Constructed in a flood zone against regulations and without proper environmental assessments, the landfill has caused significant soil and groundwater contamination through leachate pollution. High levels of toxic metals have been found in nearby water bodies, crops, and vegetables, posing serious health risks to local communities, including increased cancer risk and respiratory issues. The Project has negatively impacted local livelihoods, displacing farmers, fishermen, and informal waste pickers, often with inadequate compensation. Despite legal challenges and ongoing concerns, the landfill continues to operate and expand, lacking proper waste management practices and threatening nearby residential areas and agricultural lands. This situation underscores the urgent need for improved waste management practices and stricter environmental regulations in Dhaka to protect public health and the environment.

**Table 4-28 A summary of media search findings**

Sl. No.	Action Points	Responsibility	Monitoring and Record Keeping
1	<b>Weak waste management leaves Dhaka communities at risks from landfill sites by S.M Najmus-Sakib</b>	<a href="https://news.mongabay.com/2022/09/weak-waste-management-leaves-dhaka-communities-at-risk-from-landfill-sites/">https://news.mongabay.com/2022/09/weak-waste-management-leaves-dhaka-communities-at-risk-from-landfill-sites/</a> 2 <sup>nd</sup> Sept, 2022	<ul style="list-style-type: none"> <li>This waste landfill in Dhaka has left a serious environmental impact on the soil and groundwater of surrounding areas through leachate pollution.</li> <li>The levels of toxic metals in the surface and groundwater and in vegetable and rice crops in the vicinity of the landfill sites that were higher than prescribed safe limits.</li> <li>Municipal authorities deny the pollution near the landfills is due to the waste leakage alone, and say they plan to expand the city's largest landfill site, both aboveground and underground.</li> <li>The study also found toxic chemicals in rice crops and various vegetables being grown near the landfills, such as lead, cadmium, nickel and manganese as a</li> </ul>

Sl. No.	Action Points	Responsibility	Monitoring and Record Keeping
			<p>result, consuming this food puts people at high risk of cardio myogenic cancer, the study warns.</p>
2	<p><b>Amin Bazar landfill threatens wetlands and farmers, Dhaka, Bangladesh</b></p>	<p><a href="https://www.cevreadaleti.org/print/waste-dumping-amin-bazar">https://www.cevreadaleti.org/print/waste-dumping-amin-bazar</a></p>	<ul style="list-style-type: none"> <li>• In 2005 the city of Dhaka acquired land to construct a landfill in the area of Amin Bazar, located in the northwest of Dhaka which was marked as flood zone and clearly considered unsuitable for the dumping of waste but the Project went ahead whereas, the Master Plan (MP) has prohibited any land development for residential, commercial and industrial purposes in the flood flow zones.</li> <li>• The landfill area for the dumping of waste has two villages namely Konda and Baliarpur within close proximity, where around 55,000 people live and earn their livelihood mostly from activities connected with agriculture and fisheries and who were not consulted during the design of the Project. Even, the Dhaka City Corporation started dumping waste even before final approval for the Project was given by the Planning Commission.</li> <li>• A petition filed by the Bangladesh Environment Lawyers Association (BELA) in 2010 and it stuck at the High Court since then and meanwhile, the jurisdiction has changed. Although, the Dhaka North City Corporation (DNCC) has claimed that, it had compensated farmers for their land, the amounts were considered below market prices.</li> <li>• After 12 years of dumping, the landfill does still not have an environmental clearance certificate from the Department of Environment (DoE), violating the Environment Conservation Rules, 1997. There has also not been any environmental impact assessment (EIA)</li> <li>• This waste-to-energy plant and an associated enclosure of waste has adversely impacted the activity of dozens of waste pickers, who currently informally work at the site under precarious conditions and make a living from selling collected recyclable waste</li> </ul>



Sl. No.	Action Points	Responsibility	Monitoring and Record Keeping
			(such as bottles, plastics, cans, cardboard, metals, etc.).
3	<b>Impact of landfill leachate on the surrounding environment: A case study on Amin Bazar Landfill Dhaka, (Bangladesh)</b>	<a href="https://www.mdpi.com/2571-8789/6/4/90?type=check_update&amp;version=2">https://www.mdpi.com/2571-8789/6/4/90?type=check_update&amp;version=2</a>	The study showed that samples collected near the landfill have higher concentrations of heavy metal (loid) s than others, which establishes the contribution of landfill leachate in contaminating the environment with heavy metal (loid) s and the improper leachate management of landfill has a high impact on the environment as well.
4	<b>Dhaka Landfill waste practices: addressing urban pollution and health hazards Published online 2021 Jul 28. This study received ethical approval from the Institutional Review Board (IRB) of the James P. Grant School of Public Health (protocol number 2019-012-IR), BRAC University, Dhaka</b>	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7611925">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7611925</a>	Findings reveal that landfills are situated very close to residential areas, water bodies and agricultural lands, exposing them to various health and environmental hazards. Improper solid waste management practices of the landfills cause adverse environmental effects by leachate percolation, waste incineration and vector breeding that exposing adjacent dwellers suffer from bronchial diseases, pneumonia, diarrhea, itching problems, headache and appetite loss.
5	<b>Impact of landfill leachate contamination on surface and groundwater of Bangladesh: a systematic review and possible</b>	<a href="https://d-nb.info/1242331204/34">https://d-nb.info/1242331204/34</a> <i>Received: 28 Oct. 2020</i> <i>Accepted: 18 May 2021</i>  <i>Published online: 29 May 2021,</i> <i>The Author(s) 2021</i>	The study revealed that the concentrations of several potentially toxic metals found in the surface and ground water in the vicinity of the landfill site was above the maximum permissible limit values of department of Environment, Bangladesh and World Health Organization (WHO). The human health risk index for toxic heavy metals in different vegetables and rice grain showed high health risk potential for Pb, Cd, Ni, and Mn. The total carcinogenic risk for Ni and Pb are found very

Sl. No.	Action Points	Responsibility	Monitoring and Record Keeping
	public health risks assessment by Fahmida Parvin and Shafi M. Tareq.		high in the edible plants near those landfill sites, suggesting the risk of Ni and Pb induced carcinogenesis by the consumption of those plants. The present conditions of surface, ground water and agriculture products near the landfill site of Bangladesh are much frightening to the biota and local inhabitants.
6	Aminbazar the landfill that ruined lives	<a href="https://www.tbsnews.net/environment/aminbazar-landfill-ruined-lives-54643">https://www.tbsnews.net/environment/aminbazar-landfill-ruined-lives-54643</a> , 11 March, 2020 bu Bishakha Devnath	<ul style="list-style-type: none"> <li>Locals said the water quality of nearby Karnapara khal deteriorated fast since the waste dumping began, with industries and brick kilns already contributing to the pollution and as a result no fish can survive in this contaminated water," informed by local Shambhu Rajbangshi.</li> <li>Bangladesh Environmental Lawyers Association (BELA) has predicted before the landfill started its operation that activities like cultivation and fishing of at least 22,000 villagers have been affected due to the proposed Project in the area.</li> <li>Moreover, farmers and fishermen are now being forced to become day labourers and workers in brick kilns and other factories nearby. More than anything else, they blame the government for rendering them landless and snatching their means of income.</li> <li>The land of the dumping site was acquired by the then Dhaka City Corporation in 2005, ignoring strong protests by villagers who claimed that they were paid much less than the market price of the land in those days according to BELA.</li> </ul>

## 4.8 Impacted Stakeholder Management Plan

### Impacted Stakeholder Management Plan (SMP):

The SMP is divided into few steps, encompassing stakeholder identification and analysis, engagement strategy, mitigation measures and support, monitoring and feedback mechanisms, timeline of stakeholder engagement with key responsibilities. The step-by-step SMP are described below:

Table 4-29 Impacted Stakeholder Management Plan

Sr. No	Category of Impacted stakeholders	Engagement strategy	Mitigation Measures and Support:	Monitoring and Feedback Mechanisms	Stakeholder Engagement Timeline:	Key responsibilities
1	Landowners	<ul style="list-style-type: none"> <li>Ensure their concerns associated with compensations are addressed and are satisfied with the compensation amount.</li> <li>Periodic meetings, transparent communication, and updates on the status of disbursement of pending compensation.</li> </ul>	<ul style="list-style-type: none"> <li>Fair compensation, Timely assistance with legal support if necessary. Support from the project proponent in availing compensation on time.</li> </ul>	<ul style="list-style-type: none"> <li>Regular updates on the status of disbursement of pending compensation from the project proponent.</li> <li>Updates on the status of disbursement of pending compensation from DC office.</li> <li>Interaction with the impacted landowners through systematic home visit, community meetings and use of grievance redressal systems as support services.</li> </ul>	<ul style="list-style-type: none"> <li>Pre-construction and construction phase.</li> </ul>	<ul style="list-style-type: none"> <li>WtE Project Team in consultation with DC office.</li> </ul>
2	Business owners (Titled)	<ul style="list-style-type: none"> <li>Provide timely information about potential business impact, relocation and associated compensation in line with ARIPA,2017 Act through periodic meeting, discussion and visitation.</li> <li>Facilitate business owners to minimize disruption to their operations of business and address their concerns associated with financial impacts through timely disbursement of compensation to their satisfaction.</li> <li>One-on-one meetings, impact assessments, and clear communication about potential disruptions and mitigation strategies</li> </ul>	<ul style="list-style-type: none"> <li>Support for loss of business, relocation assistance, financial compensation as applicable under ARIPA,2017 Act.</li> <li>Facilitate the task of valuation of loss of business income, loss of structures, relocation assistance with support of approved PWD schedule through an independent evaluator to promote transparency and trust in valuation of compensation.</li> <li>Business continuity planning assistance, financial aid, and advisory services.</li> </ul>	<ul style="list-style-type: none"> <li>Review of potential Impact on business operations and financial health through internal audit.</li> <li>Periodic reviews and consultations with business associates to address ongoing concerns in a collective manner.</li> </ul>	<ul style="list-style-type: none"> <li>Pre-construction through decommissioning of the project.</li> </ul>	<ul style="list-style-type: none"> <li>Business owners and WtE official will review the status of business operation on a systematic manner.</li> </ul>
3	Employees of titled holders	<ul style="list-style-type: none"> <li>Keep the workers updated about the changes of work place which may affect their employment and working conditions through regular meetings and discussion.</li> <li>Regular updates on the new place of work, new challenges to deal with, change of work schedule and impact on the workers due to relocation of business unit through internal communications, participatory meetings and discussions in a systematic manner.</li> </ul>	<ul style="list-style-type: none"> <li>Ensuring job security, providing timely wages and addressing concerns about employment changes.</li> <li>Develop entitlement matrix for employees of titled business holders for loss of wages.</li> <li>Inclusion of entitlement in proposed Income cum livelihood restoration plan.</li> <li>Career counselling, training for capacity building, employee retraining programs through incentives, bonus and transition assistance if necessary.</li> </ul>	<ul style="list-style-type: none"> <li>Review Job satisfaction and impact of change of place of employment.</li> <li>Carry out employees' satisfaction surveys, placing of suggestion boxes, and direct communication with management through representative of union (if any).</li> </ul>	<ul style="list-style-type: none"> <li>Pre construction</li> <li>Construction</li> <li>Operation</li> <li>Post completion of the Project activity.</li> </ul>	<ul style="list-style-type: none"> <li>Employer of the concerned business unit.</li> <li>WtE Project team will oversee it on a daily basis.</li> </ul>
4	Non-titled holder (5)	<ul style="list-style-type: none"> <li>Communication channel (using meeting, FGD, notices)</li> <li>Consultation process (periodic and providing Project updates and facilitate potential for engagement in Project)</li> <li>Capacity building (provide training &amp; support in area of enhancing livelihood opportunity leading to generation of income)</li> </ul>	<ul style="list-style-type: none"> <li>Develop entitlement matrix for impacted Non-titled holders.</li> <li>Compensation (ensure timely disbursement of compensation to all 5 non-titled holders )</li> <li>Income/Livelihood restoration for Non-titled holders through promotion of wage employment program.</li> </ul>	<ul style="list-style-type: none"> <li>Livelihood Impact assessment (assess socio-economic impact on non-titled holders)</li> <li>Feedback focusing grievance mechanism (develop mechanism to address issue of stakeholders through implementation of site-specific GRM)</li> <li>Compliance Monitoring (Comply ARIPA,2017, AIIB's ESF and other relevant policy).</li> <li>Carry out regular monitoring of the activity of the proposed Project.</li> </ul>	<ul style="list-style-type: none"> <li>Pre construction</li> <li>Construction</li> <li>Operation</li> <li>Post completion of the Project activity.</li> </ul>	<ul style="list-style-type: none"> <li>WtE Project team (will oversee day to activity)</li> <li>Management (manage stakeholder and implementation of proposed intervention).</li> </ul>

Sr. No	Category of Impacted stakeholders	Engagement strategy	Mitigation Measures and Support:	Monitoring and Feedback Mechanisms	Stakeholder Engagement Timeline:	Key responsibilities
						<ul style="list-style-type: none"> <li>Responsible CSR officer ( if available)</li> </ul>
5	Workers of Non-titled holders	<ul style="list-style-type: none"> <li>Address workers concerns about timely payment of wages, job security, increment and working conditions through individual as well as group discussion and periodic meeting and counselling.</li> <li>Carry out direct communication between employers and workers in connection with assurance of job satisfaction, working hour, employment support services, hikes in wages and festival benefits through participatory discussion, meetings and regular updates.</li> </ul>	<ul style="list-style-type: none"> <li>Assurance of job security with enhancement of wages along with other applicable benefits for workers with improved working conditions and hours.</li> <li>Develop entitlement matrix for workers of non-titled holders for loss of wages due to relocation.</li> <li>Inclusion of entitlement in proposed Income cum livelihood restoration plan.</li> <li>Provide Employment support services, retraining programs with provision of incentives.</li> </ul>	<ul style="list-style-type: none"> <li>Weekly review of workers’ satisfaction associated with working conditions and working hours.</li> <li>Monthly meeting and individual discussion with workers to capture feedback concerning their job satisfaction and expectations from the employer.</li> </ul>	<ul style="list-style-type: none"> <li>Pre construction</li> <li>Construction</li> <li>Operation</li> <li>Post completion of the Project activity.</li> </ul>	<ul style="list-style-type: none"> <li>Owner of the Non-titled holders and representative of WtE Project</li> </ul>
6	Rag pickers(40 including 9 female)	<ul style="list-style-type: none"> <li>Communication channel (using meeting, FGD, notices)</li> <li>Consultation process (periodic and providing Project updates and facilitate potential for engagement in Project)</li> <li>Capacity building (provide training &amp; support in area of enhancing livelihood opportunity leading to generation of income)</li> </ul>	<ul style="list-style-type: none"> <li>Develop entitlement matrix for impacted rag-pickers.</li> <li>Compensation (ensure timely disbursement of compensation to all enlisted 40 rag pickers).</li> <li>Provide additional compensation to 9 women rag-pickers based on their vulnerability status.</li> <li>Income/Livelihood restoration for rag-pickers through promotion of wage employment program.</li> <li>Facilitate ragpickers in getting employment with DNCC.</li> </ul>	<ul style="list-style-type: none"> <li>Livelihood Impact assessment (assess socio-economic impact on ragpickers and non-titled holders)</li> <li>Feedback focusing grievance mechanism (develop mechanism to address issue of stakeholders through implementation of site-specific GRM)</li> <li>Compliance Monitoring (Comply ARIPA,2017, AIB's ESF and other relevant policy).</li> <li>Carry out regular monitoring of the activity of the proposed Project.</li> </ul>	<ul style="list-style-type: none"> <li>Pre construction</li> <li>Construction</li> <li>Operation.</li> <li>Post completion of the Project activity.</li> </ul>	<ul style="list-style-type: none"> <li>WtE Project team (will oversee day to activity)</li> <li>Management (manage stakeholder and implementation of proposed intervention).</li> <li>Responsible CSR officer ( if available)</li> </ul>

## 4.9 Other Document findings

### 4.9.1 GHG Emission

The Project appears to result in a substantial net reduction in greenhouse gas emissions compared to traditional waste management practices.

- **Reduced Methane from Landfills:** Landfills generate methane (CH<sub>4</sub>) as waste decomposes. Waste incineration diverts waste from landfills, thereby reducing this source of methane. The Project converts these avoided methane emissions into a CO<sub>2</sub> equivalent (1.36 CO<sub>2</sub>e annually). Methane is a more potent greenhouse gas than CO<sub>2</sub>, so this reduction is beneficial.
- **Waste-to-Energy (WtE) replacing Coal Power:** The Project uses the incinerated waste to generate electricity. They claim this displaces electricity generation from coal-fired power plants, which have higher overall greenhouse gas emissions. The Project claims an offset of 226,700 tons of CO<sub>2</sub> annually from this displacement.
- **Breakdown of the CO<sub>2</sub> equivalent emissions:**
  - **From Incineration:** 270,200 tons CO<sub>2</sub> annually (mineral carbon emissions).
- **Offsets:**
  - **Avoided Landfill Methane and Nitrous Oxide:** 1.36 CO<sub>2</sub>e annually (converted from CH<sub>4</sub> and N<sub>2</sub>O emissions).
  - **Coal Power Displacement:** 226,700 tons CO<sub>2</sub> annually.
- **Net Reduction:**

The Project claims a net reduction of 361,700 tons of CO<sub>2</sub> annually (0.332 t CO<sub>2</sub> per ton of waste). This is because the avoided emissions from landfills and coal displacement outweigh the CO<sub>2</sub> released from the incineration process itself.

Table 4-30 GHG Emission<sup>15</sup>

Sl. No.	Emission Source/Offset	Annual Emissions (tons CO <sub>2</sub> e)
1	<b>Waste Incineration Emissions</b>	
	Mineral Carbon Emissions	270,200
	Methane (CH <sub>4</sub> ) and Nitrous Oxide (N <sub>2</sub> O) Emissions	1,360
	<b>Total Incineration Emissions</b>	<b>271,560</b>
2	<b>Emission Offsets</b>	
	Avoided Methane Emissions from Landfills	418,900
	Displacement of Coal-fired Power Generation	226,700
	<b>Total Emissions Offsets</b>	<b>645,600</b>
3	<b>Net Emissions Reduction</b>	
	Annual Average Carbon Emission Reduction	361,700
	Carbon Emission Reduction per Ton of Waste	0.332 t CO <sub>2</sub> /ton

<sup>15</sup> GHG emission report, WTE North Dhaka Pvt Ltd.

Sl. No.	Emission Source/Offset	Annual Emissions (tons CO <sub>2</sub> e)
	<b>Total Net CO<sub>2</sub> Equivalent Emissions</b>	<b>270,201</b>

The WtE Project shows potential for reducing greenhouse gas emissions compared to landfilling, it should be viewed as part of a broader, integrated waste management strategy. The focus should remain on waste reduction and recycling as primary goals, with WtE serving as a complementary solution for residual waste. Rigorous verification, ongoing monitoring, and consideration of all environmental impacts are crucial for accurately assessing the Project's true environmental value.

#### 4.9.2 Water Intake and Water Discharge Routes

The detailed analysis on the design of the water intake and drainage pipeline for the Waste-To-Energy (WtE) Project includes several key elements:

##### 4.9.2.1 Water Intake Pipeline Design

The design of the water intake pipeline for the Waste-to-Energy (WtE) Project includes several critical aspects:

- **Intake Points:** Three water intake points have been proposed by the design team. These intake points are strategically located approximately 1.434 km north of the proposed Project site.
- **Pipeline Specifications:**
  - The water intake pipeline outside the factory will use straight-seam welded steel pipes.
  - The pipeline diameter is DN350, which indicates a nominal diameter of 350 millimeters.
  - The total length of the water intake pipeline is 1.434 kilometers.

##### 4.9.2.2 Drainage Pipeline Design

The drainage pipeline design complements the water intake system with the following features:

- **Pipeline Specifications:**
  - The drainage pipeline outside the factory is made of reinforced concrete.
  - The pipeline diameter is DN1000, which indicates a nominal diameter of 1000 millimeters.
- **Infrastructure and Land Use:**
  - The drainage pipeline shares the land and infrastructure with the water intake pipeline, covering the same area of approximately 18,501.4 square meters (4.57 acres).
  - Similar to the water intake pipeline, the land acquisition process follows the AIIB ESF guidelines, 2022.

##### 4.9.2.3 Additional Design Considerations

- **Roads and Access:**
  - The roads within the factory area are designed in a circular form to meet the requirements for production, transportation, and fire control.

- A 360-meter-long access road is planned on the east side to connect the Project site with the highway. The main factory area roads have a pavement width of 7.0 meters, with a minimum bending radius of 12.0 meters and 18.0 meters for waste transportation roads.
- **Environmental and Social Considerations:**
  - The land acquisition process for both water intake and drainage pipelines adheres to AIIB ESF guidelines, ensuring fair compensation and minimal disruption to current land use.

The design of the water intake and drainage pipelines for the WtE Project is comprehensive, ensuring robust infrastructure while adhering to environmental and social guidelines. This thorough planning is crucial for the sustainable operation of the Project and its integration into the local environment and community.

### 4.9.3 Waste Disposal from The Plant

#### 4.9.3.1 Fly Ash

The Project's fly ash management strategy addresses a significant byproduct of the waste-to-energy process, with an estimated daily output of 73.6 m<sup>3</sup>. The plant's substantial storage capacity of 122,560 m<sup>3</sup>, designed to accommodate five years of production, demonstrates long-term planning. Primarily, the fly ash is sold to cement factories, promoting resource recovery and circular economy principles. However, in emergencies, it's used for landfilling. The fly ash contains heavy metals and dioxins, necessitating solidification or stabilization before disposal to prevent environmental contamination. This approach balances resource utilization with environmental protection, though it requires ongoing monitoring, market development for ash utilization, investment in advanced treatment technologies, and regular environmental impact assessments. While the strategy shows foresight in handling this hazardous byproduct, the significant quantity produced underscores the need for continued vigilance and innovation in fly ash management.

#### 4.9.3.2 Bottom Ash

Bottom ash, collected from the furnace's base, is an integral byproduct of the waste incineration process. The management strategy involves storing this ash in dedicated slag pits for a minimum of three days, allowing for crucial cooling and dewatering processes. Following this initial treatment, the bottom ash is transported to a comprehensive utilization workshop. This facility explores various applications for the ash, with primary uses including its incorporation into asphalt concrete mixtures or as material for landfill purposes. This approach demonstrates a commitment to resource recovery and waste minimization, turning what would otherwise be a waste product into potentially valuable materials for construction and land reclamation Projects. However, the use of bottom ash, particularly in landfills, may require ongoing monitoring to ensure environmental safety and compliance with relevant regulations.

#### 4.9.3.3 Wet Slag

Wet slag, a byproduct of the incineration process, is generated in substantial quantities, amounting to approximately 500 tons daily or 182,500 tons annually. This significant volume necessitates a comprehensive management strategy focused on resource recovery and recycling. The wet slag undergoes a sorting process to separate its various components. Metallic materials extracted from the slag are sold, capitalizing on their residual value and promoting material recovery. The remaining non-metallic components are repurposed for brick making, demonstrating an innovative approach to waste utilization. This management strategy not only addresses the challenge of large-volume waste



disposal but also aligns with circular economy principles by transforming waste materials into valuable resources.

#### 4.9.3.4 Sludge

Arises from the feed water and leachate treatment systems in the waste-to-energy plant, requires careful handling due to its potentially hazardous nature. The management approach for sludge focuses on volume reduction and hazard mitigation prior to disposal. This treatment process is crucial as it addresses both the quantity and quality aspects of the waste stream. By reducing the volume, the plant minimizes the space required for disposal and potentially reduces associated costs. The treatment to lessen its hazardous characteristics is vital for environmental protection, likely involving processes such as dewatering, stabilization, or chemical treatment. This two-pronged approach to sludge management demonstrates a commitment to responsible waste handling, aiming to minimize both the environmental footprint and potential risks associated with this waste stream. However, the specific treatment methods and disposal practices would need to be carefully monitored to ensure compliance with environmental regulations and to prevent any potential contamination of soil or water resources.

#### 4.9.3.5 Municipal Solid Waste

The waste-to-energy plant itself generates an estimated 207.2 kg of municipal solid waste daily, comprising various materials such as paper, cartons, bags, office waste, and minor domestic waste. This internal waste generation, though relatively small compared to the plant's processing capacity, requires its own management strategy. The approach involves collection and segregation of these materials, likely to maximize recycling potential and minimize the amount sent for disposal. After this initial processing, the remaining waste is channeled into local waste management systems for final disposal. This practice demonstrates the plant's commitment to responsible waste management even for its own operational waste, aligning with broader waste reduction and recycling principles. However, it's worth noting that the specific local waste management systems used for final disposal would influence the overall environmental impact of this waste stream, emphasizing the importance of robust local waste infrastructure to complement the plant's operations.

#### 4.9.3.6 Liquid Waste

The waste-to-energy plant manages various types of liquid waste, encompassing domestic sewage, production sewage, waste leachate, and truck flushing sewage. To handle this diverse liquid waste stream, the facility is equipped with substantial treatment infrastructure. Notably, the plant boasts a leachate treatment capacity of 1,500 tons per day, indicating its ability to process large volumes of potentially hazardous liquid waste. Additionally, a storage tank with a capacity of 12,000 m<sup>3</sup> allows for an 8-day retention period, providing operational flexibility and buffer capacity in case of treatment system maintenance or unexpected surges in liquid waste generation. This comprehensive approach to liquid waste management demonstrates the plant's commitment to environmental protection and regulatory compliance. The significant treatment capacity and storage provisions suggest a proactive strategy to manage both routine and potential peak liquid waste volumes, ensuring that harmful contaminants are properly treated before any discharge or further processing.

#### 4.9.3.7 Hazardous Waste

Various hazardous wastes like used oil and chemicals will be generated during operation. These will be stored in designated hazardous waste storage areas and disposed of through authorized vendors. In summary, the power plant has comprehensive systems in place to collect, treat and dispose of the

various solid, liquid and hazardous wastes generated in an environmentally sound manner, exploring reuse and recycling options where feasible.

**Table 4-31 Waste Disposal from The Plant**

Sl. No.	Aspect	Details
1	<b>Types of Waste Generated</b>	<ul style="list-style-type: none"> <li>Fly ash, Bottom ash, Wet slag, sludge from feed water and leachate treatment systems, Hazardous and non-Hazardous waste during operation.</li> </ul>
2	<b>Fly Ash</b>	<ul style="list-style-type: none"> <li>Estimated output: 73.6 m<sup>3</sup>/day</li> <li>Storage capacity: 122,560 m<sup>3</sup> (5 years).</li> <li>Sold to cement factories; used as emergency landfill.</li> <li>Contains heavy metals and dioxins; needs solidification/stabilization before disposal.</li> </ul>
3	<b>Bottom Ash</b>	<ul style="list-style-type: none"> <li>Stored in slag pits for more than 3 days.</li> <li>Lifted by grab truck and sent to comprehensive utilization workshop.</li> <li>Used for asphalt concrete or landfill.</li> </ul>
4	<b>Wet Slag</b>	<ul style="list-style-type: none"> <li>Production: 500 tons/day (182,500 tons/year)</li> <li>Components sorted for recycling or disposal.</li> <li>Metal sold, remaining used for brick making.</li> </ul>
5	<b>Sludge</b>	<ul style="list-style-type: none"> <li>Generated from feed water and leachate treatment systems.</li> </ul>
6	<b>Municipal Solid Waste</b>	<ul style="list-style-type: none"> <li>Estimated generation: 207.2 kg/day</li> <li>Includes paper, cartons, bags, office waste, and minor domestic waste.</li> <li>Collected, segregated, and disposed of through local waste management bodies.</li> </ul>
7	<b>Liquid Waste</b>	<ul style="list-style-type: none"> <li>Includes domestic sewage, production sewage, waste leachate, and truck flushing sewage.</li> <li>Leachate treatment capacity: 1,500 tons/day with 12,000 m<sup>3</sup> storage tank for 8 days retention.</li> </ul>
8	<b>Hazardous Waste</b>	<ul style="list-style-type: none"> <li>Generated during normal operation; includes acids/alkali for water treatment.</li> <li>Potential to degrade soil and sediment quality if not handled properly.</li> </ul>
9	<b>Impact on Environment</b>	<ul style="list-style-type: none"> <li>Risk of contamination to land, water bodies, and air if waste is not properly managed.</li> <li>Measures in place to mitigate risks, such as treatment and proper disposal of hazardous constituents.</li> </ul>

#### 4.9.4 Entitlement Matrix (including budget and assumptions)

The entitlement matrix for this Project outlines a comprehensive compensation and assistance package for various categories of Project Affected Persons (PAPs). It covers compensation for land, loss of structures (both titled and non-titled) and trees, employee of business units, income loss from business. The matrix demonstrates a commitment to fair compensation and support for all affected parties, including non-title user and vulnerable groups, aligning with both national legal requirements and international best practices in resettlement and rehabilitation.

It is a development initiative on the part of the project proponent under its social responsibility and development commitment . The expenses that result from the entitlement matrix are to be borne by the Project Proponent. The project proponent may consider development of further interventions following any identified needs in its area of operation through implementation of its various development initiative as per its planned activity.

**Table 4-32 Entitlement Matrix (including budget and assumptions)**

Type Of Loss	Category of affected PAPs	Type of Entitlement
Land of all Types (Null, Viti and Homestead)	Legal owner(s) as identified by Deputy Commissioner (DC) in the process of CCL payment	Cash compensation under law (CCL) which includes 200% premium (ARIPA 2017, Section 9)  7.5% of CCL as dislocation allowance (stamp duty, registration fees and other cost), no matter whether the APs purchase alternative land or not.
Structures of all types primary and secondary (Loss of commercial structures by title holders)	Legal owner(s) as identified by Deputy Commissioner (DC) in the process of CCL payment	Replacement Value (RV) of Structures as determined by the Public Works Department (PWD).  Cash compensation under law (CCL) which includes 100% premium or RV whichever is higher on the market price/PWD scheduled rates. (ARIPA,2017, Section 9). <ul style="list-style-type: none"> <li>• 12.5% of RV as Structures Transfer Grant (STG)</li> <li>• 12.5% of RV as Structures Reconstruction Grant (SRG)</li> </ul>

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Type Of Loss	Category of affected PAPs	Type of Entitlement
		Owners is allowed to take away all salvage free of cost with the approval of the authority.
Structures (non-title to land)	Owners of the structures identified during the Census.	<ul style="list-style-type: none"> <li>Replacement value of the structures as per the schedule rate of Public Works Department (PWD).</li> <li>Owners will be allowed to take away all salvage free of cost.</li> </ul>
Trees	Legal owner(s) as identified by Deputy Commissioner (DC) in the process of CCL payment or socially recognized owners	<p>Compensation in cash at CCL as per ARIPA-2017 calculated on the basis of type, age and productive value of affected trees.</p> <p>Cash Compensation under law (CCL) which includes 100% premium for title holder (ARIPA 2017).</p> <p>Owners will be allowed to fell and take away the felled trees within the stipulated time notified by DNCC.</p>
Income loss from business	Title holder	<ul style="list-style-type: none"> <li>One-time transitional allowance for the business loss.</li> </ul>
Income loss from business	Non-title holder	<ul style="list-style-type: none"> <li>One-time transitional allowance for the business loss on the basis of local context and consultation with the APs.</li> <li>Income Restoration Measures as part of the Livelihood Restoration Plan.</li> </ul>
Employment loss (Employees of non-title)	Employees of non-title holder	Each employee of business enterprises of non-title will be given Tk 10,500: Tk 350*30days based on the local wage on similar employment.
Vulnerable rag pickers with special emphasis on female rag pickers	Vulnerable rag pickers particularly 9 identified female rag pickers	Compensation to impacted vulnerable rag pickers under Income cum Livelihood Restoration Plan to be prepared for the project.

Type Of Loss	Category of affected PAPs	Type of Entitlement
Tax on compensation money	Title holder PDPs	All the compensations and grants will be exempted from all types of GoB taxes.

Source: ESIA Report

#### 4.9.4.1 Summary of Impact

The Project's impact assessment reveals significant effects on various stakeholders. It involves acquiring 29.6485 acres of land, affecting 242 landowners and impacting 10 businesses (5 titled+5 non-titled). The 5 titled business holders are identified as Ramesh Ch. Chandra Ghosh, Ramendranath Ghosh, Md. Mohiuddin, Md. Mafij Uddin and Eklas Uddin, whereas, 5 non-titled holders are identified as Mohiuddin, Mahaboob, Prabhas Ghosh, Abul Kalam and Khuddush Molla based on the review of Award book and site assessment. The total number of Project Affected Households includes 242 landowners, 5 affected business units, 801 employees from titled businesses, 5 non-titled shops, and 13 employees from these shops. Additionally, 40 vulnerable rag-picker households are affected. The Project will also impact 10 small trees and 10 structures (5 titled, 5 non-titled). This comprehensive breakdown highlights the wide-ranging socio-economic impacts of the Project, emphasizing the need for a thorough and equitable resettlement and compensation strategy to address the diverse needs of all affected parties, including both formal and informal stakeholders.

**Table 4-33 Summary of Impact**

Sl. No.	Project Impact	Type	Sub Total	Total	Reference
1	<b>Total Amount of Land acquired (acre)</b>	Land	-	29.6485	<b>ESIA report and site visit</b>
2	<b>Total number of Affected Households/Units/ Entities</b>			247	
2.1	Total number of affected HH's	Title HH	242	247	
		Non-title HH	05		
3	<b>Total number of Business Affected HH</b>	Title	5	10	
		Non-Title	5		
4	<b>Total number of Project Affected Persons (PAPs)</b>				
4.1	Number of affected persons from HHs (The data represents surveyed of total 146 impacted families only)	HH	607	607	
4.2	Number of Affected Business Units	Titled holder	5	5	
4.3	Number of Affected Employee	Titled holder	801	801	
4.4	Number of Affected Shops	Non-titled	5	5	
4.5	Number of Affected Employee of Shops	Non-titled	13	13	

Sl. No.	Project Impact	Type	Sub Total	Total	Reference	
<b>5</b>	<b>Vulnerable Households</b>					
5.1	Number of Affected Vulnerable Households (including 9 female rag pickers)	Rag-Pickers	40	40		
<b>6</b>	<b>Affected Trees</b>					
6.1	Number of Affected Trees	Small tree	10	10		
<b>7</b>	<b>Affected Structures</b>					
7.1	Number of Affected Structures	Titled	5	5		
7.2	Number of Affected Structure	Non-titled	5	5		

Source: ESIA review and site assessment

Summary of budget plan for various stages of Implementation of the Project are as follows as per ARIPA,2017

The preconstruction and construction stage environmental management budget are 6.3 million (BDT)/year and operation stage environmental and social management budget is 10.8 million (BDT). Environmental and Social Monitoring Cost during construction and operation stage/year are estimated 5.256million (BDT). This budget does not include the decommissioning stage since the minimum operation period is 20 years and the rate will vary largely from the present cost.

**Table 4-34 Environmental and Social Management Cost (A) for Pre-construction/Construction Stage**

No.	Description of Item	Unit	ESMP Cost (BDT million)
<b>Pre-construction/Construction Stage/year</b>			
1.	Dust pollution control (sprinkling)	LS	1
2.	ESMP for air pollution control	LS	0.5
3.	ESMP for controlling noise pollution	LS	0.5
4.	ESMP for controlling surface water resources	LS	0.5

No.	Description of Item	Unit	ESMP Cost (BDT million)
5.	ESMP for controlling groundwater resources	LS	1
6.	ESMP for controlling impacts on Soil	LS	0.5
7.	ESMP for controlling waste generation and mitigating impacts	LS	0.5
8.	ESMP for Occupational health and safety	LS	1
9.	ESMP for Community health and safety	LS	0.5
10.	ESMP for controlling ecosystem	LS	0.3
<b>Total Environmental Management Cost (A)</b>			<b>6.3</b>

**Table 4-35 Environmental Management Cost (B) for Operation Stage**

No.	Description of Item	Unit	ESMP Cost (BDT million)
<b>Operation Stage Yearly</b>			
1.	ESMP for air pollution control	LS	2
2.	ESMP for controlling noise pollution	LS	0.5
3.	ESMP for controlling surface water resources	LS	1
4.	ESMP for controlling groundwater resources	LS	1
5.	ESMP for produced fly ash and slag from the power plant	LS	2



No.	Description of Item	Unit	ESMP Cost (BDT million)
6.	ESMP for controlling the impact of wastewater generation	LS	0.5
7.	ESMP for controlling impacts on Soil	LS	0.5
8.	ESMP for Occupational Health and Safety	LS	0.5
9.	ESMP for Community health and safety	LS	0.5
10.	Tree plantation and green area development plan	LS	0.5
11.	ESMP for enhancing better socioeconomic condition	LS	0.5
12.	ESMP for controlling ecosystem	LS	0.3
13.	Development Initiatives	LS	1
<b>Total Environmental Management Cost (B)</b>			<b>10.8</b>

*Note: These mentioned costs are tentative at the time of this study and might be changed during detail design of the Project.*

CONFIDENTIAL

**Table 4-36 Environmental Monitoring Cost (C) during construction and operation stage/year**

Component	Stage	Item	Location	Unit	Quantity	Unit Rate (BDT)	Total Costs (BDT million)
Ambient Air Quality	During Construction	Measurement of PM 2.5, PM10, CO, SOx, NOx, Odor	8	No.	32	20,000	0.640
	During Operation	Measurement of PM10, PM2.5, SOx, NOx, CO, Odor	8	No.	32	20,000	0.640
Stack emission	During Operation	Temperature, pressure, flow, dust, SO2, NOx, O2, COCO2, HCL, HF, NH3	1	No.	4	20000	0.08
	During Operation (Continuous Monitoring)	Temperature, pressure, flow, dust, SO2, NOx, O2, COCO2, HCL, HF, NH3	1	No.	1	-	O&M Cost
Water Quality (Surface & Ground Water)	During Construction	<b>Surface Water</b> DO, BOD, Temperature, Electric Conductivity (EC), Turbidity, pH, TDS, Salinity, Iron, Arsenic, Phosphate, Zinc, Chromium, Nitrate, Magnesium, Aluminum, Coper, COD, Hardness (as CaCO3), Ammonia, Ammonium, Color, TSS, Oil and Grease	2	No.	8	18,000	0.144
		<b>Ground Water</b> Temperature, Electric, Conductivity (EC), Turbidity, Ph, TDS, DO, Salinity, Iron, Fluoride, Arsenic, Total Coliform, Fecal Coliform, Chloride, Total Alkalinity, Total Hardness	2	No.	8	15,000	0.12

Component	Stage	Item	Location	Unit	Quantity	Unit Rate (BDT)	Total Costs (BDT million)
	During Operation	<b>Surface Water</b> DO, BOD, Temperature, Electric Conductivity (EC), Turbidity, pH, TDS, Salinity, Iron, Arsenic, Phosphate, Zinc, Chromium, Nitrate, Magnesium, Aluminum, Copper, COD, Hardness (as CaCO <sub>3</sub> ), Ammonia, Ammonium, Color, TSS, Oil and Grease.	2	No.	8	18,000	0.144
		<b>Ground Water</b> Temperature, Electric, Conductivity (EC), Turbidity, Ph, TDS, DO, Salinity, Iron, Fluoride, Arsenic, Total Coliform, Fecal Coliform, Chloride, Total Alkalinity, Total Hardness	2	No.	8	15,000	0.12
		Ground water aquifer level measurement (one time installation cost)	1	No.	1	15,00,000	1.5
Wastewater	During Operation	Turbidity, pH, DO, Total dissolved solids, oil & grease, total coliform, heavy metals	1	No.	4	15,000	0.06
Noise	During Construction	Noise levels in Leq, Leq day, Leq night	6	No.	24	6000	0.144
	During Operation		6	No.	24	6000	0.144
Fly Ash	During Operation	Concentration of hazardous	1	No.	12	30,000	0.36

Component	Stage	Item	Location	Unit	Quantity	Unit Rate (BDT)	Total Costs (BDT million)
		components in the leachate, Moisture content, Dioxin, Hg, Cu, Zn, Pb, Cd, Beryllium, Barium, Ni, As, Total Chromium, Hexavalent chromium, Selenium					
Slag	During Operation	pH, EC, Heavy metals: Pb, Cd, Hg, Cr, As Other elements: Si, Al, Ca, Fe, Mg, and S.	1	No.	12	30,000	0.36
Soil	During Construction	Texture, Particle Size Distribution (Sand, Slit, Clay), Salinity, pH, Cation Exchange Capacity, Nitrogen (Total), Potassium, Magnesium, Sodium, Phosphorus, Iron, Chromium Cadmium	2	No.	8	20,000	0.16
	During Operation		2	No.	8	20,000	0.16
Sediment	During Construction	pH, Nitrogen (Total), Potassium, Calcium, Magnesium, Sodium, Phosphorus, Iron Zinc (Zn), Cadmium	2	No.	8	30,000	0.24
	During Operation		2	No.	8	30,000	0.24
Total Environmental Monitoring Cost (C)							<b>5.256</b>
Grand Total (A+B+C)							<b>21.876</b>

#### 4.9.5 Proposed Budget Plan for Land Assets and Livelihood for Impacted Individuals

Following the resettlement principles of the Project, all affected households and persons will be entitled to a combination of compensation packages and resettlement assistance depending on the nature of ownership rights on lost assets which is according to ARIPA 2017 and AIIB's ESF guidelines. The non-titled landowners on public land will receive compensation for their lost assets and support from the Project. The following Table illustrates the budget for Land, assets, and livelihood.

**Table 4-37 Budget summary cost for land, assets, and livelihood**

Sl	Mouza	Land Type	Land Amount in Acre	Price awarded by DC per Acre	Total Price Awarded by DC	Total Price of Land After adding 200% with DC's Price
a	<b>Boliarpur</b>	<b>b</b>	<b>C</b>	<b>D</b>	<b>e=(c*d)</b>	<b>f= (e*200%)</b>
1		Bari	2.039	5,02,85,700	102,532,54 2.30	307,597,626.90
2		Viti	9.2567	3,83,07,700	354,602,88 6.59	1,063,808,659.77
3		Null	18.7043	2,16,78,900	405,488,64 9.27	1,216,465,947.81
Total Cost for Land			<b>30</b>		<b>862,624,07 8.16</b>	<b>2,587,872,234.48</b>
Primary Structures		Unit	Unit Rate As per PWD's Schedule	Affected Unit	Estimated Cost	Total Price of Structure After adding additional 100% with Estimated Cost
1	RCC Building	sft	1950	4944	9640800	19281600
2	Semi-Pucca Building	sft	1400	30351	42491400	84982800
3	Tin made/Tin shade	sft	568	23998	13630864	27261728
4	Steel structures	sft	720	34519	24853680	49707360
Sub Total						<b>181,233,488</b>

Secondary Structures		Unit	Unit Rate As per PWD's Schedule	Affected Unit	Estimated Cost	Total Price of Structure After adding additional 100% with Estimated Cost
1	Boundary Wall	Smt	1120	1186	1328320	2656640
2	Car Servicing RAM	Smt	650	49	31850	63700
3	Cattle Feeder	Smt	680	13	8840	17680
4	Falls ceiling	Smt	3410	195	664950	1329900
5	Grill Fencing	Smt	2615	539	1409485	2818970
6	Herring Bone Bond	Smt	892	3680	3282560	6565120
7	Iron Gate	Smt	15417	38.648	595836.216	1191672.432
8	Pucca Floor	Smt	3557	518	1842526	3685052
9	Railing Concrete	Smt	4251	20.71	88038.21	176076.42
10	Railing SS	Smt	19345	9.569	185112.305	370224.61
11	Steel Gate	Smt	19345	3.9	75445.5	150891

Secondary Structures		Unit	Unit Rate As per PWD's Schedule	Affected Unit	Estimated Cost	Total Price of Structure After adding additional 100% with Estimated Cost
12	Thai Glass Wall	Smt	7516	63	473508	947016
13	Varanda	Smt	2421	183	443043	886086
14	Wall Tiles	Smt	1333	513	683829	1367658
15	Steel Cover	Nos/No.	3550	2	7100	14200
16	Brick Made Seater	Nos/No.	430	6	2580	5160
17	Iron Box Angle	Nos/No.	10600	26	275600	551200
18	Iron Pillar	Nos/No.	41500	33	1369500	2739000
19	Iron Beam	Nos/No.	55650	13	723450	1446900
20	Water reservoir	Nos/No.	29016	5	145080	290160
21	Deep Tube well	Nos/No.	89706	3	269118	538236
<b>Sub Total</b>						<b>27,811,542.46</b>

<b>Cost for Primary and Secondary Structures</b>				<b>209,045,030.46</b>	
1	12.5% of RV as Structures Transfers Grant (STG)			26,130,628.81	
2	12.5% of RV as Structures Reconstruction grant (SRG)			26,130,628.81	
<b>Sub Total</b>				<b>52,261,257.62</b>	
<b>Total Cost for Primary and Secondary Structures</b>				<b>261,306,288.08</b>	
<b>Cost Estimation for Trees</b>		<b>Unit Rate</b>	<b>Affected Unit</b>	<b>Estimated Cost</b>	<b>Total Price of Trees After adding additional 100% with Estimated Cost</b>
1	Sapling	295	10	2950	5900
<b>Total Cost for Trees</b>				<b>5900</b>	
<b>Grants to Cover Income Loss of Wage/Employee &amp; Vulnerable PAPs</b>				<b>Affected Unit</b>	<b>Estimated Cost</b>
1	Employment Loss Grant at BDT 350/day for 30 days (5*350*30)			5	52500
2	Tk.8,000/- as one time grant for Female Headed HH with income below poverty line, Indigenous, Old Age, Fully Disable and Very Poor (based on their income). (3*8000)			3	24000
<b>Total Cost for Wage Loser Employee &amp; Vulnerable PAPs</b>				<b>76,500</b>	
Relocation Grant for Non-title Structures				<b>Affected Unit</b>	<b>Estimated Cost</b>
1	Relocation Cost for 5 Non-title structure (63362 for each)			5	316,810
<b>Total Cost for Non-title structure Relocation</b>				<b>316,810</b>	
<b>Transitional Allowance for Business of Title &amp; Non-title</b>				<b>Affected Unit</b>	<b>Estimated Cost</b>
1	One-time transitional allowance for 5 Title business.			5	11,700.00

2	One-time transitional allowance for 5 non-title business (15000 for each)	5	75000
Total Cost for Business Allowance		<b>1,245,000</b>	
Total Cost for Land, Structures, Trees, Wage loss, Vulnerability Allowance, Relocation and Transitional business allowance		2,850,822,732.56	
7.5% Ancillary Cost of Total Budget		213,811,704.94	
Total Budget		<b>3,064,634,437.5</b>	

#### 4.9.5.1 Tentative Budget Proposed for Rag Pickers

The operation of the WTE plant is anticipated to cause access restriction for the rag pickers for collection waste materials from the land-fill area. This will result in livelihood loss for the impacted Rag pickers who are dependent on this activity for income. A tentative budget has been proposed, however, this will be further updated once the micro plans is being prepared for each household as part of the livelihood restoration plan.

**Table 4-38 Tentative Budget for Ragpickers**

Sl. No.	Head of Expenditures	Estimated Amount to Be Paid by CMEC as top-up or additional compensation	Total Indicative in BDT	Responsibility	Reference/Assumptions
1	Compensation for loss of income of rag pickers during transition for 40 rag pickers (@BDT 5,000 per month as average X tentative 6 months)	12,00,000.00	12,00,000.00	Hired consultant/NGO /CMEC Social Expert/officer	Site visit and interaction with impacted rag pickers
2	Provision of additional compensation to 9 women rag-pickers (@BDT 30,000 per woman rag-picker X 9 as support of seed money to encourage individual venture) as one time support	2,70,000.00	2,70,000.00	Hired consultant/Social Expert	Site visit and interaction with impacted female rag pickers
3	Income/livelihood restoration benefits through skill development training and linking with employment opportunity for 20 rag	6,00,000.00	6,00,000.00	Hired consultant/NGO /Social Expert/officer	

Sl. No.	Head of Expenditures	Estimated Amount to Be Paid by CMEC as top-up or additional compensation	Total Indicative in BDT	Responsibility	Reference/Assumptions
	pickers for 6 months training				
4	Facilitate potential employment opportunity for 20 identified ragpickers with DNCC in support of livelihood promotion activity (@BDT 5,000 per month as average X tentative 12 months)	12,00,000.00	12,00,000.00	Hired consultant/NGO /CSR officer	Site visit and interaction with rag-pickers. It is presumed that the said amount will be paid by DNCC under its hiring of workers initiative at Landfill area.
5	Periodic Monitoring and reporting (@BDT 15,000/-12 months)	1,80,000.00	1,80,000.00	Hired consultant/NGO/CSR officer	Based on discussion with Project proponent
6	Annual evaluation of the program	50,000.00	50,000.00	Hired consultant/NGO/CSR officer	Based on discussion with Project proponent
7	Post Project evaluation	75,000.00	75,000.00	Hired consultant/NGO/CSR officer	Based on discussion with Project proponent
8	Contingency @10% of total)		3,57,500.00		
9	Sub total		35,7500.00		
10	Grand Total		39,32,500.00		

The total amount for the said Project is BDT Thirty-Nine Lakh Thirty-Two Thousand and Five Hundred Only is proposed under Income/Livelihood Restoration Plan and CMEC is responsible to meet the said expenses as top up budget after carrying out Livelihood Assessment for the said activities.

#### 4.9.6 Status of land acquisition before initiation of the site visit:

##### 4.9.6.1 Land acquisition process:

WtE Power Plant North Dhaka Pvt Ltd – a Chinese company intended to develop a 42.5 MW WtE Power Plant on vacant land at Amin Bazar area, provided by DNCC (Dhaka North City Corporation) to generate electricity from municipal waste. The proposed Project will not only contribute to the country’s energy requirement but will also transform city’s waste management system in a sustainable and eco-friendly manner. Based on the agreement between the Ministry of Power, Energy and Mineral Resources of



Bangladesh and WtE Power Plant North Dhaka, the generated electricity will be purchased by the said ministry for domestic as well as industrial consumption.

In order to initiate the activity of the proposed Project, the land acquisition exercise was carried out by DNCC in line with ARIPA, 2017 (The Acquisition and Requisition of Immovable Property Act) provisions for titled holders with timely dissemination of information about proposed land acquisition initiative of DNCC as well as serving legal notices to the titled holders of the acquired land parcels on the proposed Amin Bazar landfill area. In this process of land acquisition, local village administration, community leaders, representatives of DNCC and District Commissioner's Office were actively involved to facilitate the entire land acquisition activity. In order to adopt participatory approach, all the relevant stakeholders were consulted with special focus on titled holders and the owners of business units operating from the proposed land parcel of landfill area. The DC office was responsible for valuation of acquired land parcel while Public Works Department (PWD) was authorized to estimate the value of loss of structures and the calculation of loss of trees comes under the jurisdiction of forest department. The DC office has given sufficient time to all the five titled holders of the acquired land parcel for relocation and removal of structures with satisfactory compensation which is more than the prevailing market price in line with ARIPA,2017 protocols. The official handover of the acquired land parcel from DNCC to project proponent was on 7<sup>th</sup> May 2024 as confirmed by the Project proponent at the time of site assessment.

However, despite delay in the process of handing over of the land parcel due to complications of disbursement of compensation to landowners to unreached landowners, the Project proponent has already initiated land clearing and earth work since 27<sup>th</sup> February,2023 and completed within 3 months' time, however, the construction work of the Project has commenced on 8<sup>th</sup> May,2024 as confirmed by the Project proponent.

The entire process of land acquisition to handing over the land parcels to the Project proponent was smooth without any reported incidence of agitation or negative impression associated with the proposed Project among landowners and local community in and around Bongaon Union of Savar Upazila of Dhaka district.

#### **4.9.6.2 Status of land clearance, earth work and proposed construction activities:**

The desk-based review has noted that approximately 6 months period was identified for preparatory work that includes land clearance and earth work on the acquired land parcel. The proposed construction period was earmarked for 24 months from the date of completion of land preparation activity. At the time of site assessment, the Project proponent has confirmed that both land clearing and earth work has started since 27<sup>th</sup> February 2023, but land cleaning has completed within three months from the date of commencement of the work whereas, earth work is still ongoing and expected to be accomplished very soon. Simultaneously, the construction work has commenced on 8<sup>th</sup> May 2024 just after the handing over the land to DNCC dated 7<sup>th</sup> May 2024.

#### **4.9.6.3 Compensation details with relocation status of impacted titled and non-titled holders:**

The entire land acquisition for WtE Power Project was carried out in line with ARIPA,2017 for titled holders with and without structures. The PWD is responsible for estimation of immovable assets

whereas, the forest department is solely responsible for valuation of loss of trees or crops under the purview of land acquisition initiative.

Based on the ESIA report and site assessment, the actual number of impacted landowners have been identified as 242 (title holders). As per the DC's Award, total estimated budget for the project is 336,34,68,952.87 BDT, whereby 199,68,50492.46 BDT has been disbursed to the 138 awarded persons for 17.745 acres of land which is 59.36% of the total land price.

Review of the Award Book obtained from the District Authority as part of the Due Diligence study carried out for the project reveal that the total award amounting of 336,34,68,952.87 BDT includes compensation for structure (539760193.80 BDT)<sup>15</sup>, tree loss (5900 BDT) and business loss (117,000,0 BDT) for titled holders.

As mentioned below compensation for 104 landowners is still pending owing to several reasons that include owners living abroad, involved in litigation associated with title and inheritance disputes and mortgages of land.

A summary of the overall status of compensation is presented in Table below:

**Table 4-39 Overall Status of Compensation**

Status of Compensations	Total amount
Total Compensation against Land	2587872234.48
Total Compensation against Structure (including Structure Transfer and Reconstruction Grants)	539760193.80
Compensation against tree	5900.00
Compensation against business loss	1170000.00
<b>Total Compensation</b>	<b>3128808328.26</b>
Incidental expenses (7.5%)	234660624.62
<b>Total Gross Compensation</b>	<b>3363468952.87</b>

Source: Award Book 2022

On the other hand, out of 247 affected households, 5 are non-titled holders with business structures who will be impacted due to the project, however, compensation and relocation assistance have not been provided. These 5 non titled holders are eligible for compensation as per AIIB's ESS 2 guidelines. In addition, a list of 40 rag pickers has been shared with the Project proponent by DNCC and they have been found to be eligible for either suitable compensation or appropriate livelihood support from the Project proponent in response to the adverse impact on their livelihood due to the land acquisition activity.

#### 4.9.6.4 Status of balance compensation:

In the context of land acquisition, it is paramount to consider the plight of petty shop owners and rag pickers due to their vulnerability and reliance on the affected land for their livelihood. Neglecting their compensation not only exacerbates their socio-economic marginalization but also undermines their essential role in waste management systems. Recognizing their contribution and vulnerability underscores the importance of fair compensation schemes that not only safeguard their livelihoods but also uphold principles of social justice and inclusivity in development processes.

**Table 4-40 Summary of Pending Compensation Payable to Titled Holders And Non-Titled Holders Of WtE Project**

Sl. No.	Category of Project impacted Individual	Number	Amount of compensation/assistance (BDT) to be paid	Reasons for pending compensation	Efforts made to disburse/provide compensation/support	Monitoring responsibility
1	Titled holder(landowners)	104	As per DC office award book in line with ARIPA,2017 guidelines	<ul style="list-style-type: none"> <li>Mismatch of residential addresses as well as title and inheritance disputes.</li> <li>DC office found to be non-cooperative in sharing any updated information pertaining to the status of compensation.</li> </ul>	<ul style="list-style-type: none"> <li>The Project Proponent has taken proactive step with support from DNCC to visit DC office several times to expedite the process of disbursement of pending compensation by visiting several times to get appointment of DC but didn't get time for appointment.</li> <li>Meetings had been organized by Project proponent in collaboration with local village administration and representatives of DNCC to resolve the issue of pending compensation at the community level as a result, few have responded but rest didn't turn up.</li> <li>The Project proponent plans to resolve the issue of pending compensation within 6 months from the date of completion of site visit as confirmed during site assessment. The CMEC official plans a mobilize a team in collaboration with DNCC official, community leaders and representative of village administration to meet DC in resolving the pending cases.</li> </ul>	CMEC in collaboration with DNCC and local administration.

Sl. No.	Category of Project impacted Individual	Number	Amount of compensation/assistance (BDT) to be paid	Reasons for pending compensation	Efforts made to disburse/provide compensation/support	Monitoring responsibility
2	Non-titled holder (business units)	5	To be decided by the Project Proponent in consultation with DNCC official.	Project Proponent didn't consider non-titled holders for any compensation package.	<ul style="list-style-type: none"> <li>Project Proponent has identified non-titled holders as vulnerable as per AIIB's ESS 2 requirement and decided to provide either compensation or relocation assistance in consultation with non-titled holders. The proposed plan for non-titled holders will be addressed in LRP.</li> <li>Before the initiation of construction work, the Project proponent will resolve the issue of pending compensation and also develop and implement proposed Livelihood Restoration plan as appropriate for non-titled holders in a transparent and participatory manner. The detailed corrective action plan for non-titled holders is incorporated in ESDDR.</li> </ul>	CMEC in consultation with hired consultant
3	Non-titled vulnerable (rag-picker) including 9 identified female vulnerable rag pickers	40	To be decided by the Project Proponent in consultation with DNCC official either for appropriate compensation or livelihood restoration initiative.	Neither DNCC nor Project Proponent considered vulnerable ragpickers for suitable compensation or livelihood restoration activity.	<ul style="list-style-type: none"> <li>Project Proponent has considered identified rag-pickers as vulnerable in line with AIIB's ESS 2 guidelines and decided to initiate livelihood restoration program under proposed recommendations shared in ESIA report.</li> <li>Before the initiation of construction work, the Project proponent must resolve the</li> </ul>	CMEC in collaboration with rag pickers, hired consultant and DNCC

Sl. No.	Category of Project impacted Individual	Number	Amount of compensation/assistance (BDT) to be paid	Reasons for pending compensation	Efforts made to disburse/provide compensation/support	Monitoring responsibility
					issue of income vulnerability of identified ragpickers with the introduction of an appropriate livelihood restoration plan. The detailed corrective action plan for identified rag-pickers is incorporated in ESDDR.	

CONFIDENTIAL

#### 4.9.6.5 Details of relocation of impacted business units:

The land acquisition activity associated with the proposed WtE Power Plant has witnessed an impact of land acquisition associated with the businesses of titled holders. These business owners operate their businesses on land with a mixed title, comprising leased land from the Roads and Highway department and privately owned land. Among the 5 business units, three have relocated to new locations after demolishing their structures, while one transportation company continues to operate part of its bus repair depot on leased land. The newly situated place is located close to their previous business locations, just across the Dhaka Aricha Highway-N5 Road. To address the issue of involuntary resettlement in connection with land acquisition activity, compensation to impacted households has been provided in line with ARIPA, 2017 and AIIB's ESS-2 guidelines. Out of 242 impacted landowners, 5 titled holders have been identified as business owners whose businesses have been impacted due to the land acquisition activity. Pursuant to the guidelines of ARIPA 2017 and AIIB's ESS 2, all the impacted 5 titled holders have been compensated accordingly and facilitated to move to the new locations to set up their business units. In this process, PWD has been entrusted to estimate the loss of structure and business loss aligning with ARIPA 2017 guidelines.

The survey has identified 5 non-titled holders in Project footprint area, who are running small-scale business such as tea stall, small restaurant, medicine, and mobile recharge shop. Out of 5 non-titled holders, 2 have shifted their business units to new location with their own money whereas, remaining 3 are still continuing their businesses from their existing locations but none of the 5 non-titled holders have been compensated since non-titled holders are not entitled for compensation as per ARIPA, 2017. The non-titled holders are also likely to face business losses due to the land acquisition activity, rendering them vulnerable and affecting their socio-economic status. The interactions with the representatives of non-titled business units have revealed that 3 out of 5 non-title holders fall under the BPL category. The relocation activity didn't witness any adverse impact on the workers/employees of these business units, rather they have stated their previous place was little congested and used to smell foul odour due to close proximity to the land fill site, but the new place is quite enough for business and free from foul odour. The details are furnished about the status of impacted titled holders of the business units given in below:

**Table 4-41 Status of Impacted Titled Holders of The Business Units**

Sl No.	Business owner (impacted titled holder)	Title of business	Type of business	No. of employee <sup>16</sup>	Annual turnover (BDT)	Address of new location	Remarks
1	Ramesh Ghosh	Shyamoli Parabahan	Bus depot and repairing workshop (Firoz)	505	Not being shared during consultation	Besides Dhaka Aricha N5 high way	
2		Shyamoli Food and Beverages Pvt Ltd	Drinking water, food and beverages	85			

<sup>16</sup> The Projected number was based on updated ESIA report and outcome of the site assessment.

SI No.	Business owner (impacted titled holder)	Title of business	Type of business	No. of employee <sup>16</sup>	Annual turnover (BDT)	Address of new location	Remarks
3	Ramendranath Ghosh	Shyamoli N.R Paribahan (Barun Das)	Bus depot and repairing workshop	200			
4		Cow Farming (Pranesh Ghosh)	Cow farm for supply of milk	11			
5	Ekhlas Uddin	Jessore Engineering	Bus Repairing Workshop				Could not be contacted during site visit

CONFIDENTIAL

## 5.0 Site Visit Observation

The Waste to Energy power Project at Amin Bazar strategically located in Dhaka district, Bangladesh. The site is specifically located in Bongaon union under Savar Upazila, approximately 17 km away from the Dhaka City Centre. The Project area encompasses with power Project site, access road and transmission line, all in accordance with the AIB ESF (2022) and National guidelines. Below Table 5-1 represents the plant details of WtE Project.

**Table 5-1 Plant Details**

Parameter	Details
Company Name	China Machinery Engineering Corporation (CMEC)
Project Capacity	42.5 MW (NET)
Treatment Capacity	3000-3600 tons of waste per day
Incinerators	Four sets of 750 t/d incinerators
Boilers	Four boilers
Turbine Generators	Two sets of 35 MW turbine generator sets
Annual Operation	Not less than 8,000 hours
Leachate Treatment	Capacity of 1500 m <sup>3</sup> /day
<b>Geographic Coordinates</b>	
- South-West Corner	Latitude 23°47'39.80"N, Longitude 90°17'48.86"E
- South-East Corner	Latitude 23°47'35.62"N, Longitude 90°18'4.64"E
- North-East Corner	Latitude 23°47'44.63"N, Longitude 90°18'7.37"E
- North-West Corner	Latitude 23°47'48.10"N, Longitude 90°17'51.16"E
Proximity to Key Landmarks	South of Amin Bazar landfill site
	Approximately 600 meters away from Karnatali River
	Adjacent to Dhaka-Aricha Highway (N5)
Agricultural land	To the north and northwest
Brick kilns	To the east
Nearby amenities	Educational institutions, markets, residential areas within 1-2 km radius
Access Road	360 meters long, connecting to Dhaka-Aricha Highway

### 5.1 Environmental and Social Settings/Visit Observations of WtE Plant

The environmental baseline of the Waste-to-Energy (WtE) Power Project at Amin Bazar has been established through a combination of secondary data sources and primary baseline studies. The existing environmental conditions cover several components including the physical, biological, and socio-economic environments.

#### 5.1.1 Physical Environment

- **Geology and Topology:** The Project area is characterized by a flat topography typical of the Dhaka district. The soil composition is predominantly alluvial with silt and clay deposits.



- **Land Use:** The surrounding land use is a mix of agricultural fields, residential areas, and commercial establishments. There are significant agricultural activities in the north and northwest.
- **Climate:** The area experiences a tropical monsoon climate with high humidity and significant rainfall during the monsoon season. The temperature ranges between 11°C in winter to 34°C in summer.
- **Hydrology:** The Karnatali River is approximately 600 meters away from the Project site, serving as a significant water body in the region.
- **Soil Types:** The soil at the Waste-to-Energy Power Project site in Amin Bazar predominantly consists of alluvial deposits, which are typical of the Dhaka district. These soils are characterized by a mix of silt and clay, making them fertile and suitable for agricultural use. The soil profile does not include significant permanent water bodies or hills, simplifying construction activities for the Project. The alluvial nature of the soil supports a variety of crops, which is reflected in the surrounding agricultural land use.

### 5.1.2 Biological Environment

- **Flora and Fauna:** The region supports a variety of terrestrial and aquatic habitats. The nearby agricultural lands and water bodies are home to diverse species of plants and animals.
- **Aquatic Life:** The Karnatali River and other nearby water bodies support fish and other aquatic species, which are integral to the local ecosystem and economy.

### 5.1.3 Social Setting

The social baseline includes the socio-economic status of the population living in the vicinity of the Project site.

- **Demographics:** The population in the Project area includes a mix of various socio-economic backgrounds, with a significant portion involved in agriculture, small-scale businesses, and services.
- **Education and Health:** There are several educational institutions such as Government Primary School, High school, Madrasa are within a 1-2 km radius of the site. Health facilities include the Baliarpur community clinic and for complicated cases, patients visit nearby Hemayetpur Central hospital which is 7.6 km away from the Project site.
- **Economic Activities:** The local economy is supported by agricultural activities, brick kilns, small businesses, and market areas like Konda Bazar.
- **Infrastructure:** The Project site is accessible via a 360-meter-long access road connecting to the Dhaka-Aricha Highway (N-5). Other infrastructures such as bridges and roads facilitate connectivity and transportation.
- **Gender dynamics:** In the household, women are typically confined to domestic responsibilities, while men engage in external employment to generate income and sustain household expenses. Additionally, men usually wield decision-making authority over women within the household.

- **Housing conditions:** The site visit confirmed that the affected individuals reside in pucca house (brick/cemented building) with convenient access to essential amenities such as water, sanitation, and electricity, which are considered crucial indicators of the socio-economic status of these household.
- **Income Level:** The residents of villages affected by the Project are involved in diverse occupations to sustain their livelihoods. These occupations encompass agriculture, business, electrician, foreign employment, services, motor mechanic, driver, wage labour, construction work, remittances, and rental income. All households affected by the Project are above the poverty line, consistently earning income from multiple.

## 5.2 Environmental and Social Settings/Visit Observations of Transmission line

The proposed Project involves constructing a 132kV dual loop transmission line approximately 5.99 km long, connecting to the Savar 132/33kV substation. This substation has a transformer capacity of 3x50/75 MVA, managing a load range from 147 MW to 158 MW. The Project promises high reliability due to the low incidence of faults in 132kV transmission lines, minimal interconnection losses (0.278 MW), and sufficient space at the Savar substation for new interconnection facilities, without introducing additional network constraints.

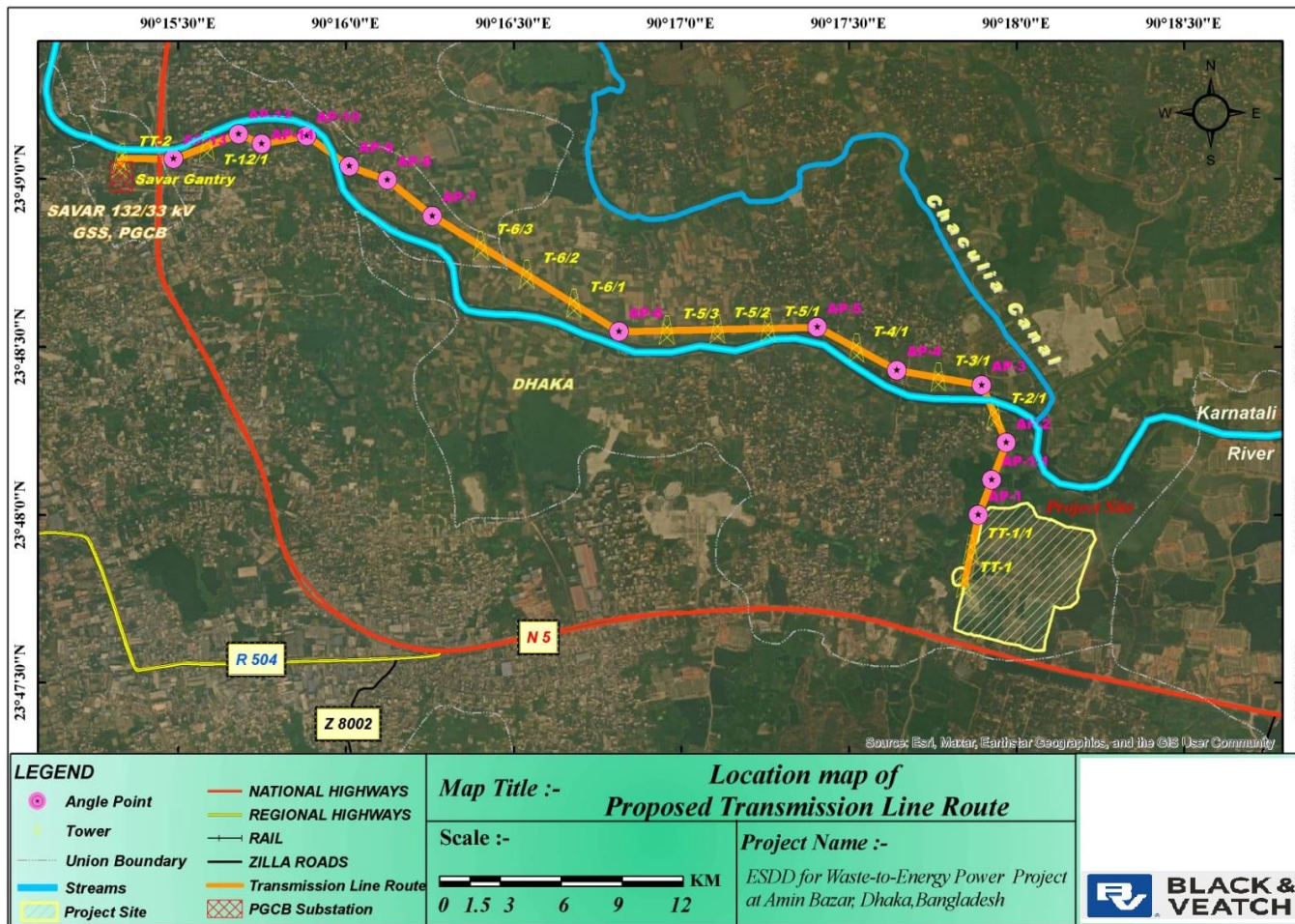


Figure 5-1 Proposed Transmission Line Route

### 5.2.1 Location and Land Requirement

The transmission line is situated in the north-central region of Bangladesh, specifically in Dhaka District's Savar Upazila. It spans Ward 6 and Ward 9 of the Bongaon union and Tentuljhora Union, crossing the Karnatali River twice. The total land required for tower footing construction is approximately 89.063 decimal (0.89 acres), predominantly privately owned and currently used for cultivation.

### 5.2.2 Land Use and Impact

The Right of Way (RoW) for the transmission line extends over 5.99 km, primarily covering agricultural land used for crops such as paddy, chili, brinjal, and various gourds. The Project requires the conversion of this cropland to industrial use for tower footing areas. Despite the land use change, no structural displacement of households is anticipated, and approximately 50 trees might be cut during construction. Post-construction, landowners can resume cultivation under the towers, mitigating long-term land-use impact.

**Note:** During ESDD, it is also anticipated that land would be required for Water Intake Structure and Pipeline for drawing water from the intended source. Details regarding land requirement and its associated impacts is unknown at this stage as the plan is yet to be finalized. However, the impacted associated with the land take will be preliminary addressed in the Resettlement Planning Framework (RPF).

### 5.2.3 Socio-economic Considerations around Transmission line

The land needed for the Project is predominantly privately owned, with market values varying based on land use, such as fallow, single-cropped paddy, vegetable land, flower gardens, and grass cultivation. Land prices and ownership details have been assessed through consultations with local stakeholders. As reported during the consultations, most landowners lease their land to sharecroppers under informal agreements and are not solely dependent on this land for their livelihoods. . The proposed transmission line will require approximately 89.063 decimal (0.89 acres) of land for tower footing construction. Most of the land is privately owned land which is currently used for cultivation. The Project proponent has to purchase/acquire the land ensuring AIIB ESF, Electricity Act, 2018, Electricity Rules 2020 (amendment 2022) or ARIPA, 2017 guidelines. After conducting the market assessment, the proponent will have to ensure- that the compensation is equivalent to or greater than the Replacement Cost to meet AIIB's ESF guidelines.

As per the initial field visit and market assessment, it is identified that there is no structure found in the proposed land to be acquired for tower footing. Thus, no physical displacement and relocation is envisaged. Only economic loss is anticipated. The alignment is yet to be finalized and exact nature of impact is unclear at this stage. However, it is anticipated that there would be potential land loss, livelihood impact and restriction on land use associated with the construction of Transmission line. The tower footings for laying transmission lines require land compensation as per Electricity Rules 2020 even if the land for tower footings will not be acquired. Compensation will have to be provided for standing trees under Right of Way (RoW) which is required to be fallen down or removed before laying the transmission lines. During construction, if any crops, structures or any other assets are affected, compensation will have to be paid. As a part of the ESIA and in the absence of identification of specific land parcels to be acquired and their owners / sharecroppers, a preliminary Environmental and Social

Management Framework (ESMF) has been prepared. The compensations for losses of land, trees and crops will have to be in accordance with the entitlements outlined in the Resettlement Planning Framework (RPF).

Below **Table 5-2** summarizing the socio-economic impact of the land acquisition:

**Table 5-2 Tower-wise land information<sup>17</sup>**

Sl. No.	Tower Number	Existing land use	Land Ownership	Tentative Land Price (BDT)
1.	TT-1	Fallow land	Private Land	2.5 lac
2.	TT-1/1	Fallow land	Private Land	2.5 lac
3.	AP-1	Fallow land	Private Land	2.5 lac
4.	AP-1/1	Single cropped paddy land	Private Land	3 lacs
5.	AP-2	Vegetable land	Private Land	3 lacs
6.	T-2/1	Vegetable land	Private Land	3 lacs
7.	AP-3	Single cropped paddy land	Private Land	3 lacs
8.	T-3/1	Single cropped paddy land	Private Land	4 lacs
9.	AP-4	Vegetable land	Private Land	4.5 lac
10.	T-4/1	Vegetable land	Private Land	4 lac
11.	AP-5	Vegetable land	Private Land	2-3 lac
12.	T-5/1	Vegetable land	Private Land	2-3 lac
13.	T-5/2	Vegetable land	Private Land	2-3 lac
14.	T-5/3	Vegetable land	Private Land	2-3 lac
15.	AP-6	Vegetable land	Private Land	2-3 lac
16.	T-6/1	Vegetable land	Private Land	2-3 lac
17.	T-6/2	Vegetable land	Private Land	2-3 lac
18.	T-6/3	Vegetable land	Private Land	2-3 lac
19.	AP-7	Vegetable land	Private Land	2-3 lac
20.	AP-8	Vegetable land	Private Land	2-3 lac
21.	AP-9	Flower garden	Private Land	7-8 lac
22.	AP-10	Grass cultivation for cows	Private Land	7-8 lac
23.	AP-11	Grass cultivation for cows	Private Land	5-6 lac
24.	AP-12	Fallow land	May be government land. Need to be confirmed later	
25.	T-12/1	Fallow land		
26.	AP-13	Fallow land		
27.	TT-2	Fallow land		

<sup>17</sup> ESIA Report of WTE



### 5.2.4 Details of Transmission Line Route and Tower Specifications

The transmission line route begins from the plant's northwest corner along the Karnatali Riverbank, extending for 5.99 km with 14 angle points and 27 towers. Below Table 5-3 is a summarizing the detailed specifications for each tower:



**AP-4 Transmission Tower**



**AP-3 Transmission Tower**



**T 5/2 Transmission Tower**



**AP-9 Transmission Tower**

Table 5-3 Detailed Specifications of Transmission Line<sup>18</sup>

Sr. No.	Tower Number	X Easting (m)	Y Northing (m)	RL (m)	Ahead Span (m)	Line Angle (deg)	Tower Type	Struct. Height (m)	Footprint Length (m)	Footprint Width (m)	Footprint Area (dec)
1	TT-1	224614.51	2634325.43	6.93			1DT6-S	41.5	11.32	9.73	2.722
2	TT-1/1	224654.36	2634511.35	6.74	190.14		1DL+9	38.04	6.65	5.77	0.948
3	AP-1	224695.50	2634703.33	5.95	196.34	8.6948	1D1+9	38.04	7.675	6.475	1.228
4	AP-1/1	224767.97	2634894.20	2.96	204.16		1DL+9	38.04	7.675	6.475	1.228
5	AP-2	224845.23	2635097.68	4.20	217.66	-41.0833	1DT6+9	37.6	11.77	10.18	2.961
6	T-2/1	224789.06	2635249.58	4.26	161.95		1D1+12	41.04	8.8	7.6	1.653
7	AP-3	224727.13	2635417.08	4.00	178.58	-57.8757	1DT6+9	37.6	12.67	11.08	3.469
8	T-3/1	224508.54	2635462.87	4.46	4.46	223.34	1DL+9	38.04	6.65	5.77	0.948
9	AP-4	224298.22	2635506.94	4.12	214.89	19.7232	1D25+9	38.08	9.41	8.13	1.891
10	T-4/1	224097.13	2635630.43	3.84	235.98		1DL+9	38.04	6.65	5.77	0.948
11	AP-5	223899.63	2635751.72	4.07	231.77	-31.8822	1DT6+9	37.6	11.77	10.18	2.961
12	T-5/1	223650.16	2635750.30	3.60	249.48		1DL+9	38.04	6.65	5.77	0.948
13	T-5/2	223393.68	2635748.83	4.73	256.49		1DL+9	38.04	6.65	5.77	0.948
14	T-5/3	223136.65	2635747.37	4.48	257.03		1DL+9	38.04	6.65	5.77	0.948
15	AP-6	222893.27	2635745.98	4.21	243.39	35.3639	1DT6+9	37.6	12.67	11.08	3.469
16	T-6/1	222668.14	2635903.84	4.72	274.96		1DL+9	38.04	7.11	6.22	1.093
17	T-6/2	222432.80	2636068.85	4.76	287.42		1DL+9	38.04	6.65	5.77	0.948
18	T-6/3	222201.90	2636230.75	4.83	282.01		1DL+9	38.04	7.11	6.22	1.093
19	AP-7	221960.19	2636400.23	4.94	295.21	7.1099	1D1+9	38.04	8.35	7.15	1.475
20	AP-8	221736.68	2636602.52	5.34	301.46	-19.7118	1D25+9	38.08	10.31	9.03	2.301
21	AP-9	221544.11	2636682.03	7.20	208.34	16.3522	1D25+3	32.08	9.41	8.13	1.891
22	AP-10	221330.86	2636853.41	5.34	273.58	-48.5981	1DT6+9	37.6	11.995	10.405	3.084

<sup>18</sup> Source: Feasibility Study, ESIA Report

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sr. No.	Tower Number	X Easting (m)	Y Northing (m)	RL (m)	Ahead Span (m)	Line Angle (deg)	Tower Type	Struct. Height (m)	Footprint Length (m)	Footprint Width (m)	Footprint Area (dec)
23	AP-11	221101.74	2636813.79	5.27	232.52	35.791	1DT6+9	37.6	12.67	11.08	3.469
24	AP-12	220985.92	2636870.23	5.00	128.84	-47.3755	1QT6+9	50.1	26.33	20.19	13.137
25	T-12/1	220825.37	2636807.33	5.73	172.43		1QL+9.0	51.87	19.31	14.72	7.024
26	AP-13	220654.50	2636740.38	7.40	183.52	23.0318	1QT6+9	50.1	26.33	20.19	13.137
27	TT-2	220394.45	2636747.81	6.14	260.16	-68.0464	1QT6T+9.0(AUX)	51.1	26.33	20.19	13.137
28	Savar Gantry	220381.07	2636717.17	8.90	33.43		Gantry 132kV E0+0	20			0.000
											<b>89.063</b>

CONFIDENTIAL



The proposed transmission line Project, while necessitating minor land-use changes and tree removal, is designed to ensure minimal environmental and social disruption. Strategic route planning and adherence to environmental guidelines aim to balance development needs with sustainable practices, ensuring minimal long-term impact on the local community and environment.

Table 5-4 provides an overview of different land use types in Bangladesh, along with their corresponding market values per decimal (a unit of land measurement) and the ownership structure and dependency on land income for each type.

Almost all the landowners lease their land to sharecroppers for one year, with lease amounts ranging from 15,000 to 20,000 BDT/year. There are no written agreements between the landowners and sharecroppers. All the landowners are self-sufficient and not solely dependent on this land. They have other businesses to support their families.

**Table 5-4 Land Use Types and Market Values in Bangladesh for Transmission Line**

Sl. No.	Land Use Type	Market Value (BDT)	Ownership Structure	Dependency on Land Income
1	Fallow Land	2,50,000	Privately owned	Low
2	Single-cropped Paddy	3,00,000 – 4,00,000	Leased to sharecroppers	Medium
3	Vegetable Land	2,00,000 – 4,50,000	Privately owned	High
4	Flower Gardens	7,00,000 – 8,00,000	Privately owned and leased	High
5	Grass Cultivation	5,00,00 – 6,00,000	Privately owned	Low

### 5.3 Stakeholders Insights

Table below provides a comprehensive list of stakeholders consulted during the site assessment for the waste-to-energy Project. The consultations took place from May 22 to May 26, 2024, and included a diverse range of stakeholders:

1. Local government representatives
2. Landowners affected by the Project
3. Rag-pickers working at the existing landfill and transfer stations
4. Shop owners near the Project area
5. Government officials from fisheries and agriculture departments
6. EPC contractors and subcontractors
7. Local businesses (cow farm, transport companies, water bottling plant)
8. Housing society representatives
9. Workers (both Chinese and local) at labor camps
10. Project officials
11. Community health clinic staff
12. School teachers
13. Local community members and youth groups

This wide range of stakeholders provides a holistic view of the Project's potential impacts and the community's expectations. The consultations covered various aspects including environmental concerns,

socio-economic impacts, labor conditions, and community development needs. This thorough stakeholder engagement process is crucial for understanding and addressing the diverse perspectives and concerns related to the Project implementation.

**Table 5-5 A Summary of stakeholders consulted during site assessment in connection with ESDD.**

Sl. No.	Name of stakeholders	Designation	Location	Date of interview
1	Mehedi Hassan Modin	Member of ward-6 of Bongaon Union Parishad	Ward -6 of Bongaon Union Parishad	22 <sup>nd</sup> May,2024
2	Landowners	Landowners	Project village (Boliarpur)	22 <sup>nd</sup> – 26 <sup>th</sup> May'24
3	Rag-pickers at Aminbazar landfill area	Rag pickers at Landfill area	Land fill area, Amin Bazar	22 <sup>nd</sup> May,2024
4	Rag pickers at STS	Rag Pickers at STS	STS area	22 <sup>nd</sup> May,2024
5	Shop-owners (non-titled holder)	Shop owner (non-titled)	Landfill area, Amin bazar	23 <sup>rd</sup> May,2024
6	Officer of Fisheries Department of Savar Union	Upazila Fisheries Officer	Savar Upazilla	23 <sup>rd</sup> May,2024
7	Agriculture Department	Upazila Agriculture Officer	Savar Upazilla	23 <sup>rd</sup> May,2024
8	EPC Contractor CMEC Group (Chinese)- HE Dr	HeN D.R (EPC Contractor)	CMEC office	23 <sup>rd</sup> May,2024
9	Discussion with Sub-Contractor of DNCC for WtE Project who supplies sand to the Project (Liu Jim Khei Mike)	Contractor for Sand Piling, CEMC office	CMEC office	23 <sup>rd</sup> May,2024
10	Sub-contractor for TL (Jiang Lihong acting as Country Director on behalf of China National Cable Engineering Corporation)	Sub-Contractor for TL	CMEC office	23 <sup>rd</sup> May,2024
11	Cow Farm- Mr. Pranesh Ghosh (Supervisor)	Supervisor of Cow Farm	Just opposite to landfill area, adjacent to N5 highway	24 <sup>th</sup> May,2024
12	Mr. Suvankar Ghosh	Owner of Shyamoli NR Travels	Just opposite to landfill area, adjacent to N5 highway	26 <sup>th</sup> May,2024
13	Shyamoli Paribahan transport company	Representative of the company,	Just opposite to landfill area, adjacent to N5 highway	26 <sup>th</sup> May,2024
14	Shyamoli Water & Beverages	Representative of the company	Just opposite to landfill area, adjacent to N5 highway	26 <sup>th</sup> May,2024
15	Nandonik Housing Society	Secretary of the society	Just opposite to landfill area, adjacent to N5 highway	24 <sup>th</sup> May,2024
16	Local shop-owner inside Nandonik housing society	Owner of the local shop	Just opposite to landfill area, adjacent to N5 highway	24 <sup>th</sup> May,2024

Sl. No.	Name of stakeholders	Designation	Location	Date of interview
17	Chinese Workers at Labour camp at Sugandha Housing at Alam Bazar at Hemayetpur, Savar.	Chinese workers	Sugandha Housing at Alamnagar, Hemayetpur, Savar	25 <sup>th</sup> May,2024
18	Local Workers at Labour camp	Local workers	Just opposite to landfill area, adjacent to N5 highway	25 <sup>th</sup> May,2024
19	Official of WtE Power Plant (Mr. Zhuyu Zhang serves as the Commercial Manager)	Commercial Manager, CMEC	CMEC office	26 <sup>th</sup> May,2024
20	Boliarpur Community Clinic	Local resident near clinic.	Boliarpur village	26 <sup>th</sup> May,2024
21	Boliarpur Primary School (Govt)	School Teacher at Boliarpur village	Boliarpur village	26 <sup>th</sup> May,2024
22	Local Community at Naya-Nagar village of Bongaon Union of Ward-7	Local community	Naya-Nagar village of Bongaon ward-7	26 <sup>th</sup> May,2024
23	Youth Group at Boliarpur village of Ward-7	Local youth	Ward-7 of Boliarpur village	26 <sup>th</sup> May,2024

### 5.3.1 Outcome of Stakeholder Consultation During Site Assessment

Community concerns were about foul odors, environmental degradation, and health issues from the existing landfill, especially during rainy seasons. Landowners have mostly received compensation, though some face delays due to legal disputes. Rag-pickers at the landfill and transfer stations face health and safety risks without proper equipment. Local businesses and housing societies report impacts from odors but are generally supportive of the Project. Workers' camps show disparities in living conditions between Chinese and local workers. The community expects the waste-to-energy Project to mitigate odor problems, improve air quality, and provide more reliable power supply. There are requests for local employment opportunities and skill development initiatives. Overall, while there are current challenges, stakeholders are largely supportive of the Project, anticipating environmental improvements and economic benefits.

Table 5-6 Outcomes of Stakeholder Consultations

Sl. No.	Stakeholder Consultant	Objectives	Response
1	Mahedi Hassan Modin (member of ward-6 of Bongaon Union Parishad)	Understanding about their perspective associated with land acquisition	<ul style="list-style-type: none"> <li><b>Community Awareness:</b> Local community lacks a clear understanding of the proposed Project; frequent interaction between the community and Project proponents is necessary to address their doubts.</li> <li><b>Land Fertility Degradation:</b> The newly acquired land, once fertile and yielding three crops annually, now suffers from reduced soil fertility and paddy output due to its use as a landfill, causing foul</li> </ul>

Sl. No.	Stakeholder Consultant	Objectives	Response
			<p>odors in the area. Dumping activities have reduced agricultural yields, forcing the local community to seek alternative livelihoods. Environmental degradation, foul odors, polluted surface water, and an unhygienic ecosystem have led to mosquito breeding and vector-borne diseases.</p> <ul style="list-style-type: none"> <li>• <b>Respiratory Issues:</b> Winter smog is causing respiratory issues among residents. The problem worsens during the rainy season due to foul odors from the landfill.</li> <li>• <b>Increased land value:</b> Land acquisition activities under DNCC authority have significantly increased the price of the surrounding area.</li> <li>• <b>Compensation Distribution:</b> 90% of impacted landowners have received compensation, with the remaining 10% facing heir or succession disputes according to Bangladesh Survey records. Most landowners are satisfied with the compensation and welcomed the Project for its potential benefits, including local employment and an improved local ecosystem.</li> <li>• <b>Local Employment Request:</b> The Ward-6 representative has requested 30 tricycle garbage collection vans, five per ward, to service all six wards, prioritizing local employment for the Project.</li> <li>• <b>Water availability:</b> The normal water table is at 220 feet, but 300 feet is required for safe drinking water due to a reduced water table in the Project area.</li> </ul> <p><b>Community Support:</b> The Ward-6 representative is ready to support the Project's implementation, reflecting the community's willingness to collaborate.</p>
2	Landowners	Understand landowners views and status of the compensation	<ul style="list-style-type: none"> <li>• <b>Land Price:</b> According to some landowners, the compensation for the acquired land parcel is being calculated based on outdated rates referred to</li> </ul>

Sl. No.	Stakeholder Consultant	Objectives	Response
		associated with land acquisition activity	<p>Bangladesh Land Survey report, 2016, rather than current market rates. Different rates per decimal are cited: 6.50 lakh BDT for Null land and 10 to 11.30 lakh BDT for Viti land. Out of 25 interviewed landowners, 19 have received compensation, while others face delays due to legal disputes or unavailability.</p> <ul style="list-style-type: none"> <li>• <b>Compensation:</b> The amount of compensation of interviewed landowners varies widely, from 87 lakh to 4.50 Cr BDT, depending on the size and type of land parcel. Landowners mention paying more than prevailing market rates and express satisfaction with the Project, anticipating local development, and improved environmental conditions.</li> <li>• Some landowners haven't claimed compensation due to heir or succession disputes or their unavailability.</li> </ul> <p><b>Notice:</b> Landowners highlight that DNCC notices and compensation disbursement typically take about one year, causing further delays.</p> <ul style="list-style-type: none"> <li>• <b>Social status:</b> None of the 242 impacted landowners are categorized as BPL, and most of them are not dependent on agriculture, being engaged in various business activities.</li> <li>• <b>Type of land parcel:</b> The acquired land's decreased fertility prevents paddy cultivation, resulting in minimal agricultural income, though compensation exceeds market value according to some landowners.</li> </ul>
3	Rag-pickers at Amin Bazar land fill area (Md. Sabur, Md. Monju and Robiul.)	Assess the status of rag pickers, their lives and livelihood associated with waste collection activity	<p><b>Basic information:</b> A total of 3 male rag-pickers aged between 18 to 22 years were interviewed. These rag pickers have migrated from different districts to this landfill site to earn their living. Out of three rag pickers, two of them are illiterate and one has studied till 4<sup>th</sup> standard. Rag-pickers collect plastic bottles, plastic products, polythene, tin, and iron. They do not burn items to extract metal</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
			<p>but use magnets to segregate from the garbage pile.</p> <p><b>Income:</b> It was noted that all of them are staying in a rented house, paying an average BDT 2000 to 3000 per month. It was also identified that, one of them is sending BDT 1000 per month to home. They visit their hometown once or twice a month. According to the rag-pickers, around 30 to 50 individuals work at the site. They typically work for six days a week, taking Fridays off intermittently. The security guard at the gate recognizes them and permits entry to collect rags, which they sell to local shop-owners at prices such as 3 BDT/kg for glass, 10 BDT/kg for plastic bottles, 5 BDT/kg for polythene, and 15 BDT/kg for tin. These rag-pickers have been working independently for 3 to 5 years and have limited knowledge about the Project.</p> <p><b>Use of PPE:</b> One of them, had purchased gumboot on his own and using it during waste collection activity but rest of them are not using any PPE. Only two young boys use PPE, having bought gumboots themselves.</p> <p><b>Health Problem:</b> In the process of scavenging waste, they have experienced hand cut, itching, rash on skin but not any severe health complications. During rainy season, their income goes down.</p> <p><b>Expenditure:</b> Rag-pickers earn an average of 250 BDT to 300 BDT per day, but during the rainy season, their income drops to between 100 BDT to 150 BDT per day. DNCC has never conducted any health awareness or health camps for these rag-pickers. Female rag-pickers have complained about the lack of separate toilets for females inside the landfill area and the challenges they face during the rainy season, being the sole earners in their households and represent vulnerable population due to the land acquisition activity. It was also noted that, most of the rag pickers come to the land fill site by bus</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
			<p>paying an average BDT 40/ per person for to and fro.</p> <p><b>Security check:</b> The security guard allows them entry to collect garbage without maintaining any records. Despite the lack of support, the rag-pickers indicated they would leave this occupation for better opportunities to support their livelihoods.</p> <p><b>Expectation:</b> These ragpickers have stated that if DNCC provides them any job then they will happily accept that offer but they have no aim for future as present but reiterated to support their families only.</p>
4	Rag pickers at STS (Jharna, Sahajahan & Iqbal Hossain, Rahaman, Nasir, Sufiya Akhgar, KonaSakol, Tayab, Fatema and Parveen)	Assess the status of rag pickers, their lives and livelihood associated with waste collection activity at STS.	<p><b>Basic information:</b> A total of 8 rag pickers were interviewed at STS location. Out of them, 4 are female and rest 4 are male with an average age ranging between 20 to 48 years. All of them have migrated to this place from different districts of the country. Md. Akash is the head of the STS who is managing the operation of the STS. This STS is functioning for the last 20 years, but no PPE was provided to the workers engaged in STS. Even, no health check-up was carried for the workers as well. On the other hand, neither any health services nor any remuneration is provided to workers engaged at STS by DNCC as shared by those workers at the site.</p> <p><b>Income &amp; Expenditure:</b> The interaction has revealed that the average earning member in a family range between 1 to 2, where the average income of woman varies between 15000 BDT to 20,000 BDT per month whereas, the average income of male member comes to 30,000 BDT per month from household collection. On an average, these workers are paying BDT 3000 to BDT 5000 as house rent per month. It was also noted that, most of them are single earner to support their families.</p> <p><b>Vulnerability:</b> It was also noted that, there are around 15 women rag pickers are engaged at STS where 5 mothers with little babies and around 5 to 10 are aged involved in rag picking activity in support of their household expenditures.</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
			<p><b>Challenges:</b> During monsoon season, they face challenges as no separate toilet facility is available for female rag pickers at the site, but these rag-pickers are financially better off than rag pickers of land fill area as these waste collectors are collecting household wastes against fixed monthly remuneration ensuring regular flow of income.</p>
5	Shop-owners (non-titled holders)	Capture non-titled holders perspective about the land acquisition activity and its probable impact on their business and relocation	<p><b>Basic information:</b> Business hours are from 6:00 a.m. to 11:00 p.m., operating seven days a week; two tea stalls operate at night. Businesses include tea stalls, mobile recharge, medicine shop, variety shop (grocery and food items), and a rice hotel.</p> <p><b>Income:</b> Each business owner earns an average monthly income ranging from 40,000 BDT to 50,000 BDT. The migrated business owners pay 10,000 BDT monthly rent and 2,000 BDT for electricity.</p> <p><b>Health issue:</b> Mehaboob and Abul Kalam(business owners) report health issues (asthma and itching) for 2-3 years. DNCC has not conducted any health camps or awareness activities in the area during their tenure.</p> <p><b>Expectation:</b> All shop owners favor the Project and seek relocation support from CMEC, preferring monetary compensation for relocation. They propose relocation to Savar Hemayetpur market area or an area near the plant, provided structures are set up to continue their businesses.</p>
6	Officer of Fisheries Department of Savar Union (Samiran Kumar Saha, Upazila Fisheries Officer at Savar Upazila)	Understand views of government official in connection with potential impact on the fishing activity of the local community due to land acquisition for the proposed Project	<p><b>Status of river:</b> Polluted river water (Karnatali) from activities like Brick-Kiln and dumping ground leachate, compounded by past floods, has drastically reduced fish species diversity.</p> <p><b>About fishermen community:</b> The Das community in Konda village has discontinued fishing due to the absence of fish in the river.</p> <p><b>Invasive species:</b> Invasive species like Sakar dominate the river, with seasonal variations in fish availability; monsoon seasons see increased fish diversity.</p> <p><b>Wastewater:</b> Proper wastewater treatment is essential before discharge into the river,</p>



Sl. No.	Stakeholder Consultant	Objectives	Response
			<p>following national guidelines. Discharged water temperature must match the river's normal temperature, with continuous monitoring mandated for water quality.</p> <p><b>Monitoring:</b> Monitoring should include checking water odor and heavy metal levels to ensure environmental compliance.</p>
7	Agriculture Department (Mr. Alvin Rahman is acting as Upazila Agriculture Officer at Savar Union)	Capture views of the govt official in connection with potential impact on agriculture and allied activity in and around landfill area	<p><b>Livelihood:</b> Villagers in the Project area are engaged in various livelihood activities beyond cultivation, indicating diversified economic dependence. Single-crop (Paddy) cultivation occurs mainly in winter, with disruptions during the rainy season due to flooding. The Project area, once fertile with diverse crops including paddy, has seen reduced agricultural land due to industrial activities like brick-kilns. However, crop yields have improved with new seed varieties and technology.</p> <p><b>Govt's initiative:</b> Government initiatives promote organic farming and provide support through schemes like agricultural loans and subsidies for machinery, aiming to enhance productivity and sustainability. The government's Pronodona scheme provides subsidies for seeds and fertilizer, fostering agricultural development. The government of Bangladesh reserves 30% of activity seats for women across sectors to empower them in agriculture, education, and employment. The agricultural department has not received government letters regarding crop and land valuation, thus not involved in the resettlement action plan for the Project.</p> <p><b>Suggestion:</b> . Conducting a study on crop diseases and soil health is crucial for understanding agricultural sustainability in the region.</p>
8	EPC Contractor CMEC Group (Chinese)- HE Dr	Understand their activity and areas of engagement	<p><b>Linkages:</b> Agreement with Hemayetpur Central Hospital nearby addresses health emergencies of workers.</p> <p><b>Responsibility:</b> Risk assessment matrix evaluates likelihood, severity, and impact of risks, guiding risk management efforts. Daily safety checks and Toolbox Talks (TBT) ensure</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
			<p>compliance with safety protocols and PPE usage. Workers' health checks are mandatory before site entry, overseen by the Safety Manager. Weekly safety performance reports are prepared, with future plans to develop KPIs.</p> <p><b>Workforce and working hour:</b> The workforce include 112 workers (37 Chinese nationals, 75 locals), with one female worker as a cook. Duty hours are structured with breaks, and off-days vary among workers.</p> <p><b>Proposed action:</b> Proposed Health and safety initiatives include monthly mock drills, Complaint Box for grievances, and sewage treatment and separate toilets at the site. Efforts towards gender equality are promoted, though a separate gender policy is found absent. Need to develop master plan along with separate walking routes are recommended for site infrastructure.</p>
9	Discussion with Sub-Contractor of DNCC for WtE Project who supplies sand to the Project (Liu Jim Khei (Mike))	Assess their activities and areas of engagement	<p><b>Responsibility:</b> Sand for site levelling is primarily sourced from Barisal and Mymensingh areas of Bangladesh, with a small portion (3%) from Cox Bazar airport Project area. A total of 6 lakh cubic meters of sand has been used over 8 months for piling work. Prior to delivery, sand undergoes laboratory testing to ensure quality. Verification documents required include contractor licenses, land purchase invoices, and details of two sand suppliers for cross verification.</p>
10	Sub-contractor for TL (Jiang Lihong acting as Country Director on behalf of China National Cable Engineering Corporation)	Assess their activities and areas of engagement in connection with TL	<p><b>Background:</b> A Chinese company under CMEC is subcontracted to conduct a study across the Transmission Line (TL) corridor, with 132 kV Transmission Line Projected for the Project. Site surveys are ongoing to confirm locations, and a report detailing landowners and land areas for TL installation is due by month-end.</p> <p><b>Requirement:</b> Right-of-Way (ROW) regulations mandate a 14-meter distance on either side of TLs for construction of buildings but no plantation, as per Bangladesh government's Electricity Act guidelines. Minimum 3 meters distance between sub-stations and TLs must be maintained as per</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
			<p>government guidelines, obviating the need to relocate existing nearby sub-stations. Proposed TL designs must comply with PCCB standards; submission and approval are necessary for Project advancement. To prevent bird collisions, colored objects like balloons can be placed on TLs, aligning with country guidelines. TL installation over High Roads requires permission from the Road and Highway Department (RHD), while local roads do not require such permissions. BWBD oversees permissions for TL crossings over rivers.</p> <p><b>Status of EIA:</b> The sub-contractor is preparing for an Environmental Impact Assessment (EIA) along the TL corridor, with the report forthcoming for company review.</p>
11	Cow Farm	Understand the activity of the farm and identify any potential impact due to the proposed Project	<p><b>Manpower:</b> The cow farm, operational for 15 years, employs 6 workers including a supervisor.</p> <p><b>Breed:</b> The farmhouses 60 cows of Pakistan’s Parka breed, Sahiwal, and Friesian breeds.</p> <p><b>Operating hour:</b> Operating hours are from 5:00 a.m. to 9:00 p.m. with a 1-hour lunch break; workers are provided free accommodation and meals.</p> <p><b>Productivity:</b> Daily milk production is 240 liters, supplied to Vikrampur Sweet Shop.</p> <p><b>Leave:</b> Workers receive leave after 2 months (general workers) and 3 months (milking man).</p> <p><b>Support:</b> Veterinary support includes four weekly visits and emergency availability via Savar Animal Hospital.</p> <p><b>Feedback:</b> The relocation to a new site has improved cow health and reduced worker exposure to flies and foul odors, resulting in overall satisfaction with the new location.</p>
12	Owner of Shyamoli NR Travels (Mr. Suvankar Ghosh Rakesh.)	Understand the present activity of the travel business and identify any potential impact due to the proposed Project	<p><b>About the agency:</b> They operates 350 tourist buses: 300 non-AC and 50 AC buses. The company employs 400 permanent staff.</p> <p><b>Manpower:</b> Each tourist bus trip involves 7 workers, including drivers and helpers. Despite challenges such as staff turnover during relocation, the company ensured</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
			<p>continuous salary payments even during the COVID-19 pandemic and the shifting period.</p> <p><b>Amenities:</b> The company provides free meals to its workers through its own canteen.</p> <p><b>Feedback:</b> Supervisors' feedback suggests the new location is preferred for improved conditions, notably the absence of previous foul smells. Overall, the company's operations were minimally affected by the acquisition, with only a temporary slowdown during the shifting period.</p>
13	Shyamoli Paribahan transport company, owner	Understand the present activity of the travel business and identify any potential impact due to the proposed Project	<p><b>About the transport:</b> They Operates 500 tourist or long-distance buses, including 70 AC buses and 430 non-AC buses. They have over 200 workers and has taken one and a half years to relocate to a new location. The company operates its own diesel pump for bus services as per agreement, with working hours ranging from 8:00 a.m. to 5:00 p.m., and some employees working until 8:00 p.m. with overtime.</p> <p><b>Amenities:</b> A canteen is provided for workers, along with free accommodation. Full relocation of machinery to the new location is expected to take another 10 to 12 months.</p> <p><b>Issues:</b> Despite being accustomed to foul odors, no health complications have been observed due to the operation of the landfill area.</p> <p><b>Expectation:</b> The company supports the Project, anticipating it will eliminate foul odors and contribute to electricity generation, addressing regular load-shedding in the community.</p>
14	Shyamoli Water & Beverages	Understand the present activity of the Water & Beverages business and identify any potential impact due to the proposed Project	<p><b>Introduction:</b> Shyamoli Water &amp; Beverages has been operational for 8 years, recently relocating to a new location opposite to the landfill area and adjacent to the N5 approach road managed by the Road &amp; Highway Department of Bangladesh. The relocation process took approximately 2 years, involving necessary approvals from Savar Union, the Road &amp; Highway Department, Department of Environment, and quality checks from BSTI for water quality.</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
			<p><b>Manpower:</b> The plant employs 40 workers from various districts, providing them with free food and accommodation. Working hours are from 8:00 a.m. to 5:00 p.m. with one hour lunch break, and the plant observes government holidays with overtime paid at one and a half times the basic salary rate. Workers, aged between 18 to 32 years, currently do not receive health insurance but are referred to a local hospital at the company's expense in case of emergencies.</p> <p><b>Water level:</b> Despite a water table available at 150 ft, the company has installed a water pump at 600 ft depth to ensure high-quality drinking water for production purposes.</p> <p><b>Feedback:</b> The plant manager notes that the new location offers more space and is free from foul odors, improving operational conditions significantly, though full operation ramp-up will require additional time.</p>
15	Nandonik Housing Society	Understand any potential impact on the residents of the society due to the proposed Project	<p><b>About the housing:</b> The housing complex comprises 4000+ private plots, with 1800 plots currently ready for occupancy. The entire Project spans 1500 bighas of land and accommodates over 15000 inhabitants.</p> <p><b>Amenities:</b> Inside the complex, there are 57 dairy farms among other amenities such as a primary school (1), mosques (3), madrasas (3), resorts (5), natural lakes (2), and 57 cow farms caring for over 2000 cows.</p> <p><b>Water accessibility:</b> Water accessibility is ensured with submersibles installed at 800 ft. depth, providing safe water supply to every household.</p> <p><b>Litigation:</b> Bangladesh Environmental Lawyers' Association (BELA) filed a case against the housing complex's initiation due to adverse impacts on wetland areas, leading to a court judgment directing the complainant to repay double the amount to the society, unresolved for 12 years.</p> <p><b>Challenges:</b> During the rainy season, foul odor intensifies, affecting air quality and posing respiratory challenges for residents. Residents face issues with foul odor and flies,</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
			which are expected to be resolved by the proposed waste-to-energy Project.
16	Local shop-owner within the premises of Nandonik Housing society	Capture the views of local shop-owners inside the housing society in connection with proposed Project	<ul style="list-style-type: none"> <li>Local shop-owners have highlighted that wind direction significantly worsens foul odors at their premises, particularly noticeable during winter and rainy seasons.</li> </ul> <p>The odor becomes particularly unbearable for nearby residents during garbage collection and burning periods.</p>
17	Chinese Workers at Labour camp	Assess their activities, areas of engagement and available facilities associated with the operation of workers' camp.	<ul style="list-style-type: none"> <li>HeNan D.R company, a sub-contractor, has leased an entire 30-floor building named Sugandha Housing at Alamnagar, Hemayetpur, Savar, close to the Project site, to accommodate 37 Chinese workers.</li> <li>The workers, comprising 29 civil workers and 8 technicians, are aged between 21 to 35 years and have been working at the site for the past year.</li> <li>Each floor of the building houses 3 rooms, each equipped with an attached toilet cum bathroom, sufficient lighting, beds with mattresses, AC, mosquito nets, and ample privacy for the workers.</li> <li>A local company, Dynasty Food Beverages Industries (Sukura Brand), Japan, supplies drinking water.</li> <li>Workers receive their salaries through bank transfers and are covered by health insurance and PF benefits.</li> <li>The workers' duty hours are from 7:30 a.m. to 11:30 a.m. and from 2:00 p.m. to 6:00 p.m., with Saturdays and Sundays off with half-day leave.</li> </ul> <p>Prior to their arrival in Bangladesh, all workers underwent medical check-ups as per Chinese government regulations, and they have access to specialized medical treatment at a local hospital in Kalyanpur for any health issues.</p>
18	Local Workers at Labour camp	Assess their activities, areas of engagement and available facilities associated with the	<b>Responsibility:</b> M/S Enterprise, a contractor from Dinajpur Parboti, has been hired to supply local labor for the Project, with a labor camp located within the jurisdiction of

Sl. No.	Stakeholder Consultant	Objectives	Response
		operation of workers' camp.	<p>Nandonik Park, opposite to the Project site, currently housing 29 workers.</p> <p><b>Accommodation &amp; amenities:</b> The labor camp consists of 7 rooms with varying numbers of workers per room, each equipped with attached toilet cum bathing facilities. The camp provides a separate kitchen for cooking but lacks proper dining facilities, and a rest area without adequate amenities like fans or sleeping materials. Working hours vary from 7:00 a.m. to 12:00 noon and resume from 2:00 p.m. to 7:00 p.m., with some workers starting as early as 6:30 a.m. Workers are paid 600 BDT per day with a 150 BDT daily food allowance, but do not receive PF or insurance benefits uniformly. Welders under contractor Mijan Bhai work in two shifts without holidays, facing similar challenges in accommodation and amenities. The laborers receive TBT and appropriate PPE before starting work but do not undergo regular health check-ups.</p> <p><b>Challenges:</b> The approach road to the labor camp lacks lighting, posing risks such as snake bites, especially at night, highlighting deficiencies compared to ILO and AIB standards for worker welfare. However, some toilets lack proper maintenance and amenities like lights and mugs for water storage. Workers lack basic amenities such as beds, mosquito nets, and privacy in shared rooms, with some sleeping on the floor or their own bedsheets.</p>
19	Official of WtE Power Plant (Mr. Zhuyu Zhang serves as the Commercial Manager)	Assess their activities and areas of engagement	<p><b>Activity:</b> The Project timeline includes a 4-year pre-construction phase, a 2.5-year construction phase, and a 25-year operation phase. Azam Enterprise has been contracted to provide two vehicles for office use under the Project. Detailed worker requirements for both construction and operation phases will be provided once full-scale work commences, according to discussions during site consultations.</p>
20	Boliarpur Community Clinic	Understand perspective of the representative of community clinic	<p><b>Functioning of clinic:</b> Boliarpur Community Clinic serves as the primary health facility in ward-8 of Boliarpur Union Parishad, located within the Project footprint village. Staffed by</p>

Sl. No.	Stakeholder Consultant	Objectives	Response
		associated with the proposed Project	<p>Ms. Sharmi as the health provider, Ms. Rozina as her assistant, and occasional visits from Moni Bhattacharya for child vaccination programs. This clinic operates every day except government holidays, from 9:30 a.m. to 3:00 p.m., offering health services such as treatment for common ailments like cough, cold, and fever.</p> <p><b>Referral services:</b> Referral services are available for emergencies to Autistic hospital (within ½ km) and Dhaka Upazila Hospital, with free specialized treatments. Despite available services, many women in the village are unaware of maternity benefits provided by the Union Parishad.</p> <p><b>Issue:</b> The clinic and surrounding community experience foul odors from the nearby landfill, particularly noticeable during windy or rainy weather.</p> <p><b>Litigation:</b> A case filed by BELA regarding land acquisition impacts remains pending in the High Court without resolution.</p>
21	School Teacher of 91 No. Boliarpur Primary School (Govt)	Understand perspective of the teacher at the primary school associated with the proposed Project	<p><b>About school:</b> This School providing education from pre-primary to class Managed by one Head Mistress, Ms. Kamrunnesha, and supported by 6 Assistant Teachers, including one male and five female teachers, for a total of 190 students (100 boys and 90 girls).The school annually provides educational support grants to students for purchasing books, uniforms, and other educational materials. Infrastructure includes separate toilets for boys and girls, equipped with 3 taps for handwashing. The school ensures uninterrupted water supply with 2 submersible pumps and 3 overhead tanks. Each classroom is equipped with electricity, lighting, fans, benches, chairs, and facilities like a library and multimedia Projector with internet connectivity. Active involvement of Parents-Teacher Association (PTA) and School Management Committee (SMC) in school affairs.</p> <p><b>Challenges:</b> Occasionally, the school experiences bad odor from the nearby landfill</p>



Sl. No.	Stakeholder Consultant	Objectives	Response
			<p>due to wind direction, but otherwise operates without major issues.</p> <p><b>Expectation:</b> Teachers, like Ms. Lutfun Nesha, believe the proposed WtE Project could mitigate this odor problem in their village.</p>
22	Local Community at Naya-Nagar village of Bongaon Union of Ward-7	Understand perspective of the local community associated with the proposed Project	<p><b>Community's perspective:</b> Naya-Nagar village in Bongaon Union, Ward-7, experiences significant foul odor from the nearby landfill area, exacerbated during rainy seasons.</p> <p><b>Issue faced:</b> Routine power outages lasting 1 to 2 hours daily are a common issue faced by the community. Local residents note that kites often deposit carcasses of dead animals in trees and local areas, further contributing to foul odors and impacting air quality. Despite these challenges, the community has not reported any significant health complications apart from the foul smell.</p> <p><b>Expectation:</b> The implementation of the WtE Project is expected to mitigate foul odors, improve air quality, and provide a more reliable power supply, positively impacting the local environment and community well-being.</p>
23	Youth Group at Boliarpur village of Ward-7	Understand perspective of the local youth group associated with the proposed Project	<p><b>Feedback from local youth:</b> The community experiences foul odor from the nearby landfill area due to wind patterns, particularly noticeable during the rainy season. Residents are hopeful that the proposed WtE Project will eliminate foul odors, improve air quality, and enhance the aesthetic environment of the village.</p> <p><b>Issues:</b> Ward-7 lacks a drainage system, causing water stagnation issues during the rainy season, as highlighted by the youth.</p> <p><b>Expectation:</b> Youth expressed interest in modern technology fields such as graphics design, web development, online marketing, and software development, and are keen on skill development opportunities offered by the Project Proponent's initiatives to support their career growth.</p>

## 5.4 Status of Impacted Landowners, Compensations, and Basis of Valuation

The **Table 5-7** outlines the impact of land acquisition on different categories of landowners in Bangladesh. Titled landowners, who are generally financially stable, have mostly received compensation based on government guidelines. However, non-titled landowners, including small business owners and rag pickers, are ineligible for compensation under current regulations despite facing significant livelihood impacts. These non-titled groups vary in their economic status, with some being more vulnerable than others. The document recommends resolving pending compensation cases for titled landowners and suggests developing an Income and Livelihood Restoration Plan for non-titled holders, particularly the more vulnerable ones. It also emphasizes the need for further studies to address the issues faced by non-titled holders and vulnerable rag pickers, aligning with international standards for social safeguards.

**Table 5-7 Status of impacted landowners, compensations, and basis of valuation**

Sl. No.	Category of landowners	Status of impacted landowners	Compensation	Basis of valuation	Remarks
1	Titled Holders	<ul style="list-style-type: none"> <li>Based on the analysis of socio-economic status of the impacted landowners associated with the land acquisition activity, it has been noted that, none of the impacted titled holders represent Below Poverty Line (BPL) criteria defined by the definition of poverty as per Bangladesh Government. (<i>i.e., USD 1.9 per person per day equals to 223.64 BDT</i>).</li> <li>Majority of impacted landowners are found financially well-off due to their engagement in various income generating activities such as business, service, govt job, driving, remittances, professionals, teachers along with cultivation (as referred to ESIA report). Moreover, these landowners possess additional land parcels which are being used for agricultural activity in other areas.</li> <li>It was also noted that, relatives of many landowners are residing abroad and remitting money to their families on a regular basis.</li> </ul>	As of now, out of total 242 landowners, 138 landowners have received compensation and remaining 104 landowners are yet to receive compensation as per DC office in line with ARIPA,2017 guidelines.	<p>The valuation of compensation against land parcel was based on assessment of last 12 months' mouza rate as shared by the DC office.</p> <p>On the other hand, the estimation of structure was based on PWD schedule, and the valuation of tree was based on the defined amount of department of Agriculture, Govt of Bangladesh.</p>	Project Proponent needs to ensure that all the pending cases of compensation should be awarded from DC office.

Sl. No.	Category of landowners	Status of impacted landowners	Compensation	Basis of valuation	Remarks
2	Non-titled holders	<p><b>Petty businessmen:</b></p> <ul style="list-style-type: none"> <li>The interaction with non-titled businessmen had revealed that there are a total of 5 non-titled holders who are operating their businesses from the acquired portion of the land parcel with an additional BDT 300 to 500 per month as electricity charge. These small business owners are mainly involved in rice hotel, tea stalls, mobile recharge, medicine shop, variety shop (grocery and food items).</li> <li>The typical earnings of these small business owners range an average from BDT 15000 to 35,000 monthly, as verified during the site assessment. Based on the analysis of the socio-economic status, it revealed that 3 out of 5 impacted non-titled holders falls within Below Poverty Line (BPL) defined by the definition of poverty as per Bangladesh Government (i.e. USD 1.9 per person per day equals to 223.64 BDT). The same has been confirmed during consultation with the impacted non-titled holder's as part of the due diligence.</li> <li>It was also noted that these non-titled business owners have migrated from different districts to earn their livelihood by setting up small business units on the acquired portion of the land. The outcome of interaction also highlighted that they are looking for relocation support to nearby Hemayetpur market area which is around 7.6 km away from the</li> </ul>	No compensation was awarded to non-titled holders as they were not covered for compensation under ARIPA, 2017 guidelines.	Hired consultant or an independent consultant	Can be covered under proposed Income and Livelihood Restoration Plan in line with AIIB's ESS-2 guidelines to address their impact such as structure loss, income loss, relocation assistance and support to run business. In this. In this connection, a further study is required to address the issue of non-titled holders.

Sl. No.	Category of landowners	Status of impacted landowners	Compensation	Basis of valuation	Remarks
		present business site as a part of compensation.			
		<p><b>Rag pickers:</b></p> <ul style="list-style-type: none"> <li>The interaction with rag pickers at Landfill site had noted that they are solely dependent upon income from collecting waste from the landfill area. The land acquisition activity will adversely impact on their lives and livelihood. Moreover, these rag pickers were not considered for award of compensation as per ARIPA,2017 guidelines.</li> <li>Majority of rag pickers are found as sole earning member supporting their household expenditures with an average monthly income range between BDT 6,000 to 9,000. Out of 40 enlisted rag pickers, 9 women headed household rag pickers were, engaged in waste collection in support of their household expenses and they are also considered vulnerable and eligible for additional support under proposed Income and Livelihood Restoration Plan.</li> <li>On the other hand, the rag pickers from Secondary Transfer Station (STS) are found economically better off as compared to the rag pickers from Land fill area, as these rag pickers are getting a fixed monthly income from household collection of wastes on a regular basis. Their monthly income ranges between BDT 25,000 to 35000 from household collection as a result, they do not represent defined BPL category of Bangladesh.</li> </ul>	No compensation was awarded to any rag pickers as they were not considered for compensation under ARIPA,2017 guidelines but they will be considered under AIIB's ESF protocol.	Hired Consultant	Can be considered under proposed Income and Livelihood Restoration Plan in line with AIIB's ESS-2 guidelines to address their impact due to land acquisition activity. Therefore, a detailed study is required for the proposed activity to address the issue of vulnerable rag pickers.

## 5.5 Identified Potential Areas in Support of Supplemental and CSR Initiatives

The review of ESIA report and the site assessment pertaining to the preparation of ESDD has highlighted few topics that can be considered under skill enhancement initiative leading to income generation activity under proposed CSR & supplemental initiative of the Project proponent. The interaction with youth at the community level has identified few areas in support of proposed skill development activity. A separate study is required to ascertain the exact number of youths who are interested to undergo identified skill enhancement cum income generation activity, selection of specific trades, tentative budget and training agency in support of proposed CSR activity of the Project proponent. This initiative will surely address the promotion of income generation issue in Project influenced villages during Project life cycle.

**Table 5-8 Identified Potential Areas in Support of CSR & Supplemental Initiative**

Identified Trades			
Computer-based training	Driving	Tailoring	Cooking
Graphics design	Web developmnet	Online marketing	Software development
Technical/Mechanical	Livestock	Agro-based	Photoshop

## 6.0 Aspect-wise Gap Assessment

In the realm of waste-to-energy Projects, particularly concerning land acquisition and its impact on affected communities, conducting an aspect-wise gap analysis and utilizing a priority matrix is crucial to identify and prioritize the impacts based on its severity of impact on lives and livelihood of impacted population. These analytical tools help in systematically assessing and addressing various facets focusing health, safety, income, livelihoods and security that influence the Project's footprint on the environment and society. In addition to analytical tools, assessing the appropriateness of institutional arrangements for implementing Environmental and Social Management Plans (ESMP), Environmental and Social Action Plans (ESAP), Corporate Action Plans (CAP), and Environmental and Social (E&S) monitoring is fundamental from environment, health and social perspective of the Project. These frameworks are integral components of the Environmental and Social Due Diligence (ESDD) report, ensuring that the Project adheres to ethical and legal standards aligning with AIIB's guidelines while safeguarding the very interest of affected population in Project influenced areas throughout the Project life cycle.

An Environmental and Social Due Diligence (ESDD) process for a waste-to-energy Project, the gap analysis typically involves assessing various aspects of the Project against relevant environmental and social standards, regulations, and best practices. Here's a breakdown of potential aspect-wise gap analysis captured under construction and operation phase.

**Table 6-1 Aspect Wise Gap Assessment for Construction Phase**

Sl. No.	Project aspect	Gaps identified
<b>Construction Phase</b>		
1	<b>Award/ Compensation</b>	<ul style="list-style-type: none"> <li>Among the total 242 impacted landowners, 138 have received compensation in line with ARIPA, 2017 Act but remaining 104 impacted landowners are yet to receive compensation as per DC office report.</li> <li>Some landowners could not be contacted due to the reasons stated such as unavailability of landowners residing abroad at the time of survey, title dispute and address mismatch.</li> <li>The majority of landowners are unaware of the additional 200 % compensation that should be added to their property value as per the ARIPA, 2017 Act.</li> <li>Among the five non-titled holders, two have relocated their business units using their own funds. The remaining three non-titled holders are found vulnerable in terms of their income criteria based on Bangladesh's poverty standard, as they are earning in an average monthly income ranging between BDT 15,000 to 22,000 and are still continuing their businesses from their existing locations. No non-titled holders are covered under ARIPA Act, 2017. These non-titled holders are paying electricity ranging between an average of 300 to 500 BDT per month. These non-titled businessmen can be considered under compensation in line with AIIB's ESS-2 guidelines.</li> <li>The DNCC has not considered 40 vulnerable rag pickers eligible for compensation as per AIIB's ESF guidelines, despite the land acquisition impacting their livelihoods. . Out of 40 vulnerable rag pickers, 9 women</li> </ul>

Sl. No.	Project aspect	Gaps identified
		<p>rag pickers have been considered as vulnerable based on vulnerability criteria.</p> <ul style="list-style-type: none"> <li>All the structures details are in line with PWD schedule and transfer and reconstruction grant are all inclusive of calculation of loss of structures based on PWD schedule reflected in the ESIA report.</li> </ul>
2	<p><b>Calculation of market price of the acquired land parcel (Land/Structures and trees)</b></p>	<ul style="list-style-type: none"> <li>The EQMS team conducted a market survey in Bongaon Union to determine land prices for Boliarpur Mouza by consulting seven local experts, including elected officials, land brokers, and deed writers. They focused on cash transactions over the past year and verified the collected prices with random landowners in five nearby locations. The assessment indicated that the compensation provided is more than prevailing market price in line with ARIPA,2017 guidelines as per ESIA report.</li> <li>The valuation of structures was based on the Public Works Department (PWD) schedule rates, following a request from the Land Acquisition Officer on 07-04-2022. PWD's process included: <ul style="list-style-type: none"> <li>A site visit by the Sub-divisional Engineer, sub-assistant engineer, and surveyor, who measured and listed the structures.</li> <li>Valuation as per PWD's schedule rates, with a 17.18% deduction for private ownership and an additional 5% depreciation for facilities built in 2013, totalling a 22% deduction.</li> <li>An additional 100% value increase on the assessed price as per ARIPA 2017.</li> <li>Additional 25% amount is provided as grant towards structure transfer and reconstruction</li> </ul> </li> </ul> <p>On 13-04-2022, a team including DNCC personnel, DC's representatives, and structure owners visited the site to finalize the measurements and estimations.</p> <p>As per ARIPA-2017, an additional 100% of the assessed price for impacted trees belonging to private owners has also been calculated.</p>
3	<p><b>Transmission Line (TL)</b></p>	<ul style="list-style-type: none"> <li>The transmission line spans 5.99 km and includes the erection of 27 towers, located on the north-west corner of the WtE Plant along the Karnatali riverbank. However, the land acquisition process for the proposed transmission line was yet to start at the time of the site assessment. Consequently, the potential number of impacted</li> </ul>

Sl. No.	Project aspect	Gaps identified
		<p>landowners could not be determined by the Project proponent during the site visit.</p> <ul style="list-style-type: none"> <li>• Furthermore, the compensation amount for each landowner, based on the type of land parcel to be acquired for tower footing, could not be determined due to lack of their identification.</li> <li>• The estimation of compensation amounts for the acquisition of the transmission line is governed by the Power Grid Company of Bangladesh (PGCB).</li> <li>• The details regarding the actual number of impacted landowners, the area of land acquired against each tower of the transmission line, the amount of compensation and the number of dependent sharecroppers affected by the acquired land parcel are yet to be identified.</li> </ul>
4	<b>Social Impact Assessment (SIA)</b>	<ul style="list-style-type: none"> <li>• Out of a total of 607 persons surveyed from 146 HHs in the Project-affected area, approximately 303 females (i.e., 100 % of the surveyed female population) are restricted from working outside their homes due to religious and socio-cultural barriers.</li> <li>• Of the 303 females surveyed, only 5 women from 5 households (i.e., 1.5 % of the total 303) reported involvement in household decision-making activities, reflecting a practice of male dominance in household decision processes in the Project-impacted areas.</li> <li>• None of the 40 DNCC-enlisted rag-pickers have been evaluated for appropriate compensation according to AIIB’s ESF guidelines following the land acquisition activity.</li> <li>• Among the 40 rag-pickers, 9 women have been identified as vulnerable based on their status as heads of households, according to the defined vulnerability criteria.</li> <li>• Out of 5 identified non-titled holders, two are operating small tea stalls and one is running a mobile recharge stall. Out of 5 non- titled holders, 3 fall under the BPL category.</li> <li>• The ESIA report highlighted that 10 individuals out of 21 surveyed have been identified with eyesight problems and are considered vulnerable based on disability criteria, which include eyesight, mobility, speech disorders, mental health issues, and hearing loss.</li> <li>• Additionally, 39 elders, constituting 7.8 % of the total 607 surveyed individuals, are deemed vulnerable due to being 60 years old and above.</li> </ul>
5	<b>Regulatory Compliances</b>	<ul style="list-style-type: none"> <li>• The country (Bangladesh) doesn’t currently have its own standard for measuring poverty as the country follows the International Poverty Line, currently set at \$1.9/day per person as defined poverty standard. This has been followed by the ESIA consultant towards calculation of poverty standard of impacted individuals.</li> <li>• The country doesn’t have any standard parameters for analysis of physical and chemical water properties.</li> </ul>



Sl. No.	Project aspect	Gaps identified
		<ul style="list-style-type: none"> <li>• CMEC doesn't have Anti Child Labour Policy</li> <li>• Traffic Management Plan</li> <li>• Labour Camp Monitoring Plan.</li> <li>• CMEC doesn't have CSR policy to promote ethical standard and social accountability to address Project impacts through development initiatives.</li> <li>• CMEC doesn't have Human Rights Impact Assessment (HRIA) Policy.</li> <li>• Provident Fund and Mediclaim policy for workers under Contractor.</li> </ul>
6	<b>Stakeholder Engagement</b>	<ul style="list-style-type: none"> <li>• CMEC doesn't have stakeholder and community engagement plan or policy in place with defined objectives and implementation mechanism.</li> <li>• CMEC doesn't have any GRM in place either at corporate level or at community level.</li> <li>• Absence of complaint box either at plant or at community level.</li> </ul>
7	<b>Waste Management</b>	<ul style="list-style-type: none"> <li>• CMEC doesn't have Waste Management Plan/Policy aligning with national and international regulations and best practices in areas of segregation, handling, treatment and disposal of waste materials.</li> <li>• CMEC doesn't have energy efficiency and resource optimization policy</li> </ul>
8	<b>Health &amp; Safety at Labour Camp</b>	<ul style="list-style-type: none"> <li>• No health check-up was carried out by the contractor for local laborers hired for the Project before induction.</li> <li>• Absence of proper hygiene and cleanliness at the labour camp for local laborers.</li> <li>• No garbage dumping container was present in each room.</li> <li>• Neither any bed nor any bedding mattress was provided to laborers at the labour camp.</li> <li>• Neither any mosquito net nor any sitting arrangement is provided for laborers at the camp.</li> <li>• No entertainment facility was provided to laborers at the camp.</li> <li>• The area of rest room doesn't have any fan facility.</li> <li>• Each room is congested with a greater number of local workers beyond permissible limit minimum 4 to maximum 7 workers in each room.</li> <li>• The likelihood of snake biting is envisaged as the camp is located close to the canal surrounded with bushes and weeds.</li> </ul>
9	<b>Capacity building &amp; Training</b>	<ul style="list-style-type: none"> <li>• The Project proponent doesn't have any annual training calendar for its employees.</li> <li>• The contractors didn't share any safety code of conduct with its laborers.</li> </ul>
10	<b>Information dissemination</b>	<ul style="list-style-type: none"> <li>• The inadequacy of Project related information disclosure mechanism on the part of the Project proponent has been identified with respect to AIIB's guidelines.</li> </ul>

Sl. No.	Project aspect	Gaps identified
11	<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>The contractor didn't have proper monitoring and reporting mechanism in place.</li> </ul>

**Table 6-2 Aspect Wise Gap Assessment Matrix for Operations Phase**

Sr No.	Project aspect	Gaps identified
<b>Operations Phase</b>		
1	<b>Regulatory Compliances</b>	<ul style="list-style-type: none"> <li>The country (Bangladesh) doesn't currently have its own standard for measuring poverty as they follow the International Poverty Line, currently set at \$1.9/day per person as Bangladesh's defined poverty standard.</li> <li>The country doesn't have any standard parameters for analysis of physical and chemical water properties.</li> <li>CMEC doesn't have Anti Child Labour Policy</li> <li>Traffic Management Plan</li> <li>Labour Camp Monitoring Plan.</li> <li>CMEC doesn't have CSR policy to promote ethical standard and social accountability to address Project impacts through development initiatives.</li> <li>CMEC doesn't have Human Rights Impact Assessment (HRIA) Policy.</li> <li>Provident Fund and Mediclaim policy for workers under Contractor</li> </ul>
2	<b>Stakeholder Engagement</b>	<ul style="list-style-type: none"> <li>CMEC currently doesn't have stakeholder and community engagement plan or policy in place with defined objectives and implementation mechanism.</li> <li>CMEC doesn't have any GRM in place either at corporate level or at community level.</li> <li>Absence of complaint box either at plant or at community level but the same has been proposed in the revised ESIA report.</li> </ul>
3	<b>Restoration/ Resettlement</b>	<ul style="list-style-type: none"> <li>Proposed Project is likely to impact livelihood of 40 enlisted rag pickers of DNCC but neither any compensation nor any restoration plan for their livelihood has not been envisaged in ESIA report. Furthermore, among 40 ragpickers, 9 have been identified as vulnerable based on vulnerability criteria and this claim has been endorsed by the local community, DNCC representative as well as representative of local village administration at the time of site visit. Hence, all the 40 impacted rag pickers will be considered under proposed Income and Livelihood Restoration Plan.</li> <li>These waste collectors are not registered waste collectors with DNCC.</li> <li>DNCC doesn't provide any benefits to those rag-pickers.</li> <li>DNCC never organized any health check-up for those rag pickers.</li> <li>These rag-pickers are collecting waste from the landfill area without wearing any safety gears and directly expose to hazardous waste on a regular basis that may likely cause health hazards to those waste collectors.</li> </ul>

Sr No.	Project aspect	Gaps identified
4	<b>Waste Management</b>	<ul style="list-style-type: none"> <li>CMEC doesn't have Waste Management Plan/Policy aligning with national and international regulations and best practices in areas of segregation, handling, treatment and disposal of waste materials.</li> </ul>
5	<b>Health &amp; Safety at Labour Camp</b>	<ul style="list-style-type: none"> <li>No health check-up was carried out by the contractor for local laborers hired for the Project before induction.</li> </ul>
6	<b>Capacity building &amp; Training</b>	<ul style="list-style-type: none"> <li>The Project proponent doesn't have any annual training calendar for its employees.</li> </ul>
7	<b>Information dissemination</b>	<ul style="list-style-type: none"> <li>The inadequacy of Project related information disclosure mechanism on the part of the Project proponent has been identified with respect to AIIB's guidelines.</li> </ul>
8	<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>The contractor didn't have proper monitoring and reporting mechanism in place.</li> </ul>

CONFIDENTIAL

## 7.0 Assessment of appropriateness of Institutional set-up for implementation of ESCAP, ESMP and E&S Monitoring

### **Assessment of Institutional Setup for ESCAP, ESMP, Environment & Social component for Implementation purpose:**

The assessment of the institutional setup for the Waste to Energy Project involves evaluating the adequacy and effectiveness of the existing organizational framework to manage and oversee the implementation of the Environmental and Social Management Plan (ESMP), Environmental and Social Corrective Action Plan (ES-CAP) and Environment & Social component for Project implementation. This includes reviewing the capacity of the dedicated environmental and social management team, the clarity of their roles and responsibilities, remedial measures and their ability to integrate these plans into Project operations. Key factors to consider are the availability of trained personnel, the robustness of internal reporting and monitoring systems, and the alignment of institutional policies with the ESMP, ESCAP, and monitoring of E & S requirements. The assessment should also address the mechanisms in place for stakeholder engagement and grievance redressal, ensuring they are sufficient for addressing potential environmental and social impacts effectively through appropriate remedial measures. Overall, the evaluation aims to confirm that the institutional framework is capable of ensuring compliance, managing risks, offering remedial measures and adapting to evolving Project needs.

### **The following steps to be followed in assessing the institutional arrangement and capacity of the existing institutions associated with WtE Project.**

#### **Introduction**

Purpose of the assessment : The assessment ensures the institutional setup is adequate with respect to policy compliance, man-power, defined roles & responsibility, dedicated department and subject-specific experts with valid licenses for effectively implementing the Environmental and Social Management Plan (ESMP), Environmental Social Corrective Action Plan (ESCAP), Proposed Income and Livelihood Restoration Plan and monitoring of E&S components, for the Waste-to-Energy (WTE) Project.

#### **Scope of the evaluation.**

The evaluation of institutional arrangements and capacity is crucial for ensuring the effective implementation of the ESMP, Environmental and Social Corrective Action Plan (ESCAP) and monitoring of E&S components by the Project proponent to witness positive outcome as a result of successful implementation of the all the activities of the WTE Project in a given time-frame aligning with applicable national as well as international guidelines with special focus on AIIB's ESF protocols.

#### **Institutional Framework Overview**

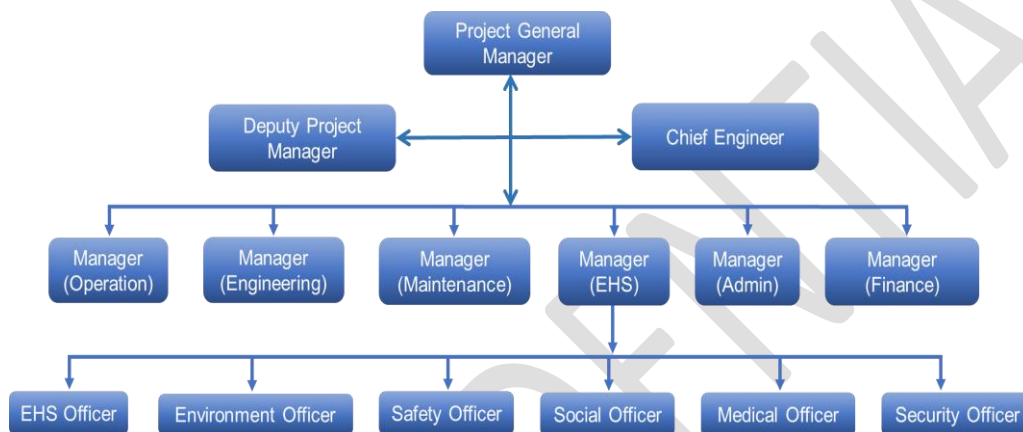
##### **A brief description of the existing institutional setup:**

The review of the ESIA report of the proposed WTE Project has identified the emphasis was placed upon preparation of Environment Social Management Plan (ESMP) to manage environmental as well as social

component of the Project along with mitigation measures and responsibility covering both construction as well as operation phase of the proposed Project.

The review of the current institutional framework for the proposed Waste-to-Energy (WTE) Project indicates that the responsibility for overseeing environmental and social aspects has been assigned to the HSE department of WTE North Dhaka Power Plant Private Limited. Within this department, the EHS Manager will play a crucial role in addressing all environmental and social issues, ensuring that solutions are developed in compliance with both national and international guidelines, particularly the AIIB's Environmental and Social Framework (ESF) protocol.

**Organizational structure related to the management of E&S component of the Project is stated below:**



The above table reflects organizational structure of the Project proponent in managing E&S component of the Project where Project General Manager will be the key person of managing E&S safety of the Project with active cooperation from Deputy Project Manager as well as Chief Engineer. The proposed organizational structure of the Project has defined operation, engineering, maintenance, EHS, Admin and Finance department to manage the entire E&S component of the Project. Furthermore, the Manager with support of concerned officer from respective department will be responsible in dealing with E&S issues of the Project throughout the Project circle.

### **Roles and Responsibilities**

#### **Key personnel:**

Project General Manager, EHS Manager, EHS Officer, Environment Officer, Social Officer and Safety Officer are identified as key Project personnel in managing E&S issues of the Project.

### **Roles and Responsibilities**

This section describes the roles and responsibilities of the key persons responsible for the management of environmental and social activities for the proposed Project as stated in the ESIA report.

### **Project General Manager**

The Project Manager at WTE Power Plant North Dhaka Private Limited is accountable for overseeing the entire Project and ensuring the implementation of the Environmental and Social Management Plan (ESMP) throughout both the construction and operational stages. Their responsibilities will include the following tasks:

- To consider and react to issues and solutions proposed by the HSE Department of WTE Power Plant North Dhaka Private Limited.
- To cooperate and consult the relevant environmental agency to perform better.
- To evaluate the progress of development and implementation of ESMP; and
- To approve any change in decision-making and authorities in consultation with Manager EHS, if appropriate

### **EHS Manager**

The effectiveness of the Environmental Management Plan (EMP) relies on the competent and efficient management delivered by the EHS Manager. The duties and responsibilities assigned to the EHS Manager are outlined below:

- To ensure that the points of views of staff, contractors and EHS officers are considered and placed likewise in the EMP.
- To identify issues and propose solutions for inclusion in the EMP review process.
- To improve coordination and exchange of information between top management, employees, and contractors.
- To contribute to actions required to deliver the management plan and ensure its continued development.
- To review EMP every year, tracking issues and changing EMP in accord with the solutions and suggestions; and
- To monitor the progress of development and implementation of the EMP.

### **EHS Officer**

The EHS Manager will delegate authority to the EHS Officer. The responsibilities of the HSE Officer will encompass:

- To integrate, as far as possible, the aims and objectives of different users within an agreed plan.
- To maintain a balanced, holistic approach to the solution of concerned issues in accordance with and compliance with legislative requirements.
- To provide professional guidance on questions relating to the environment management and issues raised by contractors/relevant personals; and
- To develop the EMP process by its implementation

### **Environmental Officer**

The role of Environmental Officer will include.

- Advising on environmental legal requirements regarding issues that may arise during the Project
- To identify environmental issues and implement environmental management with the help of HSE department
- Regular auditing with the view of ensuring that all activities on the site are undertaken in accordance with the ESMP.

### **Social Officer**

The Assistant Manager (Social) will oversee the following areas of responsibility:

- To act as a point of contact for residents and community members.
- To meet the labor requirements during the construction phase of the Project.
- To involve in Grievance Redressed Committee and will actively participate in addressing issues raised by workers and the community.
- To conduct independent social audits.
- To Address training needs for social and community issues.
- To conduct periodic meetings with the local community for understanding their grievances.
- To involve in CSR activities including proposed Income and Livelihood restoration plan.

### **Safety Officer**

The major responsibilities of Safety Officer will include:

- To stay at ground levels on a daily basis and will coordinate with the Contractor's representatives for all construction activities.
- To provide toolbox training to labor and will also issue relevant PPEs to them.
- To develop formats for work permit system and will ensure its implementation.
- Submit audit reports to the EHS Manager of respective Modules.
- Engage in Training and capacity building initiative.
- Coordinate with different departments/units of the plant.

**Review of role of WTE Power Plant North Dhaka Private Limited, hired EPC contractor and HSE/EHS Team for the proposed Project is also furnished below as per the review of ESIA report for better understanding:**

**Table 7-1 Role of WTE Power Plant North Dhaka Private Limited, hired EPC contractor and HSE/EHS Team**

Project Developer (WTE Power Plant North Dhaka Private Limited)	EPC Contractor	HSE Department and EHS Team
Obtaining statutory clearances required during the pre-construction stage of the Project	Obtaining permits required during the construction stage	All the matters associated with environment, health and safety components across the Project cycle will be dealt with in consultation with heads of the respective departments following national as well as international guidelines focusing AIIB's ESF guidelines.
Overall Project coordination and management through EPC and supported by the third-party environmental consultant/s	Joint verification with Project Developer and Third-Party Environmental Consultant for review of ESMP implementation	
Interaction and reporting to the respective department of GOB	Interaction with Project Developer and appointed supervision consultant if any	
Interaction and reporting to lenders	Filling of reporting formats as per the reporting schedule and submission to Project Developer	
Effective implementation of ESMP and monitoring of ESMP implementation	Environmental monitoring through Third Party Environmental Laboratory	
Carryout verification/ supervision exercises during the construction phase of the Project for the implementation of ESMP	Preparation of various plans for effective implementation of ESMP as detailed out in the "Specification Manual" by the Project Developer	
Keeping records of all permits obtained by EPC Contractor	Identification of site for labor camp, batch mix plant, laydown areas	
Overall supervision of ESMP implementation	Management of labor camp and to provide drinking water, sanitation facility	
Approval of plans prepared by EPC Contractor		
Addressing grievances of the local community and information dissemination		
Environmental monitoring through laboratory		

The review of the said table highlights that the Project proponent will be responsible in management, supervision, coordination, addressing grievances and monitoring activity of the Project besides obtaining necessary approval and licenses from respective government departments towards operation of the Project. Basically, all kinds of administrative as well as management activity will be performed by the Project proponent. Additionally, hired EPC contractor will be responsible obtaining required permits,



verification of implementation of ESMP, preparation of various format, filling up the formats, submission of reports, hiring of third-party consultant for environmental monitoring, development of various manuals, identification of site for labour camp, batching plant and provide drinking water and sanitation facility at labour camp. In addition, the EPC contractor will coordinate and share report with the Project proponent on a regular basis. Furthermore, HSE Department as well as EHS Team is found accountable to address any issues related to environment, health and safety of the Project throughout the Project life cycle.

**Importance of integration of proposed ESCAP and Income and Livelihood Restoration Plan into ESDD report to address the identified gaps with respect to the Project activity:**

The review of the current institutional setup for the Project proponent has highlighted the implementation of an Environmental and Social Management Plan (ESMP) that addresses both the construction and operation phases, as outlined in the ESIA report. However, ESDD process has identified several gaps related to the proposed Project. To address these gaps, the ESDD has provided specific recommendations for mitigation measures that align with both national regulations and the AIIB's ESF guidelines.

To strengthen the effectiveness of the existing institutional framework for the proposed Project, the ESDD exercise has offered several measures. These include the development of an Environmental and Social Corrective Action Plan (ESCAP) and an Income and Livelihood Restoration Plan, which address the identified gaps. To ensure the successful implementation and regulatory compliance of the Project throughout its lifecycle, these recommendations should be seamlessly integrated into the current environmental and social management plans of the Project proponent.

**Stakeholder Engagement Plan (SEP):**

The review of institutional set-up has noted the absence of appropriate stakeholder engagement plan on the part of the Project proponent. Therefore, the existing engagement practices with the relevant stakeholders are found to be inadequate at the time of site assessment.

The engagement of stakeholders at every stage of the Project is crucial for timely implementation of activities as per Project timeline. The implementation of appropriate SEP will facilitate positive outcome of the intended activities leading to the satisfaction of every stakeholder of the Project.

**Grievance Redressal Mechanism (GRM)**

The review of the ESIA report and the site visit has confirmed the absence of appropriate GRM of the Project proponent. A GRM is an instrument where the stakeholders will exercise their basic rights of participation in the Project cycle through suggestions and complaints. It is also an essential tool of the Project proponent to address local problems and complaints related to social and environmental impacts through implementation of the proposed activities encompassing construction, operation and post operation phased of the Project. Based on the consensus, this procedure will help to resolve issues/conflicts amicably and quickly in a transparent and time-bound manner in line with AIIB's ESF guidelines.

The GRM will be accessible to all the stakeholders including affected people, community members, civil society, vulnerable people and other interested parties in local language for better understanding as well its appropriate implementation. The GRM is intended to address issues and complaints in an

efficient, timely, and cost-effective manner. The proposed Grievance Redress Mechanism (GRM) outlined in the ESIA report should be utilized to address any grievances from individuals affected by the Project. This mechanism should cover both the plant and the labor camp associated with the Project proponent, ensuring adherence to all regulatory requirements.

#### **Training and Capacity Building:**

Based on the current institutional setup, it has been observed that the proposed training and capacity-building initiatives by the Project proponent are insufficient. Specifically, there is no designated responsibility for conducting the training programs, and the training calendar, which is detailed in the ESIA report, is not adequately addressed.

#### **Compliance and periodic Monitoring as well as Evaluation**

The Project proponent needs to ensure required regulatory compliances as per national as well as international guidelines throughout the Project life cycle and this can be ensured through periodic monitoring, internal auditing, timely reporting and review of implementation processes across all stages of the Project through evaluation exercise with support from external evaluator. This approach is very crucial to witness the positive outcome of the proposed Project adhering to all the applicable guidelines specially AIIB's ESF protocol to improve better working environment, promoting health & safety of the workers throughout the Project period.

#### **Status of budget Plan for the proposed environmental & social mitigation measures as stated in the ESIA report:**

The review of the proposed budget of the WtE Power Plant North Dhaka Private Limited has identified that a separate budget will be allocated and presented for environmental management plan implementation, training, environmental monitoring, analysis, reporting, verification monitoring, and capacity building which will be covering pre-construction, construction and operation phases of the Project based on the ESIA report.

The ESIA report specifies the following budgetary allocations:

- Preconstruction and Construction Stage Environmental Management: 6.3 million BDT per year
- Operation Stage Environmental Management: 9.8 million BDT per year
- Environmental Monitoring Costs: 3.04 million BDT per year for both the construction and operation stages

These figures outline the financial provisions necessary for managing and monitoring environmental impacts throughout the Project's lifecycle.

But the proposed ESCAP and Income and Livelihood Restoration Plan are incorporated into the ESDD report in order to address the identified gaps and at the same time to enhance the quality of the intervention of the proposed Project throughout the Project life cycle.

**A proposed budget is furnished in support of Income cum Livelihood Restoration Plan for non-titled holders as well as vulnerable rag-pickers:**

The tentative budget for implementing the proposed Income and Livelihood Restoration Plan, specifically for impacted non-titled holders and rag-pickers, is BDT 39,32,500.00 for one year, as reflected in the ESDD report. This budget should be considered an additional cost for the Project proponent to address the identified issues resulting from the Project's operation. This has been corroborated through site observations and community consultation exercises.

Therefore, understanding the importance of integrating proposed activities into the existing ESMP of the Project proponent, is equally pertinent to allocating separate funds into the existing budget of the proposed Project. Hence, the proposed budgetary allocation will be treated as an additional budget apart from the existing budget proposed earlier for the Project. The report has provided a tentative budgetary allocation for the implementation of the proposed Income cum Livelihood Restoration Plan. This plan addresses both non-titled holders and ragpickers, ensuring their economic rehabilitation. The budget also accounts for the engagement of an external consultant, NGO, or competent agency to oversee the implementation of the plan. Additionally, provisions have been made for the involvement of an independent consultant to carry out the valuation of loss structures for non-titled holders.

**Reporting and documentation:**

The assessment of the reporting as well as documentation mechanism of the WTE Power Plant North Dhaka Private Limited has highlighted that the reporting will be conducted in all stages of the Project cycle. Assigned personnel shall be required to fully comply with the reporting program in terms of both timely submissions of reports as per an acceptable level of detail.

Reporting will be done following environmental checklist, incident record register, and environmental and social performance reports (monthly, quarterly, yearly, etc.).

Based on the assessment of existing reporting mechanism of the Project proponent as stated in the ESIA report, SEP as well as GRM reporting system needs to be incorporated as these two are the key components in connection with reporting system of the Project proponent. Moreover, the periodic monitoring as well as reporting of the outcome of the proposed Income cum Livelihood Restoration Plan will also be incorporated into the existing reporting system to enhance the quality of reporting as well as documentation exercise on the part of the Project proponent across all the stages of the Project.

**Conclusion**

**Summary of findings:**

- Absence of appropriate SEP to facilitate active engagement of all the stakeholders across Project cycle.
- Absence of GRM both at project site as well as labour camp of the Project proponent.
- Incorporation of training program along with introduction of training calendar as a part of capacity building.

- Incorporation of ESCAP and Income and Livelihood Restoration Plan in addressing the issue of Project impacted individuals.
- Hiring of independent consultant for valuation of loss infrastructure and compensation for impacted non-titled holders and vulnerable rag-pickers.
- Evaluation by external consultant to have quality outcome of the Project activity.

#### **Recommendations for strengthening the institutional setup**

The Project proponent is required to review its proposed activities across every stage of the implementation of the proposed Income cum Livelihood Restoration Plan along with other activities proposed under ESMP as well as ESCAP to ensure that all the stated activities are being implemented as per Project schedule adhering to E&H protocols and also required to assess the capacity of the staff and involvement of manpower for every aspect of the Project on a regular basis adopting periodic reporting, monitoring, audit and evaluation mechanism.

Based on the recommendations in the review of the report, the Project proponent should take necessary steps to address any identified gaps by allocating a separate budget for the proposed program and hiring additional staff. These actions will help strengthen the implementation of both the existing and proposed mechanisms, ensuring a positive outcome for the Project at every stage in a collective and transparent manner.

The engagement of an independent consultant for the valuation of the loss of structures for impacted non-titled holders is crucial to achieving an accurate estimation of the assets of the affected individuals. Additionally, hiring an external consultant for the evaluation of the proposed activities is equally important to ensure positive outcomes. Together, these efforts will help enhance the Project's effectiveness and its ability to deliver the intended benefits.

## 8.0 Risk Matrix (Construction and Operation Phase)

A methodical approach has been employed to identify potential risks by examining how Project activities, both construction and operational phase, might interact with environmental and social elements or receptors.

An interaction matrix has been utilized to systematically pinpoint possible interactions between each Project activity and the various resources/receptors within the Project's area of influence, also known as the study area. presents this interaction matrix, illustrating the Project activities and the resources/receptors likely to be impacted.

	<b>Represents “no” interactions are reasonably expected;</b>
	Represents interactions reasonably possible but none of the outcomes will lead to significant risks;
	Represents interactions reasonably possible with one of the outcomes leading to potential significant risks.

Table 8-1 Identified Risk Matrix for Construction and Operational Phase

Project Activities/Aspect	Potential Impacts																																		
	Physical Resources												Biological Resources				Socio-economic Resources								Health and Safety										
	Air Quality	Climate change	Noise	Vibration	Surface water resource	Surface water quality	Groundwater resource	Groundwater quality	Soil resources	Sediment quality	Land use	Drainage pattern	Visual/Aesthetics	Terrestrial flora	Terrestrial fauna	Aquatic flora	Aquatic fauna	Demographic (incl. Physical displacement)	Economy and Employment	Social and cultural structure	Land & livelihood loss/Economic displacement	Infrastructure and service	Cultural resources	Education and skills	Agriculture/cash crops	Occupational health and safety	Public transportation	Communicable/non-communicable disease	Vector-borne disease	Sexually transmitted disease	Community Health & Safety	Vulnerable groups			
<b>Construction Phase</b>																																			
Construction of Access Road	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Building construction including temporary structures	High	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Mechanical and Electrical Activities	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Operation of Construction Equipment and Machinery	High	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Water pump station & pipeline construction	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Ash yard establishment	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Construction Material Storage, handling, and disposal of waste	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Generation of sewage and discharge	Low	Low	Low	Low	High	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Transmission tower installation and stringing of wire	High	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	High	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	
Transportation of manpower, equipment & materials	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Fuel and Chemical Storage and Handling	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low

Project Activities/Aspect	Potential Impacts																																				
	Physical Resources													Biological Resources				Socio-economic Resources								Health and Safety											
	Air Quality	Climate change	Noise	Vibration	Surface water resource	Surface water quality	Groundwater resource	Groundwater quality	Soil resources	Sediment quality	Land use	Drainage pattern	Visual/Aesthetics	Terrestrial flora	Terrestrial fauna	Aquatic flora	Aquatic fauna	Demographic (incl. Physical displacement)	Economy and Employment	Social and cultural structure	Land & livelihood loss/Economic displacement	Infrastructure and service	Cultural resources	Education and skills	Agriculture/cash crops	Occupational health and safety	Public transportation	Communicable/non-communicable disease	Vector-borne disease	Sexually transmitted disease	Community Health & Safety	Vulnerable groups					
Sourcing of construction water and domestic water					Light		Light																														
Washing of vehicles and equipment						Light		Light	Light																												
<b>Operation Phase</b>																																					
Collection and transportation of waste	Light		Light																							Light			Light				Light				
Operation of Boiler, Turbine, and Generators	Light		Light	Light																						Light											
Enterprises and individuals involved in waste chain																																					
Waste entering the plant	Light		Light																							Light											
Waste incineration	Light		Light																							Light											
Operation of Cooling System					Light																						Light										
Water demand (Surface and groundwater intake)					Light																																
Wastewater from plant operation					Light																																
Transportation, storage, and use of chemicals	Light		Light																								Light										
Maintenance (cleaning, oil change, lubrication, etc.)																											Light										
Waste generation (Fly ash, Bottom ash, Slug, etc.)	Light																																				Light

Project Activities/Aspect	Potential Impacts																																
	Physical Resources												Biological Resources				Socio-economic Resources								Health and Safety								
	Air Quality	Climate change	Noise	Vibration	Surface water resource	Surface water quality	Groundwater resource	Groundwater quality	Soil resources	Sediment quality	Land use	Drainage pattern	Visual/Aesthetics	Terrestrial flora	Terrestrial fauna	Aquatic flora	Aquatic fauna	Demographic (incl. Physical displacement)	Economy and Employment	Social and cultural structure	Land & livelihood loss/Economic displacement	Infrastructure and service	Cultural resources	Education and skills	Agriculture/cash crops	Occupational health and safety	Public transportation	Communicable/non-communicable disease	Vector-borne disease	Sexually transmitted disease	Community Health & Safety	Vulnerable groups	
Domestic waste or domestic use of water																																	
Job Facilities																																	

CONFIDENTIAL



## 9.0 Stakeholder Engagement Plan (SEP)

A stakeholder engagement plan (SEP) is a systematic method that describes how a Project or company will connect, communicate, and work with numerous stakeholders throughout the course of its lifespan. Individuals, company, or other entities that are stakeholders are those who are interested in or impacted by the actions, choices, or results of the company. Building trust, controlling expectations, and guaranteeing a Project or initiative's success all depend on effective stakeholder involvement.

The purpose of the Stakeholder Engagement Plan (SEP) is to successfully involve and interact with a variety of people, groups, or entities that have an interest in or influence over a Project, company, or effort. Its goals include fostering beneficial connections, gaining insightful information, resolving issues, and guaranteeing that the opinions of stakeholders are taken into account throughout decision-making processes. By coordinating goals, reducing disputes, and encouraging cooperation between the company and its stakeholders, this plan contributes to the development of trust, the management of expectations, and the enhancement of overall Project success. Also, to make sure that all Project stakeholders both those directly and indirectly impacted by the Project are kept routinely informed of its progress. The plan was created in order to lay out a general framework for how the Project cycle's related communication process will be carried out.

### 9.1 Objectives

- Stakeholder analysis involves identifying and categorizing the people or groups who will be impacted by a Project and determining the level of influence they have on the Project, as well as the impact the Project will have on them. This information is then used to determine how the Project should address the interests of these stakeholders in its plan, policy, program, or other actions.
- Understanding and analyzing the socio-political environment surrounding a Project is crucial in order to assess its importance. This analysis helps to understand the impact of the Project on the society and the political landscape in which it operates. It also enables the identification of potential challenges and risks that may emerge as a result of the Project.
- Identification of key stakeholders, their primary groupings and sub groupings.
- Identification of the interests, concerns and potential risks surrounding the stakeholders, as well as conflicts of interests (if any).
- Identifying relationships and alliances between different stakeholders involved in a Project, including sponsors, owners, and collaborators, and understanding the ways in which these relationships can influence other stakeholders involved.
- Key groups/ individuals to be pinpointed who need to be informed about the Project.
- Identifying stakeholders (those who are likely to have an adverse impact on the Project) and taking appropriate measures to combat their influence.
- Identification of the impact and influence of the Project on the stakeholders and of the stakeholders on the Project.

- Generation of information essential to the planning, implementation and monitoring of the Project; and.
- Creating a framework for collaboration and involvement in the planning and execution of different Project tasks and initiatives.

Based on the review of the proposed SEP stated in the ESIA report, it has been noted that a generic plan has been proposed to facilitate stakeholder engagement plan. The key findings from the review of the stakeholder engagement plan (SEP), has identified gaps such as topic of discussion in connection with engagement of stakeholders, responsible person to manage or facilitate the stakeholder engagement process and phase of the project in implementation of the proposed SEP. Therefore, the existing SEP plan needs to be strengthened by adding identified three components namely, Key topic/issue of discussion for relevant stakeholders.

- Responsible person in managing SEP for relevant topic.
  - Incorporation of different project phases for implementation of proposed SEP.
- (Reference : Chapter-8 , Table 8.6 (Stakeholder Engagement Needs) of the ESIA report.

## 9.2 Categorization of Stakeholders

The Project's stakeholders were determined based on their level of involvement and influence over its operations. Direct and indirect stakeholders were first separated, then internal and external stakeholders were added. Table represents the different stakeholders involved in WtE Project.

**Table 9-1 Categorization of Stakeholders**

Direct Stakeholder	Indirect Stakeholder
Project Proponent	Local village administration
Landowner/Non-titled holder/ragpickers	Govt departments
Landowners and sharecropper on TL	Educational institution
Laborer of labour camp	Health service provider
EPC Contractor/Sub-contractor	Youth/Women's group
Local community	Traffic department
DNCC	Fire Brigade

**Table 9-2 Categorization of Stakeholders (As per Influence and Involvement)**

Type	Category	Name of the Stakeholders (Groups and Individual)	Description
Direct	Internal	Direct internal stakeholders include people or groups who are directly involved in a Project, decision, or effort within a company. They actively participate in its implementation and are immediately impacted by the results.	Project Proponent (WtE Power Plant Pvt Ltd)  EPC contractor of WtE Power Plant Pvt Ltd DNCC

Type	Category	Name of the Stakeholders (Groups and Individual)	Description
	External	Direct external stakeholders include people, groups, or organizations that are not part of the organization but have a stake in its operations, choices, or results. They can potentially have an impact on the organization's operations and are immediately touched by it.	Project Affected Persons/ Households (Landowners), Non-titled holders businesses, rag pickers, workers. Concerned government department of Bangladesh including DNCC. Contractors and vendors
Indirect	Internal	Indirect internal stakeholders include individuals, groups, or entities within an organization who have an interest in its activities, decisions, or outcomes, but their connection or influence is not as immediate or direct as that of direct internal stakeholders. Their involvement in the organization's operations might be more tangential, but they can still be affected by or have an impact on the organization's actions.	Families of direct/contractual employees, supporting staff, legal and Compliances team. Concerned government department of Bangladesh including DNCC.
	External	Indirect external stakeholders include people, groups, or organizations outside of an organization who are interested in its activities or results but whose impact or connection is less direct or immediate than that of direct external stakeholders. They can nonetheless influence or be influenced by the organization's actions, even if their impact may be less direct.	Local community, local village administration, department of environment and water bodies, civic leaders and Concerned government department of Bangladesh including DNCC, local media.

### 9.3 Stakeholder Consultation and Disclosure Requirement for the Project

Project financing organizations and government regulatory agencies have emphasized the need of stakeholder discussions and information sharing more and more. Below is a quick summary of the obligations for stakeholder participation and public disclosure that apply to this Project.

**Table 9-3 AIIB Requirements (Disclosure and Consultation)**

Framework	AIIB Requirements (Disclosure)	AIIB Requirements (Consultation)
AIIB	The AIIB's ESS2 requires disclosure of environmental and social information as it facilitates dissemination of lessons learned from Projects to improve	Community engagement is to be undertaken with the affected communities and must be free of external manipulation, interference, or coercion, and intimidation.

Framework	AIB Requirements (Disclosure)	AIB Requirements (Consultation)
	<p>environmental and social management practices as well as impacted individuals through implementation of appropriate mitigation plan.</p> <p>On the other hand, Bank signage on strategic location and Project related information should be shared or disseminated on Project proponent’s website, notice board, local village administration and local community about the Project and related information in local language. Moreover, the information of documentation required to be disclosed by the client pursuant to ESS1.</p>	<p>Furthermore, in situations where an affected community may be subject to risks or adverse impacts from a Project, the proponent must undertake a process of consultation so as to provide the affected communities with an opportunity to express their views on the Project risks, impacts, and mitigation measures, as well as allow the proponents to consider and respond to them by adopting appropriate GRM at the community level.</p> <p><b>Meaningful participation:</b> For Projects with significant adverse impacts on affected communities, the consultation process must ensure that free, prior and informed consultation with affected communities occurs and that processes exist to facilitate participation by those affected.</p> <p>Apart from such a consultation process, the Project proponents are also to establish a Grievance Redress Mechanism, which will allow the affected communities’ concerns and grievances about the Project proponent’s environmental and social performance to be received and allow for steps to be taken to resolve the same.</p> <p><b>Broader stakeholder engagement:</b> The proponent must identify and engage with stakeholders that are not directly affected by the Project but those that have established relationships with local communities and/or interest in the Project – local government, civil society organizations, etc. – and establish a participatory dialogue for informed decision.</p>

CONFIDENTIAL

## 10.0 Environmental and Social Action Plan (ESAP)/Corrective Action Plan (CAP)

Environmental Social Corrective Action Plan (ESCAP) outlines specific steps and recommendations for the Project proponent will take to address the various environmental and social issues identified during assessments and audits. ESCAP typically includes various key environmental and social issues, impacts, mitigation measures, timeline. Monitoring frequency and assigned responsibilities. Below Table 10-1 represents the identified key issues with mitigation measures to be adhered by the Project proponent.

After identifying the gaps based on the assessment, audits and review of ESIA and ESMS documents, the gaps are further subjected to the priority evaluation of using risk matrix. The identified gaps are categorized according to their priority levels. The priority levels determined through risks associated to gaps, non-compliances and delay in Project timeline.

Level	Definitions
LOW	<ul style="list-style-type: none"> <li>No associated E&amp;S risks or the associated risks are negligible or insignificant.</li> <li>Risks or gaps have the potential to delay timelines for less than 1 month.</li> </ul>
MEDIUM	<ul style="list-style-type: none"> <li>There exist E&amp;S risks of not addressing the gap and this risk has moderate impact.</li> <li>Risks or gaps have the potential to delay timelines for 1 to 3 months.</li> </ul>
HIGH	<ul style="list-style-type: none"> <li>The associated risks of not addressing the gap are of major significance.</li> <li>Risks or gaps have the potential to delay timelines for over 3 months.</li> </ul>

### Corporate Social Responsibility or Development Initiative of the project proponent :

It is a development initiative on the part of the project proponent under its social responsibility and development commitment. The expenses that result from the corrective action plan are to be borne by the Project Proponent. The project proponent may consider development intervention following any identified needs in its area of operation through implementation of its various development initiative as per its planned activity.

Given the present project context, the project proponent can consider proposed development intervention under its correction action plan based on the identified gaps from the ESDD study.

Table 10-1 Environmental and Social Corrective Action Plan (ESCAP)

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<b>AIIB ESS 1: Environmental and Social Assessment and Management</b>						
<b>Environmental and Social (E&amp;S) Policy</b>	<b>MEDIUM</b>	<p>It is recommended that a Project - specific E&amp;S policy will be developed covering the following items:</p> <ul style="list-style-type: none"> <li>The Project’s adherence and commitment to National and International Environmental, Health, Safety and Social standards.</li> <li>The Project’s social policy which includes an approach and commitment on contributing through investing to community development and overarching labour policy.</li> </ul>	<ul style="list-style-type: none"> <li>Review and benchmark against national and international E&amp;S standards.</li> <li>Develop and draft the E&amp;S policy.</li> <li>Engage with stakeholders for feedback and approval.</li> <li>Implement the policy and ensure adherence through regular training and updates.</li> <li>Establish a monitoring and reporting system to track compliance and performance.</li> </ul>	WTE Power Plant North Dhaka Private Limited in consultation with concerned EHS department.	To be completed during construction phase and will be maintained throughout the Project life cycle.	Monthly
<b>Waste management</b>	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>To ensure compliance with the AIIB ESF, 2022, the Waste Management Plan is to be revised and incorporated into both the Construction Environmental and Social Management Plan (CESMP) and the Operational Environmental and Social Management Plan (OESMP). It is recommended that the updated plan align with the waste management measures outlined in the AIIB ESF, 2022.</li> </ul>	<ul style="list-style-type: none"> <li>Review the current Waste Management Plan and identify gaps.</li> <li>Integrate waste management measures as per AIIB ESF, 2022 &amp; Solid Waste Management Rules 2021.</li> <li>Update CESMP and OESMP accordingly.</li> <li>Conduct training for staff on updated procedures.</li> <li>Monitor waste management practices and adjust, as necessary.</li> </ul>	WTE Power Plant North Dhaka Private Limited in consultation with Waste Management Department.	To be completed during construction phase and will be maintained throughout the Project life cycle.	Monthly
<b>Air quality</b>	<b>MEDIUM</b>	<p>To reduce emissions and ensure compliance with environmental regulations, following technologies are recommended:</p> <ol style="list-style-type: none"> <li>Install and maintain high-efficiency particulate air (HEPA) filters and Best Available Technologies (BAT) in compliance with International Frameworks to reduce particulate matter and sulphur dioxide emissions.</li> <li>NOx emissions is to be carried out as per Best Available Technologies (BAT) in compliance with International Frameworks.</li> </ol>	<ul style="list-style-type: none"> <li>Install HEPA filters and Best Available Technologies (BAT) in compliance with International Frameworks.</li> <li>NOx control is to be carried out as per Best Available Technologies (BAT) in compliance with International Frameworks.</li> <li>Use activated carbon injection systems for heavy metal and dioxin capture.</li> <li>Develop and implement an Air Quality Management Plan (Refer to ESIA report).</li> <li>Enhance monitoring parameters, including frequency, methods, locations, and alert</li> </ul>	WTE Power Plant North Dhaka Private Limited in consultation with Waste Management Department.	To be completed during construction phase and will be maintained throughout the Project life cycle.	Monthly

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
		iii. Implement activated carbon injection systems to capture heavy metals and dioxins.  In addition to providing an Air Quality Management Plan (if required), following measures are recommended:  iv. The HSEMP (Health, Safety & Environment Management Policy) should specify the impacts of silica and dust emissions and include control measures to protect workers and surrounding communities.  v. Improve monitoring parameters for the construction and operation phases by including more frequent monitoring, more details on the monitoring methods, locations, and alert levels, as well as communication channels with local communities.	levels in accordance with the Air Pollution Control Rules 2022 (APCR, 2022), World Health Organization (WHO) and Ambient Air Quality Guideline Values 2021.  <ul style="list-style-type: none"> <li>UK Environmental Agency Environmental Standard (UK EAES)</li> <li>Establish communication channels with local communities.</li> <li>Include silica and dust emission impacts and control measures in the ESIA and HSEMP.</li> </ul>			
<b>Greenhouse Gas (GHG) Emissions</b>	MEDIUM	<ul style="list-style-type: none"> <li>As the estimated emissions are &gt;25,000tpa, monitoring procedures should be developed in order to quantify GHG emissions annually (Ref: GHG study report by WtE Power Plant North Dhaka- Carbon emissions are 270,200.00 tons and Methane &amp; Nitrous Oxide emissions is 13,600 tons)</li> </ul>	<ul style="list-style-type: none"> <li>Implement monitoring systems to track GHG emissions.</li> <li>Regularly review and update monitoring methods to ensure accuracy.</li> <li>Report annual GHG emissions and ensure transparency.</li> <li>Identify and implement measures to reduce GHG emissions where possible (It will be incorporated in the mitigation measure chapter of ESDD report)</li> </ul>	WtE Power Plant North Dhaka Private Limited in consultation with EHS department.	To be completed during construction phase and will be maintained throughout the Project life cycle.	Monthly
<b>Water Resources</b>	MEDIUM	<ul style="list-style-type: none"> <li>Develop Sustainable Water Management Plan detailing management system to long term impacts on the aquifers &amp; dependency on ground water.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct a thorough assessment of the current water usage and its impact on local aquifers.</li> <li>Develop strategies to reduce dependency on groundwater, including rainwater harvesting and water recycling methods.</li> <li>Implement monitoring systems to track water usage and aquifer levels.</li> <li>Establish guidelines for sustainable water usage practices in accordance with                             <ul style="list-style-type: none"> <li>Bangladesh Water Act, 2013</li> <li>Bangladesh Water Rules, 2018</li> </ul> </li> </ul>	WtE Power Plant North Dhaka Private Limited in consultation with EHS department.	To be completed during construction phase and will be maintained throughout the Project life cycle.	Monthly
<ul style="list-style-type: none"> <li>The Project Proponent plans to install three deep tube wells for the abstraction of groundwater for the emergency purpose. Emergency here refers to situations where the primary water source, particularly surface water, becomes unavailable or insufficient, especially during the dry season. This</li> </ul>						



Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<p>includes seasonal shortages and unexpected disruptions, such as infrastructure failures limiting access to water.</p> <ul style="list-style-type: none"> <li>For the remainder of the year, the Project will source water from the Karnatali river to meet its operational needs.</li> </ul>			<ul style="list-style-type: none"> <li>National River Protection Commission Act, 2013</li> <li>Protection and Conservation of Fish Act, 1950 and its Amendment in 1982 and Rules, 1985</li> </ul> <ul style="list-style-type: none"> <li>Regularly review and update the water management plan based on monitoring data and feedback.</li> <li>Engage with local communities and stakeholders to ensure transparency and collaboration in water management efforts.</li> <li>Detailed plan will be given in the mitigation measures chapter of ESDD report.</li> </ul>			
<p><b>Biodiversity &amp; Natural habitats</b></p> <ul style="list-style-type: none"> <li>The Biodiversity Management Plan (BMP) does not adequately align with the specific baseline conditions in the Project area.</li> <li>The BMP currently lacks targeted measures focused on the protection of endangered bird species, River Gangetic Dolphins, and other sensitive aquatic species.</li> <li>There is insufficient integration of detailed biodiversity protection measures into the contractor's ESMP, with limited applicability to all contractors and sub-contractors working on-site.</li> <li>The ESMS currently lacks robust verification practices for evaluating primary suppliers and managing biodiversity risks</li> </ul>	<p><b>MEDIUM</b></p>	<p>Provide additional detailed information on the implementation of mitigation measures to reduce collision risks for avian fauna.</p> <p>Prepare the Biodiversity Management Plan (BMP) to:</p> <ul style="list-style-type: none"> <li>Align more closely with the specific baseline conditions in the Project area.</li> <li>Incorporate findings from the baseline studies.</li> <li>Include targeted measures for the protection of: Endangered bird species, River Gangetic Dolphins, and other fish species.</li> <li>Need to Incorporate detailed biodiversity protection measures into the contractor's Environmental and Social Management Plan (ESMP), ensuring these procedures apply to all contractors and sub-contractors working on-site. The Environmental and Social Management System (ESMS) must include robust verification practices to evaluate primary suppliers and implement actions to manage and control biodiversity risks throughout the supply chain. This comprehensive approach will safeguard biodiversity across all project-related activities and associated supply networks.</li> </ul>	<ol style="list-style-type: none"> <li>Conduct detailed baseline studies to assess current biodiversity conditions.</li> <li>Implement mitigation measures to reduce collision risks for avian fauna, such as bird diverters and habitat restoration.                             <ul style="list-style-type: none"> <li>Conduct specific studies to assess collision risks for avian fauna, particularly focusing on flight paths and potential impact zones.</li> <li>Use findings to inform the design and placement of mitigation measures.</li> </ul> </li> <li>Develop a BMP that aligns with baseline conditions and incorporates specific protection measures for endangered species and aquatic habitats.                             <ul style="list-style-type: none"> <li>Align the BMP closely with the baseline findings and collision risk assessments.</li> <li>Include specific actions and timelines for implementing biodiversity conservation measures.</li> <li>Define roles and responsibilities for implementing the BMP, including coordination with contractors and subcontractors.</li> </ul> </li> </ol>	<p>WTE Power Plant North Dhaka Private Limited in consultation with EHS department.</p>	<p>To be completed during construction phase and will be maintained throughout the Project life cycle.</p>	<p>Monthly</p>



Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
throughout the supply chain.			<p>4. Integrate biodiversity protection measures into the ESMP for all contractors and subcontractors, ensuring compliance through robust verification and management practices (Detailed measures will be given in the ESDD report)</p> <ul style="list-style-type: none"> <li>• Incorporate targeted protection measures for endangered bird species, River Gangetic Dolphins, and other vulnerable aquatic species.</li> <li>• Implement habitat restoration or enhancement projects to improve local biodiversity and support species conservation.</li> </ul> <p>5. Establish regular monitoring and reporting mechanisms to track biodiversity impacts and compliance with mitigation measures. Develop a monitoring plan to assess biodiversity impacts and compliance with BMP measures aligned with –</p> <ul style="list-style-type: none"> <li>• AIB ESF, 2022,</li> <li>• Wildlife (Conservation and Security) Act, 2012,</li> <li>• Forests Act, 1927 and its amendment in 1982, 1989, 2000 and 2018,</li> <li>• Biodiversity Act, 2017,</li> <li>• Ecologically Critical Areas (ECAs) Management Rules, 2016 and</li> <li>• Protected Area Management Rules, 2017</li> </ul> <p>6. Implement regular internal reporting mechanisms to stakeholders and regulatory authorities on biodiversity performance and mitigation efforts.</p>			
<p><b>Social Impacts</b></p> <ul style="list-style-type: none"> <li>• Out of total 607 persons surveyed from 146 identified households in the Project influenced area, about 303 females (i.e.,</li> </ul>	MEDIUM	<ul style="list-style-type: none"> <li>• A total of 47 impacted individuals have been identified for skill enhancement program under socio-economic benefits who have been categorized under different trade-wise skill development training program such as computer-based training (Graphics/photoshop), driving,</li> </ul>	<ul style="list-style-type: none"> <li>• WtE Power Plant North Dhaka Pvt Ltd may provide assistance to take up skill enhancement program for 47 identified impacted individuals in line with AIB’s ESS-1 guidelines.</li> </ul>	WTE Power Plant North Dhaka Private Limited in collaboration with Hired Consultant or NGO in consultation with 47 identified individuals.	Proposed activity to initiated during construction phase and will be continued throughout the project life cycle based on the demand and the number of identified candidates.	Monthly

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<p>cent % of the surveyed female population) are restricted to work outside their homes due to religious and socio-cultural barriers and out of total 303 female surveyed, only 5 women from 5 households (i.e., 1.5% of total 303) have stated their involvement in household decision making activity, reflecting the practice of male dominance in household decision process in Project impacted areas.</p> <ul style="list-style-type: none"> <li>Out of total 146 households surveyed, a total of 47 impacted individuals have been identified for proposed skill enhancement program which has been furnished in the ESIA report.</li> </ul>		<p>tailoring, cooking/bakery, technical/mechanical livestock and agro-based training.</p> <ul style="list-style-type: none"> <li>The details of trade-wise categorization of 47 impacted individuals are furnished who can be considered under initiative / assistance provided by the project proponent:                             <ul style="list-style-type: none"> <li>Computer-based training (Graphics/Photoshop) - 11</li> <li>Driving - 5</li> <li>Tailoring - 6</li> <li>Cooking/Bakery - 4</li> <li>Technical/Mechanical - 7</li> <li>Livestock -4</li> <li>Agro-based training - 6</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Project Proponent needs to hire either consultant or reputed NGOs to coordinate, develop and implement the proposed training programs.</li> <li>The hired consultant or NGO can network with concerned government department to identify appropriate skill development training program for the proposed trade under skill enhancement and livelihood development program.</li> </ul>			
<ul style="list-style-type: none"> <li>Nine women rag-pickers out of total forty, have been considered as vulnerable following their representation as women-headed households as per defined vulnerability criteria.</li> <li>40 ragpickers as well as rag-pickers in waste supply chain are also considered vulnerable due to adverse impact on their existing livelihood associated with the WtE project.</li> </ul>	MEDIUM	<ul style="list-style-type: none"> <li>Given the severity of adverse impact on existing livelihood of rag pickers, due to land acquisition activity, all the 40 rag pickers should be considered under proposed Income/livelihood restoration plan.</li> <li>In addition, 9 identified vulnerable women rag-pickers out of 40 ragpickers, will also be considered for additional support in form of seed money to support individual venture along with proposed income/livelihood restoration plan.</li> </ul>	<ul style="list-style-type: none"> <li>WtE Power Plant North Dhaka Pvt Ltd will develop entitlement matrix for all 40 impacted ragpickers and an additional entitlement matrix for 9 identified women rag pickers.</li> <li>A comprehensive Income/Livelihood Restoration Plan for 40 impacted ragpickers has to be developed and implemented to restore income of those impacted ragpickers. Out of 40 rag pickers, the Project Proponent may anticipate 20 ragpickers (50% of 40) may be absorbed by the DNCC due to the demand and volume of work and remaining 20 ragpickers (50% of 40) will be considered for Income/Livelihood Restoration Plan comprising wage development intervention.</li> </ul>	WTE Power Plant North Dhaka Private Limited in collaboration with representative of DNCC, DC office and local village administration.	Proposed to be complied during construction phase and implemented throughout the Project life cycle.	Monthly

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
			<ul style="list-style-type: none"> <li>The said activity must comply in line with IFI's standard practice and AIB's ESS 2 guidelines.</li> </ul>			
<ul style="list-style-type: none"> <li>The ESIA report has highlighted that, a total of ten individuals out of total twenty-one persons, have been identified with eyesight problems and are considered vulnerable based on disability criteria that encompasses eyesight, mobility, speech disorder, mental health, and hearing loss.</li> </ul>	MEDIUM	<ul style="list-style-type: none"> <li>An eye check-up camp should be organized for identified ten impacted individuals with eyesight as an initiative of the Project Proponent.</li> </ul>	<ul style="list-style-type: none"> <li>A field study can be undertaken to verify the actual number of impacted households with eye complications in Project impacted villages.</li> <li>A strong linkage between Project Proponent and local government hospital needs to be built to facilitate programmatic linkages with respect to health services throughout the Project life cycle.</li> <li>Based on the outcome of the assessment, either an eye camp or doctor's consultation can be arranged by the Project Proponent to address the issue of eye problems of identified individuals.</li> <li>A regular reporting mechanism will be developed to follow-up the status of identified individuals with eye problems.</li> <li>WTE Power Plant North Dhaka Private Limited will conduct eye check-up camp for inhabitants across Project villages with special emphasis upon 10 identified individuals with eye-sight problems.</li> <li>The Project Proponent will develop network with government hospital in order to continue multiple eye-check-up camps for deserving candidates identified across Project areas.</li> </ul>	WTE Power Plant North Dhaka Private Limited in collaboration with local government hospital can organize eye check-up camp for identified ten impacted individuals with eye-sight complication.	Proposed to be complied during construction phase of the project.	Weekly till one year.
<ul style="list-style-type: none"> <li>Thirty-nine elders constituting 7.8% of the total five hundred surveyed individuals, are deemed vulnerable due to their criteria of being 60 years old and above.</li> </ul>	MEDIUM	<ul style="list-style-type: none"> <li>An assessment of thirty-nine identified elders needs to be carried out to explore any potential opportunity in support of impacted elders and facilitate them in availing benefits of government schemes under elderly development program in the Project area in collaboration with the Project Proponent.</li> </ul>	<ul style="list-style-type: none"> <li>A field assessment is proposed for identified thirty-nine elders to verify the actual number of impacted elders based on old age criteria in Project influenced villages.</li> <li>A strong linkage between Project Proponent and concerned government departments needs to be developed to facilitate identified elders in availing benefits of various elderly schemes of the government in support of social security.</li> </ul>	WTE Power Plant North Dhaka Private Limited needs to work closely with local village authorities to ensure that government initiatives aimed at benefiting eligible elderly citizens (39) are effectively implemented as part of community development efforts.	Proposed to be complied during construction and operation phase of the Project with periodic monitoring.	Fortnightly

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
			<ul style="list-style-type: none"> <li>A consistent reporting system will be set up to track the progress of identified elderly individuals throughout the Project cycle.</li> <li>WTE Power Plant North Dhaka Private Limited will take initiative to explore govt-supported social security schemes (i.e., old age pension, widow pension etc.) earmarked for elders and facilitate identified elders particularly 39 identified elders to avail the benefits of appropriate social security program.</li> </ul>			
<ul style="list-style-type: none"> <li>The prevention of infectious disease guide particularly HIV/AIDS in local language has not been developed by the Project Proponent to promote community health throughout Project cycle.</li> </ul>	MEDIUM	<ul style="list-style-type: none"> <li>A guide on preventive measures against infectious diseases including HIV/AIDS should be prepared in local language to generate basic health awareness amongst workers as well as local community under community health &amp; safety initiative.</li> </ul>	<ul style="list-style-type: none"> <li>WTE Power Plant North Dhaka Private Limited's HSE Head will take initiative to orient workers about basic preventive measures of infectious diseases particularly HIV/AIDS in local language preferably before construction or just commencement of construction phase.</li> <li>The Project Proponent will distribute infectious disease guidebook to workers (in local language) .</li> <li>A copy of booklet or guide on infectious diseases including HIV/AIDS will be shared among workers and local community in Bengali language.</li> <li>A periodic refresher training on the same topic will be organized by the Project Proponent for workers including contractors.</li> <li>A regular reporting mechanism will be in place to review the status of health and safety of the workers throughout the Project life cycle.</li> </ul>	WTE Power Plant North Dhaka Private Limited should proactively initiate the development of a guidebook on preventing infectious diseases, particularly focusing on HIV/AIDS, in both Chinese and Bengali language to be used by workers throughout the Project lifecycle.	Proposed to be completed during construction phase of the Project along with periodic monitoring.	Fortnightly
<ul style="list-style-type: none"> <li>While the report mentions, identified trades that support the proposed skill development program for interested youth, it does not specify the exact number of youths involved in the income generation</li> </ul>	MEDIUM	<ul style="list-style-type: none"> <li>The Project Proponent should conduct a market survey to explore potential trades and determine the number of interested young people from Project villages who could participate in a skill enhancement training program. This initiative aims to support income-generating activities as part of the Project Proponent's assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Survey to be conducted at the Project villages to identify number of interested youth to undergo skill development program linking with various skill development and capacity building initiative of the government.</li> <li>Develop linkages with concerned government departments to initiate</li> </ul>	WTE Power Plant North Dhaka Private Limited should collaborate closely with local village authorities to ensure the successful implementation of potential skill development program for identified youth to promote development of local economy.	Proposed to be completed during construction as well as operation phase of the Project along with periodic monitoring	Fortnightly

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
activities of the Project Proponent.			training program for interested youth on selected trades. <ul style="list-style-type: none"> <li>Facilitate training for identified youth and carry out periodic monitoring and reporting of the training program under the initiative of the Project Proponent.</li> <li>Facilitate trainees to get potential employment opportunity in collaboration with government departments after successful completion of the training in support of generation of income amongst youth in Project areas.</li> <li>A regular reporting mechanism will be in place to review the employment status of selected youth throughout the Project life cycle.</li> </ul>			
<b>Labour Camp</b> <ul style="list-style-type: none"> <li>No health check-up was carried out by the contractor for local labors hired for the Project before induction.</li> <li>Absence of proper hygiene and cleanliness at the labour camp for local labors</li> <li>No garbage dumping container was present in each room.</li> <li>Neither any bed nor any bedding mattress was provided to labors at the labour camp.</li> <li>Neither any mosquito net nor any sitting arrangement is provided for labors at the camp.</li> <li>No entertainment facility was provided to labors at the camp.</li> <li>The area of rest room does not have any fan facility.</li> </ul>	HIGH	<ul style="list-style-type: none"> <li>Project Proponent needs to ensure that all its regulatory requirements with respect to health and safety protocols of labour at Project site as well as at Labour Camp particularly for local labour are being complied as per national, ILO and AIIB's ESF framework.</li> <li>Contractor needs to prioritize and implement health &amp; Safety measures for every worker engaged either permanent or part-time, either local or migrant in consistent with the applicable national as well as international health &amp; safety protocols to promote health &amp; safety measures across Project life cycle.</li> <li>A tentative list of actions is furnished below:</li> <li>Before induction of any worker/labour, basic health check-up is must conducted for every worker aligning with ILO protocol.</li> <li>Either 3 or 4 workers should be accommodated in each well-ventilated room depending upon the size of the room to avoid any congestion.</li> <li>Monthly check-up is proposed for all the workers throughout the Project cycle to promote better health of the workers at the camp.</li> <li>Dustbin must be provided to every accommodation (each room) along with regular and hygienic disposal of domestic wastes.</li> </ul>	<ul style="list-style-type: none"> <li>Project Proponent's EHS Head must ensure that all its hired contractors as well as sub-contractors need to prioritize and implement health &amp; Safety measures for every worker engaged either permanent or part-time, either local or migrant in consistent with the applicable national as well as International health &amp; safety protocols and AIIB's ESS-1 guidelines to promote health &amp; safety measures at Project site as well as labour camp throughout Project life-cycle.</li> <li>The Project Proponent needs to establish a strong rapport with the local government hospital and health clinic in order to avail benefits of periodic health check-up for its workers to promote better health.</li> <li>All the proposed measures should be implemented by the Project Proponent and hired contractors for workers/employees at the labour camp in line with applicable National as well as ILO's guidelines.</li> <li>A regular reporting cum follow-up mechanism will be in place to monitor systematic implementation of all the proposed guidelines to promote better</li> </ul>	WTE Power Plant North Dhaka Private Limited in collaboration with contractors and local hospital to ensure health & safety of labors at labour camp through implementation of appropriate regulatory requirements along with periodic monitoring in compliance with the national and ILO guidelines.	Throughout the Project lifecycle.	Fortnightly.

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<ul style="list-style-type: none"> <li>Each room is congested with a greater number of workers beyond permissible limit.</li> <li>The likelihood of snake biting is envisaged as the camp is located close to the canal surrounded with bushes and weeds</li> </ul>		<ul style="list-style-type: none"> <li>Toilet must be cleaned every week to ensure health &amp; hygiene of workers at the camp.</li> <li>Adequate facilities for washing cloths and personal hygiene should be provided to workers at the labour camp.</li> <li>Either Mosquito net or window net must be provided to every room to prevent any vector-borne diseases, particularly malaria.</li> <li>Every worker must be provided with bed/mattress and fan at labour camp to meet the basic requirement of the labour camp under sleeping arrangement.</li> <li>Adequate facilities for washing clothes and personal hygiene should also be provided at the camp.</li> <li>The existing rest room for worker must be upgraded with fan, light and safe drinking water facility along with proper resting arrangement.</li> <li>A reasonable level of privacy should be maintained for workers considering the noise level and personal space at the labour camp.</li> <li>Recreational facilities may be provided at labour camp to ensuring entertainment facility for labors at the camp.</li> <li>Build a sustainable relationship with local government hospital in availing emergency health services throughout the Project lifecycle.</li> </ul>	<p>health and working conditions of the workers in labour camp across the entire Project cycle.</p>			
<p><b>Labour &amp; working conditions.</b></p> <ul style="list-style-type: none"> <li>Health &amp; Safety of the workers must be given special priority to enhance productivity as well as regulatory compliance at the workplace across entire Project cycle.</li> <li>The working hours of local workers found to be beyond normal permissible limits that may likely to harm health of the workers leading to reduced productivity as well as non-</li> </ul>	HIGH	<ul style="list-style-type: none"> <li>Project Proponent should ensure that all the applicable and regulatory guidelines associated with working conditions as well as health &amp; safety protocols of labour are compiled throughout the Project life cycle.</li> <li>Project Proponent should ensure that all the applicable and required guidelines and policies are in place as per national, international and AIB's regulatory framework in all phases of project.</li> <li>All the approved contractor needs to adhere to the applicable International Labour Organization (ILO) and World Bank Group Environmental Health &amp; Safety (EHS) guidelines to promote</li> </ul>	<ul style="list-style-type: none"> <li>The Project Proponent must ensure all contractors and subcontractors comply with relevant ILO, World Bank Group EHS, and AIB health and safety guidelines throughout the project lifecycle, promoting worker safety at both the site and labor camps. Key measures include:                         <ul style="list-style-type: none"> <li>Developing a grievance redressal mechanism at the project site and labor camps to address harassment and violence, ensuring equal treatment for male and female workers.</li> <li>Creating and distributing a workers' code of conduct</li> </ul> </li> </ul>	<p>WTE Power Plant North Dhaka Private Limited in collaboration with EPC and other hired contractors to foster and monitor safe and healthy working condition throughout the Project lifecycle in line with national, ILO and other applicable guidelines.</p>	<p>Throughout the Project lifecycle.</p>	<p>Fortnightly.</p>



Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<p>compliance of standard working hour protocol.</p> <ul style="list-style-type: none"> <li>The pay slips issued to local labors are below standard in Chinese language and do not meet the expected level of professionalism required in a corporate environment.</li> <li>Discrimination between Chinese and local Labour camp was observed with respect to basic amenities and facilities in line ILO and national guidelines of labour accommodation.</li> <li>Local workers must be provided with basic minimum wages as per Minimum Wages Act of Bangladesh along with other applicable facilities in line with international protocols by the contractors.</li> <li>Work security of workers engaged under contractor must be ensured across Project in line with applicable guidelines of contractual workers.</li> <li>The Project Proponent does not have any act or legal instrument in place to prevent sexual harassment of women at workplace.</li> <li>The Project Proponent does not have annual training calendar for its workers and contractors.</li> <li>The Project Proponent did not share any workers'</li> </ul>		<p>health &amp; Safety of the workers throughout the Project cycle.</p> <ul style="list-style-type: none"> <li>The working conditions must be free from any hazards and harms ensuring appropriate use of PPE at the site throughout the Project cycle under supervision of contractors using worker's checklist at the site.</li> <li>The applicable working hours for workers must be respected in order to prevent overwork and ensure adequate rest periods, emphasizing regulation on maximum weekly hours, overtime pay, and rest breaks in line with ILO as well as national guidelines of workers.</li> <li>The Project Proponent should prepare pay slips in the local language, ensuring all sections are completed accurately to clarify payments, deductions, PF contributions, medical benefits, and other entitlements.</li> <li>No discrimination against workers associated with race, social status, gender, religion, disability should be ensured across Project life cycle by the Project Proponent as well as contractor in line with applicable guidelines and policy of the Project Proponent.</li> <li>Ensuring provision of basic minimum wages for workers and applicable benefits associated with healthcare, pension, health insurance and social security in line with applicable guidelines and laws by the contractors and timely supervised by the client.</li> <li>Ensure work protection and security of local workers against unfair dismissal/removal and ensuring, workers have easy access to transparent remedies in case of unjust treatment by employer and it must be adhered to the applicable national and ILO protocol.</li> <li>In order to ensure safe and secured workplaces for women, the Project Proponent needs to develop Prevention of Sexual Harassment (POSH) Policy, to combat any incidence of sexual harassment against women or gender-based violence (GBV) at workplace in line with</li> </ul>	<p>guidebook in Bengali and Chinese, along with orientation sessions to raise awareness.</p> <ul style="list-style-type: none"> <li>Establishing an annual training calendar in consultation with department heads, hiring competent trainers to conduct regular training in local languages, and providing certificates upon completion.</li> <li>Implementing measures such as PPE use, standard working hours, health checkups, and adherence to ISO 45001, national standards, and ILO guidelines.</li> <li>Monitoring compliance through a regular reporting mechanism to ensure health, safety, and proper working conditions.</li> <li>Developing a POSH policy with the assistance of a consultant, ensuring safe working environments for women, and implementing grievance mechanisms to handle gender-based violence.</li> </ul> <ul style="list-style-type: none"> <li>Conducting periodic refresher training and follow-up on skill development and code of conduct implementation, supported by systematic reporting throughout the project cycle.</li> </ul>			

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
code of conduct in local language among its workers at workplace.		international anti-harassment laws and AIIB’s ESF protocol, ensuring safe working place. <ul style="list-style-type: none"> <li>An annual training calendar must be developed for both permanent as well as temporary and periodic training program for enhancement of skills to advocate employability and job satisfaction among workers to be carried out as per project’s objective and it has to be implemented through contractors as well.</li> <li>The Project Proponent needs to share workers’ code of conduct in local language amongst its workers along with orientation about the importance of workers’ code of conduct to make every worker know about company’s code of conduct for workers.</li> </ul>				
<b>Stakeholder engagement and Grievance redressal</b> <ul style="list-style-type: none"> <li>Based on the review of the Stakeholder Engagement Plan (SEP) in Chapter-7 of the ESIA report, it has been noted that the outcome of discussions with community, local administration government departments, non-government organizations, and community leaders were captured but a systematic stakeholder engagement plan has not been proposed that needs to be developed and integrated into the project planning and implementation process in line with AIIB’s ESF 2022 guidelines as reflected in the ESIA report.</li> </ul>	MEDIUM	<ul style="list-style-type: none"> <li>This Stakeholder Engagement Plan is proposed to be developed for the current Project design and capacity and is designed to facilitate information disclosure, consultation and participation and grievance redress mechanism. It will also ensure the transparency, meaningful consultation, inclusive, accessible in a culturally appropriate timebound manner while enabling the consideration of stakeholders’ views as part of decision-making process.</li> <li>It is also proposed that stakeholders will be categorized as direct as well as indirect based on their stake in the project and further, they will be classified in accordance with the level of influence (High, Medium &amp; Low) they have on the project as well as their priority to the WtE Power Plant North Dhaka Private Limited as referred to section 7.3 (Approach and Methodology for stakeholder mapping and analysis) of the ESIA report to understand the status of the their influence based on their category.</li> <li>The proposed Stakeholder Engagement Strategy will incorporate the following activities such as:                             <ul style="list-style-type: none"> <li>Discussion (FGD and Individual Consultation) will be conducted with the project affected people throughout the project cycle.</li> <li>Awareness campaign for all stakeholders</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Project Proponent needs to ensure that its stakeholder engagement plan is being implemented at all phases of Project to facilitate engagement of relevant stakeholder aligning with ISO 9001, IFC performance standard and AIIB’s regulatory requirement.</li> <li>Periodic consultation with relevant stakeholders to be carried out to ensure smooth implementation of stakeholder engagement plan at the Project level.</li> <li>The Project Proponent is required to implement GRM particularly at Project site including labour camp to address any issues arising during implementation of the Project in a transparent and timebound manner in line with AIIB’s regulatory framework.</li> <li>The Project Proponent needs to orient all the workers, contractors and sub-contractors about the process of GRM, appropriate use of grievance box and how to raise issue for timely resolution in a transparent manner.</li> <li>The Project Proponent needs to rework on the existing stakeholder engagement plan to ensure proper engagement of every</li> </ul>	WtE Power Plant North Dhaka Private Limited is required to work on the proposed stakeholder and community engagement plan in consultation with competent consultant to enhance the quality of the existing plan and also ensure to implement the same in line with applicable guidelines to witness positive outcome throughout the Project lifecycle.	Throughout the Project lifecycle	Fortnightly.



Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
		<ul style="list-style-type: none"> <li>- Formal interactions through periodic workshops, consultation sessions with wider stakeholders especially institutional ones such as other Government Department relevant NGOs,</li> <li>- Informal interactions during the construction phase and also during the operation.</li> <li>- Series of discussion through FGD and individual level consultation with the community people and women as well as people living near to the project area and doing cultivation will be consulted.</li> <li>• Periodically, the Project Proponent will organize formal workshops involving PAPs from communities, DoE, DNCC, W2E and representatives of other relevant departments/entities to share the progress and elicit the views of all the stakeholders for the improvement (as referred to Table 7.5 Stakeholder Engagement Needs of the ESIA report) the needs of the key stakeholders for engagement in the project implementation and the project activities.</li> <li>• The Proposed GRM for WTE Power Plant North Dhaka Pvt Ltd will address two main areas of the project such as.                         <ul style="list-style-type: none"> <li>○ GRM for Affected Persons. (APs).</li> <li>○ GRM for Workers.</li> </ul> </li> <li>• The proposed GRM for APs will have two steps:                         <ul style="list-style-type: none"> <li>○ Formation of site level committee.</li> <li>○ Formation of Project/Project Implementation Unit (PIU) Level committee.</li> <li>○ Formation of Grievance Redress Committee with involvement of EHS Manager, Site Supervisor, Safety Officer and Admin Officer of WTE Power Plant North Dhaka Pvt Ltd for affected persons is proposed at site level.</li> <li>○ Formation of Project/Project Implementation Unit (PIU) Level Grievance Redress Committee for Developer is proposed with engagement of EHS Manager, GR</li> </ul> </li> </ul>	<p>stakeholder of the Project across all the Project phases with explanation of area of engagement, type of engagement, frequency of engagement, responsibility and reporting mechanism aligning with ISO 9001 and IFC performance standard.</p> <ul style="list-style-type: none"> <li>• The Project Proponent further needs to strengthen existing GRM and ensure implementation of GRM both at corporate as well as community level as per proposed guidelines stated in ESIA report.</li> <li>• The Project Proponent is required to place grievance box (in local language) at all strategic locations at the local community to resolve any grievances raised due to the implementation of the Project throughout the Project life cycle.</li> <li>• An orientation cum awareness initiative on importance of grievance, the Project Proponent must organize steps of implementation of grievances mechanism and responsibility of grievance officer both at the corporate as well as community level to make everyone aware about the importance and implementation of GRM.</li> <li>• The grievance officer of the Project Proponent needs to be available to resolve any grievances being surfaced both at corporate as well as community level in a given time frame in a transparent and unbiased manner.</li> <li>• All the records and registers associated with grievances must be maintained and updated on a regular basis as a part of documentary evidence.</li> </ul>			

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
		<p>Officer, Project Director and Representative of PIU is also proposed for Project or PIU level.</p> <ul style="list-style-type: none"> <li>○ GRM for workers also proposed to enhance the efficient of the workers by ensuring importance and value of his/her concerns and complaints.</li> <li>○ Grievance boxes must be placed in project as well as site level.</li> <li>○ Receive and register a complaint with Grievance Officer.</li> <li>○ Record of Grievance Received.</li> <li>○ Assessment and address of complaint.</li> </ul>				
<p><b>Regulatory Compliance</b></p> <ul style="list-style-type: none"> <li>• The country (Bangladesh) does not currently have its own standard for measuring poverty as they follow UN defined poverty standard.</li> <li>• The country does not have any standard parameters for analysis of physical and chemical water properties.</li> <li>• The overtime system for workers not been introduced at the plant and migrant workers.</li> <li>• CMEC has indicated that they are in the process of developing several policies and plans, including a <ul style="list-style-type: none"> <li>○ Gender Equality and Empowerment Policy,</li> <li>○ Anti/Forced Child Labour Policy,</li> <li>○ Traffic Management Plan,</li> <li>○ Labour Camp Monitoring Plan,</li> </ul> </li> </ul>	<p><b>HIGH</b></p>	<ul style="list-style-type: none"> <li>• The Project Proponent needs to adhere to the country accepted poverty measurement standard in calculating poverty standard with respect to multi-dimensional poverty standard in all its area of intervention to substantiate clarification in support of defining poverty standard.</li> <li>• The Project Proponent needs to adhere to the country accepted standard parameters for analysis of physical and chemical water properties throughout its Project cycle to substantiate clarification in support of accepting this standard parameter.</li> <li>• The Project Proponent needs to develop Gender Equality and Empowerment Policy aligning with national and international standard protocols along with AIIB’s ESS 1 guidelines and encouraged to follow it throughout the Project lifecycle.</li> <li>• The Project Proponent needs to design Anti/Forced Child Labour Policy aligning with ILO protocols and AIIB’s ESS 1 guidelines and encouraged to follow it throughout the Project lifecycle.</li> <li>• The Project Proponent needs to prepare Traffic Management Policy aligning with National and International protocols and AIIB’s ESS 1 guidelines and encouraged to follow it throughout the Project lifecycle.</li> </ul>	<ul style="list-style-type: none"> <li>• The Project Proponent will adhere to Bangladesh Govt’s accepted defined parameters in support of various development programs earmarked for Below Poverty Line (BPL).</li> <li>• The Project Proponent is required to establish a comprehensive suite of policies, including an Anti-Forced Child Labour Policy, Traffic Management Policy, Labour Camp Monitoring Policy, CSR policy, and Human Rights Impact Assessment (HRIA) line with national, international and AIIB’s ESS 1 guideline in consultation with hired consultant or competent agency to ensure quality outcome.</li> <li>• The Project Proponent needs to ensure appropriate implementation of all the above-mentioned developed policies, timely reporting and monitoring preferably operation phase of the Project in line with applicable guidelines and regulatory requirements and AIIB’s ESS 1 guidelines.</li> <li>• The Project Proponent is required to develop and implement Gender Equality and Empowerment Policy with special focus on women workers with the help of hired consultant in line with AIIB’s ESS 1 guidelines across the entire Project cycle to advocate safe working condition.</li> </ul>	<p>WTE Power Plant North Dhaka Private Limited in consultation with competent consultant can develop various policies to meet national as well as international guidelines focusing AIIB’s mandate towards successful implementation of the Project with quality outcome throughout the Project life cycle.</p>	<p>Throughout the Project lifecycle.</p>	<p>Monthly</p>

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<ul style="list-style-type: none"> <li>○ CSR policy to promote ethical standards and social accountability,</li> <li>○ Human Rights Impact Assessment (HIRA) Policy, and</li> <li>○ Biodiversity Conservation and Management Policy.</li> </ul> <p>However, at the time of writing this report, these drafts/documents were not available for Black &amp; Veatch’s review.</p>		<ul style="list-style-type: none"> <li>• The Project Proponent needs to develop Labour Camp Monitoring Policy aligning with ILO protocols and AIIB’s ESS 1 guidelines and encouraged to follow it throughout the Project lifecycle.</li> <li>• The Project Proponent needs to design Corporate Social Responsibility (CSR) Policy and formulation of CSR committee aligning within national and international accountability of discharging social responsibility and AIIB’s ESS 1 guidelines and encouraged to follow it throughout the Project lifecycle.</li> <li>• The Project Proponent needs to prepare Human Rights Human Assessment (HIRA) Policy aligning with National and International protocols and AIIB’s ESS 1 guidelines and encouraged to follow it throughout the Project lifecycle.</li> <li>• The Project Proponent needs to design Bio-diversity conservation and management Policy aligning with national and international protocols and AIIB’s ESS 1 guidelines and encouraged to follow it throughout the Project lifecycle.</li> </ul>	<ul style="list-style-type: none"> <li>• The Project Proponent is required to develop Anti-Forced Child Labour Policy, Traffic Management Policy, Labour Camp Monitoring Policy, CSR policy with formation of CSR committee and Human Rights Impact Assessment (HIRA) Policy in line with national, international and AIIB’s ESS 1 guidelines in consultation with hired consultant or competent agency to ensure quality outcome and successful implementation of the project.</li> <li>• The Project Proponent needs to ensure appropriate implementation of all the developed policies throughout the Project cycle in line with applicable guidelines and regulatory requirements.</li> <li>• The Project Proponent must develop and execute a biodiversity conservation and management policy with the assistance from in-house professional, ensuring the preservation of biodiversity throughout all stages of the project, following AIIB’s ESS 1 guidelines.</li> </ul>			
<b>AIIB ESS 2: Land Acquisition and Involuntary Resettlement</b>						
<p><b>Disbursement of award/Compensation to landowners.</b></p> <ul style="list-style-type: none"> <li>• Based on the data available from the ESIA report, out of 242 landowners, 138 have received compensation, while 104 have not. The reasons for the non-issuance of compensation, as noted in the DC office award book, are as follows:                             <ol style="list-style-type: none"> <li>1) 88 landowners are involved in litigation, primarily disputes among property shareholders.</li> <li>2) 9 landowners reside</li> </ol> </li> </ul>	<b>HIGH</b>	<ul style="list-style-type: none"> <li>• Project Proponent needs to coordinate with both DNCC and DC office to collect detailed information about latest compensation status associated with impacted landowners. In case of disbursement of pending compensation, need to identify the actual number of impacted landowners and the reasons for non-disbursement of their compensation and tentative timetable for final disbursement of compensation. The entire initiative can be strengthened with active support of local administration, community leaders and local residents under stakeholder engagement plan.</li> <li>• The Project Proponent needs to re-organize community consultations at strategic locations in collaboration with local village administration and community leaders in presence of DNCC and DC officials to make the community particularly</li> </ul>	<ul style="list-style-type: none"> <li>• Project Proponent needs to collaborate with local village administration, community leaders, DNCC officials and representative from DC office to gather up to date information on the latest number of landowners who have either received compensation or those who have not till date and also to obtain a detailed explanation and a tentative timeline for final disbursement of compensation to all landowners.</li> <li>• The Project Proponent should maintain regular communication with the concerned officials of both DNCC and DC office, to ensure a clear understanding of the status of compensation of all the landowners involved in the project.</li> </ul>	WTE Power Plant North Dhaka Private Limited in collaboration with representative of DNCC, DC office and local village administration.	It depends on the availability of the concerned official of DC office.	Weekly visit to DC office to get appointment.

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<p>abroad.</p> <p>3) 7 landowners have mortgaged their land to a bank and will be eligible for compensation upon receiving a No Objection Certificate (NoC) from the bank.</p> <p>Additionally, all structure owners have been fully compensated.</p>		<p>impacted landowners aware about the implication and benefits of ARIPA,2017, the process, valuation of land parcel and applicable deduction associated with acquired land as per defined land category of Bangladesh.</p>	<ul style="list-style-type: none"> <li>The Project Proponent should organize a community consultation including question –answer session at strategic locations of the Project locations in collaboration with local village administration and community leaders in presence of DNCC and DC officials. This aims to inform affected landowners about ARIPA, 2017, including the land valuation process of the different land categories including structures and trees and applicable deductions according to the land acquisition act of Bangladesh.</li> </ul>			
<p><b>Land dependency of sharecropper on TL</b></p> <ul style="list-style-type: none"> <li>The transmission line (TL) spans a distance of 5.99 km, with 27 proposed towers requiring the acquisition of 89.063 decimals (0.89 acres) of private land through a willing buyer-seller arrangement. This land is located northwest of the WtE Plant along the Karnatali riverbank. The compensation process is governed by the Power Grid Company of Bangladesh (PGCB); however, the consultant's report emphasizes the need to apply the National Electricity Rules, 2020, and Electricity Act, 2018, which requires clarification regarding the appropriate legal framework.</li> <li>Key gaps identified in the ESIA report: <ul style="list-style-type: none"> <li>- An Environmental and Social Management</li> </ul> </li> </ul>	HIGH	<ul style="list-style-type: none"> <li>As the transmission line impacts are ambiguous at this stage, it is recommended that a Resettlement Planning Framework (RPF) be developed to address any potential impact due to land acquisition/procurement for Transmission line. The RPF will also cover issues related to compensation for acquisition of land and loss of trees, crops, etc. if any.</li> <li>The Project Proponent needs to identify the exact number of landowners to be impacted due to acquisition of land parcel for Transmission Line for timely disbursement of compensation as per Power Grid Company of Bangladesh (PGCB) guidelines before the initiation of erection of tower.</li> <li>The Project Proponent needs to confirm and clarify the applicability of right Act/Guidelines governing the land acquisition and award of compensation to impacted landowners for TL as the report contradicts with Electricity Rules 2020, Electricity Act,2018 and PGCB.</li> <li>The Project Proponent is required to undertake a detailed assessment of fifty impacted trees of different sizes identified on RoW of TL in order to identify the exact number of owners of those trees and its associated compensation along with detailed process of estimation in line with applicable laws/regulations.</li> </ul>	<ul style="list-style-type: none"> <li>The Project Proponent needs to develop RPF and carry out the proposed activities mentioned under corrective action plan column, in line with applicable PGCB guidelines and AIIB's ESS-2 protocol.</li> <li>Project Proponent needs to conduct community consultation exercise with impacted landowners in order to assess the potential impact, listen to the impacted landowners/local community's view with respect to land acquisition and compensation and their expectation from the Project using stakeholder engagement strategy.</li> <li>An Independent evaluator can be hired by the Project Proponent to cross verify the compensation amount proposed against each impacted landowner and dependent sharecroppers around TL corridor and will also prepare entitlement matrix for the impacted individuals based on the RPF.</li> <li>The Resettlement Planning Framework would also guide the mitigation measures, including compensation, for impacts of any Associated Facilities (e.g. Access Roads, Water Pipelines etc.)</li> </ul>	<ul style="list-style-type: none"> <li>WTE Power Plant North Dhaka Private Limited in collaboration with local village administration and impacted landowners.</li> <li>WTE Power Plant North Dhaka Private Limited in consultation with PGCB.</li> <li>WTE Power Plant North Dhaka Private Limited in collaboration with impacted landowners, community leaders and local village administration.</li> <li>WTE Power Plant North Dhaka Private Limited in collaboration with impacted landowners and local village administration.</li> <li>WTE Power Plant North Dhaka Private Limited in consultation with local village administration, community leaders, land broker, deed writer and local community.</li> <li>WTE Power Plant North Dhaka Private Limited in consultation with local</li> </ul>	Proposed to be accomplished within 3 months from now.	Weekly

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<p>Framework (ESMF) has been prepared for TL as a part of ESIA, but is preliminary in nature due to non-identification of land parcels required for tower footings, their owners and sharecroppers, etc. -Approximately 50 trees within the TL's right of way may be impacted, but details on ownership and compensation are missing.</p> <p>-- The market value of the private land for TL is based on local consultations but requires cross-verification to ensure landowner satisfaction.</p> <p>- The valuation of land types (paddy, vegetable, flower garden, grass cultivation, and fallow land) lacks specific calculation details and units of measurement.</p> <p>- Prices for specific fallow land parcels (AP-12/, T-12/1, AP-13, TT-2) were not assessed without explanation.</p> <ul style="list-style-type: none"> <li>• It should be noted that the information in the ESIA is preliminary, and actual surveys are yet to be conducted.</li> <li>• ESIA does not indicate requirement and impacts of any Associated Facilities (e.g. Access Roads, Water Pipelines etc.)</li> </ul>		<ul style="list-style-type: none"> <li>• A preliminary ESMF is prepared without any detailed assessment of impact. Moreover, the report also stated that all the landowners have leased out their land parcels to sharecroppers with an annual rent ranging between 15000 to 20,000 BDT/per person/per year but, no information about sharecropper was reported in the study</li> <li>• The market value of TL has been assessed based on the outcome of consultation with locals but a proposal for cross verification for independent evaluation of market value needs to be conducted for different categories of land parcel by the Project Proponent with active involvement of impacted landowners in presence of local village administration, real estate agent and community leaders to the utmost satisfaction of the impacted landowners.</li> <li>• The Project Proponent needs to estimate the market price of pending fallow land parcels of TL (i.e. AP-12/, T-12/1, AP-13, TT-2) in consultation with local village administration, community leaders, land broker and local community to finalize the appropriate compensation amount for impacted landowners in line with applicable regulatory requirement and timely disbursement of compensation.</li> </ul>		<p>village administration, representative of PGCB, deed writer, land broker and community leaders.</p>		



Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<p><b>Impact on Non-Titled Holders</b></p> <ul style="list-style-type: none"> <li>2 out of 5 non-titled holders have shifted their business units to new location with their own money whereas, remaining 3 of them are found vulnerable in terms of their income criteria, are still continuing their businesses from their existing locations but none of the 5 non-titled holders have been compensated since non-titled holders are not entitled for compensation as per ARIPA, 2017.</li> </ul>	<p><b>MEDIUM</b></p>	<ul style="list-style-type: none"> <li>Based on the adverse impact and associated income vulnerability of impacted non-titled holders, an income cum livelihood restoration plan needs is proposed for all 5 non-titled petty business holders in line with AIIB's ESS-2 protocol.</li> <li>Project Proponent is required to develop entitlement matrix for all 5 impacted non-titled holders for timely disbursement of appropriate compensation.</li> <li>A proposal is to hire an external consultant to prepare entitlement matrix for all the impacted individuals in order to assess the valuation of structures, loss of income, business loss, wage loss for employees of all 5 non-titled holders for compensation and relocation assistance.</li> <li>The Project Proponent needs to allocate a separate fund in support of proposed top up budget to address Income cum livelihood restoration as well as relocation assistance to all 5 non-titled holders adhering to AIIB's ESS-2 guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>The Project Proponent needs to implement proposed Income cum Livelihood restoration plan along with relocation assistance for identified 5 Non-titled holders in line with AIIB's ESS 2 guidelines.</li> <li>The CSR officer of the Project Proponent will monitor and follow-up of the proposed livelihood restoration activity on a regular basis to ensure success of the proposed intervention throughout the Project life cycle.</li> </ul>	<ul style="list-style-type: none"> <li>WTE Power Plant North Dhaka Private Limited in collaboration with representative of DNCC, local village administration, and impacted non-titled holders.</li> <li>WTE Power Plant North Dhaka Private Limited in consultation with non-titled holders and local community.</li> </ul>	<p>Proposed to be accomplished within 6 months from now.</p>	<p>Weekly</p>
<p><b>Impact on Vulnerable Rag-Pickers</b></p> <ul style="list-style-type: none"> <li>Proposed Project is likely to impact livelihood of forty enlisted rag pickers of DNCC but neither any compensation nor any restoration plan for their livelihood has been envisaged in ESIA report.</li> <li>These waste collectors are not registered waste collectors with DNCC.</li> <li>DNCC does not provide any benefits to those rag-pickers.</li> <li>DNCC never organized any health check-up for those rag pickers.</li> </ul>	<p><b>HIGH</b></p>	<ul style="list-style-type: none"> <li>The Project Proponent needs to consider all 40 enlisted rag-pickers under proposed Income/Livelihood Restoration Plan aligning with AIIB's ESS 2 guidelines.</li> <li>Out of total 40 enlisted rag pickers, 20 (50% of 40) rag pickers can be absorbed by DNCC and rest 20 (50% of 40) will be proposed for wage employment program in collaboration with government agency under Income/Livelihood Restoration Plan.</li> <li>Even, 9 identified women headed vulnerable rag-pickers should also be provided with additional compensation apart from considering them under proposed Income/Livelihood Restoration Plan to address adverse impact of their livelihoods due to the Project activity.</li> <li>Project Proponent needs to prepare Entitlement Matrix for all the impacted individuals including rag-pickers to assess</li> </ul>	<ul style="list-style-type: none"> <li>A detailed impact assessment survey as well as Community/Stakeholder consultation needs to be carried out with concerned stakeholders preferably impacted individuals in order to assess their impact, their livelihood status and expectation from the proposed Project to facilitate the preparation of Income/Livelihood Restoration Plan /activity for the impacted individuals.</li> <li>The Project Proponent's social team to develop Income/Livelihood Restoration Plan for the impacted rag-pickers as well as other impacted individuals due to the proposed project.</li> <li>The CSR officer of the Project Proponent will monitor and follow-up of the proposed livelihood restoration</li> </ul>	<ul style="list-style-type: none"> <li>WTE Power Plant North Dhaka Private Limited in consultation with DNCC official, forty impacted rag pickers and local community.</li> </ul>	<p>Proposed to be accomplished within 6 months from now.</p>	<p>Weekly.</p>

Aspect-wise gap analysis	Priority Rating	Proposed Corrective Action	Key Approach	Responsibility and resources	Timelines	Monitoring Frequency
<ul style="list-style-type: none"> <li>These rag-pickers are collecting waste from the landfill area without wearing any safety gears and directly expose to hazardous waste on a regular basis that may likely cause health hazards to those waste collectors.</li> </ul>		<p>their impact status in order to develop and facilitate Income/Livelihood Restoration cum compensation plan for each impacted individual to address the issue of vulnerability.</p> <ul style="list-style-type: none"> <li>A detailed impacted assessment survey should be carried out to identify the actual impact of those rag pickers associated with the proposed Income cum Livelihood Restoration Plan</li> </ul>	<p>activity on a regular basis to ensure success of the proposed intervention throughout the Project life cycle.</p> <ul style="list-style-type: none"> <li>The Project Proponent needs to allocate separate budget as top up expenditure in support of the proposed Income cum Livelihood restoration plan for impacted rag pickers.</li> </ul>			
<b>AIIB ESF, 2022</b>						
<p><b>Information Disclosure of Environmental and Social Documentation.</b></p> <p>In addition to disclosure of the updated ESDDR &amp; ESCAP, it is anticipated that the Environmental &amp; Social Impact Assessment Report, Land Acquisition Completion Report, and Stakeholder Engagement Plan will be disclosed by Project Proponent and lenders, with summaries in Bengali.</p> <p>The information disclosure process described in the ESIA report lacks a structured presentation of its elements, such as the types and locations of information, responsibilities, and frequency of information disclosure. Furthermore, neither any bank signage nor any project-related information has been disseminated via the company's website, notice board, or local community channel.</p>	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>The Project Proponent needs to disclose ESIA and ESDDR as well as its Project related updated documents/information from time to time on its website, notice board, local village administration office and any other strategic locations in Bengali language to promote transparency in timely disclosure of Project information.</li> <li>The Project Proponent should establish a structured approach for regularly disclosing information, which should target specific audiences, cover particular topics, use local languages, focus on designated areas, and identify responsible individual. Moreover, all project-related information must be disseminated in the local language on the company's website, notice board, within local community along with putting up bank signage at specific Project location as pledged in the report.</li> <li>An ESDD exercise is proposed on the part of the Project Proponent to identify existing gaps with respect to environment as well as social aspect of the Project in order to provide a sustainable solution for the Project impacted individuals</li> </ul>	<ul style="list-style-type: none"> <li>The Project Proponent should disclose all the Project related information and documents to its website, notice boards, office of local village administration and Project key locations from time to time in local language with support of all concerned departments of the Project Proponent.</li> <li>The Project Proponent should put up Lender's Signage along with translational in regional language (Bengali) at all the strategic locations in line with AIIB's requirement of information disclosure mandate.</li> </ul>	<ul style="list-style-type: none"> <li>WTE Power Plant North Dhaka Private Limited in collaboration with all its stakeholders including EPC and other contractors.</li> </ul>	<ul style="list-style-type: none"> <li>Proposed to be completed within 2 months from now and will be maintained throughout the Project life cycle.</li> </ul>	Monthly

Please refer to the following table in line with the proposed policies and plans outlined in the ESCAP to support the implementation of the proposed WtE Project.

**Table 10-2 ESCAP outlined Policy/Plan Implementation Timeline**

SI No.	Name Of Policy/Plan	Purpose	Duration (Tentative)	Responsibility	Phase Of The Project
1	Income cum Livelihood Restoration Plan	To address impact on lives and livelihoods of PAPs with focus on NTHs and rag pickers	10 – 15 days	CMEC in consultation with hired consultant	Preconstruction /construction
2	Worker's code of conduct (in local language)	To introduce discipline and inculcate works ethics/culture at workplace	15 days	CMEC in consultation with hired consultant	Preconstruction
3	Strengthening of existing SEP	To facilitate and strengthen relationship with	10 – 15 days	CMEC in consultation with hired consultant	Preconstruction /construction
4	Development of site-specific GRM	To address grievances at the site and community	10 days	CMEC in consultation with hired consultant	Preconstruction
5	Human Rights Risk Assessment (HRRRA)	To project and respect and honor rights of every worker irrespective of their social position and social class.	20 days	CMEC in consultation with hired consultant	Preconstruction
6	Bio-diversity Conservation and Management Policy	Promote bio-diversity conservation and management plan	10 days	CMEC in consultation with hired consultant	Preconstruction
7	Guidebook for infectious diseases	Prevent spread of infectious disease and promote better health	20 days	CMEC in consultation with hired consultant	Preconstruction
8	Develop Prevention of Sexual Harassment (POSH) Policy at workplace	Promote equality and prevent gender-based violence at work place	20 days	CMEC in consultation with hired consultant	Preconstruction
9	Formulate Resettlement Policy Framework	To address any potential impact due to land acquisition/procurement for Transmission Line and any other associated facilities such water intake structure and pipeline etc. The PRF will also covers livelihood loss associated with land acquisition/procurement for the project facilities.	20 days	CMEC in consultation with hired consultant	Preconstruction



## 11.0 Environmental and Social Monitoring Plan (ESMP)

The Table 11-1 presents a comprehensive environmental monitoring plan for a Waste-to-Energy (WTE) Project, encompassing construction, post-construction, and operation stages. It outlines monitoring activities for various environmental parameters including air quality, noise levels, water quality (surface, ground, and effluent), stack emissions, and health and safety measures. The plan specifies monitoring locations (typically pre-identified sites used during baseline data gathering), parameters to be monitored, monitoring methods, and frequencies for each activity. Monitoring frequencies range from continuous (for stack emissions during operation) to weekly, quarterly, or annually, depending on the parameter and Project stage. The plan aims to ensure thorough oversight of the Project's environmental impact throughout its lifecycle, covering aspects from construction site conditions to operational emissions and effluents.

Based on the review of the existing Environmental and Social Monitoring Plan for the proposed Project, the following gaps have been identified and furnished in ESDD exercise as follows:

**Requirement of Evaluation:** Evaluation is a crucial component of an E&S monitoring plan, facilitating comprehensive environmental and social risk management. This process extends beyond mere compliance, assessing the effectiveness of implemented measures, enhancing accountability, and enabling adaptive management. These elements are fundamental to realizing sustainable development objectives and conforming to the AIIB ESF, 2022. Through evaluation, Projects can verify that environmental and social safeguards are not only put into practice but also yielding the intended beneficial results for both the environment and impacted communities.

**Requirement for External Monitoring and Evaluation:** Independent oversight through external monitoring and evaluation plays a vital role in Project management. It ensures Projects meet all the E&S regulations while also achieving sustainable results. This aligns with AIIB ESF (2022), promoting transparency, accountability and ongoing enhancement of the Project performance. By implementing these monitoring and evaluation measures, Project can efficiently manage all the E&S impacts. This, in turn, fosters trust and support both from the stakeholders and regulatory bodies.

**Table 11-1 Environmental and Social Monitoring Plan**

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
<b>Construction Stage</b>								
1	Ambient air quality sampling and monitoring	Pre-identified monitoring stations at Project site (the same sampling locations as during baseline data gathering).	TSP, PM10, PM2.5, SOx, NOx, CO	Instruments and Visual inspection	Quarterly	CMEC/Hired contractor	Evaluate quarterly data for trends and compare with baseline conditions to assess effectiveness of mitigation measures.	Annual independent air quality audit by third-party experts; ensure compliance with national and international standards.
2	Noise level monitoring	West side boundary (nearest establishments) and other additional pre-identified sites.	Day time and nighttime noise levels dB(A)	Ambient noise level monitoring equipment	Monthly	CMEC/Hired contractor	Compare noise levels with baseline data to assess impact on local communities. Adjust noise reduction	Independent noise monitoring every 6 months. Verification of effectiveness of mitigation measures.

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
							measures if needed.	
3	Nearby Surface water quality monitoring	Northern and southern sides of the construction site (same as baseline).	BOD, DO, TSS, Oil and Grease, Fecal Coliform	Grab sampling	Quarterly	CMEC/Hired contractor	Evaluate water quality trends over time and assess if construction activities are leading to water quality deterioration.	Annual third-party water quality audit. Assess impacts on local water bodies and aquatic life.
4	Groundwater quality monitoring	Pre-identified sampling wells, as used during baseline data gathering.	Oil and Grease, Fecal Coliform, Presence of petroleum and other chemicals use in the baseline data	Grab sampling from bore wells.	Quarterly	CMEC and Hired contractor	Evaluate effectiveness of groundwater protection measures and assess potential contamination risks.	Independent groundwater quality monitoring annually to ensure compliance with safety standards.

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
5	Condition of disposal areas	Designated disposal areas	General condition , spoil capacity	Visual inspection, actual measurements	Monthly	CMEC and Hired contractor	Evaluation of disposal area conditions and effectiveness of waste management measures. Recommended adjustments as needed.	Quarterly third-party audit to verify disposal site management and assess environmental risks.
6	Condition at construction camp sites and available facilities	Construction camp site.	Good housekeeping practices per EMP.	Visual inspection, Interview with occupants.	Weekly	EHS Head/ Responsible contractor	Assess overall camp hygiene, worker health, and safety conditions. Ensure EMP standards are met.	Annual external evaluation of living conditions and compliance with ILO and AIB standards by independent auditors.

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
7	Assessment of occupational health and safety measure implementation	Construction work site; Construction camp site.	OHS measures per EMP	Visual inspection, interviews	Weekly	EHS Head/Concerned contractor	Evaluate the implementation of OHS measures and effectiveness in preventing incidents and accidents.	Third-party OHS audits twice annually to ensure adherence to safety standards and recommend improvements.
8	Assessment of community health and safety measure implementation	Vicinity of construction work site, surrounding area and local community.	Community health and safety measures per EMP	Visual inspection, interviews with locals	Weekly	EHS Head	Evaluate effectiveness of community safety measures and assess any incidents or grievances raised.	Independent third-party evaluation of community health impacts and safety measures annually.
9	Periodic Health Check-up	Plant, labour accommodation and surrounding vicinity	Generic health conditions of workers of plant and workers accommodation	Site visit, interactions	Quarterly	CMEC in collaboration with local hospital	Evaluate health outcomes, identify any emerging issues, and	Independent medical check-up and health impact evaluation

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
			as well as local community				assess effectiveness of health programs.	annually by certified health experts.
10	Implementation of Grievance Redress Mechanism (GRM)	Within plant and community level.	Grievance register, timely compliance	Grievance box, register	Weekly	Grievance Officer	Evaluate grievance resolution process and assess community satisfaction with the system.	Independent third-party audit of GRM every 6 months to ensure compliance with international standards.
11	Operation of Stakeholder Engagement Plan (SEP)	Within plant and community level.	SEP activities	SEP document	Weekly	CMEC and concerned	Evaluate stakeholder engagement effectiveness and assess any changes in community relations.	External evaluation of SEP implementation annually by independent social auditors.
12	Information disclosure	Within plant and community level.	Project-related information including signage	Reports, notices, signage	Monthly	Concerned officials of CMEC	Assess transparency and frequency	External audit of information disclosure

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
							of information dissemination to stakeholders.	practices annually. Ensure compliance with AIBB transparency guidelines.
13	Construction of cooling water lines, intake, and discharge points	Construction site; pre-identified alignment and location of cooling water lines, intake, and outfall.	Location compliance with ESIA report	Visual inspections	Monthly	CMEC/Hired contractor	Evaluate construction activities for adherence to pre-approved locations and assess environmental impacts.	Independent third-party evaluation of compliance with environmental guidelines annually.
<b>Post-Construction</b>								
1	Demobilization of construction heavy equipment	Construction site	Schedule of equipment transport	Schedule, visual inspection	Once post-construction	CMEC/Hired contractor	Evaluate potential impacts on marine traffic and effectiveness of transport planning.	External monitoring and evaluation of the demobilization process by independent



Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
								t consultants.
2	Site clearing	Construction site	Remaining construction wastes and disposal sites	Visual inspection	Once post-construction	CMEC/Hired contractor	Evaluate effectiveness of site clearing and disposal of remaining waste materials.	Third-party verification of site clearing and waste management effectiveness post-construction.
<b>Operation Stage</b>								
1	Stack emission sampling and monitoring	Stack sampling ports	TSP, SO <sub>x</sub> , NO <sub>x</sub> , CO, HCl, dioxins, heavy metals	Instruments, visual inspection	Annually for stack sampling; continuous CEMS monitoring	CMEC/Hired contractor	Evaluate stack emissions data to assess compliance with emission standards and effectiveness of	Annual third-party verification of stack emission data and effectiveness of CEMS system.

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
							mitigation measures.	
2	Ambient air quality sampling and monitoring	Pre-identified stations and additional locations during operations.	TSP, PM10, PM2.5, SOx, NOx, CO	Instruments, visual inspection	Quarterly	CMEC/Hired contractor	Evaluate effectiveness of air quality management strategies and compare with operational phase goals.	Annual external audit of air quality performance by independent experts.
3	Noise level monitoring	West side boundary (nearest establishments) and other pre-identified sites.	Daytime and nighttime noise levels dB(A)	Ambient noise monitoring equipment	Monthly	CMEC/Hired contractor	Evaluate impact of operational noise on nearby communities and identify necessary	Third-party noise level audit twice a year to ensure compliance with noise regulations.

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
							adjustments.	
4	Nearby surface water quality monitoring	Northern and southern sides of the WtE site.	BOD, DO, TSS, Oil and Grease, Fecal Coliform	Grab sampling	Quarterly	CMEC/Hired contractor	Evaluate water quality trends post-operation and assess effectiveness of discharge treatment systems.	Independent surface water audit annually to ensure compliance with effluent discharge standards.
5	Effluent quality sampling and monitoring	Effluent sampling ports of leachate and wastewater treatment plants.	COD, BOD, heavy metals	Instruments, visual inspection	Monthly (grab sampling); daily (visual)	CMEC/Hired contractor	Evaluate the effectiveness of the wastewater treatment process and compliance with discharge limits.	Annual third-party evaluation of effluent treatment systems and compliance with regulatory standards.
6	Cooling water discharge monitoring	Sampling port along discharge line	Temperature, physical condition	Instruments, visual inspection	Quarterly	CMEC/Hired contractor	Evaluate the environment	Third-party evaluation annually to

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
							tal impact of cooling water discharge on the surrounding water bodies.	assess compliance with environmental regulations.
7	Groundwater quality monitoring	Pre-identified wells.	Oil and Grease, Fecal Coliform, chemicals	Grab sampling	Quarterly	CMEC/Hired contractor	Evaluate risks to groundwater quality from plant operations and assess effectiveness of protection measures.	Annual third-party audit of groundwater conditions by independent environmental experts.
8	Implementation of CSR Plan	Project-influenced villages	Activities as per CSR plan	Project reports, interaction with locals	Monthly	CSR officer	Evaluate the effectiveness of CSR activities and their impact on community development.	Annual external evaluation of CSR programs by independent social auditors.

Sl. No.	Activity	Location	Parameters to be Monitored	Means of Monitoring	Frequency	Responsibility	Requirement for Evaluation	Requirement for External Monitoring and Evaluation
9	Continuation of Implementation of Income/Livelihood Restoration Activities	Project jurisdiction	Proposed activities as per plan	Reports, interaction with beneficiaries	Fortnightly	Hired Consultant/NGO in coordination with CMEC	Evaluate the effectiveness of livelihood restoration efforts and their impact on affected communities.	Hired consultant or NGO

CONFIDENTIAL

## 12.0 BAT Analysis

Best Available Techniques (BAT) are recognized as the most advanced and effective methods for preventing and controlling industrial emissions, thereby safeguarding environmental and human health. These techniques have been developed to ensure the highest standards in limiting discharges and mitigating the environmental impact of industrial operations.

The concept of BAT emerged around the 1960s and gained international recognition with its inclusion in the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (the 'OSPAR Convention'). Since then, BAT has become a cornerstone in setting emission limit values (ELVs) and permit conditions for industrial installations worldwide.

The primary purpose of BAT is to provide a flexible yet effective framework for industries to achieve regulatory compliance with ELVs. While ELVs are legally binding, the specific BATs used to achieve these limits are not prescriptive, allowing operators the discretion to select the most appropriate techniques for their operations. However, this flexibility can sometimes lead to a preference for end-of-pipe solutions over more integrated approaches.

Globally, various countries have adopted the BAT framework within their environmental legislation, including the EU, Russian Federation, Korea, China, and India. In the European Union, BAT is defined and regulated under the Industrial Emissions Directive (2010/75/EU). Article 3 of this directive describes BAT as the most effective and advanced methods of operation, providing the basis for ELVs and other permit conditions designed to prevent or reduce environmental emissions. BAT reference documents (BREFs) are comprehensive reports resulting from a collaborative process involving governments, authorities, industry representatives, experts, and NGOs. These documents cover specific industrial sectors and cross-cutting issues, offering detailed guidance on the application of BAT. The development of BREFs in the EU follows a structured process, culminating in the adoption of BAT conclusions, which serve as a reference for setting emission limits and issuing permits under the Industrial Emissions Directive (IED). In this section Black & Veatch has provided review of BAT set by EU commission.

BAT concept is a cornerstone in ensuring that industrial operations, such as waste-to-energy (WtE) facilities, minimize their environmental impact while maintaining economic viability. This analysis focuses on identifying and implementing state-of-the-art technologies that are both economically and technically feasible for the WtE Project at Amin Bazar, Dhaka, Bangladesh. The goal is to optimize environmental performance, enhance sustainability, and meet regulatory requirements.

### 12.1 Criteria

BAT criteria are based on the following factors:

- **Environmental Performance:** Reduction of emissions to air, water, and soil.
- **Energy Efficiency:** Optimization of energy use within the process.
- **Economic Feasibility:** Cost-effectiveness of the technology implementation.
- **Technical Viability:** Reliability and robustness of the technology in operational settings.

- **Sustainability:** Long-term benefits, including resource conservation and minimal environmental footprint.

## 12.2 Technologies

The primary technologies considered for the WtE Project include mechanical grate furnaces, fluidized bed incinerators, pyrolysis incinerators, and rotary kiln incinerators. Below is a comparative analysis of these technologies based on the BAT criteria:

### 12.2.1 Flue Gas Treatment

- **Selective Catalytic Reduction (SCR):** Utilized for NO<sub>x</sub> reduction, SCR systems can achieve high removal efficiencies by converting NO<sub>x</sub> into nitrogen and water using a catalyst and reducing agent (ammonia or urea).
- **Electrostatic Precipitators (ESPs):** Effective in capturing particulate matter, ESPs use electrical charges to remove particles from the flue gas stream.
- **Acid Gas Scrubbers:** Wet or dry scrubbers for SO<sub>x</sub>, HCl, and HF removal, employing reagents like lime or sodium bicarbonate to neutralize acid gases.

### 12.2.2 Efficient Energy Recovery

Maximizing energy recovery from waste can be achieved through:

- **High-Efficiency Boilers:** Utilizing advanced boiler technology to improve thermal efficiency and maximize electricity generation.
- **Combined Heat and Power (CHP) Systems:** Implementing CHP systems to use the heat generated for district heating or industrial processes, thereby improving overall energy efficiency.

### 12.2.3 Sustainable Water and Wastewater Management

Efficient water use and wastewater treatment are essential for reducing environmental impacts:

- **Closed-Loop Water Systems:** Using closed-loop water systems to minimize water consumption and prevent contamination of local water bodies.
- **Zero Liquid Discharge (ZLD):**
  - **Evaporation and Crystallization:** ZLD systems ensure that all wastewater is treated and recycled within the plant, leaving no liquid waste for discharge. This process involves multiple stages of evaporation and crystallization to recover clean water and solid waste products.
- **Biological Treatment:**
  - **Anaerobic Digestion:** Treating organic wastewater using anaerobic digesters can generate biogas, which can be used as a renewable energy source, further improving the sustainability of the WtE plant.

■ **Water Recycling and Reuse:**

- Advanced Water Recycling Systems: Implementing systems for the recycling and reuse of wastewater can significantly reduce the intake of surface and groundwater, contributing to water conservation efforts.

### 12.2.4 Sustainable Waste Management Practices

To enhance sustainability, the following waste management practices should be integrated:

- **Waste Segregation and Pre-Treatment:** Implementing robust waste segregation at the source and pre-treatment processes to ensure only non-recyclable and non-hazardous waste is incinerated.
- **Material Recovery Facilities (MRFs):** Establishing MRFs to recover valuable materials like metals and plastics before incineration, thus reducing the volume of waste and conserving resources.

#### 12.2.4.1 Noise and Odor Control

Mitigating noise and odor impacts is crucial for community acceptance:

- **Noise Barriers and Enclosures:** Erecting noise barriers and enclosures around noisy equipment to reduce noise pollution.
- **Odor Control Systems:** Implementing activated carbon filters, biofilters, or scrubbers to manage and neutralize odors from the plant.
- Adequate greenbelt with local and odor controlled specific species should be considered in the plant.

### 12.2.5 Sustainable Drainage Systems (SuDS)

- **Natural Filtration and Retention:** SuDS mimic natural hydrological processes, enhancing flood resilience while improving water quality and promoting biodiversity in both urban and rural landscapes.

### 12.2.6 Green Infrastructure and Landscaping

Incorporating green infrastructure can enhance sustainability and provide ecological benefits:

- **Green Roofs and Walls:** Installing green roofs and walls to improve insulation, reduce stormwater runoff, and enhance biodiversity.
- **Permeable Pavements:** Using permeable pavements to promote groundwater recharge and reduce surface runoff.
- Adapting solar PV cells and modules on the rooftop and available spaces wherever possible.

### 12.2.7 Community Engagement and Social Responsibility

Engaging with the community and promoting social responsibility is vital:



- **Educational Programs:** Conducting educational programs to raise awareness about the benefits and safety of WtE Projects.
- **Stakeholder Involvement:** Involving local communities in decision-making processes and addressing their concerns to build trust and support.

### 12.2.8 Real-Time Monitoring Systems:

- **IoT and AI Integration:** Advanced monitoring technologies, incorporating Internet of Things (IoT) and Artificial Intelligence (AI), provide accurate and timely environmental data. This supports adaptive management strategies and improves decision-making processes.

Incorporating the Best Available Technologies (BAT) into WtE Amin Bazar Project will enhance the operational activities and maximize the environmental efficiency. This Project can reduce its ecological footprints while fostering economical and social regional growth by adopting cutting-edge methods in emission control, energy efficiency, wastewater management and green infrastructure. Ongoing technological advancement and compliance with regulatory requirement will ensure the WtE facility continues to lead in environmental protection and sustainable development.

## 12.3 Industrial Emissions Directive and Best Available Technique Review

Black & Veatch reviewed the Industrial Emissions Directive (IED) adopted by the European Union (EU) to determine the requirements applicable for a new municipal waste incinerator that the Project is planning to install. The following provides a brief discussion of the IED, a summary of the Best Available Techniques Reference Documents (BREF), and the emission limits that are applicable to the waste incinerator.

### 12.3.1 IED

The EU adopted the IED in 2010 to reduce industrial emissions in member countries. Bangladesh is not a member state of the EU, but lending institutions that are involved with Projects may use it as industrial standard for benchmarking the Project. The IED overall has an integrated approach that requires permits to include requirements for air emissions. The IED provides air emission limits based on the technology that is emitting air emissions. The air emission limits contained in the IED are based on Best Available Techniques (BAT) that are set by the EU Commission in collaboration with experts from member states, industry, and environmental organizations. The input on the BAT levels is then reviewed by the European IPPC Bureau and BREF are developed.

For certain activities, like large combustion plants, waste incineration, and titanium dioxide production, the IED also sets EU wide emission limit values for facilities.

The IED does allow some flexibility for competent authorities to set less restrict emission limit values. This generally is allowed if it can be demonstrated that achieving BAT emission levels would lead to disproportionately higher costs compared to the environmental benefits due to the geographic location or the local environmental conditions or the technical characteristics of the installation.

The IED developed in 2010 has not been changed since; however, the EU Commission adopted proposals in 2022 to revise the IED, primarily to increase the focus on energy, water, and material efficiency and

reuse. Additionally, the proposal aimed at promoting the use of safer, less toxic or non-toxic chemicals in industrial processes. The revised IED has not yet been finalized at the time of this analysis.

### 12.3.2 Summary of BREF for Waste Incineration

As indicated previously, BREF documents are developed based on exchange of information between EU Member States, the industrial parties concerned, non-governmental organizations promoting environmental protection, and the EU Commission. The BREF for waste incineration covers the disposal or recovery of waste in waste incineration plants and the disposal or recovery of waste involving the treatment of slags and/or bottom ashes from the incineration of waste. Chapter 4 of the BREF provides a myriad of techniques that can be considered in the determination of BAT. Most of the techniques describe methods on how to optimize the incineration process and efficiency, as well as minimize air emissions.

Chapter 5 of the BREF provides the BAT Conclusions for waste incineration and is the basis of emission limits in the IED for waste incineration. For stack emissions to the ambient air, BAT is to reduce emissions from the incineration of waste by using one or a combination of air quality control equipment. The following provides a description of the options for the various air pollutants and the potential best available air quality controls that can be implemented for waste incineration as indicated in Chapter 5 of the BREF for waste incineration.

- **Dust, Metals, and Metalloids**
  - Bag filter
  - Electrostatic precipitator
  - Dry sorbent injection
  - Wet scrubber
  - Fixed- or moving-bed adsorption
- **HCl, HF, and SO<sub>2</sub>**
  - Wet scrubber
  - Semi-wet absorber
  - Dry sorbent injection
  - Direct desulphurization
  - Boiler sorbent injection
- **NO<sub>x</sub>, N<sub>2</sub>O, CO, and NH<sub>3</sub>**
  - Optimization of the incineration process
  - Flue-gas recirculation
  - Selective non-catalytic reduction (SNCR)
  - Selective catalytic reduction (SCR)
  - Catalytic filter bags

- Optimization of the SNCR/SCR design and operation
- Wet scrubber
- **Organic compounds including PCDD/F and PCBs**
  - Optimization of incineration process
  - Control of the waste feed
  - On-line and off-line boiler cleaning
  - Rapid flue-gas cooling
  - Dry sorbent injection
  - Fixed- or moving-bed adsorption
  - SCR
  - Catalytic filter bags
  - Carbon sorbent in a wet scrubber
- **Mercury**
  - Wet scrubber (low PH)
  - Dry sorbent injection
  - Injection of highly reactive activated carbon
  - Boiler bromine addition
  - Fixed- or moving-bed adsorption.

Black & Veatch notes that the Project's current design includes air quality controls to address the air emissions from the waste incineration and to comply with the IED emission limits for waste incineration. Table 12-1 provides the BREF techniques for the various pollutants and the air quality controls that the Project currently has in design. The air emission controls included in current Project design address each of the BAT technique categories for the various pollutants and are typical for incineration Projects.

**Table 12-1 Summary of Air Emission Controls for the Project in Comparison to BAT Air Pollution Categories**

SL. No.	BAT Pollutant Categories	Air Emission Controls in Current Project Design
1	Dust, Metals, and Metalloids	Fabric Filter
2	HCl, HF, and SO <sub>2</sub>	Semi-dry Lime Desulphurization method (Direct Desulphurization)
3	NO <sub>x</sub> , N <sub>2</sub> O, CO, and NH <sub>3</sub>	SNCR (urea)
4	Organic compounds including PCDD/F and PCBs	Dry powder method (Ca(OH) <sub>2</sub> injections (i.e., Dry Sorbent Injection)
5	Mercury	Activated Carbon Injection

### 12.3.3 Emission Limits for Waste Incineration

As mentioned previously, the IED specifies emission limits for certain activities. Under Chapter IV of the IED, the special provisions for waste incineration plants and waste co-incineration plants are listed. Under Article 46 (2) of Chapter IV of the IED, it specifies that emission into the air from waste incineration plants shall not exceed emission limit values set out in parts 3 and 4 of Annex VI or determined in accordance with Part 4 of the Annex. The emission limit values are considered BAT for waste incineration and apply to facilities that dispose or recover waste in incinerators with non-hazardous waste with a capacity exceeding 3 metric tons per hour. The Project's current design is to incinerate 3,000 metric tons per day, which is approximately 125 metric tons per hour. Based on this design throughput for the incinerators the emission limits from the IED will apply to the Project.

Table 12-2 and Table 12-3 below provide the daily and half-hourly average emission limit values for air pollutants. The emission limit values are standardized at 11 percent oxygen, temperature of 273.15 K, and pressure of 101.3 kPa. Based on the Technology Agreement for the Project's current design, the incinerator supplier guarantees the air emissions from the incinerator will comply with the IED emission limits provided in the tables below.

**Table 12-2 Daily Average Emission Limit Values**

Sl. No.	Air Pollutant	Daily Average Emission Limit (mg/Nm <sup>3</sup> )
1	Total Dust	10
2	Total Organic Carbon (TOC)	10
3	Hydrogen Chloride (HC)	10
4	Hydrogen Fluoride (HF)	1
5	Sulphur Dioxide (SO <sub>2</sub> )	50
6	Nitrogen Dioxide (NO <sub>2</sub> )	200

**Table 12-3 Half-Hourly Average Emission Limit Values**

Sl. No.	Air Pollutant	Half-Hourly Average Emission Limit (mg/Nm <sup>3</sup> )	
		100 %	97 %
1	Total Dust	30	10
2	Total Organic Carbon (TOC)	20	10
3	Hydrogen Chloride (HC)	60	10
4	Hydrogen Fluoride (HF)	4	2
5	Sulphur Dioxide (SO <sub>2</sub> )	200	50
6	Nitrogen Dioxide (NO <sub>2</sub> )	400	200

For Carbon Monoxide (CO), the emission limit values (mg/Nm<sup>3</sup>) in the waste gas are as follows:

- 50 as daily average value
- 100 as half-hourly average value
- 150 as 10-minute average value

For Dioxins and Furans the average emission limit value is 0.1 ng/Nm<sup>3</sup> over a sampling period of a minimum of 6 hours and a maximum of 8 hours. This limit refers to the total concentration of dioxins and furans calculated in accordance with Part 2 of Annex VI

Table 12-4 provides the average emission limit value for heavy metals over a sampling period of a minimum of 30 minutes and a maximum of 8 hours.

**Table 12-4 Emission Limits for Heavy Metals**

Sl. No.	Heavy Metals	Average Emission Limit (mg/Nm <sup>3</sup> )
1	Cadmium and Thallium Compounds	0.05 Total
2	Mercury Compounds	0.05 Total
3	Antimony	0.50 Total
4	Arsenic	
5	Lead	
6	Chromium	
7	Cobalt	
8	Copper	
9	Manganese	
10	Nickel	
11	Vanadium	

### 12.3.4 Greenhouse Gas Emissions from Municipal Solid Waste Incineration

Black & Veatch developed Greenhouse Gas Emissions (GHG) associated with incineration of Municipal Solid Waste (MSW). The method to calculate GHG emissions in the form of carbon dioxide equivalents (CO<sub>2</sub>e) is to use the annual throughput of MSW incinerated, emission factors for carbon dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), and Nitrous Oxide (N<sub>2</sub>O), and Global Warming Potentials (GWP). The annual throughput of MSW incinerated is expected to be a maximum of 365,000 metric tons per year. The CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emission factors are from Tables C-1 and C-2 of 40 CFR 98, Subpart C. The GWPs are from IPCC Fifth Assessment Report (AR5).

The equation to estimate GHG emissions for each pollutant is:

Metric tons of GHG per year (tons/year) = annual amount of MSW incinerated (tons/year) x Emission Factor for GHG (kg GHG/tons)

To convert metric tons of GHG into CO<sub>2</sub>e the equation is:

$$\text{CO}_2\text{e} = (\text{CO}_2 \text{ tons/year} \times \text{GWP}_{\text{CO}_2}) + (\text{CH}_4 \text{ tons/year}) \times \text{GWP}_{\text{CH}_4} + (\text{N}_2\text{O tons/year} \times \text{GWP}_{\text{N}_2\text{O}})$$

The table below provides a summary of the calculation for GHG and the resulting CO<sub>2</sub>e per year of operation. The total CO<sub>2</sub>e estimated from incineration of MSW is 457616.93 tons/year.

**Table 12-5 Total CO<sub>2</sub>e/year estimation from incineration of MSW**

Sl. No.	GHG	Metric Tons per Year (tons/year)	CO <sub>2</sub> e per year
1	CO <sub>2</sub>	454425	454425
2	N <sub>2</sub> O	12.045	3191.925
	<b>Total</b>	--	457616.93

Note: It can be assumed that under the oxidative combustion prevailing in waste incineration in MSW incinerators,

### Review of GHG Emissions Estimate Provided in ESIA

Black & Veatch reviewed the GHG Study by WTE Power Plant North Dhaka Private Limited contained in Appendix K of the ESIA. The basis of the GHG estimate is that the waste to energy Project of incineration of MSW will produce GHG emissions. The incineration of the waste will offset methane releases from a landfill. Additionally, the analysis mentions that the incineration will generate electricity that displaces carbon emissions from a coal-fired power plant. The ESIA indicates that the method to develop the GHG emissions estimate is from IPCC chapter on waste incineration. The annual amount of MSW used in the incineration process is based on the composition and annual average from the Amin Bazar Landfill during the period November 2020 to October 2021. The annual amount of incineration used in the GHG estimate is 1.09 million tons of MSW.

The ESIA indicates the total amount of CO<sub>2</sub>e from incineration of MSW is 1.36 of CO<sub>2</sub>e. The total amount offset from a landfill is 418,900 tons of CO<sub>2</sub>e. The CO<sub>2</sub>e from displacement of electricity from a coal-fired boiler is 226,700 tons of CO<sub>2</sub>e.

The report indicates that the reductions from this Project are greater than the anticipated CO<sub>2</sub>e emissions from the incineration of MSW. The reduction is 361,700 tons of CO<sub>2</sub> per year of operation.

Black & Veatch was not able to review the actual calculations that developed the estimate in Appendix K of the ESIA. However, based on the method Black & Veatch used, the amount of GHG emission in the ESIA are orders of magnitude lower than what is expected for MSW. In addition, the analysis in the ESIA considered the displacement of emissions from a coal-fired power plant. It is not clear if the Project considered the increase of electrical demand that the Waste to Energy Project may accommodate and whether this method to offset an indirect impact (electricity offset) from the Project versus only direct impacts (landfill versus incinerator) is a valid method when considering Equator Principles (IV, dated July 2020) and the 100,000 tons CO<sub>2</sub>e threshold.

## 13.0 Categorization of Projects as per AIIB's guideline

As part of its review of a Project's expected ecological, social and environmental impacts, AIIB uses a system of social and environmental categorization. This categorization is used to assess and indicate the severity of the impacts resulting from the proposed Project on the affected communities, in accordance with AIIB's institutional standards for social and environmental evaluation. The categories used by the AIIB are:

- **Category A Projects:** Projects with potential significant adverse social or environmental risks or/and impacts that are diverse, irreversible, or unprecedented.
- **Category B Projects:** Projects with potential limited adverse social or environmental risks or/and impacts that are few, generally site-specific, largely reversible and readily addressed through mitigation measures.
- **Category C Projects:** Projects with minimal or no adverse social or environmental risks or/and impacts, including certain financial intermediary (FI) Projects with minimal or no adverse risks.
- **Category FI Projects:** Business activities involving investments in financial institutions (FIs) or through delivery mechanisms involving financial intermediation.

AIIB therefore categorizes the Project primarily according to the significance and nature of its impacts. AIIB defines the Project's area of influence as the primary Project site(s) and related facilities that the client (including its contractors) develops or controls associated facilities that are not funded as part of the Project (funding may be provided separately by a client or a third party including the government), and whose viability and existence depend exclusively on the Project and whose goods or services are essential for the successful operation of the Project; areas potentially impacted by cumulative impacts from further planned development of the Project; and areas 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 would occur without the Project or independently of the Project.

The proposed Project can be categorized as **Category A** as per AIIB ESF (2022), on the basis of potential significant adverse social and environment impacts that are diverse, irreversible and unprecedented.

## 14.0 Conclusion and Recommendation

In conclusion, the ESDD for the waste-to-energy Project has meticulously addressed key aspects crucial for successful implementation. Land acquisition involved 242 landowners, out of it, 138 landowners have received compensation as per ARIPA Act, 2017 guidelines and remaining 104 landowners yet to receive compensation as per information provided by DC office. The reason behind pending compensation stated as pending litigation, land mortgage, or reside abroad. Compensation methodologies followed ARIPA, 2017 guidelines for land, PWD schedule rates for structures and businesses, and agriculture department norms for trees. Although non-titled holders and rag pickers were not compensated under local law, but they are included in Entitlement Matrix and proposed Income and Livelihood Restoration Plan aligned with AIIB's ESS-2 guidelines, aimed at mitigating income vulnerabilities.

Technical surveys confirmed the completion of preparation of TL installation plans involving 27 towers, adhering to Power Grid Corporation guidelines for private land acquisition. Extensive consultations with stakeholders have informed mitigation strategies, with notable concerns raised during visits to labour camps regarding substandard conditions and the lack of essential amenities as per ILO guidelines. Language barriers with Chinese guidelines prompted recommendations for accessible translations, alongside calls for enhanced compliance measures and community information disclosure.

The socio-economic study revealed economically stable landowners without representation from the BPL category as per local criteria. Local community concerns, such as foul odour and traffic congestion, have been addressed through comprehensive management plans. The Project, categorized as AIIB Category A, incorporates robust mitigation measures aligned with national and international standards to ensure smooth Project operation and community benefit.

Environmental assessments highlighted potential risks, including the risk of bird electrocution due to transmission lines crossing Karnatali river, necessitating precautionary measures to protect local wildlife. Recommendations for ongoing land acquisition and compensation for affected agricultural landowners underscore the Project's commitment to responsible environmental stewardship.

In summary, this initiative offers significant advantages by fulfilling electricity demands and updating waste management practices, thereby supporting sustainable development goals and climate preservation efforts for a positive impact on both the community and the environment. Additionally, the Project proponent must implement the recommendations from the Environment and Social Corrective Action Plan.



## Appendix A. Photo Log of the Site Visit



Figure 14-1 Project Site



Figure 14-2 Consultation with Site Worker



Figure 14-3 Consultation with Rag Pickers



Figure 14-4 Regional Office of CMEC



Figure 14-5 Consultation with Ward Office (Round 1)



Figure 14-6 Consultation with Ward Office (Round 2)





Figure 14-7 Chinese Labour Camp



Figure 14-8 CMEC Officials



Figure 14-9 Consultation with Fishery Department



Figure 14-10 Agriculture Officer of Savar Upazila



Figure 14-11 Grid Substation (Galaxy Apartment)







Figure 14-12 Consultation with Rag Pickers and Non-title Holders



Figure 14-13 Agricultural Land Survey by Team



Figure 14-14 Local Labor Camp

Figure 14-15 Local Labour Camp

Figure 14-16 Consultation with Community Youth





Figure 14-17 Consultation with Shyamoli WTP



Figure 14-18 Consultation with Shyamoli WTP



Figure 14-19 Members of Health Committee



Figure 14-20 Local Community




Figure 14-21 Primary School



Figure 14-22 TL Survey

## Appendix B. NOC Certificate

শেখ হাসিনার নির্দেশ  
জলবায়ু সচিবালয় বাংলাদেশ



Government of the People's Republic of Bangladesh  
**Department of Environment**  
Head Office, Paribesh Bhaban  
E-16 Agargaon, Sher-e-Bangla Nagar Dhaka-1207  
www.doe.gov.bd

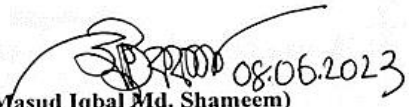
Memo No: 22.02.2600.137.60.11.23. ৯০ Date: 08 June, 2023

**Subject: Site Clearance for Waste-to-Energy Incineration Power Project at Amin Bazar, Savar, Dhaka.**

Ref: Your letter dated 21/03/2023 and 27/04/2023

With reference to your above application, the Department of Environment (DoE) hereby approves Environmental Impact Assessment (EIA) report and accords Site Clearance to Waste-to-Energy Incineration Power Project at Amin Bazar, Savar, Dhaka.

A copy of the Site Clearance is attached herewith for your kind information and necessary action.

  
(Masud Iqbal Md. Shameem)  
Director (Environmental Clearance)  
Phone: 222218342

**Managing Director**  
WTE Power Plant North Dhaka Private Limited  
Floor-7, House-7, UN Road, Baridhara, Dhaka.

**Copy Forwarded to:**

1. Director, Department of Environment, Dhaka Regional Office, Dhaka.
2. Deputy Director, Department of Environment, Dhaka District Office, Dhaka.
3. Assistant Director, Office of the Director General, Department of Environment, Head Office, Dhaka.

6

## Appendix C. Site Clearance

শেখ হাসিনার নির্দেশ  
জনবায়ু সচিব বাংলাদেশ



Government of the People's Republic of Bangladesh  
Department of Environment  
Paribesh Bhaban, E-16, Agargaon  
Sher-e-Bangla Nagar, Dhaka-1207  
www.doe.gov.bd

Site Clearance  
Section 12 of the Environment Conservation Act, 1995 (Amended 2010)

Clearance Number: ৪০

File number: 22.02.2600.137.60.11.23.৪০

Clearance Issue Date: ০৪ June 2023

Renewal date not later than: ০৭ June 2024

A. Clearance Type: Site Clearance

B. Clearance Holder:

Managing Director

WtE Power Plant North Dhaka Private Limited

Floor-7, House-7, UN Road, Baridhara, Dhaka.

C. Premises to which this Clearance Applies:

Amin Bazar Landfill area in Savar Upazila of Dhaka District

D. Activities for which this Clearance Authorizes and Regulates:

Set up of a waste-to-energy power plant of 42.5 MWh (net) capacity in 31.182 acres of land area. As per the information provided in the EIA report, the details of the project are as under:

Particulars	Basic Project information
Plant capacity	42.5 MWh (net)
Incineration capacity	3000 ton/day (entry capacity)
No. of incinerator	4 sets of 750 ton/day
Furnace type	Mechanical grate
MSW requirement	3000 ton/day
Waste pit volume	52,080 m <sup>3</sup>
Source of waste	Dhaka North City Corporation
Auxiliary fuel	Diesel
Water requirement	Dry season: 364.7 m <sup>3</sup> /h and wet season: 341.6 m <sup>3</sup> /h
No. of Boiler	Four
Turbine set	2 steam turbines
Generator	2 x 35 MW turbine generator
Leachate treatment capacity	1200 m <sup>3</sup> /day
Wet slag	182,500 ton/year
Fly ash	24,911 ton/year
Stack height	100 m



## Appendix D. No Objection Certificate (NOC) for Water Intake from WARPO

(Substitute to the same date and memo)  
Government of the People's Republic of Bangladesh  
Ministry of Water Resources  
Water Resources Planning Organization  
www.warpo.gov.bd



Memo.No: 42.02.0000.010.36.017.22-445

Date: 08/01/2023


Sub: No Objection Certificate (NOC) for abstraction of groundwater by WTE Powe Plant, North Dhaka Private Limited, Dhaka-1216

In reference to your application to grant permission for abstraction of Groundwater by your Company as per Bangladesh Water Act, 2013 and Bangladesh Water Rules, 2018; Water Resources Planning Organization (WARPO) has reviewed your application, data and information regarding water resources availability (groundwater & surface water) on the surrounding areas of the proposed project and agreed to allow using both groundwater water and surface water on certain conditions.

The 'No Objection Clearance (NOC)' hereby issued subject to the following conditions.

1. Permission is given to WTE Power Plant, North Dhaka Private Limited for extract the surface water in a way suitable to the site's hydro-geology conditions.
2. Permit for abstraction of Ground Water of maximum amount 8753 m<sup>3</sup>/day for Company's Mfg. uses, drinking purposes and daily domestic uses in dry season-when insufficiency of Surface Water.
3. The permit would be valid for 2 (two) years from the date of issue and will require renewal before 30 days of the end period.
4. The Water will not be used in other purposes except the approved case i.e. Company's manufacturing, daily uses for the employees etc.
5. To reduce the pressure on ground water, it is strongly encouraged to identify the alternative source of Surface Water and to use it in different purposes.
6. A detailed study on "water resources availability and impact due to abstraction, use and discharge to the project area and surroundings considering the shallow and deep aquifer, EIA, SIA and model simulation" has to be submitted to WARPO within next six months."
7. Monitoring well has to be installed on project side to measure the groundwater level.
8. The daily measured or collected groundwater level data of the monitoring well, volume of abstracted Water have to be provided to WARPO on quarterly basis.
9. The Depth of Deep Tube well, Diameter of Pipe, Horse power (HP) of Pump cannot be changed without permission of WARPO Authority.
10. The Distance between the two Deep Tube wells will have to be followed as per condition no 5 of Topsisil-1 of "Groundwater Management Rules for Agricultural Purposes 2019".
11. The project will not pollute the nearby water body and will not deteriorate bio-diversity and freshwater ecosystems dependent upon the water body concerned and will not hamper water security and water right of nearby community.
12. The project will not change the natural flow of water as per Bangladesh Water Act, 2013, article 34.

13. The treated discharge water might be reserved in a pond within the boundary of the Project area and the temperature of the discharge water should be tolerable for the ecosystem and will not do any harm to the aquatic bionetwork. It is strongly discouraged to discharge treated the waste water in the natural Channel or River. However, There should have a mechanism of "3Rs" (reduce, reuse and recycle) policy for management of waste water.
14. There should have a rainwater harvesting system and the harvested water can be used for different purposes.
15. In case of any adverse impact on the nearby community due to groundwater abstraction by company, immediate mitigation measures and compensation must be ensured and be reported to WARPO.
16. There should have adequate green space with vegetation around the plant area. It is recommended to build a water reservoir for recharge to Groundwater. However, it is strictly prohibited to inject the contaminated water or wastewater to the underground aquifer.
17. The Company will arrange the Training Programme regarding 'Water Governance and Compliance Monitoring' time to time to their employees.
18. Extensive awareness need to be built regarding water use and impact to the employees of the company and the nearby community of project area.
19. The NOC is not transferable/exchangeable without the prior approval.
20. Within the validity period of the NoC, any decision (imposition of water charges, issuance/renewal fee or service charge for NoC/ Clearing Certificate, levy of penalty for violation of enforcement or protection order, etc.) taken by the Government under the Bangladesh Water Act, 2013 and Bangladesh Water Rules, 2018 shall be applicable.
21. WARPO authority can change the existing conditions or add new conditions if necessary within the clearance time period. Moreover, the Authority reserve the power to cancel the 'NOC' if any condition of 'NOC' or Provision of Bangladesh Water Act, 2013 and Bangladesh Water Rules, 2018 is violated.
22. Environmental 'Clearance Certificate' will have to be taken from 'Department of Environment (DoE).

  
02-03-2023  
(Md. Rezaul Maksud Jahedi)  
Director General, WARPO  
Phone: 44819006  
E-mail: dg@warpo.gov.bd

Managing Director  
WTE Powe Plant, North Dhaka Private Limited  
F11, Anmika Concord, 583 Rokeya sarani,  
Dhaka-1216, Bangladesh

Copy for kind information:

1. Director General, Department of Environment (DoE), Agargaon, Dhaka
2. Deputy Commissioner & Chairman, District Integrated Water Resources Management Committee, Dhaka.
3. PS to Secretary (for kind information to Secretary), Ministry of Water Resources.
4. PS to DG, WARPO ( For kind information of DG, WARPO)
5. Office Copy.



## Appendix E. No Objection Certificate (NOC) of Water Intake from Local Authority

বিসমিল্লাহির রাহমানির রাহিম  
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

**বনগাঁও ইউনিয়ন পরিষদ কার্যালয়**  
**BANGAON UNION PARISHAD OFFICE**

P.O. Nagar Konda, Upazila-Savar  
District- Dhaka  
ডাকঘর- নগর কোন্ডা, উপজেলা- সাভার  
জেলা- ঢাকা-১২১৬।

স্মারক নং/Memo No. \_\_\_\_\_ তারিখ / Date : ২৭/১১/২০২২

স্থানীয় কর্তৃপক্ষ কর্তৃক প্রদেয় অনাপত্তিপত্র

১। প্রকল্পের নাম : “ওয়েস্ট- টু- এনার্জি পাওয়ার প্রজেক্ট”  
২। আবেদনকারীর নাম : ডব্লিউ টি ই পাওয়ার প্লান্ট নর্থ ঢাকা প্রাইভেট লিমিটেড  
৩। আবেদনকারীর ঠিকানা : এফ-১১, অনামিকা কনকর্ড, ৫৮৩-মোকেয়া অরশী, ঢাকা-১২১৬, বাংলাদেশ  
৪। প্রকল্পের অবস্থানগত ঠিকানা : বলিয়রপুর, সাভার, ঢাকা  
৫। প্রকল্পের তফসিল :

চেষ্টার নাম	পানির নাম	সেঁচার নাম	ভূ-গর্ভস্থ পানি উত্তোলনের অবস্থান	ভূপৃষ্ঠস্থ পানি উত্তোলনের অবস্থান	পানি উত্তোলনের পরিমাণ
ঢাকা	সাভার	বলিয়রপুর	১. অ্যাপেনডিক্স-১ এ নির্দেশিত ২. অ্যাপেনডিক্স-২ এ নির্দেশিত ৩. অ্যাপেনডিক্স-১ এ নির্দেশিত	অ্যাপেনডিক্স-১ এ নির্দেশিত	৭৮৯৮ টন/দিন

উপরোক্ত তথ্যটির আলোকে “ওয়েস্ট- টু- এনার্জি পাওয়ার প্রজেক্ট” প্রকল্পকে নিম্নবর্ণিত শর্তসাপেক্ষে অনাপত্তিপত্র প্রদান করা হলো।

- প্রকল্প স্থাপন ও পরিচালনার ক্ষেত্রে জাতীয় পানি নীতিমালা - ১৯৯৯ যথাযথভাবে অনুসরণ করতে হবে।
- ভূ-গর্ভস্থ পানির স্তর সঠিকভাবে পর্যবেক্ষণ করতে হবে এবং প্রয়োজনের অধিক ভূ-গর্ভস্থ পানি উত্তোলন করা যাবে না।
- প্রকল্প সৃষ্ট ভরল বর্জ্য অপরিপেখিত অবস্থায় বইয়ে নির্গমন করা যাবে না।
- ভূ-গর্ভস্থ ও ভূপৃষ্ঠস্থ পানি দূষণ হয় এমন কোন কার্য সম্পাদন করা যাবে না।
- উপযুক্ত অগ্নি নির্বাপক ব্যবস্থা রাখতে হবে এবং অগ্নিকাত্ত কিংবা অন্য কোন দুর্যন্তের সময় জরুরী নির্গমন ব্যবস্থা থাকতে হবে।
- কর্মরত শ্রমিকদের পেশ পত স্বাস্থ্য ও নিরাপত্তা নিশ্চিত করতে হবে।

উল্লিখিত যে কোন শর্ত লঙ্ঘন করলে যথোপযুক্ত কর্তৃপক্ষ কর্তৃক প্রকল্পের বিরুদ্ধে আইনানুগ ব্যবস্থা নেওয়া যাবে।

তারিখ: ২৭/১১/২০২২

স্থানীয় কর্তৃপক্ষের স্বাক্ষর ও সীল  
মোঃ সাইফুল ইসলাম  
চেয়ারম্যান  
বনগাঁও ইউনিয়ন পরিষদ  
সাভার, ঢাকা।

সময়মতো ইউনিয়ন পরিষদের ট্যাক্স পরিশোধ এবং জন্ম নিবন্ধন করুন।



বিসমিল্লাহির রাহমানির রাহিম  
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

**বনগাঁও ইউনিয়ন পরিষদ কার্যালয়**  
**BANGAON UNION PARISHAD OFFICE**

P.O. Nagar Konda, Upazila-Savar  
District- Dhaka  
ডাকঘর- নগর কোন্ডা, উপজেলা- সাভার  
জেলা- ঢাকা-১২১৬।

স্মারক নং/Memo No. \_\_\_\_\_ তারিখ / Date : ২৭/০৯/২০২২

জেলায় নাম	খানার নাম	মৌজার নাম	খতিয়ান নং**	দাগ নং	জমির ধরন	মোট জমির পরিমাণ
				৩৩৫২	নাশ	
				৩৩৪৯	রাপ্তা	
				৩৩৩৩	রাপ্তা	
				৩৩৫১	নাশ	
				৩৩২০	নাশ	
				৩৩২১	নাশ	
				৫০৩২	বাঁড়া	
				৫০০২	নাশ	
				৩৩৩৩	নাশ	
				৫০০৪	ভিটা, নাশ	
				৩৩২৪	নাশ	
				৩৩২৫	নাশ	
				৩৩২৩	ভিটা	
				৩৩২৮	নাশ	
				৩৩২৭	নাশ	
				৩৩২৯	নাশ	
				৩৩২৬	ভিটা, নাশ	
				৩৩২১	নাশ	
				৩৩২০	নাশ	
				৩৩২২	নাশ	
				৩৩২৪	ভিটা	
				৩৩২৬	নাশ	
				৩৩২৭	নাশ	
				৩৩২৮	নাশ	
				৩৩৩০	নাশ	
				৩৩৩২	নাশ	
				৩৩৩৩	নাশ	
				৩৩৩৪	নাশ	
				৩৩৩১	নাশ	
				৩৩৩৫	নাশ	
				৩৩২৯	নাশ	
				৫৩০১	নাশ	
				৫৩০২	নাশ	
				৫৩০৩	নাশ	
				৫৩০৪	নাশ	
				৫৩০৫	নাশ	
				৫৩১১	নাশ	
				৫৩১২	নাশ	
				৫৩১৩	নাশ	
				৫৩১৪	নাশ	
				৫৩১৫	নাশ	
				৫৩১৬	নাশ	
				৫৩২৩	নাশ	
				৫৩২২	নাশ	
				৫৩২১	নাশ	
				৫৩২৪	নাশ	

সময়মতো ইউনিয়ন পরিষদের ট্যাক্স পরিশোধ এবং জন্ম বিবন্ধন করুন।



বিস্মিল্লাহির রাহমানির রাহিম  
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

**বনগাঁও ইউনিয়ন পরিষদ কার্যালয়**  
**BANGAON UNION PARISHAD OFFICE**

P.O. Nagar Konda, Upazila-Savar  
District- Dhaka  
ডাকঘর- নগর কোন্ডা, উপজেলা- সাভার  
জেলা- ঢাকা-১২১৬।

স্মারক নং/Memo No. \_\_\_\_\_ তারিখ / Date : ২৯/১২/২০২২

জেলা নাম	থানার নাম	মৌজার নাম	খতিয়ান নং**	দাগ নং	জমির ধরন	মোট জমির পরিমাণ
				৩০৩৬	নং	
				৩০২২	নং	
				৩০২৩	পুকুর	
				৩০২৪	পতিত	

\*\* খতিয়ান নং ডিএনসিসি/ ডিসি অফিস এর এল এ শাখা থেকে সংগ্রহ করিতে হইবে।

৬। করযান/ প্রকল্পের উৎপাদিত পণ্যের নাম : বিদ্যুৎ

উপরোক্ত তথ্যাদির আলোকে "ওয়েস্ট-টু-গ্রানার্জি পাওয়ার প্রোজেক্ট" প্রকল্পকে নিম্নবর্ণিত শর্তসাপেক্ষে অনাপত্তিপত্র প্রদান করা হলো।

১. প্রকল্প স্থাপন ও পরিচালনার ক্ষেত্রে পরিবেশ সংরক্ষণ আইন ও বিধি যথাযথভাবে অনুসরণ করতে হবে।
২. পরিবেশ অধিদপ্তর হতে বিধি দ্বারা নির্ধারিত পদ্ধতিতে ছাড়পত্র গ্রহণ করতে হবে।
৩. কর্মরত শ্রমিকদের পেশাগত স্বাস্থ্য ও নিরাপত্তা নিশ্চিত করতে হবে।
৪. উপযুক্ত অগ্নি নির্বাপক ব্যবস্থা রাখতে হবে এবং অগ্নিকান্ড কিংবা অন্য কোন দুর্ঘটনার সময় জরুরি নির্গমন ব্যবস্থা থাকতে হবে।
৫. বায়ু ও শব্দ দূষণ করা যাবে না।
৬. প্রকল্প সৃষ্ট তরল বর্জ্য অপরিশোধিত অবস্থায় বাইরে নির্গমন করা যাবে না।

উল্লিখিত যে কোন শর্ত লঙ্ঘন করলে যথোপযুক্ত কর্তৃপক্ষ কর্তৃক প্রকল্পের বিরুদ্ধে আইনানুগ ব্যবস্থা নেওয়া যাবে।

তারিখ- ২৯/১২/২০২২

স্থানীয় কর্তৃপক্ষের স্বাক্ষর ও সীল  
মোঃ সাইফুল ইসলাম  
চেয়ারম্যান  
বনগাঁও ইউনিয়ন পরিষদ  
সাভার, ঢাকা।

সময়মতো ইউনিয়ন পরিষদের ট্যান্ডার পরিশোধ এবং জন্ম নিবন্ধন করুন।







## Appendix G. Gazette Copy on Land Possession

রেজিস্টার্ড নং ডি এ-১

২০২২ সনের ৪০ নং

বাংলাদেশ



গেজেট

কর্তৃপক্ষ কর্তৃক প্রকাশিত

স্থাপত্যবিদ্যায়, অক্টোবর ৬, ২০২২

সূচিপত্র		পৃষ্ঠা নং	পৃষ্ঠা নং		
১ম	৭৩-পঞ্চদশতমী বাংলাদেশ সরকারের সকল মন্ত্রণালয়, বিভাগ, সংস্কৃত ও অধীনস্থ দপ্তরসমূহ এবং বাংলাদেশ সুপ্রীম কোর্ট কর্তৃক জারীকৃত বিধি ও আদেশাবলী সন্নিবিষ্ট বিবিধ প্রজ্ঞাপনসমূহ।	৬২১-৬৯২	৭ম	৭৩-অন্য কোনো খণ্ডে প্রকাশিত অন্যান্য প্রকাশন কর্তৃক জারীকৃত অ-নিবন্ধিত ও বিবিধ প্রজ্ঞাপনসমূহ।	নাই
২য়	৭৩-প্রতিরক্ষা মন্ত্রণালয় ও বাংলাদেশ সুপ্রীম কোর্ট ব্যতীত পঞ্চদশতমী বাংলাদেশ সরকার কর্তৃক জারীকৃত যাবতীয় সিদ্ধান্ত, পসোল্লি, বদলী ইত্যাদি বিধিক প্রজ্ঞাপনসমূহ।	১৫০৯-১৫২০	৮ম	৭৩-কেন্দ্রকারি যুক্তি এবং কার্পোরেশন কর্তৃক অর্ধের নিয়মে জারীকৃত বিজ্ঞপন ও নোটিশসমূহ।	নাই
৩য়	৭৩-এইম ধরে অন্তর্ভুক্ত প্রজ্ঞাপনসমূহ ব্যতীত প্রতিরক্ষা মন্ত্রণালয় কর্তৃক জারীকৃত প্রজ্ঞাপনসমূহ।	১৯১-২০১	৯ম	৭৩-কেন্দ্রকারি যুক্তি এবং কার্পোরেশন কর্তৃক অর্ধের নিয়মে জারীকৃত বিজ্ঞপন ও নোটিশসমূহ।	নাই
৪র্থ	৭৩-এইম ধরে অন্তর্ভুক্ত প্রজ্ঞাপনসমূহ ব্যতীত পেটেন্ট অফিস কর্তৃক জারীকৃত প্রজ্ঞাপনসমূহ ইত্যাদি।	নাই	১০ম	৭৩-কেন্দ্রকারি যুক্তি এবং কার্পোরেশন কর্তৃক অর্ধের নিয়মে জারীকৃত বিজ্ঞপন ও নোটিশসমূহ।	নাই
৫ম	৭৩-বাংলাদেশ জাতীয় সংসদের এ্যাক্ট, বিল ইত্যাদি।	নাই	১১ম	৭৩-কেন্দ্রকারি যুক্তি এবং কার্পোরেশন কর্তৃক অর্ধের নিয়মে জারীকৃত বিজ্ঞপন ও নোটিশসমূহ।	নাই
৬ষ্ঠ	৭৩-এইম ধরে অন্তর্ভুক্ত প্রজ্ঞাপনসমূহ ব্যতীত বাংলাদেশ সুপ্রীম কোর্ট, বাংলাদেশের ন্যা-হিসাব নিরীক্ষক ও নিয়ন্ত্রক, বাংলাদেশ সরকারী কর্ম কমিশন এবং পঞ্চদশতমী বাংলাদেশ সরকারের অন্যান্য ও সংশ্লিষ্ট দপ্তরসমূহ কর্তৃক জারীকৃত প্রজ্ঞাপনসমূহ।	১০২৯-১০৫৬	১২ম	৭৩-কেন্দ্রকারি যুক্তি এবং কার্পোরেশন কর্তৃক অর্ধের নিয়মে জারীকৃত বিজ্ঞপন ও নোটিশসমূহ।	নাই

### ১ম খণ্ড

পঞ্চদশতমী বাংলাদেশ সরকারের সকল মন্ত্রণালয়, বিভাগ, সংস্কৃত ও অধীনস্থ দপ্তরসমূহ এক বাংলাদেশ সুপ্রীম কোর্ট কর্তৃক জারীকৃত বিধি ও আদেশাবলী সন্নিবিষ্ট বিবিধ প্রজ্ঞাপনসমূহ

রাজপত্রের কার্যালয়  
জন বিভাগ

প্রকাশন

তারিখ: ১৪ আষাঢ় ১৪২৯/২৮ জুন ২০২২

নং ০১.০০.০০০০.০০৯.০৪.০০৭.২১-২৯৮-সেহেতু, সরকারি কর্মচারী (শুল্কনা ও আপিল) বিধিমালা, ২০১৮ এর ৩(খ) অনুবাহী 'অনুদাতার' এর অভিযোগে রুজুকৃত ০০১/২০২২ নম্বর বিভাগীয় মামলার গত ১২-০৪-২০২২ খ্রি. তারিখের ০১.০০.০০০০.০০৯.০৪.০০৭.২১-১৫৯ নম্বর প্রজ্ঞাপনমূলে মোঃ গোলাম হায়দার, প্রশাসনিক কর্মকর্তা, জন বিভাগ, রাজপত্রের কার্যালয়-কে 'তিরস্কার' লঘুদণ্ড প্রদান করা হয়;

সেহেতু, উক্ত দপ্তরসমূহের বিরুদ্ধে মোঃ গোলাম হায়দার, প্রশাসনিক কর্মকর্তা, সরকারি কর্মচারী (শুল্কনা ও আপিল)

বিধিমালা, ২০১৮ অনুবাহী ০২-০৬-২০২২ খ্রি. তারিখে আপিল আবেদন করেছেন;

সেহেতু, মোঃ গোলাম হায়দার, প্রশাসনিক কর্মকর্তা, জন বিভাগ কর্তৃক এবং তার চাহুরির শেষ পর্যায় রয়েছে

সেহেতু, মোঃ গোলাম হায়দার, প্রশাসনিক কর্মকর্তা, জন বিভাগ, রাজপত্রের কার্যালয় এর বিরুদ্ধে সরকারি কর্মচারী (শুল্কনা ও আপিল) বিধিমালা, ২০১৮ এর ৩(খ) অনুবাহী 'অনুদাতার' এর অভিযোগে রুজুকৃত ০০১/২০২২ নম্বর বিভাগীয় মামলার প্রথম 'তিরস্কার' দণ্ড মতকৃত করে সকল অভিযোগ থেকে অব্যাহতি প্রদান করা হলো।

এ আদেশ অবিলম্বে কার্যকর হবে।

সম্পদ বহুরা  
সচিব।

মোহাম্মদ ইসমাইল হোসেন, উপপরিচালক (উপসচিব), বাংলাদেশ সরকারী প্রকাশন, তেজগাঁও, ঢাকা কর্তৃক মুদ্রিত।  
হাফিজা বেগম, উপপরিচালক (উপসচিব), বাংলাদেশ কবর ও প্রকাশনা অফিস, তেজগাঁও, ঢাকা কর্তৃক প্রকাশিত। website: www.bgpress.gov.bd (৬২১)

৬ষ্ঠ খণ্ড

বাংলাদেশ গেজেট, অক্টোবর ৬, ২০২২

১০৫৫

নং অর্থসেতেনি/ডি.এন/16092—কোম্পানি আইন ১৯৯৪ এর ৩৪৬(৩) ধারা অনুযায়ী এই মর্মে বিজ্ঞপ্তি প্রকাশ করা যাচ্ছে যে,

**Shanta Washing Plant Ltd. (C-28473)**

স্বাধীন কোম্পানিটি ব্যক্তিগত চালাচ্ছে কিনা বা কোম্পানির কার্যক্রম চালু আছে কিনা তা অর্থ বিভাগে প্রকাশের পর ৯০ (নব্বই) দিনের মধ্যে এর বিপরীতে কোনো কারণ সর্গানো না হলে অর্থ কোম্পানির নাম নিবন্ধন বহিঃস্থ কেটে দেয়া হবে এক কোম্পানিটি বিলুপ্ত হয়ে যাবে।

নং অর্থসেতেনি/ডি.এন/16095—কোম্পানি আইন ১৯৯৪ এর ৩৪৬(৩) ধারা অনুযায়ী এই মর্মে বিজ্ঞপ্তি প্রকাশ করা যাচ্ছে যে,

**Moazzem Garments Industries Limited (C-12528)**

স্বাধীন কোম্পানিটি ব্যক্তিগত চালাচ্ছে কিনা বা কোম্পানির কার্যক্রম চালু আছে কিনা তা অর্থ বিভাগে প্রকাশের পর ৯০ (নব্বই) দিনের মধ্যে এর বিপরীতে কোনো কারণ সর্গানো না হলে অর্থ কোম্পানির নাম নিবন্ধন বহিঃস্থ কেটে দেয়া হবে এক কোম্পানিটি বিলুপ্ত হয়ে যাবে।

**Md. Shafiqul Islam**  
সরকারী নিবন্ধক  
নিবন্ধকের পক্ষে।

**মুদ্রণ ও প্রকাশনা অধিদপ্তর**  
অভিলম্বিত

তারিখ: ১২ আশ্বিন ১৪২৯ বা/২৭ সেপ্টেম্বর ২০২২ খ্রি

নং ০৫.০৪.০০০০.০১৪.০১৩.১০.১৬/৪২৪৫/৯—মুদ্রণ ও প্রকাশনা অধিদপ্তর প্রধান কার্যালয়ের স্মারকসং (প্রশাসন) জ্ঞান মেসেজ আবেদন আই-কে সরকারি চাকরি আইন, ২০১৮ (২০১৮ সনের ৫৭ নং আইন) এর ৪৩(১)(ক) অনুযায়ী ০৯-০৮-২০২২ খ্রি. তারিখ থেকে সরকারি চাকরি হতে অবসর প্রদান করা হলো।

২। তার অনুসরণে ১৮ (আঠারো) মাসের মূল বেতনের সমপরিমাণ অর্ধ লাম্পসাম্প্রাইসহ ১০-০৮-২০২২ খ্রি. তারিখ থেকে ০৯-০৮-২০২৩ খ্রি. তারিখ পর্যন্ত ০১ (এক) বছরের অবসরোত্তর ছুটি (সিআরএল) প্রদান করা হলো।

৩। তিনি বিধি অনুযায়ী অবসর ও অবসরোত্তর ছুটিসম্পর্কিত সুবিধাদি প্রাপ্য হবেন।

তার মোঃ সায়েদুল করী  
পরিচালক (অতিরিক্ত সচিব)  
মহাপরিচালকের দায়িত্বে।

জেলা প্রশাসকের কার্যালয়, ঢাকা।

স্বাক্ষরিত শাখা-০২  
কমর

অধিবর্তন স্মারক নং-০২.১৪.২০/২০২০-২০২১

“সৌখিন”

[১৩ (২) ধারার সৌখিনকে]

যেহেতু, এ মর্মে সিল তকসিল বর্ণিত সম্পত্তি অধিবর্তনের সিদ্ধান্ত প্রকাশ করা হয়েছে এক “স্বাক্ষর সম্পত্তি অধিগ্রহণ ও হস্তান্তর নতুন আইন”, ২০১৭ (২০১৭ সনের ১১ নম্বর আইন) এর ১১ নং ধারা অনুসারে উক্ত সম্পত্তিসূচক প্রদান করা হয়েছে অথবা স্বাক্ষর প্রদান করা হবে বলে অনুমিত হয়েছে।

যেহেতু, এক্ষেত্রে, উক্ত আইনের ১৩(২) নং ধারা অনুযায়ী আমি ঘোষণা করছি যে, উক্ত সম্পত্তি বাধ্যতামূলকভাবে অধিগ্রহণ করা হল এক ইচ্ছা সর্গকর দায়-সারিত্ব মুক্ত হয়ে সরকারের উপর অর্পিত হল।

“তকসিল”

জেলা: ঢাকা, উপজেলা: সাতার, পৌর: বলিয়ামপুর,  
ফোন নং-১৮৫

বি.আর.এস খতিয়ান নম্বর	বি.আর.এস দাগ নম্বর	প্রদত্ত জমির পরিমাণ (একরে)
১	২	৩
২৫১/১	৩০১২ (অংশ)	০.০৮৭৬
৩০৫, ৪৭৫	৩০১৩ (অংশ)	০.১০০৭
৬২০	৩০১৪ (অংশ)	০.০০৮০
৪৫৬, ৬২০	৩০১৫ (অংশ)	০.৫৮৬৮
২৬২, ৩২১	৩০১৬ (পূর্ণ)	০.১২৫০
৩২১	৩০১৭ (পূর্ণ)	০.০০৫০
৪৫৯/১	৩০১৮ (পূর্ণ)	০.১১৩৬
৩২১	৩০১৯ (পূর্ণ)	০.১৪৬৪
১৮৮	৩০২০ (পূর্ণ)	০.১২৫৬
১৮৮, ১৩৯	৩০২১ (পূর্ণ)	০.১৫৪৪
৩২১	৩০২২ (পূর্ণ)	০.১৪৯২
১/১, ৫৩২	৩০২৩ (পূর্ণ)	১.০৬৮০
২৯৪	৩০২৪ (অংশ)	০.০৯০০
৬১৬	৩০২৫ (অংশ)	০.৮৮০০
২৮৯	৩০২৬ (পূর্ণ)	০.১৪৮০
২৮৯	৩০২৭ (পূর্ণ)	০.১৪২০
৩১২	৩০২৮ (পূর্ণ)	০.৫০৮০
১৯	৩০২৯ (পূর্ণ)	১.৮৪৬৮
১২৮	৩০৩০ (পূর্ণ)	০.৮৭০৪
৪৯১	৩০৩১ (পূর্ণ)	০.৪৪৯৮
৫৭৩	৩০৩২ (পূর্ণ)	০.২০৬২
২৬৮	৩০৩৩ (পূর্ণ)	০.০৬৪৪
৩০৫	৩০৩৪ (পূর্ণ)	০.১৬২৪
৫০৪	৩০৩৫ (অংশ)	০.৫২১২
১৩৪, ৪৪৬	৩০৩৬ (অংশ)	০.৫৭০৪
৩৯, ২০৯, ৪৮২, ৫০৩, ৬৯৯	৩০৩৮ (অংশ)	০.৭০৬৩
৬১৫	৩০৩৫ (অংশ)	০.২২৫৩
১, ৩১৫	৩০৩৬ (অংশ)	০.১৮৯৪
৬১৪	৩০৩৭ (অংশ)	০.০১২৬
৬১৩	৩০৩৮ (অংশ)	০.৬৭৪৭
২২৬	৩০৩৯ (অংশ)	০.৪৩০০
১/১, ৬৮৬	৩০২০ (পূর্ণ)	০.৬৮৮০
৫৪২	৩০২১ (পূর্ণ)	০.২৯৯২
২৯৭, ৫৪২	৩০২২ (পূর্ণ)	০.৫৮৮৮
১, ৪৫২	৩০২৩ (পূর্ণ)	০.৬০৬০
২৯৮	৩০২৪ (অংশ)	০.৫৫৬৬
৩৯, ২০৯	৩০২৫ (অংশ)	০.০২৪০



১০৫৬

বাহাদুরগঞ্জ পোস্ত, আর্বোবন ৬, ২০২২

উইট নং

১	২	৩
৬১৩	৩৩২৬ (পূর্ণ)	১.০৬৪৪
৪৯০	৩৩২৭ (পূর্ণ)	০.৩৪০০
৪৯২, ৫৬৫	৩৩২৮ (পূর্ণ)	০.২৯০০
৬৩৩	৩৩২৯ (পূর্ণ)	০.১৭২০
৬১৭	৩৩৩০ (পূর্ণ)	০.৫২৬০
৬১৭, ৬৪৭	৩৩৩১ (পূর্ণ)	০.৭০০০
৬৩৩	৩৩৩২ (পূর্ণ)	০.৬২৮৮
২৭১	৩৩৩৩ (পূর্ণ)	০.০৮৫২
২৭১, ২৮২, ৪১২, ২৯৩/১	৩৩৩৫ (পূর্ণ)	১.১৯৮০
১/১, ৩৫৫, ৫৩৪, ৭০৯	৩৩৩৬ (পূর্ণ)	০.৫২৫২
৬১৫	৩৩৩৭ (পূর্ণ)	১.২৯৭২
২১	৩৩৩৮ (পূর্ণ)	০.২২২৮
২১, ২৯৬, ৩৭৮	৩৩৩৯ (পূর্ণ)	০.৭৯৪৮
৫৪২	৩৩৪০ (পূর্ণ)	০.২৫৮৮
২৫৮	৩৩৪১ (অংশ)	০.০৮০০
৩৬৯	৩৩৪২ (পূর্ণ)	০.০২৬৪
২৯৬, ৩৭৮	৩৩৪৩ (পূর্ণ)	০.৩৬২০
৬১৫	৩৩৪৪ (পূর্ণ)	০.৫৩৭৬
২৩৩, ৬১৫	৩৩৪৫ (পূর্ণ)	০.৫০৯৬
৬১৫	৩৩৪৬ (পূর্ণ)	০.৪৩৮০
৬১৫	৩৩৪৭ (পূর্ণ)	০.০৬৪০
১	৩৩১৯/৩৩৪৯ (পূর্ণ)	০.১১২০
৩৪	৩৩১৯/৩৩৫০ (পূর্ণ)	০.০৮০০
৬১৫	৩৩২০/৩৩৫১ (পূর্ণ)	০.১২৫০

১	২	৩
১/১, ৫৮২	৩৩৩৬/৩৩৫২ (পূর্ণ)	০.৩১০০
২৫৪, ১	৫০০১ (পূর্ণ)	০.১৯০০
৬৫৩, ১	৫০০২ (পূর্ণ)	০.৫৫০০
৬৫৩	৫০০৩ (পূর্ণ)	০.১৩১৬
৭০৭, ৩১১, ১	৫০০৪ (অংশ)	০.২৩০০
৪৫১, ৪৮১, ৬২৬, ৬৯৫	৫০০১ (পূর্ণ)	০.৮৬৯২
১, ২০	৫০০২ (পূর্ণ)	০.৪২০২
১, ৬৫৪	৫০০৩ (পূর্ণ)	০.৬২১৬
১, ৬৬১	৫০০৪ (পূর্ণ)	০.৩৭৭৬
৪৫১, ৬০১, ৬৬১, ৬৮৪	৫০০৫ (পূর্ণ)	০.৫১০০
১, ৬০১	৫০১১ (পূর্ণ)	০.০৭০০
৬৩১	৫০১২ (পূর্ণ)	০.১০০০
৯৫	৫০১৩ (পূর্ণ)	০.১০০০
৩২০	৫০১৪ (পূর্ণ)	০.১১০০
৬০১	৫০১৫ (পূর্ণ)	০.১১২৫
১৭	৫০১৬ (অংশ)	০.০১৬২
৬৪৯	৫০২১ (অংশ)	০.০৪২০
১৭	৫০২২ (পূর্ণ)	০.০৯০৪
৫৮০	৫০২৩ (পূর্ণ)	০.২৩৪০
৫৮৭	৫০২৪ (অংশ)	০.৩৮২৫

সর্বমোট = ৩০.০০ একর

স্বাক্ষরিত কর্তৃক  
অতিরিক্ত সেশা প্রশাসক (এল.এ.)।

## Appendix H. Estimated Budget of Deputy Commissioner (DC)

“ব” ফরম


প্রকল্পের নাম: “আমিন বাজার শ্যাডোবিল সম্প্রদায় ও আবুদুদীকব্ব” শীর্ষক প্রকল্প


মৌজা বলিয়ারপুর, মে. এল নং- ১৮৫, থানা: সাভার, জেলা: ঢাকা।


এল. এ. কেস নং- ০২১৪.২০/২০২০-২০২১


ক্রমিক নং ১	ক্রমিক নং ২	ক্রমিক নং ৩	ক্রমিক নং ৪	ক্রমিক নং ৫	ক্রমিক নং ৬	ক্রমিক নং ৭	ক্রমিক নং ৮	ক্রমিক নং ৯	ক্রমিক নং ১০	ক্রমিক নং ১১	ক্রমিক নং ১২	ক্রমিক নং ১৩	ক্রমিক নং ১৪	ক্রমিক নং ১৫
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪	১৫
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪	১৫
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪	১৫
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪	১৫


প্রকল্প তুলনামূলক সর্বমোট প্রকল্পিত আর্থিক পরিমাণ = ০০৬,০৪,৬৪,৯২২/৯৭ (সাতটি হাজার ত্রিশ হাজার ঠাট্টাশ পঞ্চাশটি টাকার সমতুল্য)

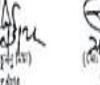
  
১৬/০১/২০২১  
১৬/০১/২০২১


  
১৬/০১/২০২১  
১৬/০১/২০২১


  
১৬/০১/২০২১  
১৬/০১/২০২১

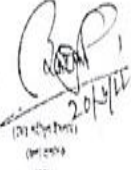
  
১৬/০১/২০২১  
১৬/০১/২০২১

  
১৬/০১/২০২১  
১৬/০১/২০২১

  
১৬/০১/২০২১  
১৬/০১/২০২১

  
১৬/০১/২০২১  
১৬/০১/২০২১

  
১৬/০১/২০২১  
১৬/০১/২০২১

  
১৬/০১/২০২১  
১৬/০১/২০২১

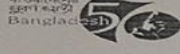

## Appendix I. Status (Last Column) of Compensation Disbursement

এল.এ.শাখা নং-০২  
 হাবর সম্পত্তি অধিগ্রহণ ও মুকুম দখল আইন, ২০১৭ এর আওতায় এল.এ.কেস সংক্রান্ত তথ্য  
 গোয়েটে প্রকাশিত এল.এ.কেস সংখ্যা-১৪ টি

ক্রমিক নং	এল.এ.কেস নং	প্রকল্পের নাম	প্রদেয় ক্ষতিপূরণ অর্ধের পরিমাণ এবং হার	জমির পরিমাণ	মন্তব্য
০১	২২/২০১৭-১৮	সাতার ইপিজেড পানি নিষ্কাশনের জন্য ড্রেন নির্মান প্রকল্প	৩৬৫,৩৪,৩৯৮/৪৪ ৪৩.০৪%	২.৮৫৪৭	১০/১২/২০২০ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
০২	০২/২০২০-২১	ঢাকা শহর সন্নিকটবর্তী এলাকায় ১০ টি সরকারী মাধ্যমিক বিদ্যালয় স্থাপন প্রকল্প	২,৪৫,৯০,২২৬/৬৬ ১৭.৩৮%	২.০০	০৮/১২/২০২২ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
০৩	০৬/২০১৮-১৯	ইসলামী আরবী বিশ্ববিদ্যালয়	৯৬,৩৮,১৮০/৮২ ৩২.৪১%	১৭.৭২৯৪	২৮/০৭/২০২২ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
০৪	১০/২০১৮-১৯	পাওয়ার গ্রীড কোম্পানি অব বাংলাদেশ	৪৩,৯১,৩৮,০৩৩/৩৪ ৮৭.২৬%	০.১৭২৩	১১/১১/২০২১ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
০৫	০১/২০১৮-১৯	একটি টেকনিক্যাল স্কুল ও কলেজ নির্মান প্রকল্প	৪,৮৭,২৭,১৮৭/৪২ ৯২.৪২%	২.৪১	১০/১২/২০২০ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
০৬	০৫/২০১৮-১৯	পাওয়ার গ্রীড কোম্পানি অব বাংলাদেশ	৩,০৭,৬২,৫৯৯/৩৮ ৯৩.৩৫%	১.০০	১০/১২/২০২০ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
০৭	০২/২০১৮-১৯	জগন্নাথ বিশ্ববিদ্যালয়	৭৮৯,০১,৯৭,১১১/২৩ ৮৭.৬৮%	১৮৮.৬০	১০/১২/২০২০ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
০৮	০৪/২০১৮-১৯	পাওয়ার গ্রীড কোম্পানি অব বাংলাদেশ	৪৯,২০,৫২,২৭৩/২০ ৯১.৮৭%	৫.০০	১০/১২/২০২০ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
০৯	২৩/২০১৭-১৮	মাতৃসাইল স্যানিটারী ম্যাজিস্ট্রাল সম্প্রসারণসহ ভূমি উন্নয়ন শীর্ষক প্রকল্প	১২১২,০৬,৮৮,০০৪/২৪ ৯৬.৪২%	৮১.০৬০৯	০১/০৭/২০২১ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
১০	০৪/২০২০-২১	পাওয়ার গ্রীড কোম্পানি অব বাংলাদেশ	১,৯১,৬১,৬৬৭/৫৫ ২৫.২৫%	২.৫০	০৪/০৮/২০২২ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
১১	০৫/২০২০-২১	ঢাকা শহর সন্নিকটবর্তী এলাকায় ১০ টি সরকারী মাধ্যমিক বিদ্যালয় স্থাপন প্রকল্প	২০,৭৩,৮৫,৮৪১/০৭ ৭৯.৩৯%	২.০০	০৩/১১/২০২২ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
১২	০৭/২০২০-২১	পাওয়ার গ্রীড কোম্পানি অব বাংলাদেশ	৩,১০,০৭,৭০২/৮৮ ১৮.৮২%	১.০৩০০	০৩/১১/২০২২ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
১৩	০৮/২০২০-২১	পাওয়ার গ্রীড কোম্পানি অব বাংলাদেশ	২,৭৯,৯২,২১২/৭০ ৫৩.৭৭%	১.০২০১	১৯/০১/২০২৩ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।
১৪	২০/২০২০-২১	ডিএনসিএস 'আমিন পাওয়ার প্ল্যান্টের সম্প্রসারণ ও আধুনিকায়ন' শীর্ষক প্রকল্প	১৯৯,৬৪,৫০,৪৯২/৪৬ ৫৯.৩৬%	৩০.০০	০৬/১০/২০২২ ইং তারিখে গোয়েটে প্রকাশিত হয়েছে।



## Appendix J. List of Waste Pickers provided by DNCC

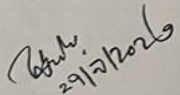
ঢাকা উত্তর সিটি কর্পোরেশন  
প্লট নং-২৩-২৬, সড়ক নং-৪৬, গুলশান-২, ঢাকা-১২১২  
[www.dncc.gov.bd](http://www.dncc.gov.bd)

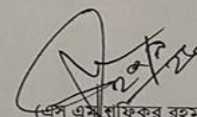
শেখ হাসিনার মূলনীতি  
গ্রাম শহরের উন্নতি

স্মারক নং-৪৬.১০.০০০০.০৫২. তারিখ : ২৭/২/২০২০

বিষয়ঃ আমিন বাজার ল্যান্ডফিলের টোকাইদের তালিকা।

ক্রমিক নং	নাম	মোবাইল নম্বর	ক্রমিক নং	নাম	মোবাইল নম্বর
১	স্বপ্না	০১৯৩৩০৩২০৯৩	২১	আমির হোসেন	০১৯৮১৬১০১৯২
২	খাদিজা	০১৮১২০৭৩৫৬১	২২	শাহিন	০১৮২৯০৫৯২৯৩
৩	শান্তি	০১৮৯২৪১৩৮৬২	২৩	আরজু	০১৩১৩৬৩৪২৯৫
৪	নূর উদ্দিন	০১৭৩৩৭২১৩০৪	২৪	ইউসুফ	০১৯৪৬০২৬৪৬৪
৫	সাহানুর বেগম	০১৭৬৭৬০৮৮৩৩	২৫	রাব্বিব	০১৭৮২৩৬০০১৫
৬	মনির দিদার	০১৭৯৮৭৬৮৩৭৫	২৬	বজলু	০১৭৮০১২৯৮৪৮
৭	হাসান-১	০১৯৩৯৬১৩৩৪৮	২৭	মোঃ রিপন	০১৭৯৯৪০০৫৪৮
৮	আঃ রহমান-১	০১৭৭৬২৩১২৮৪	২৮	মোঃ জুয়েল	০১৩১৩৬৩৪২৯৫
৯	তাছলিমা	০১৮৪২২১২৭০৩	২৯	রুবেল	০১৯৭০৪৯৫০০৩
১০	হাসান-২	০১৭৮২৮৬৩২৫৯	৩০	ইকবাল হোসেন	০১৭২১২৯৬১৯৪
১১	জসিম	০১৭০৭১১৫৭৪০	৩১	বাবু	০১৭৭৪৭৮৬১৮৩
১২	হেলাল	০১৭৭৭৫৭৭৮২৬	৩২	রাহিমা	০১৯৬৩৫৪৬৭৪৮
১৩	আঃ রহমান-২	০১৩০১৬৪০৮৮৩	৩৩	শাপলা	০১৯৫২৫৭৯৮৮৩
১৪	নিজাম	০১৭৬১২১৬১৫২	৩৪	মোঃ হেলাল	০১৮৭৪৬৯৯৭২
১৫	হাসান-৩	০১৮৮২২২৭৫৮৯	৩৫	তানিয়া	০১৩১৫০০৫৮৮১
১৬	বাবলু	০১৭৮৭১৯০৩৩৬	৩৬	নজি মন্ডল	০১৩১৩৯৫২১৯৯
১৭	হানিফ	০১৭০২০০০১২১	৩৭	মোঃ আমিনুল	০১৩০০৮৪৩৪২৬
১৮	নাছির	০১৭৭০০৭৮৪৪৭	৩৮	রাব্বাক	০১৩০২৬১৪২৮৮
১৯	কাসেম	০১৭১৮৪২৫০৬১	৩৯	নূর ইসলাম	০১৯২৯০৫৮১২৭
২০	মকবুল	০১৪০৩২৫৯৬৬০	৪০	রানু	০১৯৪৬০২৬৪৬৪

  
(খন্দকার এনামুল করিম)  
সহকারী প্রকৌশলী (পুর)  
বর্জ্য ব্যবস্থাপনা বিভাগ  
ঢাকা উত্তর সিটি কর্পোরেশন

  
(এম এম হাফিজুর রহমান)  
তত্ত্বাবধায়ক প্রকৌশলী (পুর/যান্ত্রিক)  
বর্জ্য ব্যবস্থাপনা বিভাগ  
ঢাকা উত্তর সিটি কর্পোরেশন

DNCC Pad

**Table 14-1 Annexure I Profiling of Impacted landowners availed compensation against acquisition of land parcel for WtE Project**

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
1	Ibrahim Chiddikur Rahaman	Kandi Baliarpur	Male	3012 (Part)	Null	0.0876(0.0790)	18,99071.64	56,97,214.92(51,37,899.30)	3 % tax deducted at source
	Md. Osman Goni	Kandi, Boliarpur (Mongol chan)	Male	3012	Null	0.0086		5,59,315.62	
2	Jalal Uddin	Mirpur, Dhaka	Male	3013 (Part)	Null	0.1007	21,83,065.23	65,49,195.69	
	Md. Afzal Hossainm (Rubel)	Bazarpara, Mirpur	Male	3013 (part)	Null	0.0673		43,76,969.91	
	Md. Shafikul Ishlam	Satarkul, Taltala, Dhaka	Male	3013(part)	Null	0.0334		2172225.78	
3	Sona Vanu	Mohammadpur , Dhaka		3014 (Part)	Viti	0.0080	3,06,461.60	9,19,384.80	
4	Mrs. Rabeya Hossain	Baro hat kora, Daulatpur	Female	3015 (Part)	Viti	0.4700	1,80,04,619.00	5,40,13,857.00	
					Null	0.1168	25,32,095.52	75,96,286.56	
					Total	0.5868	2,05,36,714.52	6,16,10,143.56	
	Md. Shafikul Ishlam (Father Md. Tota Mia)	Saturkul, Taltala, Badda, Dhaka(1082 Khatian)		3015	Viti	0.1500		1,72,38,465.00	
5	Osman Goni, Chan Miya	Sang, Baliarpur	Male	3016 (Part)	Viti	0.1250	47,88462.50	1,43,65,387.50	
6	Dhaka International University	Block F Banani, Dhaka		3016 (part)	Viti	0.1250	1,91,538.50	11,49,2310.00	

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any	
	Nazrul Ishlam (Namjari Owner)									
	Dhaka International University Nazrul Ishlam (Namjari Owner)			3017 (full)	viti	0.0050	1,91,538.50	574615.5		
7	Rajjab Ali		Male	3018 (Full)	Viti	0.1136	43,51,754.72	1,30,55,264.16		
	Md. Kholilur Rahman	Shyamoli, Mopur, Dhaka	Male					1,30,55,264.16		
8	Dhaka International University	Block F Banani, Dhaka		3019 (Full)	Viti	0.1464	56,08,247.28	1,68,24,741.84		
	Nazrul Ishlam	Mohmmadpur, Dhaka	Male			0.0330		12871387.20		
9	Abdur Rahim		Male	3020 (Full)	Viti	0.0256	9,80,677.12	29,42,031.36		
					Null	0.1000	21,67,890.00	65,03,670.00		
	Total	0.1256	31,48,567.12	94,45,701.36						
	Mirza Ashauddin			3020	Viti/null	0.0057/0.0221		20,92,372.74		

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
	Md. Ashraful Alam			3020	Viti/Null	0.0071/0.0279		26,30,477.94	
	Mirza Ashauddin			3021(full)	Viti/Null	0.005020/0.009380		11,86,958.20	
	Md. Ashraful Alam			3021					
10	Abdur Rahim	Baliarpur, Nagar Konda	Male	3021 (Full)	Viti	0.0244	9.34707.88	28,04,123.64	
					Null	0.1300	28,18,257.00	84,58,771.00	
					Total	0.1544	37,52,964.88	1,12,58,898.64	
11	Dhaka International University	Block F Banani, Dhaka		3022 (Full)	Null	0.1492	32,34,491.88	97,03,475.64	
12	Gana Prajatanti Bangladesh Sarkar Pokhe	Dhaka		3023 (Full)	Viti	0.9380	3,59,32,622.60	10,77,97,867.80	
					Null	0.1300	28,18,257.00	84,54,771.00	
					Total	1.0680	3,87,50,879.60	11,62,52,638.00	
13	Chayedul Halk	Notun Paltan Line Ajimpur, Dhaka	Male	3024 (Full)	Viti	0.0900	34,47,693.00	1,03,43,079.00	
14	Sultana Begum		Female	3025 (Full)	Viti	0.8800	3,37,10,776.00	10,11,32,328.00	
15	Guru Pramod Das	Konda	Male	3026 (Full)	Bari	0.0880	44,25,141.61	1,32,75424.80	
					Viti	0.0600	22,96,924.00	68,95,386.00	
					Total	0.1480	67,23,603.00	2,01,70,810.80	



China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
16	Guru Pramod Das	Konda	Male	3027 (Full)	Bari	0.1420	71,40,569.40	2,14,21,708.20	
17	Jahidul Islam +5 person	Nagar Konda	Male	3028 (Full)	Bari	0.5090	2,55,95,421.30	7,67,86,263.90	
18	Abdul Malek	Konda	Male	3029 (Full)	Null	1.7498	3,79,33,769.22	11,38,01,217.66	
					Viti	0.100	38,30,770.00	1,14,92,310.00	
					Total	1.8498	4,17,64,509.22	12,52,93,527.66	
19	Abdul Basar	Lek Sarkas Kalabagan, Dhaka	Male	3030 (Full)	Null	0.6604	1,43,16,745.56	4,29,50,236.68	
					Viti	0.2100	80,44,617.00	2,41,33,851.00	
					Total	0.8708	2,23,61,362.56	6,70,84,087.68	
20	Mijanur Rahaman + 2	Konda	Male	3031 (Full)	Null	0.498	97,51,169.22	2,92,53,507.66	
21	Sadim Ali	Konda	Male	3032 (Full)	Null	0.2062	44,70,189.18	1,34,10,567.54	
22	Mohammad Osman Gani	Kandi Baliarpur, Savar	Male	3033 (Full)	Null	0.0640	13,87,449.60	41,62,348.80	
23	Jalal Uddin+1	Kandi Baliarpur	Male	3034 (Full)	Null	0.1624	35,20,653.36	1,05,61,960.08	
24	Mehera Khatun		Female	3035 (Full)	Null	0.5212	1,12,99,042.68	3,38,97,128.04	
25	Abul Hossain	Bagbari, Mirpur, Dhaka	Male	3036 (Full)	Null	0.5708	1,23,65,644.56	3,70,96,933.68	
26	Anoara Begum	Nagarkonda, Savar	Female	3304 (Part)	Viti	0.7063	2,70,56,728.51	8,11,70,185.53	

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
27	Mohammad Suja Uddin+7	Kotayali	Male	3305 (Part)	Null	0.0153	3,31,687.17	9,95,061.51	
					Viti	0.2100	80,44,617.00	2,41,33851.00	
					Total	0.2253	83,76,304.17	2,51,28,912.51	
28	Gana Prajatanti Bangladesh Sarkar Pokhe	Dhaka		3306 (Part)	Null	0.1244	26,96,855.16	80,90,565.48	
					Viti	0.0650	24,90,000.50	74,70,001.50	
					Total	0.1894	51,86,855.66	1,55,60,566.98	
29	Mohammad Suja Uddin +7	Lutfar Rahaman Lane, Kotayali	Male	3317 (Part)	Null	0.0126	2,73,154.14	8,19,462.42	
30	Mohammad Suja Uddin +7	Lutfar Rahaman Lane, Kotayali	Male	3318 (Part)	Null	0.6747	1,46,26,753.83	4,38,80,261.49	
31	Islam Uddin	Lutfar Rahaman Lane, Kotayali	Male	3319 (Part)	Null	0.4100	88,88,349.00	2,66,65,047.00	
32	Gana Prajatanti Bangladesh Sarkar Pokhe	Dhaka		3320 (Full)	Null	0.6800	1,47,41,652.00	4,42,24,956.00	
33	Sahajahan Ali + 9	Konda	Male	3321 (Full)	Null	0.2992	64,86,326.88	1,94,58,980.64	
34	Chorhab Molla	Melar Town	Male	3322 (Full)	Null	0.5788	1,25,47,747.32	3,76,43,241.96	
35	Gana Prajatanti Bangladesh Sarkar Pokhe	Dhaka		3323(Full)	Null	0.6060	1,31,37,413.40	3,94,12,240.20	

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
36	Jagadish Chandra Sarkar +3	Nagar Konda	Male	3324 (Part)	Null	0.5546	1,20,23,117.94	3,60,69,353.82	
37	Anoara Begum	Charsita, Ramgati, Lakhipur	Female	3325 (Part)	Null	0.0240	5,20,293.60	15,60,880.80	
38	Mh. Suja Uddin +7		Male	3326 (Full)	Null	0.8144	1,76,55,296.16	5,29,65,888.48	
					Viti	0.2500	95,76,925.00	2,87,30,775.00	
					Total	1.0644	2,72,32,221.16	8,16,96,663.48	
39	Mijanur Rahaman+2	Nagar Konda	Male	3327 (Full)	Viti	0.3400	1,30,24,618.00	3,90,73,854.00	
40	Mijanur Rahaman	Nagar Konda	Male	3328 (Full)	Viti	0.2900	1,11,09,233.00	3,33,27,699.00	
41	Hajarat Ali	Nagar Konda	Male	3329(Full)	Viti	0.1720	65,88,924.40	1,97,66,773.20	
42	Sultan Miya +6	Nagar Konda	Male	3330(Full)	Null	0.4860	1,05,35,945.40	3,16,07,836.20	
					Viti	0.0400	15,32,308.00	45,96,924.00	
					Total	0.5260	1,20,68,253.40	3,62,04,760.20	
43	SULTAN MIYA+6	Nagar Konda	Male	3331(Full)	Null	0.6000	1,30,07,340.00	3,90,22,020.00	
					Viti	0.1000	38,30,770.00	1,14,92,310.00	
					Total	0.7000	1,68,38,110.00	5,05,14,330.00	

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
44	Haji Md. Abbas Ali	Dakshin Keraniganj,Dhaka	Male	3332(Full)	Viti	0.6288	2,40,87,881.76	7,22,63,645.28	
45	Osec Ali	Nagar Konda	Male	3333(Full)	Viti	0.0852	32,63,816.04	94,97,704.67	
46	Osec Ali	Nagar Konda	Male	3335(Full)	Viti	1.1980	4,58,92,624.60	13,76,77,873.80	
47	Md. Rakib ul Hasan	Bancharampur, Bramhanberiya	Male	3336(Full)	Null	0.0252	5,46,308.28	16,38,924.84	
					Viti	0.3000	1,14,92,310.00	3,44,76,930.00	
					Bari	0.2000	1,00,57,140.00	3,01,71,420.00	
					Total	0.5252	2,20,95,758.28	6,62,87,274.84	
48	Md. Suja Uddin +7	Kotyali	Male	3337(Full)	Null	0.8400	1,82,10,276.00	5,46,30,828.00	
					Viti	0.4572	1,75,14,280.44	5,25,42,841.32	
					Total	1.2972	3,57,24,556.44	10,71,73,669.32	
49	Ramesh Chandra Ghosh +2	Mohhamadpur, Dhaka	Male	3338 (Full)	Null	0.2228	48,30,058.92	1,44,90,176.76	
50	Anggura Khatoon	Nagar Konda	Female	3339 (Full)	Null	0.7948	1,72,30,389.72	5,16,91,169.16	
51	Sahajahan Ali +9	Konda	Male	3340(Full)	Null	0.2588	56,10,499.32	1,68,31,497.96	

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
52	Ekhlas Uddin +1	Baliyarpur	Male	3341(Full)	Null	0.0200	4,33,578.00	13,00,734.00	
					Bari	0.0600	30,17,142.00	90,51,426.00	
					Total	0.0800	34,50,720.00	1,03,52,160.00	
53	Noor Mohammad +1	Baliyarpur, Savar	Male	3342(Full)	Null	0.0264	5,72,322.96	17,16,968.88	
54	Anoyar Molla +5	Konda	Male	3343(Full)	Null	0.3620	78,47,761.80	2,35,43,285.40	
55	Md.Suja Uddin +7	Kotyali	Male	3344(Full)	Null	0.5376	1,16,54,576.64	3,49,63,729.92	
56	Istaj Ali	Nagarkonda	Male	3345(Full)	Null	0.4696	1,01,80,411.44	3,05,41,234.32	
					Viti	0.0400	15,32,308.00	45,96,924.00	
					Total	0.5096	1,17,12,719.44	3,51,38,158.32	
57	Subhankar Ghosh +1	Mohhamadpur	Male	3346 (Full)	Null	0.1580	34,25,266.20	1,02,75,798.60	
					Viti	0.2800	1,07,26,156.00	3,21,78,468.00	
					Total	0.4380	1,41,51,422.20	4,24,54,266.60	
58	Md.Suja Uddin +5	Kotyali	Male	3347 (Full)	Viti	0.0640	24,51,692.80	73,55,078.40	
59	Gonoprojatontori Bangladesh Sarkar Pokkhe Jela Prosashak	Dhaka		3319/3349 (Full)	Rasta/Halt	0.1120	24,28,036.80	72,84,110.40	

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
60	Alif Properties Ltd.	Kotyali		3319/3350(Part)	Null	0.0800	17,34,312.00	52,02,936.00	
61	Md.Suja Uddin +5	Kotyali	Male	3320/3351(Part)	Null	0.1250	27,09,862.50	81,29,587.50	
62	Saroyar Hossain Mailan	Mirpur	Male	3336/3352(Full)	Null	0.1700	36,85,413.00	1,10,56,239.00	
					Viti	0.1400	53,63,078.00	1,60,89,234.00	
					Total	0.3100	90,48,491.00	2,71,45,473.00	
63	Gonoprojatont ri Bangladesh Sarkar Pokkhe Jela Prosashak	Dhaka		5001(Full)	Null	0.1200	26,01,468.00	78,04,404.00	
					Bari	0.0700	35,19,999.00	1,05,59,997.00	
					Total	0.1900	61,21,467.00	1,83,64,401.00	
64	Gonoprojatont ri Bangladesh Sarkar Pokkhe Jela Prosashak	Dhaka		5002(Full)	Null	0.5500	1,19,23,395.00	3,57,70,185.00	
65	Hadich Ali		Male	5003 (Full)	Null	0.0366	7,93,447.74	23,80,343.22	
					Viti	0.0950	36,39,231.50	1,09,17,694.50	
					Total	0.1316	44,32,679.24	1,32,98,037.72	
66	Gana Pajatanti Bangladesh Sarkar Pokke Jela Prashasak	Dhaka		5004 (Part)	Viti	0.2300	88,10,771.00	2,64,32,313.00	
67	Mehaboob Rahaman+ 2	Konda	Male	5301 (Full)	Viti	0.3692	1,41,43,202.84	4,24,29,608.52	
					Bari	0.5000	2,51,42,850.00	7,54,28,550.00	
					Total	0.8692	3,92,86,052.84	11,78,58,158.52	

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
68	Gana Pajatanti Bangladesh Sarkar Pokhe Jela Prashasak	Dhaka		5302 (Full)	Null	0.4202	91,09,473.78	2,73,28,421.34	
69	Gana Pajatanti Bangladesh Sarkar Pokhe Jela Prashasak	Dhaka		5303 (Full)	Null	0.6216	1,34,75,604.24	4,04,26,812.72	
70	Gana Pajatanti Bangladesh Sarkar Pokhe Jela Prashasak	Dhaka		5304 (Full)	Null	0.3776	81,85,952.64	2,45,57,857.92	
71	Ramesh Ghosh	Khilji Road Shayamali, Mohamadpur	Male	5305 (Full)	Null	0.0400	8,67,156.00	26,01,468.00	
					Bari	0.4700	2,36,34,279.00	7,09,02,837.00	
					Total	0.5100	2,45,01,435.00	7,35,04,305.00	
72	Gana Prajatantri Bangladesh Sarkar Pokhe	Dhaka		5311 (Full)	Null	0.0700	15,17,523.00	45,52,569.00	
73	Hajarat Ali Molla	Konda moulya Bari	Male	5312 (Full)	Null	0.1000	21,67,890.00	65,03,670.00	
74	Haji Mo. Safi Ullaha	Mirpur,Savar, Dahka	Male	5313 (Full)	Null	0.1000	21,67,890.00	65,03,670.00	
75	Ramesh Chandra Ghosh	Khilji road Shyamali, Mohamadpur	Male	5314 (Full)	Null	0.1100	23,84,679.00	71,54,037.00	



China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Sl. No	Name of Landowner	Village	Sex	BRS Dag No. (Part/Full)	Category Of Land	Area of land given for Project (in acre)	Price of Land	Total amount of compensation received	Remarks if any
76	Haji Samchul Hak		Male	5315 (Full)	Null	0.1125	24,38,876.25	73,16,628.75	
77	Baliarpur Alnur Bohumukhi Samabay Samiti Limited er pokhe Savapti			5316 (Part)	Null	0.0162	3,51198.18	10,53,598.54	
78	Alhaj Aa Ajij Dewan	PC Culture Housing Society	Male	5321 (Part)	Null	0.0420	9,10,513.80	27,31,541.40	
79	Baliarpur Alnur Bohumukhi Samabay Samiti Limited er pokhe Savapti			5322 (Full)	Null	0.0904	19,59,772.56	58,79,317.68	
80	Salah Uddin, Sohorar Uddin		Male	5323 (Full)	Null	0.2340	50,72,862.60	1,01,45,725.20	
81	Haji Samsuddin Aahamad	Baliarpur, Dhaka	Male	5324 (Full)	Null	0.3825	82,92,179.25	248,76,537.75	

Source: AWARD Book of DC Office, Bangladesh

Note: The yellow highlighted numbers represent Dhaka International University Nazrul Ishlam, Gana Pajatanti Bangladesh Sarkar Pokhe Jela Prashasak, and Baliarpur Alnur Bohumukhi Samabay Samiti Limited er pokhe Savapti amongst individual landowners. Those highlighted numbers are 6, 8, 11, 12, 28, 32, 35, 59, 63, 64, 66, 68, 69, 70, 72, 77 and 79.

## Appendix K. Climate Risk Assessment Report

### 1 INTRODUCTION

Climate change is creating a more unpredictable and potentially turbulent environment globally for infrastructure and the communities it serves. As the Earth's global average temperature rises, natural disasters such as increased extreme heat days, more frequent and intense extreme weather events, extended periods of drought, and rising sea levels are becoming increasingly common<sup>1</sup>. In addition, policy, market, and legal shifts are causing disruption to the products, services, and systems that are fundamentally relied upon by infrastructure assets, as nations around the world transition to a low-carbon economy.

WtE Power Plant North Dhaka Private Limited is going to set up a waste-to-energy power plant of 42.5 MW (NET) capacity located in the Dhaka district of Bangladesh. This landfill area is also known as Aminbazar landfill/waste disposal area. The project site is located on the north side of the Dhaka-Aricha Highway. The operation principle will be based on the national electricity demand of the region and country as well. Electricity generated in the power plant will be evacuated to the Savar 132 /33 kV existing Substation with a double loop 132kV line, with a length of about 6 km.

In terms of the range of implications of climate change, it is widely recognized that continued emission of greenhouse gases will cause further warming of the Earth and that global average warming above 2°C, relative to the preindustrial period, could lead to catastrophic economic and social consequences. There might be significant impacts including regional and local climatic changes, and infrastructure such as the proposed project needs to be designed to account for future projected climate change and have appropriate plans and measures in place to adapt as required.

#### 1.1 Objectives

This report has been prepared to assess the climate-related risks and opportunities associated with the construction and operation of the Project. This report has been prepared considering the following:

- The current and anticipated climate change risks.
- Plans and processes are proposed to manage these risks, i.e., to mitigate or control them.

#### 1.2 Scope of Assessment

The scope of the physical risk assessment covers the potential physical climate-related risks associated with the construction and operation of the project including those on the local community, businesses, and customers that are exacerbated or improved by the project.

The scope of the transition risk and opportunity assessment covers the transition risks and opportunities for the project, and its supply chain in relation to the low-carbon economy.

---

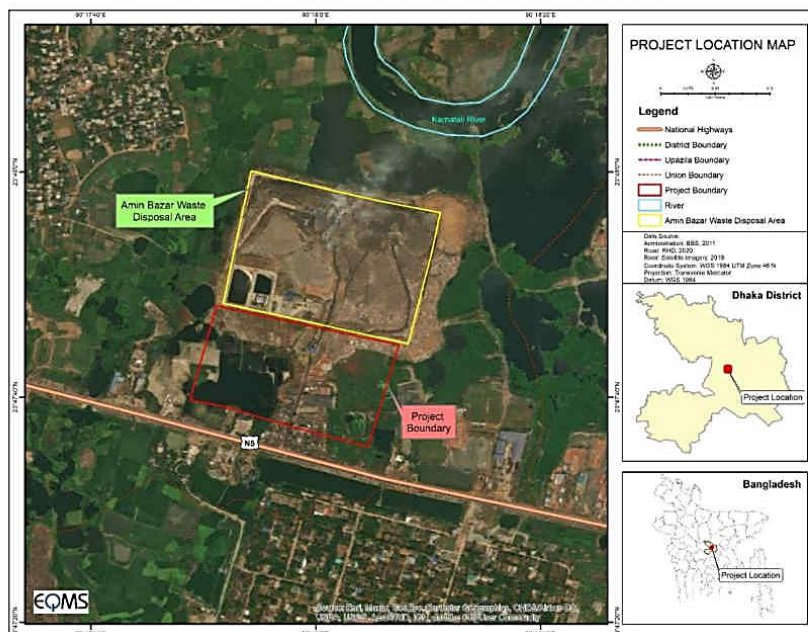
<sup>1</sup> Intergovernmental Panel on Climate Change, 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the IPCC, <https://www.ipcc.ch/report/ar5/syr/>

## 2 PROJECT OVERVIEW

### 2.1 Location of the Project

The proposed site is located on the south of the Amin Bazar landfill site, on the west side of North Dhaka, about 17 km from the city center. The site is accessible via Dhaka-Aricha Highway Road. The proposed Power Plant Project is located at Banagram Union under Savar Upazila of Dhaka District. Location Map of the Proposed waste to the energy project site is presented in below Figure 2-1.

Figure 2-1: Location Map of Proposed Power Plant Project



### 2.2 Nature and Size of the Project

The WtE Power Plant North Dhaka Private Limited proposes to set up a waste-to-energy power project of 42.5 MW (NET) capacity near the Savar Upazila in Dhaka District. The details of the proposed power plant are presented in Table 2-1.

Table 2-1: Brief Information of WtE Power Plant Project

Particulars	Basic Project Data
Net Plant Capacity	: 42.5 MW (NET)
Planned land	: Total 31.966 acres (129364.80 m <sup>2</sup> ) (30 acres for incineration plant land and 1.966 for new access roads)
Treatment capacity	: 3000~3600 ton/day (entry capacity) with an annual waste disposal capacity of 1.095 million tons
Source of Waste	: Dhaka North City Corporation (DNCC)
Incinerators	: Four (4) sets of 750 t/d incinerators
Boilers	: Four (4)

Particulars	Basic Project Data
Turbine generator sets	: Two (2) sets of 35 MW turbine generator sets
Steam turbine	: Two (2)
Annual operation time	: Not less than 8,000 hours
Leachate treatment station with a treatment capacity	: 1200 m <sup>3</sup> /day
Wet slag volume	: 182,500 t/a
Amount of flying ash	: 24911 t/a
Cooling tower	: Three (3) sets, Cooling water 7000 t/h
Furnace type	: Mechanical grate furnace with 4×750t/d incineration line
Flue gas treatment system	: SNCR (urea water injection in the furnace)
Stack Height	: 70m
Number of Stack/Stack Inside Diameter	: 1 Stack/2.2m*4
Fuel Name	: Diesel fuel
Source of Fuel	: Local Market
Fuel Requirement	: About 40ton diesel fuel is consumed for each start and shutdown. Diesel fuel consumption by ignition throughout the year = 40 × 2 × 4 = 320 ton Electricity consumption: 0.73×108kWh/a
Water Requirement	: The main industrial water source will be surface water and groundwater will also be used as reserve water source for industrial water purposes. The total industrial water supply scale of this project is approx. 332 m <sup>3</sup> /d 7977m <sup>3</sup> /d, and the total domestic water scale is 44m <sup>3</sup> /d.
Employment	: Construction-2093 Operation-220 persons
Power Evacuation	: 132 kV Savar Substation
Project Cost	: BDT. 1,131.16 crore

Source: Feasibility Report

### 3 CLIMATE CHANGE CONTEXT

#### 3.1 Climate Change Policy Context

According to UNFCCC, climate-related risks include different hazards, some of which occur gradually (e.g., variation of temperature and rainfalls) and some suddenly (e.g.: extreme events like storms and floods). The same concepts are presented by the WEF Global Risks Report 2020, which includes the weather and climate risks among the top ones, especially regarding the potential “failure of climate-change mitigation and adaptation” and “extreme weather events”.

In order to increasingly account for climate-related aspects in the realization of new projects, the Equator Principles IV published on July 2020 introduced the requirement to carry out a Climate Change Risk Assessment aligned with Climate Physical Risk and Climate Transition Risk categories as outlined in the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). Specifically, the requirements are:

- to cover physical risks for all Category A and - as appropriate - Category B projects.
- to cover also climate transition risks and carry out a Climate Change Alternatives Analysis for all projects having combined Scope 1 and Scope 2 emissions higher than 100,000 tCO<sub>2</sub>e/y.

Therefore, based on the characteristics of the proposed project, the present Climate Change Risk Assessment provides an overview of the global and regional climate trends, of global and national GHG emissions policies and regulations, an assessment of the project GHG emissions and evaluates only climate-related risks for the project.

The impacts of global climate changes in Bangladesh are confirmed by studies and have led to extreme weather events and gradual changes in climate conditions. According to UNDP<sup>2</sup>, low economic strength, inadequate infrastructure, low level of social development, lack of institutional capacity, and a higher dependency on the natural resource base makes Bangladesh particularly vulnerable to climate stimuli (including both variabilities as well as extreme events). Recognizing these vulnerabilities, Bangladesh has developed many adaptation measures to address the adverse effects of climate change based on existing coping mechanisms and practices.

According to the Third National Communication<sup>3</sup> to UNFCCC, the National Adaptation Programme of Action (NAPA) 2005 (updated in 2009) and the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009.

#### 3.2 Climate Change Overview

The present section focuses on the analysis of the climate patterns at the project location, including observed trends for temperature, rainfalls, and hazardous climate events over the last years and the projections for the upcoming decades. Moreover, a risk evaluation is carried out, covering physical and – where appropriate - transition risks in line with TCFD recommendations.

This paragraph presents the trends observed in the latest years at the project location for temperature and rainfalls, as well as the number of extreme weather events.

##### 3.2.1 Temperature

In the context of the ESIA for the Waste to Energy project, in order to evaluate the meteorological conditions of the project area, long-term statistical data recorded by Dhaka Meteorology Station, the nearest meteorological station of the proposed project, for the period 1992-2021 were obtained from the Bangladesh Meteorological Department and reviewed.

<sup>2</sup> <https://www.adaptation-undp.org/explore/bangladesh>

<sup>3</sup> [https://unfccc.int/sites/default/files/resource/TNC%20Report%20%28Low%20Resolution%29%2003\\_01\\_2019.pdf](https://unfccc.int/sites/default/files/resource/TNC%20Report%20%28Low%20Resolution%29%2003_01_2019.pdf)



Based on temperature data recorded at Dhaka Meteorological Station for the last 30 years (1992 to 2021), the maximum and minimum ambient temperatures are observed to be ranging from 24.7°C to 34.1°C and 13.4°C to 26.5°C, respectively. The lowest average temperature was in January 2013 (10.4°C). The highest average temperature reached 34.4°C in April 2014. The period from March to October is marked by a continuous increase in temperatures. August is the hottest month of the year with an average maximum and minimum temperature (in August) of 37.5°C and 22.5°C, respectively. From November onwards, both the day and night temperatures decrease and January is the coldest month, with average monthly maximum and minimum temperatures of 31.3°C and 6.5°C, respectively.

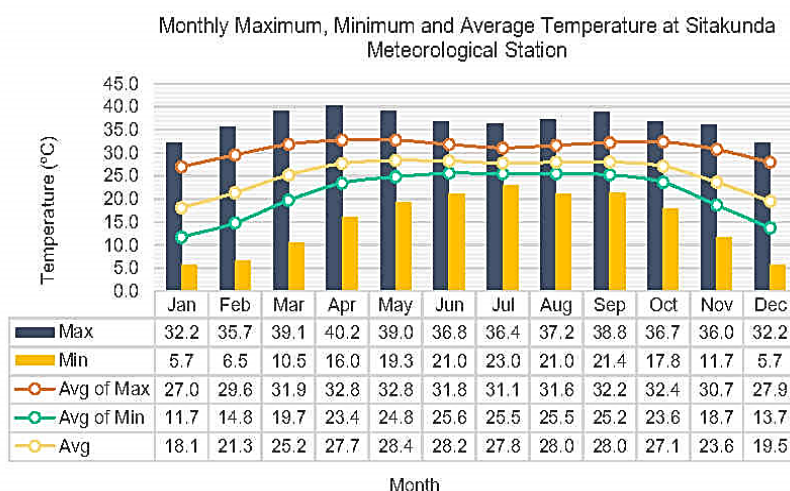
The monthly variation of the maximum, minimum, and average temperature at Dhaka Meteorological Station is presented in Table 3-1 and graphically presented in Figure 3-1.

**Table 3-1: Monthly maximum, minimum, and average temperatures at Dhaka, 1992-2020**

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Monthly average temperature	18.5	22.2	26.6	28.7	29.0	29.2	28.9	29.1	28.8	27.6	24.1	20.0
Monthly maximum temperature	24.7	28.4	32.5	34.1	33.6	32.8	32.1	32.3	32.5	32.0	29.8	26.2
Monthly minimum temperature	13.4	16.7	21.2	24.1	25.0	26.3	26.4	26.5	26.1	24.2	19.6	15.3

Source: Bangladesh Meteorological Department (BMD)

**Figure 3-1: Monthly maximum, minimum, and average temperatures at Dhaka, 1992-2021**



Source: Bangladesh Meteorological Department (BMD)

### 3.2.2 Rainfall

The average annual rainfall based on rainfall data recorded at Dhaka Meteorological Station for the last 30 years (1992 to 2021) is 2016.0 mm. Annual rainfall shows considerable variability from year to year. The rainfall also varies considerably within a year with 88.4% of rainfall occurring within the six months from April to October. The highest rainfall is recorded in September 2004 (839.0 mm). An insignificant amount of rainfall has also been recorded in winter (November to February). The monthly average

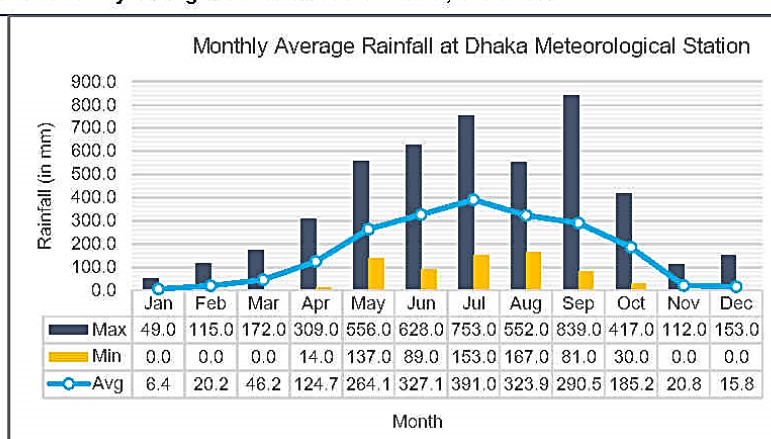
rainfall and the average number of days with rainfall are shown in Table 3-2 and graphically presented in Figure 3-2.

**Table 3-2: Monthly average, maximum and minimum rainfall (mm) at Dhaka Station, 1992-2021**

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Monthly average rainfall (mm)	6.4	20.2	46.2	124.7	264.1	327.1	391.0	323.9	290.5	185.2	20.8	15.8
Monthly maximum rainfall	49	115	172	309	556	628	753	552	839	417.0	112	153
Monthly minimum rainfall	0	0	0	14	137	89	153	167.0	81	30	0	0

Source: Bangladesh Meteorological Department (BMD)

**Figure 3-2: Monthly average rainfall at Dhaka Station, 1992-2021**



Source: Bangladesh Meteorological Department (BMD)

### 3.2.3 Natural Hazards

The Dhaka region is prone to natural hazards such as earthquakes and floods.

#### 3.2.3.1 Earthquake

Bangladesh can be affected by moderate to strong earthquake events due to its proximity to the collision boundary of the Northeast moving Indian plate and Eurasian Plate. Strong historical earthquakes with magnitude greater than 7.0 have affected parts of Bangladesh in the last 150 years, some of them had their epicenters within the country.

As per the Seismic Zoning Map of Bangladesh, the country is divided into four seismic zones. A description of the seismic zones of Bangladesh is given in Table 3-3. Dhaka region lies in Zone 2 (Figure 3-3), a severe seismic zone with a seismic zone coefficient of 0.20.<sup>4</sup> This region experiences moderate-magnitude earthquakes.

<sup>4</sup> Ministry of Housing and Public Works. (2021). *Bangladesh National Building Code (BNBC) 2020*. Government of the People's Republic of Bangladesh.

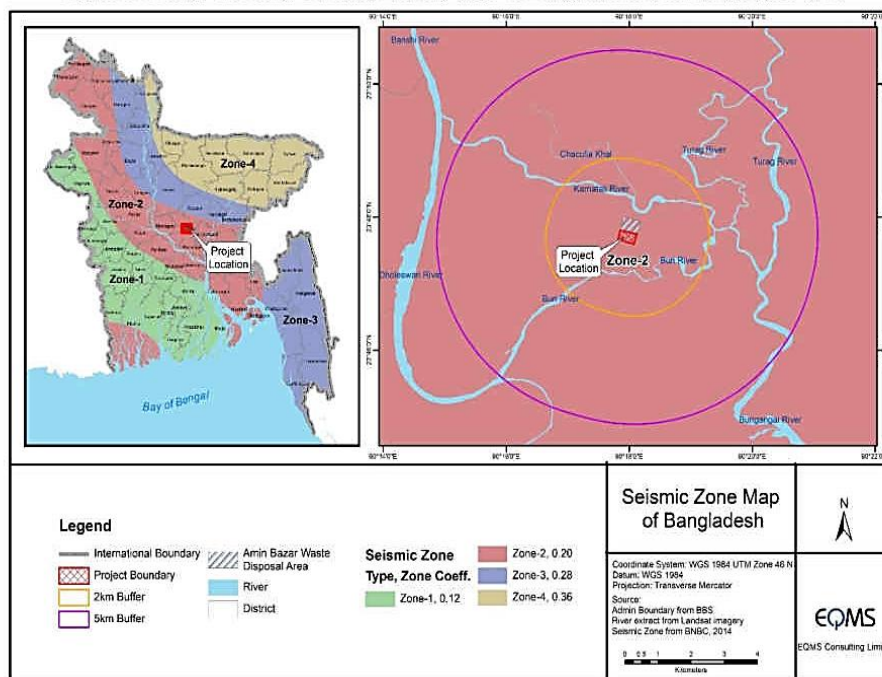


Table 3-3: Description of Seismic Zones of Bangladesh

Seismic Zone	Location	Seismic Intensity	Seismic Zone Coefficient, Z
1	Southwestern part including Barisal, Khulna, Jessore, Rajshahi	Low	0.12
2	Lower Central and Northwestern parts including Noakhali, Dhaka, Pabna, and Dinajpur, as well as the Southwestern corner including Sundarbans	Moderate	0.20
3	Upper Central and Northwestern parts including Brahmanbaria, Sirajganj, Rangpur	Severe	0.28
4	Northeastern part including Sylhet, Mymensingh, Kurigram	Very Severe	0.36

Source: Bangladesh National Building Code (BNBC), 2020

Figure 3-3: Map showing Seismic Zoning Map of Bangladesh with the project area



Source: Bangladesh National Building Code (BNBC), 2020

The Project site falls in the Zone-II area, with a basic seismic coefficient of 0.5g and at low risk of earthquakes. No major earthquake has been reported in the project area in recent years or in the recent past.

### 3.2.3.2 Flood

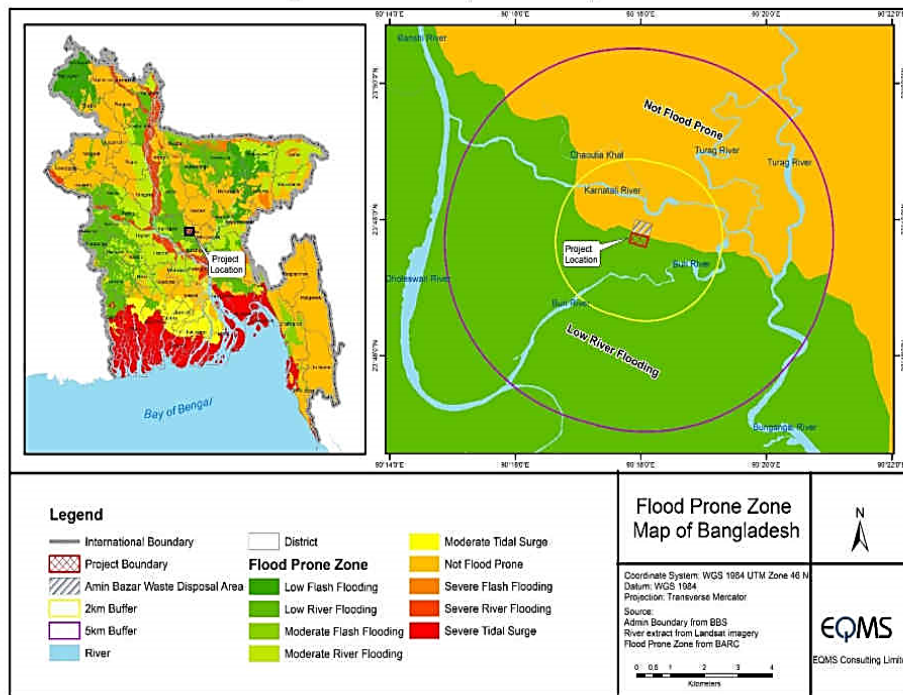
Flood is an annual phenomenon in Bangladesh. Normally, the most severe flood occurs in Bangladesh during July and August. Regular river floods (during monsoon season) affect 20% of the country, which

may increase up to 67% in extreme years like the 1998 flood. The most disastrous floods take place in 1988, 1998, and 2004. There are four types of floods in Bangladesh:

- Monsoon floods along major rivers during the monsoon rains (June-September).
- Flash floods caused by overflowing of hilly rivers of eastern and northern Bangladesh (Normally during April-May and September-November).
- Rain floods caused by drainage congestion during heavy rains.
- Coastal floods caused by storm surges.

The Surma River basin is subjected to low to moderate flash floods. In the Sylhet region, flooding of rivers during monsoon and flash floods in the hill areas is commonly experienced. The largest area of the proposed project site belongs to not flood-prone area. Figure 4-12 shows the flood-affected areas of Bangladesh with project area. The project site is situated in a low river flooding area. Discussion with the local people it became evident that the lower area beside the highway becomes inundated for short periods sometimes in the rainy season. As per Bangladesh Agriculture research council study, the project site lies in low river flooding area.

Figure 3-4: Flood map of the study area



Source: Bangladesh Agricultural Research Council

## 4 ASSESSMENT METHODOLOGY

In line with EP4 requirements, this section outlines the CCRA methodology applied. Following desk-based research to obtain future climate change projections data for the project location (Dhaka<sup>5</sup>) a staged approach was used to identify the potential physical climate-related risks for the project.

**Figure 4-1: Representative concentration pathways to predict the future climate impact**

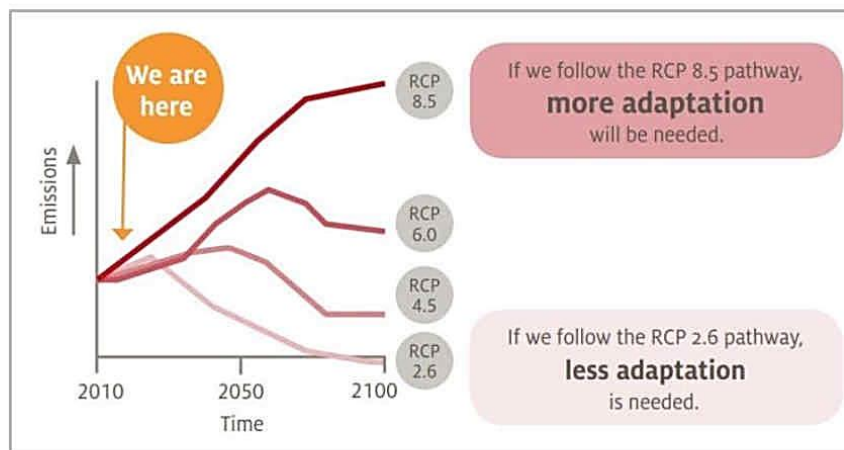


Figure 4-1 shows emission trajectories over time in terms of Representative Concentration Pathways (RCPs), developed by the Intergovernmental Panel on Climate Change (IPCC). RCPs present possible physical states of the future climate, where GHG concentration is dependent on the level of mitigation action undertaken between now and then. RCPs are based on global research and existing literature and comprise four scenarios: RCP8.5, RCP6.0, RCP4.5, and RCP2.6 (Intergovernmental Panel on Climate Change (IPCC), 2014), each reflecting a different concentration of global GHG emissions reached by 2100.

- RCP2.6 – Major GHG mitigation scenario (atmospheric concentration levels of 430 – 480 ppm CO<sub>2</sub>e by 2100).
- RCP4.5 – Some GHG mitigation; stabilization scenario (atmospheric concentration level of 580-720 ppm CO<sub>2</sub>e by 2100).
- RCP6.0 – Some GHG mitigation; stabilization scenario (atmospheric concentration levels of 720-1,000 ppm CO<sub>2</sub>e by 2100).
- RCP8.5 – Very high GHG emissions scenario, little effort to reduce emissions (atmospheric concentration levels of >1,000 ppm CO<sub>2</sub>e by 2100).

Climate projections for RCP4.5 and RCP8.5 were assessed to determine potential impacts and consequences to the construction and operation of the project. RCP8.5 is the pathway with the highest emissions concentration that would most likely lead to increased intensity and severity of extreme weather events; marked by inadequate policy response and increased potential for physical asset damage, whereas RCP4.5 present a scenario where some GHG mitigation is in place.

<sup>5</sup> Note that only national and sub-national dataset are available in World Bank Climate Change Knowledge Portal as of 15 September 2022 and Project/location site-based datasets are not available for the time being. As the project location lies nearest to Dhaka region, it has been considered for the study.

## 4.1 Physical Risk Assessment

Time horizons: Physical climate-related risks during the construction and operation of the Project were considered following time frames as specified in Climate Change Knowledge Portal (CCKP) by World Bank.

- Projections for the next 10-20 years represent a range of averages between 2020-2039 which cover construction, commissioning, and the beginning of the operational design life.
- Projections covering the remainder of the operational design life represent a range of averages up to 2059 to reflect the 40-year operational design life of the project.

Risks were ranked and assessed according to Likelihood (based on aspects such as current and future climate baselines) and Consequence (based on professional knowledge and judgment, and existing evidence and data on vulnerabilities, thresholds, and criticalities) to determine priority risks, as follows.

### 4.1.1 Step 1: Use Climate Data to Identify the Climate Hazards

Dhaka (Dhaka) region data has been used from the World Bank Climate Change Knowledge Portal (CCKP)<sup>6</sup> and Think Hazard<sup>7</sup> developed by the Global Facility for Disaster Reduction and Recovery. These are two globally recognized databases for climate data projections. Climate projections data have been obtained from the World Bank CCKP, which uses multi-model ensembles, as they represent the range and distribution of the most plausible projected outcomes when representing expected changes. Climate change variables (e.g., mean temperature, maximum daily temperature, precipitation, etc.) have been downloaded from the World Bank CCKP to identify potential hazards, such as:

- Higher mean temperatures
- Higher maximum temperatures, more frequent hot days, and more frequent heatwaves
- Changing pattern in rainfall
- More frequent and more intense heavy rain.

Due to the uncertainty of climate change projections for wind, data has not been collected for this variable.

Furthermore, for the identification of certain acute climate hazards (such as heatwaves, water scarcity, flooding, coastal flood, and cyclone), hazard ratings have been used from Think Hazard, to identify the vulnerability of the Project to these hazards. These climate hazards present immediate vulnerability to certain acute climate hazards.

### 4.1.2 Step 2: Identify the likelihood of the climate hazard occurring

Using the data gathered in Step 1, the likelihood of the climate hazard occurring at the Project for each time period was assessed as high, moderate, low, or negligible, considering the relative change from existing conditions.

For the ThinkHazard sourced information, the data retrieved is already presented in terms of hazard levels (high, medium, low, or very low) for the location selected reflecting frequency and severity information. Table 1 provides descriptions of each ThinkHazard level and how we have applied these levels in the EQMS assessment rating process.

For example, if a hazard such as flooding is given a 'high' rating, this means that potentially damaging and life-threatening floods are expected to occur at least once in the next 10 years. If a hazard is rated as medium, there is a chance of more than 20% that potentially damaging and life-threatening hazards occur in the coming 10 years.

<sup>6</sup> World Bank Group (2022) Climate Change Knowledge Portal

<sup>7</sup> Think Hazard is a web-based flagging system for highlighting various environmental hazards in a particular area. It is developed by the Global Facility for Disaster Reduction and Recovery (GFDRR), which is a partnership managed by the World Bank.



Table 4-1: ThinkHazard level descriptions

Think Hazard level	Think Hazard level description	EQMS assessment rating
High	Users should be highly aware of potentially severe damage from this hazard for the Project location. Without taking measures to mitigate the hazard and risk, high levels of damage can be expected to occur within the Project or human lifetime.	High
Medium	Users should be aware of the potentially damaging effects of this hazard. Potentially damaging events can be expected to occur within the Project or human lifetime and measures to mitigate the hazard and risk should be considered.	Moderate
Low	Potentially damaging events are less likely to occur within the Project or human life but are still possible. Measures to mitigate the hazard and risk would be prudent at critical locations. Hazard has been classified based on long-term averages, and there is still potential that damaging events could occur in this timeframe.	Low
Very Low	Available data suggest that potentially damaging effects are unlikely to occur, on average, in the Project or human lifetime. Hazard has been classified based on long-term averages, and there is still potential that damaging events could occur in this timeframe.	Negligible
No Data Available	No dataset covering the chosen location is currently available in ThinkHazard.	Unknown

#### 4.1.3 Step 3: Identify the climate-related impact and the likelihood of the climate-related impact occurring

The potential impacts associated with the climate hazards have then been identified. For example, the impacts associated with higher temperatures, more frequent hot days, and more frequent heatwaves, could include:

- Increased heat stress/heat exhaustion of workers.
- Increased energy demand due to increased cooling requirements or air conditioning; or
- Equipment/machinery failure.

The likelihood of the impact occurring has then been rated as high, moderate, low, or negligible based on EQMS's knowledge of the project's operations, existing climate conditions, and the site's vulnerability to climate hazards. The likelihood of the climate-related impact occurring has been adjusted based on whether the impact being considered is going to occur every time the hazard occurs or not. Vulnerability and exposure to the climate hazard have been considered when identifying the likelihood of the climate-related impact, as this could drive/reduce the scale of the impact.

#### 4.1.4 Step 4: Identify the consequence of the climate-related impact

The potential climate impacts have then been identified, for example, a consequence of heat stress in the workforce might be reduced revenue and higher costs from negative impacts on the workforce. The

significance of the consequence has been rated as high, moderate, low, or negligible based on the following criteria:

- High: Significant disruption to operations, unable to deliver services, resulting in high financial losses.
- Moderate: Disruption to operations and ability to deliver services, resulting in some financial losses/cost implications.
- Low: Minor disruption to operations but does not significantly impact the ability to deliver services.
- Negligible: Negligible disruption to operations, does not impact the ability to deliver services.

#### 4.1.5 Step 5: Identify the overall risk rating

The overall risk rating for the short and medium-term time horizons was determined by assessing the combination of the likelihood of the climate-related impact occurring, and the consequence, as per the risk assessment matrix in Table 2.

**Table 4-2: Overall physical and transition risk rating**

		Likelihood of climate-related impact occurring			
		Negligible	Low	Moderate	High
Consequence	Negligible	N	N	L	L
	Low	N	L	L	M
	Moderate	L	L	M	H
	High	L	M	H	H

#### 4.1.6 Step 6: Recommendations for further mitigation

For risks identified as high, after taking account of measures incorporated into the Project design to the climate change impact, further recommendations have then been provided to reduce the risk.

## 4.2 Transition Risks and Opportunities

An assessment of the key transition risks and opportunities associated with the transition to a low-carbon economy for the Project has been undertaken. As part of this, Representative Concentration Pathway (RCP) 2.6 was used as the baseline to inform this review. RCP 2.6 is considered the most appropriate climate scenario for considering transition risks as it assumes drastic action in terms of climate policy, emissions regulation/reduction, and technological growth. It also represents the climate scenario most closely aligned with delivering the Paris Agreement targets related to limiting the level of global temperature change.

The assessment focused on risks and opportunities over the following timeframes:

- 2021-2025
- 2026-2035
- Beyond 2035

Risks and opportunities were ranked and assessed according to Likelihood (based on research into carbon policy, legislation, and pricing) and Consequence (based on professional knowledge and judgment and existing evidence and data on vulnerabilities, thresholds, and criticalities) to determine priority risks and opportunities. The stepped approach includes the followings.

#### 4.2.1 Step 1: Identify if transition risk or opportunity is relevant

A screening of the TCFD transition risk and opportunity categories, listed below, was undertaken to determine which are relevant to the Project.

Examples of transition risks:

- Policy and Legal: Carbon reporting obligations. Regulation of existing products
- Technology: Costs for lower emissions technology
- Reputation: Increased stakeholder concern

Examples of transition opportunities:

- Resource Efficiency: More efficient production processes. Increased recycling. Reduced water usage.
- Energy Source: Use of low emissions energy.
- Products and Services: Development of new products.
- Markets: Access to new markets.
- Resilience: Adoption of energy efficiency measures.

#### **4.2.2 Step 2: Identify the likelihood of the transition risk/opportunity occurring**

The likelihood of climate-related transitional risks and opportunities occurring has then been assessed by undertaking desk-based research into Bangladesh’s carbon policy, legislation, pricing, and updates to the Nationally Determined Contribution. The likelihood will be ranked from high (very likely) to negligible (unlikely) for the lifetime of the Project.

The likelihood of the transition risk occurring has been based on current Bangladesh policy and it should be noted that any future changes in national policy could influence the future likelihood of the transition risk occurring.

#### **4.2.3 Step 3: Identify the consequence of the transition risk/opportunity occurring**

The consequences of each transition risk and opportunity have then been identified. The consequence is any effect on the Project’s operations as a result of the transition risk or opportunity. Consequences have been rated as high, moderate, low, or negligible based on the criteria in Table 4-3.

**Table 4-3: Consequence rating criteria**

<b>Consequence</b>	<b>Description</b>
High	<p>i.e., costs to transition to lower emissions technologies likely to require company to make significant capital investment and company likely to end up with stranded assets.</p> <p>i.e., Opportunity to significant diversify or expand product portfolio or business activities or significantly increase profits/turnover due to new markets being available.</p>
Moderate	<p>i.e., cost to transition to lower emission technologies likely to require company to make some level of capital investment costs. OR transition-related operational costs that could be significant at multiple sites/at group/business-wide level.</p> <p>i.e., opportunity to expand product portfolio or business activities or increase profits/turnover due to new markets being available.</p>
Low	<p>i.e., costs to transition to lower emissions technologies likely to have any financial impact on the company’s operations. OR transition-related operational costs resulting in non-significant changes but affecting more than one site.</p>



Consequence	Description
	i.e., some potential to expand product portfolio or business activities or increase profits/turnover due to new markets being available.
Negligible	i.e., costs to transition to lower emissions technologies unlikely to have any (or very little financial impact on the company's operations. OR minor operational cost change at a single location. i.e., little impact of new markets on business activities.

#### 4.2.4 Step 4: Identify the overall risk/opportunity rating

The overall rating for the short, medium, and long-term horizons was determined by assessing the combination of the likelihood of the climate-related impact occurring, and the consequence, as per risk assessment matrixes. For transition risk, the matrix is the same as presented in Table 2 while for the opportunity's assessment matrix is in Table 4-4.

**Table 4-4: Overall transition opportunities rating**

		Likelihood of climate-related impact occurring			
		Negligible	Low	Moderate	High
Consequence	Negligible	N	N	L	L
	Low	N	L	L	M
	Moderate	L	L	M	H
	High	L	M	H	H

#### 4.2.5 Step 5: Recommendations for further mitigation

For risks identified as high, further recommendations have then been provided to reduce the risk, for example:

- Monitoring of country climate change legislation, national energy policy, guidance on the low-carbon transition, potential grants to finance the installation of lower-carbon technologies
- Monitoring of market signals, and potential reputational risks including stigmatization of the sector and increased stakeholder or investor concern.

## 5 ASSESSMENT FINDINGS

This section presents a summary of the potential physical and transition risks and opportunities identified as high for the Project.

### 5.1 Physical Risk

Climate projections for RCP4.5 and RCP8.5 were assessed to determine potential impacts and consequences to the construction and operation of the project.

Mean temperature, maximum daily temperature, and number of hot days are expected to increase in Dhaka with similar (minute differences/more or less similar) magnitude on average for both Bangladesh as well as Dhaka region under both scenarios. The mean annual temperature in Dhaka is expected to increase by over 0.84° C (2020-2039) and 1.44° C (2040-2059) as per RCP4.5 while it slightly lowers in magnitude during 2020-2039 (0.82° C) but again increases towards the end of the period (2040-2059) as per RCP8.5. However, both the RCP's projected a rise in mean annual temperature as compared to the 1992-2021 baseline.

By the mid-century, the number of hot days (over 35°C) is expected to increase by 24.12 days p.a. (RCP4.5) to 36.22 days p.a. (RCP 8.5).

Both scenarios indicate significant increase anomalies in temperatures and hot spells.

**Table 5-1: Select climate-related data pertaining to temperature for scenario RCP 4.5 and RCP 8.5.**

	RCP 4.5		RCP 8.5	
Mean annual temperature: increase in °C from the 1992-2021 baseline				
	2020-2039	2040-2059	2020-2039	2040-2059
Dhaka	0.84	1.44	0.82	1.83
Country	0.85	1.42	0.85	1.83
Maximum of daily maximum temperatures: increase in °C from the 1992-2021 baseline				
	2020-2039	2040-2059	2020-2039	2040-2059
Dhaka	0.86	1.43	0.77	1.78
Country	0.85	1.45	0.79	1.75
Number of hot days (over 35° C): increase in number of hot days from the 1992-2021 baseline				
	2020-2039	2040-2059	2020-2039	2040-2059
Dhaka	15.58	24.12	15.36	36.22
Country	14.51	24.39	15.01	34.63

In Dhaka, mean annual precipitation is expected to increase in both RCP's as compared to the baseline (1992-2021) though the magnitude of precipitation in RCP8.5 is lower than RCP4.5. The projected precipitation is slightly higher for Dhaka region than the entire country except in 2020-2039 period (RCP8.5), where it is slightly lower over Dhaka region than the whole country. Number of wet days (>50 mm) is expected to decrease in RCP4.5 while increases in RCP8.5 by mid-century.

**Table 5-2: Select climate-related data pertaining to precipitation for scenario RCP 4.5 and RCP 8.5**

	RCP 4.5		RCP 8.5	
Mean annual precipitation (mm): increase in mm from the 1992-2021 baseline				
	2020-2039	2040-2059	2020-2039	2040-2059
Dhaka	129.97	149.66	18.86	95.52
Country	127.3	146.7	20.17	83.19
Number of wet days with >50mm rain (mm)				
	2020-2039	2040-2059	2020-2039	2040-2059
Dhaka	0.44	0.38	-0.13	0.23
Country	0.56	0.59	-0.01	0.43

By the end of the mid-century (2050), the following changes to the climate in the area are expected:

- Temperatures will increase along with the number of very hot days.
- Precipitation will increase by mid-century, with long wet spells and shorter dry spells, but little change in the number of wet days with >50mm rainfall insignificantly.
- Sea level is expected to rise by 0.24 m (RCP4.5) to 0.27 m (RCP8.5) by 2050<sup>8</sup> and associated coastal flooding is anticipated; however, the project location is quite far from the sea level rise point taken (Hiron Point).
- Furthermore, according to ThinkHazard (Dhaka region but also cover project location), there is greater than a 50% chance of encountering weather that could support a significant wildfire that is likely to result in both life and property loss in any given year. Prolonged exposure to extreme heat, resulting in heat stress, is expected to occur at least once in the next five years. Potentially damaging and life-threatening urban, river and coastal floods are expected to occur at least once in the next 10 years. Potentially damaging waves are expected to flood the coast at least once in the next 10 years. The frequency and intensity of these hazards is expected to increase because of climate change.

Physical climate-related risks were assessed separately for construction and commissioning and the operational design life of the project. As the construction period is scheduled to be ±24 months, physical risks associated with climate change are limited to the short-term time horizon.

Risk ratings take planned mitigation measures to reduce, control, and respond to risks, into account. No risks were identified as high for the construction and commissioning phase, although the following moderate risks are noted:

- The potential for heat stress and heat exhaustion of construction workers due to increased temperatures and hot days over 35°C.
- The potential for damage to assets and construction equipment resulting from the increased risk of heatwaves.
- The potential for flooding and waterlogging hampering the construction equipment and gas pipeline due to frequent and more intense heavy precipitation.

No risks were identified as high for the operational design life of the project, although the following moderate risks are noted:

<sup>8</sup> IPCC AR6 Sea Level Projection Tool. Sea Level Projection Tool – NASA Sea Level Change Portal. Note that the nearest location is at Hiron (coastal zone of Bangladesh) where sea level rise has been projected by this tool.

- Increases in air temperature causing reduced generation efficiency and output and increase in operational cost.
- The potential for heat stress and heat exhaustion of workers due to increased temperatures and hot days over 35°C.
- Heavy rainfall events contributing to moderate infrastructure damage and loss of service.
- The potential for increased risk of disease transmission (e.g., malaria and dengue fever, improved growing conditions for algae, and potentially harmful micro-organisms in water courses) due to both increased temperatures and more intense and frequent heavy precipitation.
- Potential contamination from plant areas entering the surrounding environment due to more occurrences of heavy precipitation.
- Loss or damage to the plant equipment and impacts on human health caused by more frequent and severe heatwaves.
- Extreme weather events, such as stronger and/ or more frequent floods and precipitation causing reduction in the supply and potentially damage generation and infrastructure, reduce output, and affect security of supply.

Table 5-3: Physical risk assessment – construction and commissioning

Climate Hazard	Likelihood of climate hazards occurring	Climate-related impact	Likelihood of climate-related impact occurring	Consequence (description)	Consequence (rating)	Overall risk rating
Higher annual average and daily maximum temperatures and more hot days >35°C	Moderate	Increased heat stress/ heat exhaustion of workers.	Moderate	Reduced revenue and higher costs from negative impacts on the workforce (e.g., health, safety, absenteeism); disruption to the construction program	Moderate	Moderate
Higher annual average and daily maximum temperatures and more hot days >35°C	Moderate	Potential damage to road surfacing due to prolonged exposure to high-intensity temperatures, leading to road subsidence and possible temporary road closure until repairs are conducted.	Low	Delays in the delivery of construction materials and construction workers to the site	Moderate	Low
More frequent and longer drought	Moderate	Increased risk of soil erosion from exposed soils during construction.	Low	Stability risks of ground conditions and potential interruptions to construction	Low	Low
More frequent and more intense heavy precipitation	Moderate	Potential flooding and waterlogged construction site hampering movement of machinery, Potential damage to structures and construction equipment. Difficulties during the laying of the pipeline due to additional water forces and impact from waterborne debris damaging the pipeline.	Moderate	Financial costs; insurance implications; disruption and delay to the construction program. Lengthy spill response including remediation plan and activities for operators from potentially impacted larger areas as river currents carry hazardous substances further downstream.	Moderate	Moderate
More frequent and severe wildfires and heatwaves	High	Damage to structures and construction equipment; risk to human health and life.	Moderate	Disrupted construction program, loss of assets, reconstruction costs, and loss of life	Moderate	Moderate

China Machinery Engineering Corporation, CMEC Green Energy Investment Limited and WtE Power Plant North Dhaka Private Limited | Environmental and Social Due Diligence

Climate Hazard	Likelihood of climate hazards occurring	Climate-related impact	Likelihood of climate-related impact occurring	Consequence (description)	Consequence (rating)	Overall risk rating
Increased frequency of cyclones/tropical storms	High	Unable to access construction site due to surface water flooding of roads, damage to structures and construction equipment	Low	Disrupted construction program, loss of assets, reconstruction costs, workers unable to get to the site.	Low	Low
Increased frequency of heavy winds (not related to cyclones) <sup>9</sup>	Unknown	Damage to structures and construction equipment.	Unknown	Disrupted construction program, loss of assets, reconstruction costs, workers unable to get to the site.	Unknown	Unknown

Table 5-4: Physical risk assessment – operational design life

Climate Hazard	Likelihood of climate hazards occurring		Climate-related impact	Likelihood of climate-related impact occurring		Consequence (description)	Consequence (rating)	Overall risk rating	
	2020-2039	2040-2059		2020-2039	2040-2059			2020-2039	2040-2059
Higher annual average and daily maximum temperatures and more hot days >35°C	Moderate	High	Increased heat stress/heat exhaustion of workers.	Moderate	Moderate	Reduced revenue and higher costs from negative impacts on the workforce (e.g., health, safety, absenteeism)	Moderate	Moderate	Moderate
Higher annual average temperatures, daily maximum temperatures, more hot days >35°C and more intense	Moderate	High	Increased risk of disease transmission (e.g., malaria and dengue fever, improved growing conditions for algae and potentially harmful microorganisms in water courses).	Low	Moderate	Reduced revenue and higher costs from negative impacts on the workforce (e.g., health, safety, absenteeism)	Moderate	Low	Moderate

<sup>9</sup> Due to uncertainty in wind projections, it is not possible to provide a rating here.

Climate Hazard	Likelihood of climate hazards occurring		Climate-related impact	Likelihood of climate-related impact occurring		Consequence (description)	Consequence (rating)	Overall risk rating	
	2020-2039	2040-2059		2020-2039	2040-2059			2020-2039	2040-2059
and frequent heavy precipitation									
Higher annual average and daily maximum temperatures and more hot days >35°C	Moderate	High	Potential damage to access road surfacing due to prolonged exposure to high-intensity temperatures, leading to road subsidence and possible temporary road closure until repairs are conducted	Low	Moderate	Financial costs, insurance implications, disruption to the operation	Moderate	Low	Moderate
More frequent and longer drought	Moderate	High	Accelerated land degradation, and soil erosion	Low	Low	Stability of ground conditions and potential interruptions to operations.	Low	Low	Low
More frequent and more intense heavy precipitation	Low	Low	Flooding of the project area, and infrastructure. Damage to assets including substations. Potential damage to access road surfacing, leading to loss of access for maintenance.	Low	Moderate	Financial costs, insurance implications, disruption to the operation, unplanned shut-down. Spill response including remediation plan and activities for operators from potentially impacted larger areas as river currents carry hazardous substances further downstream.	Moderate	Low	Moderate

Climate Hazard	Likelihood of climate hazards occurring		Climate-related impact	Likelihood of climate-related impact occurring		Consequence (description)	Consequence (rating)	Overall risk rating	
	2020-2039	2040-2059		2020-2039	2040-2059			2020-2039	2040-2059
More frequent and more intense heavy precipitation	Low	Low	Risk of contamination from the plant entering the surrounding environment.	Moderate	Moderate	Impacts on wildlife and environment.	Moderate	Low	Moderate
More frequent and severe wildfires	Moderate	Moderate	Loss or damage to assets, impact on human health, and risk to life.	Moderate	Moderate	Disruption to operations, loss of assets, reconstruction costs.	Moderate	Moderate	Moderate
Increased frequency of heavy winds (not related to cyclones) <sup>10</sup>	Unknown	Unknown	Loss or damage to assets and disrupted access.	Unknown	Unknown	Disruption to operations, reconstruction costs, and workers unable to get to the site.	High	Unknown	Unknown



## 5.2 Transition Risks and Opportunities

The Equator Principles IV introduced the requirement to carry out a Climate Change Risk Assessment in line with the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). The Climate Change Risk Assessment shall cover physical risks for all Category A and - as appropriate - Category B Projects, whereas transition risks shall be covered only for projects having combined Scope 1 and Scope 2 emissions higher than 100,000 tCO<sub>2</sub>e/y.

The evaluation of transition risks is not applicable, for two main reasons:

- The GHG emissions related to the project, due only to electricity and diesel fuel used for the waste to energy project carried out in the operation phases, are several orders of magnitude below the threshold of 100,000 tCO<sub>2</sub>e/y, as outlined in Section 6.2.
- The scope of the project is perfectly aligned with all Bangladesh and international policies and best practices for the decarbonization of the energy sector, thus contributing to climate change mitigation and being not affected by potential negative business effects related to the transition to a low-carbon economy.

In accordance with TCFD recommendations, transition risks shall be evaluated under four main aspects: Policy and Legal, Technology, Market, and Reputation. The following lines provide an overview of how the Project is located under these perspectives.

- **Policy and Legal:** as mentioned above, the proposed project is aligned with current policies for tackling climate change; no changes in climate-related policies are expected for the upcoming years that may impact negatively on the operation of the project, and even in case of unexpected policy changes at the local level.
- **Technology:** the adopted technology is aligned with the best international standards and no significant technological improvements are expected in the upcoming years that may negatively impact the operation of the project and its profitability.
- **Market:** no significant variation in the waste demand is expected that can impact negatively the financial profitability of the project in terms of the reduced market for the product.
- **Reputation:** no significant risk can be identified with reference to the change in community perceptions of the project's contribution to the transition to a low-carbon economy.

## 6 GREENHOUSE GASES EMISSIONS

The carbon emission accounting of domestic waste incineration power plant project is based on the fact that the power in developing countries is mainly coal power, and the waste treatment is mainly landfill, as the baseline for carbon emission accounting. On this baseline, the carbon emissions of waste-to-energy projects are related to three aspects at the same time. One is that the incineration process will generate carbon emissions, mainly due to the fossil carbon components in the waste, which account for most of the carbon emissions in the incineration process; The second is that the electricity generated by waste incineration can replace coal electricity, indirectly reducing carbon emissions; The third is to treat garbage through incineration, which indirectly reduces greenhouse gases such as methane generated by garbage landfill. The result of carbon emissions of the waste-to-energy power plant projects is that the carbon emissions of the waste incineration process minus the greenhouse gases such as methane generated by the same amount of waste landfill, and then minus the carbon emissions of the same amount of electricity produced by coal, that is, carbon emissions from waste incineration-Coal Electricity Carbon Offset - Landfill Carbon Offset.

The annual average value of the domestic waste components of the Amin Bazar landfill in Bangladesh from November 2020 to October 2021 is used as the basis for the calculation of carbon emission reduction. See the table below for details:



Table 6-1: Composition of MSW at Amin Bazar Landfill in Bangladesh from November 2020 to October 2021

components	2020.11	2020.12	2021.1	2021.2	2021.3	2021.4	2021.5	2021.6	2021.7	2021.8	2021.9	2021.10	Annual average
Food waste	70.39	76.75	72.47	77.68	70.83	72.15	73.93	74.50	72.59	65.11	62.67	68.22	71.44
Rubber and plastic	14.24	15.92	18.88	10.59	17.20	15.45	12.28	11.89	16.15	20.36	21.66	18.50	16.09
Bamboo	5.48	0.72	0.90	6.51	3.16	5.35	7.29	6.90	3.66	4.46	3.49	3.88	4.32
Textile	3.73	1.93	4.59	2.89	5.40	3.45	2.43	2.25	3.79	6.23	3.23	7.38	3.94
Paper	4.95	3.93	1.36	1.51	2.49	2.85	3.75	3.51	2.94	2.67	6.04	1.89	3.16
Brick ash	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
metal	0.00	0.00	0.02	0.11	0.14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.03
other	1.20	0.75	1.78	0.72	0.78	0.65	0.32	0.95	0.87	1.18	2.91	0.13	1.02

Source: WtE North Dhaka Private Limited



Based on the project's annual incineration of 1.09 million tons of domestic waste , calculated according to the industry's direct emissions (IPCC method, the period is 7 years), the waste incineration mineral carbon emissions are 270,200 tons of CO<sub>2</sub> , methane (CH<sub>4</sub> ) and Dinitrogen monoxide (N<sub>2</sub>O) emission converted into carbon dioxide (CO<sub>2</sub> ) equivalent is 1.36 CO<sub>2</sub> e ; waste incineration technology is used instead of traditional waste landfill process, during the period the average annual carbon emission offset is 418,900 tons CO<sub>2</sub> e; carbon emission offset of waste incineration power generation replacing coal-fired power generation is 226,700 tons of CO<sub>2</sub> (according to the average emission factor of China's power grid in 2022 is 0.5703t CO<sub>2</sub> /MWh), so this project is relatively waste landfill treatment process, The annual average carbon emission reduction during the period is 361,700 tons of CO<sub>2</sub> , which is equivalent to 0.332 t CO<sub>2</sub> of carbon emission reduction per ton of waste . See the table below for details:

**Table 6-2: Calculation of carbon emissions of this project**

Baseline emissions	Landfill discharge	tons	418,900.00
	Energy Production Emissions	tons	226,700.00
Project emissions	Waste Incineration of Mineral Carbon Emissions	tons	270,200.00
	Methane and nitrous oxide emissions from waste incineration	tons	13,600.00
Leakage		tons	0.00
Total emission reduction during period		tons	2,532,000.00
Average annual emission reduction		tons	361,700.00

Source: WtE North Dhaka Private Limited

The implementation of the WtE Power Plant Project can increase the energy supply in a clean energy way. The project will promote local sustainable development in the following aspects:

(1) Reduce greenhouse gas emissions: After the incineration method is adopted for the treatment of urban domestic waste in this project, the decomposition and release of CH<sub>4</sub> during the stacking process of this part of waste in the landfill site are avoided; The project uses the superheated steam generated by the waste incineration boiler to generate electricity for the steam turbine generator unit, which can replace the equivalent electricity of the main coal-fired power plants, thus avoiding the greenhouse gas emissions caused by the corresponding electricity generated by thermal power generation, and achieving greenhouse gas emission reduction;

(2) Reduced discharge of pollutants: After the project adopts the incineration method to treat the waste, the waste reduction reaches about 85%. At the same time, the implementation of the project will eliminate the secondary pollution such as sewage and waste gas produced by the original simple landfill site, improve the environmental quality, and benefit the health of residents and the improvement of environmental quality, which has huge environmental benefits.

(3) Increase employment opportunities: The construction and operation of WtE Power Plant Project can increase employment opportunities, promote the transfer of labor force, improve the living standards of local residents, and generate good social benefits.

In summary, the operation of the WTE Plant will be a potential source of greenhouse gas emissions due to the inherent combustion processes involved in plant operations. This GHG emission poses a potential impact on endangered species and habitats. However, compared with the current practice of landfilling solid wastes in the project site, the incineration process will greatly reduce the volume of the waste (in the form of residual ash) that need to be disposed of in sanitary landfills. Therefore, the production of greenhouse gases due to landfill will be reduced. As per the WTE Power Plant North Dhaka Private Limited the annual average carbon emission reduction during the period is 361,700 tons of CO<sub>2</sub>, which is equivalent to 0.332 t CO<sub>2</sub> of carbon emission reduction per ton of waste. The WTE plant will generate electricity for industries and households, replacing their dependence on fossil fuel use for power generation.



## 7 CONCLUSION

In the context of the Environmental and Social Impact Assessment for the proposed project, the execution of a Climate Change Risk Assessment is needed, in line with the latest version of the Equator Principles (IV, dated July 2020) and the Recommendations of the Task Force on Climate-related Financial Disclosures.

Regarding the climate-related risks for the plant, within the present report the past trends for temperature, precipitations, and extreme weather events are evaluated at the Project site and the expected changes for the future decades, up to 2059, are considered. The analysis of the observed historical weather data and the climate projections indicate that the changes in the climate pattern in the area under consideration are significant and in line with the average trends for Bangladesh.

Therefore, as concerns physical risks, it has been found that in the long-term the Project may be affected by the expected increase in average annual temperatures as well as by the increase in the number and intensity of extreme events (all events with moderate-low risk factor) and by an increase of precipitations.

To conclude, in line with the prescriptions of Equator Principles IV, a full assessment of transition risks for the project is not provided, the project has GHG emissions largely below the threshold of 100,000 tCO<sub>2</sub>e/y. However, the main potential areas for transition risks mentioned by TCFD recommendations (Policy and Legal, Technology, Market, Reputation) have been screened and no significant climate-related transition risk has been identified for the Project.

## Appendix L. GHG Study by WtE Power Plant North Dhaka Private Limited

<b>Textile</b>	3.73	1.93	4.59	2.89	5.40	3.45	2.43	2.25	3.79	6.23	3.23	7.38	3.94
<b>Paper</b>	4.95	3.93	1.36	1.51	2.49	2.85	3.75	3.51	2.94	2.67	6.04	1.89	3.16
<b>Brick ash</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>metal</b>	0.00	0.00	0.02	0.11	0.14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.03
<b>other</b>	1.20	0.75	1.78	0.72	0.78	0.65	0.32	0.95	0.87	1.18	2.91	0.13	1.02

Based on the project’s annual incineration of 1.09 million tons of domestic waste , calculated according to the industry’s direct emissions (IPCC method, the period is 7 years), the waste incineration mineral carbon emissions are 270,200 tons of CO<sub>2</sub> , methane (CH<sub>4</sub> ) and Dinitrogen monoxide (N<sub>2</sub>O) emission converted into carbon dioxide (CO<sub>2</sub> ) equivalent is 1.36 CO<sub>2</sub> e ; waste incineration technology is used instead of traditional waste landfill process, during the period the average annual carbon emission offset is 418,900 tons CO<sub>2</sub> e; carbon emission offset of waste incineration power generation replacing coal-fired power generation is 226,700 tons of CO<sub>2</sub> (according to the average emission factor of China’s power grid in 2022 is 0.5703t CO<sub>2</sub> /MWh), so this project is relatively waste landfill treatment process, The annual average carbon emission reduction during the period is 361,700 tons of CO<sub>2</sub> , which is equivalent to 0.332 t CO<sub>2</sub> of carbon emission reduction per ton of waste . See the table below for details:

Table 2 Calculation of carbon emissions of this project

<b>Baseline emissions</b>	Landfill discharge	tons	418,900.00
	Energy Production Emissions	tons	226,700.00
<b>Project emissions</b>	Waste Incineration of Mineral Carbon Emissions	tons	270,200.00
	Methane and nitrous oxide emissions from waste incineration	tons	13,600.00
<b>Leakage</b>		tons	0.00
<b>Total emission reduction during period</b>		tons	2,532,000.00

Average annual emission reduction	tons	361,700.00
-----------------------------------	------	------------

The implementation of the WtE Power Plant Project can increase the energy supply in a clean energy way. The project will promote local sustainable development in the following aspects:

- (1) Reduce greenhouse gas emissions: After the incineration method is adopted for the treatment of urban domestic waste in this project, the decomposition and release of CH<sub>4</sub> during the stacking process of this part of waste in the landfill site are avoided; The project uses the superheated steam generated by the waste incineration boiler to generate electricity for the steam turbine generator unit, which can replace the equivalent electricity of the main coal-fired power plants, thus avoiding the greenhouse gas emissions caused by the corresponding electricity generated by thermal power generation, and achieving greenhouse gas emission reduction;
- (2) Reduced discharge of pollutants: After the project adopts the incineration method to treat the waste, the waste reduction reaches about 85%. At the same time, the implementation of the project will eliminate the secondary pollution such as sewage and waste gas produced by the original simple landfill site, improve the environmental quality, and benefit the health of residents and the improvement of environmental quality, which has huge environmental benefits;
- (3) Increase employment opportunities: The construction and operation of WtE Power Plant Project can increase employment opportunities, promote the transfer of labor force, improve the living standards of local residents, and generate good social benefits.



## Appendix M. Cultural Heritage Chance Find Procedure

Cultural property includes monuments, structures, works of art, or sites of significance points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. During the Project induction meeting, all contractors will be made aware of the presence of an on-site archaeologist who will monitor earthmoving and excavation activities.

The initial phase of the proposed emergency reconstruction operations poses limited risks in damaging cultural property since sub-Projects will largely consist of small investments in community infrastructure and income generating activities, reconstruction of existing structures, and minor public works. Further, it is understood by the Consultant that any activity that would adversely impact cultural property would make a Sub Project ineligible. Nevertheless, the Consultant will check that the following procedures for identification, protection from theft, and treatment of discovered artifacts should be followed in the event that archaeological material is discovered:

- Stop all construction activities in the area of the chance find.
- Delineate the discovered site or area.
- Record the find location, and all remains are to be left in place.
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the Department of Archaeology immediately (within 24 hours or less);
- Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Ministry of Culture (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values.
- Decisions on how to handle the findings shall be taken by the responsible authorities and the Ministry of Culture. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage.
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Department of Archaeology.
- Construction work could resume only after permission is given from the responsible local authorities and the Department of Archaeology concerning safeguard of the heritage.
- The Consultant will ensure that during Project supervision, the Site engineer will monitor the above regulations relating to the treatment of any chance find encountered and observed.

## Appendix N. Implementation Agreement

*Implementation Agreement-Dhaka North City Corporation 42.50 MW Waste to Power IPP Power Plant*

### **IMPLEMENTATION AGREEMENT**

BY AND BETWEEN

THE GOVERNMENT OF  
THE PEOPLE'S REPUBLIC OF BANGLADESH

AND

POWER GRID CORPORATION OF BANGLADESH LIMITED

AND

WTE POWER PLANT NORTH DHAKA PRIVATE LIMITED

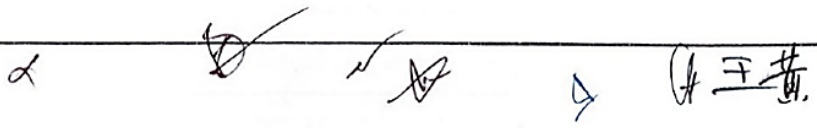
- RELATING TO-

A 42.50 MW (NET) WASTE TO POWER GENERATION FACILITY

AT

AMINBAZAR, Dhaka, BANGLADESH

Dated as of \_\_\_\_\_ 2021



## Appendix O. Power Purchase Agreement

NO. 10623

Date: 01-12-2021

### POWER PURCHASE AGREEMENT

BY AND BETWEEN

**THE BANGLADESH POWER DEVELOPMENT BOARD**  
(Constituted under the Bangladesh Power Development Board's Order, 1972  
(P.O. No. 59 of 1972))

AND

**WTE POWER PLANT NORTH DHAKA PRIVATE LIMITED**

---

- RELATING TO-

**A 42.50 MW (NET) WASTE TO POWER GENERATION FACILITY**

AT

**AMINBAZAR , DHAKA, BANGLADESH**

---

Dated as of 01 DECEMBER, 2021

---

*[Handwritten signatures and initials]*



## Appendix P. Land Use Agreement

### LAND USE AGREEMENT

BY AND BETWEEN

DHAKA NORTH CITY CORPORATION (DNCC)

AND

WTE POWER PLANT NORTH DHAKA PRIVATE LIMITED

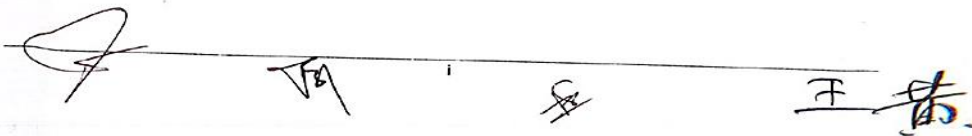
- RELATING TO -

A 42.5 MW (NET) WASTE TO POWER GENERATION FACILITY

AT

DHAKA, BANGLADESH

....., 2021



## Appendix Q. Waste Supply Agreement

### WASTE SUPPLY AGREEMENT

BY AND BETWEEN

DHAKA NORTH CITY CORPORATION (DNCC)

AND

WTE POWER PLANT NORTH DHAKA PRIVATE LIMITED

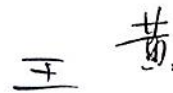
-RELATING TO-

42.5 MW (NET) WASTE TO POWER GENERATION FACILITY

AT

AMINBAZAR, DHAKA, BANGLADESH

....., 2021





এওয়ার্ড বহি  
(অবকাঠামো)

প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সনস্কারিং ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

এল এ কেস নং- ০২.১৪.২০/২০২০-২১

ক্রমিক নং	এওয়ার্ডের নাম ও ঠিকানা	জমির পরিমাণ			অবকাঠামোর মূল্য (টাকায়)	প্রযোজ্য ক্ষেত্রে অতিরিক্ত ১০০%	অবকাঠামোর মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাগ নং	শ্রেণি	পরিমাণ (একরে)						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
৭।	রমেশ নাথ ঘোষ পিতা- মৃত. অরিনাশ চন্দ্র ঘোষ মাং-শ্যামলী, ২৫/১, বিজলী রোড, আদাবর, মোহাম্মদপুর, ঢাকা।	৫৩০১			৩৩,০৬,৫৮৭/৯৯	৩৩,০৬,৫৮৭/৯৯	৬৬,১৩,১৭৫/৯৮			
							৩% ডিস্কন্ট করা (-) ২,২৮,৩২৭/২৭ ৬৪,২৪,৭৬৮/৭০			

সংশ্লিষ্ট খাতে উৎসে করা  
০৬১২২২৭ নম্বর চেকে  
জমা প্রদান করা হয়েছে।  
০২ ২৪/০৬/২৩

চেক নম্বর: ২৬৬৭৫৭  
টাকার পরিমাণ: ৬৪,২৪,৭৬৮/৭০

মোঃ মঈনুল হক  
মুখ্য পরিচালক  
জেলা প্রশাসকের কার্যালয়, ঢাকা।

জের = ২৩,৫৩,৭৫,৩৩৮/৮০

০৩/৬/২২ ০৩/৬/২২ ০৩/৬/২২ ০৩/৬/২২ ০৩/৬/২২ ০৩/৬/২২ ০৩/৬/২২ ০৩/৬/২২ ০৩/৬/২২ ০৩/৬/২২





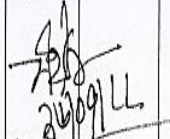
## এওয়ার্ড বহি (অবকাঠামো)







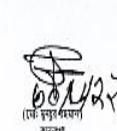
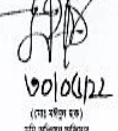

প্রকল্পের নাম:- “আমিন বাজার ল্যান্ডফিল সম্প্রসারণ ও আধুনিকীকরণ” শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

এল এ কেস নং- ০২,১৪,২০/২০২০-২১

ক্রমিক নং	এওয়ার্ডের নাম ও ঠিকানা	জমির পরিমাণ			অবকাঠামোর মূল্য (টাকায়)	প্রযোজ্য ফেরে অতিরিক্ত ১০০%	অবকাঠামোর মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাগ নং	শ্রেণি	পরিমাণ (একরে)						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
৯।	রমেন্দ্র নাথ ঘোষ পিতামৃত- অবিনাশ চন্দ্র ঘোষ সাং-শ্যামলী, ২৫/১, বিজলী রোড, আদাবর, মোহাম্মদপুর, ঢাকা।	৫৩০৫			৩০,২৩,৭২০/৮৯	৩০,২৩,৭২০/৮৯	৬০,৪৭,৪৪১/৭৮			
		চেক নম্বর : ২৫৮৭৪৪ টাকার পরিমাণ : ৪৮,৬৬,০৮৬/৯২ /আটলক্ষ আট হাজার চৌষাটশ টকা মোট = ৩৭,০০,২৫,৬১৭/৭৮			৩৭,০০,২৫,৬১৭/৭৮ ৬০,৪৭,৪৪১/৭৮ ৩৬,৬৬,০৮৬/৯২					

সংশ্লিষ্ট খাতে উৎসে বন্ধ  
০৮.১১.২০২১ নম্বর চেকে  
জমা প্রদান করা হয়েছে।  
০২.১১.২০২১

  
 মোঃ মাসুদুল হােক  
 স্থায়ী অধিবাসন কার্যক্রম  
 সেন্ট্রাল এলাসের অফিস, ঢাকা।

 (১) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।  
 (২) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।  
 (৩) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।  
 (৪) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।  
 (৫) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।  
 (৬) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।  
 (৭) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।  
 (৮) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।  
 (৯) মোঃ মাসুদুল হােক, স্থায়ী অধিবাসন কার্যক্রম, সেন্ট্রাল এলাসের অফিস, ঢাকা।

Annexure 2: Allowance during Transition of Business

**এওয়ার্ড বহি**  
(ব্যবসায়িক ক্ষতিপূরণ)

প্রকল্পের নাম:- “আমিন বাজার ল্যান্ডফিল সন্থসারথ ও আধুনিকীকরণ” শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

এল এ কেস নং- ০২.১৪.২০/২০২০-২১

ক্রমিক নং	এওয়ার্ডার নাম ও ঠিকানা	জমির পরিমাপ			ব্যবসায়িক ক্ষতিপূরণ (টাকায়)	প্রযোজ্য ফেরা অতিরিক্ত ১০০%	ব্যবসায়িক ক্ষতিপূরণের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাপ নং	ক্রেণি	পরিমাপ (একরে)						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
১।	রুসেল চন্দ্র ঘোষ পিতামৃত- অমিনাশ চন্দ্র ঘোষ, সাং-শ্যামলী, ২৫/১, বিজলী রোড, আদাবর, মোহাম্মদপুর, ঢাকা।	৩০২৬ ৩০২৭			৮৫,০০০/-	৮৫,০০০/-	১,৭০,০০০/-			
<p>চেক নম্বর : ২৫৭৪৪</p> <p>টাকার পরিমাণ : ১,৬৪,০০০/-</p> <p>সংশ্লিষ্ট বাস্তব উৎসে কর ০১২০২০৭ নম্বর চেকে জমা প্রদান করা হয়েছে।</p>					<p>৮৫০০০/- + ৮৫০০০/- = ১,৭০,০০০/-</p>					

০১/১১/২০

০১/১১/২০

০১/১১/২০

০১/১১/২০

০১/১১/২০

০১/১১/২০



**এওয়ার্ড বহি**  
(ব্যবসায়িক ক্ষতিপূরণ)

প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সম্প্রসারণ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

এল এ কেস নং- ০২.১৪.২০/২০২০-২১

ক্রমিক নং	এওয়ার্ডার নাম ও ঠিকানা	জমির পরিমাণ			ব্যবসায়িক ক্ষতিপূরণ (টাকায়)	প্রযোজ্য ক্ষেত্রে অতিরিক্ত ১০০%	ব্যবসায়িক ক্ষতিপূরণের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাপ নং	প্লেন	পরিমাণ (একরে)						
১		৩০২৮			৮৫,০০০/-	৮৫,০০০/-	১,৭০,০০০/-			
২।	রমেশ চন্দ্র ঘোষ পিতামৃত- অরিনাশ চন্দ্র ঘোষ শাং-শ্যামলী, ২৫/১, খিলদী রোড আদাবর, মোহাম্মদপুর, ঢাকা।	৩০২৮ ৩০২৯			(-) ৩% ৫৫০০ বর্গ মতন	৫২০০/-	১,৭০,০০০/-			

সংশ্লিষ্ট খাতে উৎসে কর  
২০০৭০৬ নম্বর চেকে  
জমা প্রদান করা হয়েছে।  
০২/১১/০৬/২২

সংশ্লিষ্ট খাতে উৎসে কর  
০১/১১/০৬/২২ নম্বর চেকে  
জমা প্রদান করা হয়েছে।  
০২/১১/০৬/২২

চেক নম্বর: ০১/১১/০৬/২২  
টাকার পরিমাণ: ২,১৬,২০০/-

মৌসুমী মাদানিন  
ভূমি অধিদপ্তর কর্মকর্তা  
মোতাঃ প্রশাসকের কার্যালয়, ঢাকা।

মোট = ৩,৪০,০০০/-

০২/১১/২২  
০৩/১১/২২  
০৩/১১/২২  
০৩/১১/২২  
০৩/১১/২২  
০৩/১১/২২  
০৩/১১/২২  
০৩/১১/২২


এওয়ার্ড বহি  
(ব্যবসায়িক ক্ষতিপূরণ)


প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সনশ্রাসারণ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা


এল এ কেস নং- ০২,১৪.২০/২০২০-২১

ক্রমিক নং	এওয়ার্ডের নাম ও ঠিকানা	জমির পরিমাণ			ব্যবসায়িক ক্ষতিপূরণ (টাকায়)	প্রযোজ্য ক্ষেত্রে অতিরিক্ত ১০০%	ব্যবসায়িক ক্ষতিপূরণের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাপ নং	শ্রেণি	পরিমাণ (একরে)						
১	২	৩	৪	৫	৬	০৭	০৮	০৯	১০	১১
৩।	মোঃ মহিউদ্দিন পিতা-আহাম্মদ উল্লাহ মাং- গজারিয়া, লালামোহন, ভোলা।	৩৩৩৬			৩০,০০০/-	৩০,০০০/-	৬০,০০০/-			


জের = ৪,০০,০০০/-


  
স্বাক্ষর  
০১/০৬/২২  
১৯১ এ পল্লী-০২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা

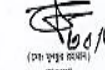
  
স্বাক্ষর  
০১/০৬/২২  
১৯১ এ পল্লী-০২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা

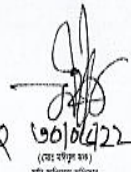
  
স্বাক্ষর  
০১/০৬/২২  
১৯১ এ পল্লী-০২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা


(সে। হকিম হর শফিক)  
স্বাক্ষর  
০১/০৬/২২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা

  
স্বাক্ষর  
০১/০৬/২২  
১৯১ এ পল্লী-০২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা

  
স্বাক্ষর  
০১/০৬/২২  
১৯১ এ পল্লী-০২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা

  
স্বাক্ষর  
০১/০৬/২২  
১৯১ এ পল্লী-০২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা

  
স্বাক্ষর  
০১/০৬/২২  
১৯১ এ পল্লী-০২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা

  
স্বাক্ষর  
০১/০৬/২২  
১৯১ এ পল্লী-০২  
ঢাকা প্রকল্পের কার্যালয়, ঢাকা


**এওয়ার্ড বহি**  
(ব্যবসায়িক ক্ষতিপূরণ)

প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সম্প্রসারণ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

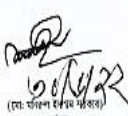
এল এ কেস নং- ০২১৪.২০/২০২০-২১

ক্রমিক নং	এওয়ার্ডের নাম ও ঠিকানা	জমির পরিমাণ			ব্যবসায়িক ক্ষতিপূরণ (টাকায়)	প্রযোজ্য ক্ষেত্রে অতিরিক্ত ১০০%	ব্যবসায়িক ক্ষতিপূরণের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাপ নং	শ্রেণি	পরিমাণ (একরে)						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
৪।	এবলাস উদ্দিন পিং-ওছমান মিঞা সাহ- বলিয়ারপুর, সাভার, ঢাকা।	৩৩৪১			৭৫,০০০/-	৭৫,০০০/-	১,৫০,০০০/-			

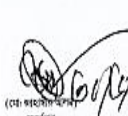
জের = ৫,৫০,০০০/-



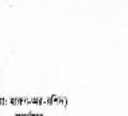
(সে: আব্দুল হক)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার



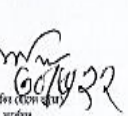
(সে: ফারুক হোসেন)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার



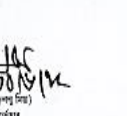
(সে: ফারুক হোসেন)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার



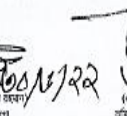
(সে: ফারুক হোসেন)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার




(সে: ফারুক হোসেন)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার




(সে: ফারুক হোসেন)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার



(সে: ফারুক হোসেন)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার



(সে: ফারুক হোসেন)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার



(সে: ফারুক হোসেন)  
সভাপতি  
এল. এ. পাব-০২  
জেলা প্রশাসকের কার্যালয়, সাভার



**এওয়ার্ড বাহি**  
(ব্যবসায়িক ক্ষতিপূরণ)


প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সম্প্রসারণ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ানপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

এল এ কেস নং- ০২.১৪.২০/২০২০-২১

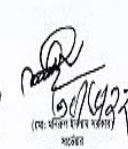
ক্রমিক নং	এওয়ার্ডের নাম ও ঠিকানা	জমির পরিমাণ			ব্যবসায়িক ক্ষতিপূরণ (টাকায়)	প্রয়োজ্য ক্ষেত্রে অতিরিক্ত ১০০%	ব্যবসায়িক ক্ষতিপূরণের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাগ নং	হেনি	পরিমাণ (একরে)						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
৫।	রমেশ চন্দ্র ঘোষ পিতামৃত- অবিনাশ চন্দ্র ঘোষ সাং-শ্যামলী, ২৫/১, বিজলী রোড আদাবর, মোহাম্মদপুর, ঢাকা।	৫৩০১			৭৫,০০০/-	৭৫,০০০/-	১,৫০,০০০/-			
সংশ্লিষ্ট খাতে উৎসে রক ১০০৭০১৮২ নম্বর চেকে জমা প্রদান করা হয়েছে। ৩০/০৬/২০		চেক নম্বর: ০৮১২৩৬৬ টাকার পরিমাণ: ২,১৪,৫০০/-			$\frac{৩৫\% \text{ এর } ০৩১২ \text{ (১.৫)} = ৪,৫০০}{= ২,১৪,৫০০/-}$					

মৌসুমী নাসরিন  
ভূমি অধিগ্রহণ কর্মকর্তা  
মোজা প্রশাসকের কার্যালয়, ঢাকা।

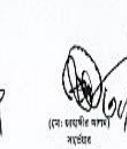
জের = ৭,০০,০০০/-



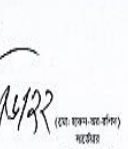
১৪/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা



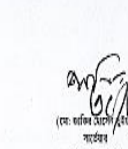
৩০/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা



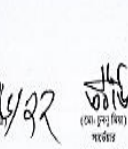
৩০/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা



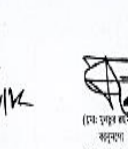
৩০/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা



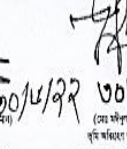
৩০/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা



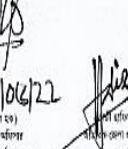
৩০/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা



৩০/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা



৩০/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা



৩০/০৬/২০  
০২.১৪.২০  
মোজা প্রশাসকের কার্যালয়, ঢাকা

**এওয়ার্ড বহি**  
(ব্যবসায়িক ক্ষতিপূরণ)

প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সম্প্রসারণ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

এল এ কেস নং- ০২.১৪.২০/২০২০-২১

ক্রমিক নং	এওয়ার্ডার নাম ও ঠিকানা	জমির পরিমাণ			ব্যবসায়িক ক্ষতিপূরণ (টাকায়)	প্রযোজ্য ক্ষেত্রে অতিরিক্ত ১০০%	ব্যবসায়িক ক্ষতিপূরণের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাখ নং	হেণি	পরিমাণ (একরে)						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
৬।	রমেশ চন্দ্র ঘোষ পিতামৃত- অমিনাথ চন্দ্র ঘোষ সং- শ্যামলী, ২৫/১, বিজলী রোড আদাবর, মোহাম্মদপুর, ঢাকা।	৫৩০১			৭৫,০০০/-	৭৫,০০০/-	১,৫০,০০০/-			

উৎসে জর কর্তন (২) = ৪,৫০০/-  
= ২,৪৫,৫০০/-

চেক নম্বর : ০৫২২২৫৭  
টাকার পরিমাণ : ২,৪৫,৫০০/-

*(Signature)*  
৩০/০৬/২০

সংশ্লিষ্ট আওতে উৎসে কর  
২০০৭/০৬/২০ নম্বর চেকে  
জমা প্রদান করা হয়েছে।  
৩০-০৬-২০২০

মৌসুমী মীর্জারিন  
ড্রিনি অধিগ্রহণ কর্মকর্তা  
জেলা প্রশাসকের কার্যালয়, ঢাকা।  
জের = ৮,৫০,০০০/-

*(Signature)*  
৩০/০৬/২০  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।

*(Signature)*  
৩০/০৬/২০  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।

*(Signature)*  
৩০/০৬/২০  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।

(সে. প্রকল্প পরিচালনা)  
সচিবের  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।

*(Signature)*  
৩০/০৬/২০  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।

*(Signature)*  
৩০/০৬/২০  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।

*(Signature)*  
৩০/০৬/২০  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।

*(Signature)*  
৩০/০৬/২০  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।


*(Signature)*  
৩০/০৬/২০  
এস. এ. শর্মা-০২  
জেলা প্রশাসকের কার্যালয়, ঢাকা।


### এওয়ার্ড বহি (ব্যবসায়িক ক্ষতিপূরণ)

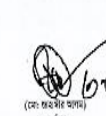
প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সম্পূরণ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

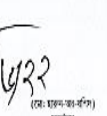
এল এ কেস নং- ০২১৪.২০/২০২০-২১


ক্রমিক নং	এওয়ার্ডের নাম ও ঠিকানা	জমির পরিমাণ			ব্যবসায়িক ক্ষতিপূরণ (টাকায়)	প্রযোজ্য ক্ষেত্রে অতিরিক্ত ১০০ %	ব্যবসায়িক ক্ষতিপূরণের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস দাগ নং	হেনি	পরিমাণ (একরে)						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
৭।	রমেশ চন্দ্র ঘোষ পিতামৃত- অদিনাশ চন্দ্র ঘোষ সাং-শ্যামসী, ২৫/১, বিজলী রোড আদাবর, মোহাম্মদপুর, ঢাকা।	৫৩০৫			৮৫,০০০/-	৮৫,০০০/-	১,৭০,০০০/-			
		<p>৩% ৬৫০৫ এর ১০০০ = ৫,০০০/-</p> <p>২,৬৮,০০০/-</p> <p>চেক নম্বর: ০৫২২২৬৮</p> <p>টাকার পরিমাণ: ২,৬৮,০০০/-</p> <p>সংশ্লিষ্ট খাতে উৎসে কর ২০০৭০৬৯ নম্বর চেকের জমা প্রদান বন্ধা হয়েছে।</p> <p>৩২-১৮-০৮-১৩</p>			<p>মৌসুমী নাসারিন ডুমি পরিদর্শন কর্মকর্তা কোলা প্রশাসকের কার্যালয়, ঢাকা।</p>		<p>জের = ১০,২০,০০০/-</p>			

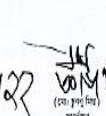
  
সি. এম. এ. এ.  
সিনিয়র প্রকল্প পরিচালক, মসল


  
সি. এ. এ. এ.  
সিনিয়র প্রকল্প পরিচালক, মসল

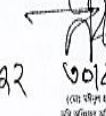
  
সি. এ. এ. এ.  
সিনিয়র প্রকল্প পরিচালক, মসল

  
সি. এ. এ. এ.  
সিনিয়র প্রকল্প পরিচালক, মসল

  
সি. এ. এ. এ.  
সিনিয়র প্রকল্প পরিচালক, মসল

  
সি. এ. এ. এ.  
সিনিয়র প্রকল্প পরিচালক, মসল

  
সি. এ. এ. এ.  
সিনিয়র প্রকল্প পরিচালক, মসল

  
সি. এ. এ. এ.  
সিনিয়র প্রকল্প পরিচালক, মসল



### এওয়ার্ড বহি (ব্যবসায়িক ক্ষতিপূরণ)


প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সম্পূর্ণায়ণ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা


এল এ কেস নং- ০২.১৪.২০/২০২০-২১

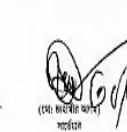
ক্রমিক নং	এওয়ার্ডের নাম ও ঠিকানা	জমির পরিমাণ			ব্যবসায়িক ক্ষতিপূরণ (টাকায়)	প্রযোজ্য ক্ষেত্রে অতিরিক্ত ১০০%	ব্যবসায়িক ক্ষতিপূরণের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য
		আর এস পাণ নং	হেনি	পরিমাণ (একরে)						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
৮।	রমেশ চন্দ্র ঘোষ পিতামৃত- অমিনাশ চন্দ্র ঘোষ সং- শ্যামলী, ২৫/১, বিজলী রোড আদাবর, মোহাম্মদপুর, ঢাকা।	৫৩০৫			৭৫,০০০/-	৭৫,০০০/-	১,৫০,০০০/-			
					০% ৬৫০০	০% ৬৫০০	(-) = ৪,৫০০/-			
							= ২,৪৫,৫০০/-			
	সংশ্লিষ্ট খাতে উৎসে কর ২০০৭.০৫.২২ নম্বর চেকে জমা প্রদান করা হয়েছে।  ৩২২৫০৫৫২৬									
										মোট = ১১,৭০,০০০/-


চেক নম্বর: ০১০২২৬৬৭  
টাকার পরিমাণ: ২,৪৫,৫০০/-


মৌসুমী-নাসরিন  
ছবি অধিবেশন কর্মকর্তা  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

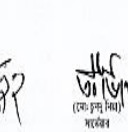
  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

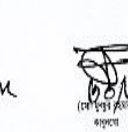
  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

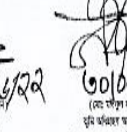
  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

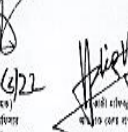
  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।


  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।

  
মৌসুমী-নাসরিন  
৩০/৬/২২  
৩১ নং পথ-০২  
কোম্পা. প্রসারকের কার্যালয়, ঢাকা।



Annexure 3: Relocation

**এওয়ার্ড বহি**  
**(স্থানান্তর ব্যয়)**

(অটো বোতলজাত পানি উৎপাদনের মেশিনারিজ)

প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সম্প্রসারণ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা

এল এ কেস নং- ০২১৪.২০/২০২০-২১

ক্রমিক নং	এওয়ার্ডের নাম ও ঠিকানা	জমির পরিমাণ			ইলেক্ট্রো মেকানিক্যাল মেশিনারিজের স্থানান্তরযোগ্য ব্যয় (টাকায়)	প্রযোজ্য ক্ষেত্রে অতিরিক্ত ১০০%	ইলেক্ট্রো মেকানিক্যাল মেশিনারিজের স্থানান্তরযোগ্য ব্যয়ের মোট মূল্য (টাকায়)	পরিশোধিত	চেক নং ও তারিখ	মন্তব্য	
		আর এস দাগ নং	শ্রেণি	পরিমাণ (একরে)							
১	২	৩	৪	৫	৬	০৭	০৮	০৯	১০	১১	
১১	রমেশ চন্দ্র ঘোষ পিতামৃত- অবিনাশ চন্দ্র ঘোষ সং- শ্যামলী, ২৫/১, বিজলী রোড আদাবর, মোহাম্মদপুর, ঢাকা। চেক নম্বর : ২৭৬৫৪৪ টাকার পরিমাণ : ১৬,৪৬,৪২,৫৬/৯২	৩০২৬ ৩০২৭ ৩০২৮ ৫৩০৫			৮,৪৮,৬৭,২৮৮/০০	৮,৪৮,৬৭,২৮৮/-	১৬,৯৭,৩৪,৫৭৬/-				
<p>অতিঃ ১০০% এর স্থানান্তর ব্যয় প্রায় = ১৬,৯৭,৩৪,৫৭৬/০০ ✓ ৩% উৎসে ধর কর্তন = (-) ৫০,২২,০৬৭/৯২ = ১৬,৪৬,৪২,৫০৮/৯২</p> <p>(কারণ- যেহেতু এখানে 'ডেভেলপার' নামে বিদ্যমান হাজার পাঁচশত আটশত ঠিকার বাহুর বর্ণনা মত)</p> <p>সংশ্লিষ্ট খাতে উৎসে কর ০৮.২২.০৬৭.৯২ নম্বর চেকে জমা প্রদান করা হয়েছে।</p> <p>০৭ ২২/০৬/২০</p> <p>মোট = ১৬,৯৭,৩৪,৫৭৬/-</p>											
<p>মোঃ মঈনুল হক যুগ্ম পরিচালক (অর্থ) জিএস পলিমার বাংলাদেশ, ঢাকা।</p>		<p>সংশ্লিষ্ট খাতে উৎসে কর ০৮.২২.০৬৭.৯২ নম্বর চেকে জমা প্রদান করা হয়েছে।</p>		<p>মোঃ মঈনুল হক যুগ্ম পরিচালক (অর্থ) জিএস পলিমার বাংলাদেশ, ঢাকা।</p>		<p>মোঃ মঈনুল হক যুগ্ম পরিচালক (অর্থ) জিএস পলিমার বাংলাদেশ, ঢাকা।</p>		<p>মোঃ মঈনুল হক যুগ্ম পরিচালক (অর্থ) জিএস পলিমার বাংলাদেশ, ঢাকা।</p>		<p>মোঃ মঈনুল হক যুগ্ম পরিচালক (অর্থ) জিএস পলিমার বাংলাদেশ, ঢাকা।</p>	

Annexure 4: Loss of Tree


**এওয়ার্ড বহি**

প্রকল্পের নাম:- "আমিন বাজার ল্যান্ডফিল সনস্কারপ ও আধুনিকীকরণ" শীর্ষক প্রকল্প।  
মৌজা- বলিয়ারপুর, জে. এল নং ১৮৫, উপজেলা- সাভার, জেলা- ঢাকা


এল. এ কেস নং- ০২.১৪.২০/২০২০-২১

ক্ষতিপূরণের টাকার বিভাজন (অতিরিক্ত ক্ষতিপূরণসহ)						মোট মূল্য (টাকায়)	আনুমানিক বরচ ৭.৫% (টাকায়)	সর্বমোট মূল্য (টাকায়)	মন্তব্য
জমির মূল্য (টাকায়)	অবকাঠামোর মূল্য (টাকায়)	গাছপালার মূল্য (টাকায়)	মৎস্য ক্ষতিপূরণ মূল্য	বাবসাময়িক ক্ষতিপূরণ	স্থানান্তর ব্যয়				
২	৩	৪	৫	৬	৭	৮	৯	১০	১১
২৫৮,৭৮,৭২,২৩৪/৪৮	৩৭,০০,২৫,৬১৭/৭৮	৫,৯০০/-	-----	১১,৭০,০০০/-	১৬,৯৭,৩৪,৫৭৬/-	৩১২,৮৮,০৮,৩২৮/২৬	২৩,৪৬,৬০,৬২৪/৬২	৩৩৬,৩৪,৬৮,৯৫২/৮৭	

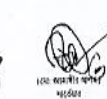
কথায়- তিনশত ছত্রিশ কোটি চৌত্রিশ লক্ষ আটশষ্টি হাজার নয়শত বায়ান্ন টাকা সাতাশি পয়সা মাত্র



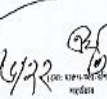
০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২



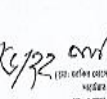
০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২



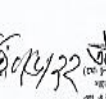
০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২



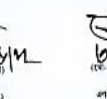
০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২




০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২



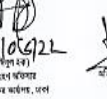
০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২



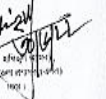
০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২



০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২



০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২



০৮/৬/২২  
স্বাক্ষর  
এল. এ কেস-১২  
জে. এল নং-১২  
জে. এল নং-১২