Bangladesh Economic Zones Authority (BEZA)
Prime Minister's Office

Environmental and Social Management Framework (ESMF)

For

Private Investment and Digital Entrepreneurship (PRIDE) Project

ESMF Main Report

February 2020

EXECUTIVE SUMMARY

Background

The Government of Bangladesh (GOB) plans to create 100 economic zones all over the country in the next decade using a wide variety of arrangements. Bangabandhu Sheikh Mujib Shilpanagar (BSMSN) will be one of the largest of this kind to be set up on 30,000 acre of land located in Mirsharai, Sonagazi and Sitakundu Upazilla of Chattogram and Feni Districts. A master plan of BSMSN has been prepared under the current PSDS project financed by the World Bank. The World Bank's Private Investment & Digital Entrepreneurship (PRIDE) project will support phased development of BSMSN. Specifically, the project will support further development of zone 2A and 2B and development of a third piece of land by an international Master Developer, all within the proposed BSMSN.

The PRIDE project has four components and several sub-components as mentioned below:

Component 1: Creating an Enabling Environment for Private Investment and Job Creation
Sub-component 1.1: Promoting good governance and administrative efficiency
Sub-component 1.2: Promoting public private participation

Component 2: Supporting phased development of the BSMSN Green Industrial City
Sub-component 2.1: Developing environmentally sustainable and resilience infrastructure
Sub-component 2.2: Last mile infrastructure to implement the Master Plan for BSMSN

Component 3: Creating a dynamic private market for serviced industrial land

Component 4: Strengthening the digital Entrepreneurship and innovation ecosystem
Sub-Component 4.1: Establishing Dhaka's first digital entrepreneurship hub in Janata STP (US$22m)
Sub-Component 4.2: Digital Entrepreneurship, training and innovation support program

The first three components will be implemented by Bangladesh Economic Zone Authority (BEZA) and the fourth component will be implemented by Bangladesh High Tech Park Authority (BHTPA).

This Environmental and Social Management Framework (ESMF) covers the sub-components and activities under components 1-3 for which the locations and designs are not finalised yet. For the sub-components for which adequate information and specific locations are known, a separate Environmental and Social Assessment (ESA) has been prepared. In addition, a Regional Environmental and Social Assessment (RESA) including Cumulative Impact Assessment (CIA) will be conducted during the implementation of the project.

Project Description

Among the planned components, sub-components and activities to be implemented, the following will follow the ESMF: Under Component 1.2, capital contribution for International Master Developer (IMD) Zone (covering an area of 250-500 acres) includes:

- ***Sub-project I.1:*** Land elevation
- ***Sub-project I.2:*** Desalination plant
- ***Sub-project I.3:*** Rain water capture
- ***Sub-project I.4:*** Water resource management
- ***Sub-project I.5:*** Solid waste management
- ***Sub-project I.6:*** Waste pyrolysis/energy
- ***Sub-project I.7:*** Solar energy production

- ***Sub-project I.8:*** Sewage management
- ***Sub-project I.9:*** Waste water treatment
- ***Sub-project I.10:*** Flood management

The location of IMD zone is yet to be identified. Furthermore, the design and scale of the above activities have not yet been defined. The location of the site, criteria for selection, and key performance indicators for the above sub-projects will depend on feasibility studies and market engagement. All of the above sub-projects have been considered in this ESMF.

The project area includes Zone 2A and 2B covering 572 ha. In these two zones, the World Bank will support BEZA implementation of the following Sub-projects:

(A) Sub-component 2.1: Basic infrastructure to implement the Master Plan for BSMSN-2A & 2B. This will include onsite and last mile infrastructure in Zone 2A and 2B as outlined in the recently finalized Master Plan for BSMSN.

- ***Sub-project A.1:*** Construction of arterial and non-arterial roads, footpath and plot entry culvert
- ***Sub-project A.2:*** Construction of storm water management network
- ***Sub-project A.3:*** Construction of water supply network
- ***Sub-project A.4:*** Site upgradation
- ***Sub-project A.5:*** Construction of telecommunication network
- ***Sub-project A.6:*** Construction of some key public buildings and facilities
- ***Sub-project A.7:*** *Construction of Internal Power Distribution Network*
- ***Sub-project A.8:*** Construction of sewer network and waste water/sewage treatment plant

(B) Sub-component 2.2: Sustainable and resilient services for the city and industries. This will include construction of shared facilities in Zone 2A and 2B, which will eventually provide sustainable and resilient services for the BSMSN.

- ***Sub-project B.1:*** *Construction of a Common Effluent Treatment Plant (CETP)*
- ***Sub-project B.2***: Construction of a desalination plant
- ***Sub-project B.3***: Construction of a rooftop and floating solar power system.
- ***Sub-project B.4***: Construction of high-pressure steam pipelines connecting relevant tenant firms
- ***Sub-project B.5***: Development of a landfill site for solid waste generated
- ***Sub-project B.6***: Construction of a biogas plant, waste sorting and material recovery facility

This ESMF covers the sub-projects to be financed in IMD Zone and the sub-projects in 2A and 2B (I,e A.8, B.2, B3 and B4) for which detail information is not available at this stage.

Regulatory Framework, Standards and Guidelines

This ESMF has been prepared in accordance with national legal, regulatory and administrative framework and also following World Bank's Environmental and Social Framework and its relevant standards.

Footprint and Area of Influence for Environmental and Social Baseline

Although the PRIDE interventions considered in this ESMF study is confined within BSMSN (IMD Zone as well as 2A & 2B), the sub-projects can have potentially significant environmental and social impacts in the adjoining areas. In general, direct environmental impacts will tend to be within 1km of the construction/operation sites and indirect environmental impacts can potentially extend over several kilometres depending on the type of activity and prevailing conditions. As the location of 2A and 2B is known and it is expected that the IMD zone would be located close to these sites, a 10 km buffer zone area around 2A and 2B has been considered as the project influence area.

An overview of the existing baseline information obtained from primary data and secondary literature review is presented in this ESMF. Detailed baseline environment of the Project area (covering biophysical and socioeconomic environment) will be collected and presented in the specific sub-projects' ESIAs.

Identification of Potential Environmental and Social Impacts and Mitigation Measures

It is anticipated that proposed PRIDE interventions in IMD Zone and BSMSN Zones 2A and 2B would have environmental and social impacts. For the identified sub-projects, typical impacts on physico-chemical environment (air, noise, water, soil, sediment, etc.), biological environment (terrestrial and aquatic flora fauna) and socio-economic environment (OHS, community interruption, labour influx, traffic, etc.) are expected. However, the extent and scale of the impacts can vary depending on the specific location and detailed design.

Site clearing activities can lead to removal of vegetation, which can have impacts on the biodiversity in the surrounding area. Removal of terrestrial flora can result in loss of habitats for fauna. In addition, there are number of aquaculture ponds, which can be filled up as a part of land development. These are low depth ponds being used by local community for aquaculture. The ownership of such ponds would be assessed once the location of IMD zone is finalized. Migratory birds coming in the project site may decrease due to noise and loss in food resources. Baseline assessment identified the presence of deer in the project influence area and these may also be affected. Disturbance of aquatic ecosystems can occur during bridge/culvert construction.

The project would support construction of some basic infrastructure such as internal roads, access roads and water supply and storm water drainage network, network of sewage collection etc. It would also support construction of some common and shared facilities such as central effluent treatment plant (CETP), sanitary landfill as a part of integrated solid waste management, desalination plant for supply of potable water, installation of renewable energy system like floating and rooftop solar panel, bio-gas plant etc. While these infrastructures have been planned to take care of the treatment, disposal, reuse and cycle of the liquid and solid waste generated by the operation of the future industries, their construction and operation might negatively impact various environmental and social parameters if adequate mitigation measures are not taken into considerations. Construction phase impacts might include air pollution due to dust and vehicular emission, contamination of surface water by construction debris, noise pollution by construction equipment. Social conflict, spread of communicable diseases and other issues related to influx of labor in the area might also be a concern. Potential impacts during operation phase of the project might include contamination of surface water if the effluent of the CETP does not satisfy minimum

acceptable quality. There would be possibility of contamination of ground water from the leachate from the sanitary landfill if the lining of the bed of the landfill is not properly done. Leachate can also pollute the surface water if not properly treated and disposed. The occupational health and safety of the workers would also be an issue as the labors would be exposed to hazardous solid and liquid waste in day to day operation of these infrastructure.

The study area is also predominantly rural in nature and this is expected to change to a more mixed land use profile with the development of economic zones over time. The socio-economic benefits of industrial development will lead to increased employment and associated activities in the study area.

The ESMF suggests a broad range of mitigation and enhancement measures to reduce negative impacts and enhance benefits from IMD Zone and Zone 2A & 2B sub-project interventions under PRIDE. Mitigation measures need to be identified and designed to avoid or eliminate or offset adverse environmental impacts, or reduce them to acceptable levels during both construction and operation phases of a sub-projects. More sub-project specific examples of mitigation measures have been provided in **Annex C**.

Methodological Framework for Environmental and Social Management

The environmental and social assessment of PRIDE IMD Zone and Zone 2A & 2B sub-projects will need to be carried out in compliance with the provisions of the Environment Conservation Acts and Rules and following the relevant World Bank's Environmental and Social Standards (ESSs).
Once the preliminary design of a sub-project has been done and location has been finalized, screening of environmental and social risks will need to be carried out. This will help in the preparation of environmental and social (E&S) documents such as ESA, ESIA, RAP and ESMP.

The environmental and social assessment of the sub-projects in the IMD Zone and Zone 2A & 2B will start with the Environmental and Social Screening of proposed interventions using the format provided in this ESMF (**Annex G & Annex H**). Environmental and Social Screening will determine whether sub- project interventions will require an ESA or a full scale ESIA and ESMPs**.** The recommendations from these E&S documents will need to be specified in the tender documents. BEZA needs to ensure and monitor that the contractors follow the recommendations of the ESMP.

The outcome of the screening process is to categorize the sub-project in terms of its environmental and social risks. Considering potential environmental and social impacts and their significance, PRIDE sub-projects will be categorized as: High, Substantial, Moderate or Low based on ECA and ECR of GoB and ESF of the World Bank.

For High and Substantial Risk Category sub-projects, detailed ESIA will be required. These should include site-specific information, identification of potential adverse and beneficial impacts, proposing mitigations measures, stakeholder consultation etc. A sample TOR for conducting full scale ESIA has been attached in **Annex A**. Content of an ESIA report is provided in **Annex B1**.

Moderate Risk Category sub-projects will require an ESA (termed as IEE according to national law). The ESA is a review of the reasonably foreseeable effects of a proposed development intervention/activity on the environment and human population. Participation and consultation with local communities are important in identifying the potential impacts and suitable mitigation measures. Content of Environmental and Social Assessment is provided in **Annex B2**.

For Low Risk Category sub-projects, a site-specific ESMP will be required to ensure enhancements such as greening measures are implemented. The ESMP should clearly describe: (a) the measures to be taken during both construction and operation phases of a sub-project to eliminate or offset adverse environmental and social impacts, or reduce them to acceptable levels; (b) the actions needed to implement these measures; and (c) a monitoring plan to assess the effectiveness of the mitigation measures employed. Example ESMP and Monitoring Plan are provided in **Annex C**.

Stakeholder Engagement, Grievance Mechanism and Disclosure

BEZA has already prepared a Stakeholder Engagement Plan (SEP) for all components under PRIDE project. As a part of updating ESA for the known activities in 2A & 2B, stakeholders consultation, focus group discussions (FGDs) and key informant interviews (KIIs) were carried out (see **Annex I** for details) in the project influence area to seek opinion and suggestion of the stakeholders through applying the provisions of ***ESS-10*** of the ***Environmental and Social Framework*** of the World Bank. This ESMF has utilized the findings of these consultation meetings and SEP. All sub-projects following the ESMF will follow the stakeholders' engagement strategies and GRM as specified in the SEP.

Institutional Framework

Key responsibility for implementation of this ESMF would lies with BEZA. For proper assessment and management of the E&S risks, BEZA would be required to appoint Environmental, Social Development and Gender Specialists in the PMU to facilitate undertaking ESIAs/ESAs of various sub-projects as per ESMF and monitor implementation of ESMP. BEZA also needs to ensure adequate Environmental and Social development specialists in the Project Monitoring Consultant (PMC). Moreover, long term sustainable solution to manage environmental and social risks and impacts of projects, capacity building activities need to be included in the project design. A permanent E&S unit should be set up in BEZA with adequate number of specialists to oversee implementation of ESMP and ESCP during the project period and co-ordinate all the E&S activities during operation phase.

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
AP	Affected People
ARP	Abbreviated Resettlement Plan
As	Arsenic
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BEPZA	Bangladesh Export Processing Zone Authority
BEZA	Bangladesh Economic Zones Authority
BHTPA	Bangladesh Hi-Tech Park Authority
BNBC	Bangladesh National Building Code
BOD_5	Bio-chemical Oxygen Demand at 5 Days
BSMSN	Bangabandhu Sheikh Mujib Shilpa Nagar
BTCL	Bangladesh Telecommunications Company Limited
BWDB	Bangladesh Water Development
CDA	Cox's Bazar Development Authority
CDSP	Char Development and Settlement Project
CETP	Common Effluent Treatment Plant
Cl^-	Chloride Ion
CO	Carbon Mono-oxide
COD	Chemical Oxygen Demand
CPA	Chittagong Port Authority
CRO	Chief Resettlement Officer
DC	District Commissioner
DEM	Digital Elevation Model
DLI	Disbursement Linked Indicators
DMP	Disaster Management Plan
DO	Dissolved Oxygen
DoE	Department of Environment
DoF	Department of Fisheries
DP	Development Partner
DPD	Deputy Project Director
DPHE	Department of Public Health & Engineering
DTW	Deep Tube-well
E&S	Environmental and Social
EA	Environmental Assessment
EBRD	European Bank for Reconstruction and Development
ECA	Ecologically Critical Area
ECC	Environmental Clearance Certificate
ECR	Environment Conservation Rules
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EMAP	Environment Management Action Plan
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EQS	Environmental Quality Standards
ES	Environmental Standard

ES	Environmental Specialist
ESA	Environmental and Social Assessment
ESC	Environmental and Social Cell
ESCP	Environment and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMoP	Environmental and Social Monitoring Plan
ESMP	Environmental and Social Management Plan
ESS	Environment and Social Standards
ETP	Effluent Treatment Plant
EZ	Economic Zone
FC	Faecal Coliform
FGD	Focus Group Discussions
FPIC	Free, Prior and Informed Consent
GAP	Gender Action Plan
GBV	Gender Based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GIIP	Good International Industry Practice
GMD	Green Zone Master Developer
GO	Government Organizations
GOB	Government of Bangladesh
GPP	Guidelines for People's Participation
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HH	Household
HIV	Human Immunodeficiency Virus
HYV Boro	High Yielding Variety of Boro
IA	Implementing Agency
IEE	Initial Environmental Examination
IFC	International Finance Corporation
INGO	Implementing Non-Government organization
IP	Indigenous People
IPF	Investment Project Financing
IPP	Indigenous People Plan
IWM	Institute of Water Modelling
JV	Joint Venture
KGDCL	Karnaphuli Gas Distribution Company Ltd
KII	Key Informant Interviews
LA	Land Acquisition
LAP	Land Acquisition Plan
L_{eq}	Equivalent Level
LG	Local Governance
LGED	Local Government Engineering Department
LGI	Local Government Institute
LMP	Labour Management Procedures
LNG	Liquefied Natural Gas

LRSP	Livelihood Restoration Support Plan
MLD	Million Litre per Day
MOEFCC	Ministry of Environment, Forest and Climate Change
MoWR	Ministry of Water Resources
MT	Metric Ton
NBC	National Building Code
NBSAP	National Biodiversity Strategy & Action Plan
NEMAP	National Environmental Management Action Plan
NEP	National Energy Policy
NEQS	National Environmental Quality Standards
NGO	Non-Government Organizations
NH_3	Ammonia
NLTP	National Land Transport Policy
NLUP	National Land Use Policy
NOx	Nitrogen Oxides
NWMP	National Water Management Plan
O&M	Operation and Maintenance
OHS	Occupational Health Safety
OSS	One Stop Shop
PAH	Project Affected Households
PAP	Project Affected People
Pb	Lead
PCU	Passenger Car Unit
PD	Project Director
PDO	Project Development Objective
PEZ	Private Economic Zone
PGCB	Power Grid Company of Bangladesh
PIU	Project Implementation Unit
PL	Post Larvae
PM_{10}	Particulate Matter 10 micron size
$PM_{2.5}$	Particulate Matter 2.5 micron size
PMC	Project Management Consultant
PMO	Prime Minister's Office
PMU	Project Management Unit
PPE	Personal Protective Equipment
PPP	Public Private Partnership
PPSEZ	Phnom Penh Special Economic Zone
PRIDE	Private Investment & Digital Entrepreneurship
PSDSP	Private Sector Development Support Project
PUC	Pollution Under Control
PWD	Public Works Department
QA	Quality Assurance
QC	Quality Control
RAP	Resettlement Action Plan
RHD	Roads and Highways Department
RP	Resettlement Plan
RPF	Resettlement Policy Framework
RSMF	Resettlement and Social Management Framework

SEC	Social and Environmental Cell
SEP	Stakeholder Engagement Plan
SHE	Safety, Health and Environmental
SIA	Social Impact Assessment
SO_2	Sulphur Dioxide
SOB	Survey of Bangladesh
SPM	Suspended Particulate Matter
SRDI	Soil Resource Development institute
SS	Social Specialist
STP	Sewage Treatment Plant
SWTP	Storm Water Treatment Plant
TC	Total Coliform
TDS	Total Dissolved Solids
ToR	Terms of Reference
TOT	Training of the Trainers
TPI	Third Party Inspection
TPP	Tribal Peoples Plan
TSS	Total Suspended Solids
UNO	Upazilla Nirbahi Officer
WARPO	Water Resources Planning Organization
WB	The World Bank
WTP	Water Treatment Plant

CHAPTER 1. INTRODUCTION

1.1 Background

The Government of Bangladesh (GOB) has taken up an initiative to provide industrial land and infrastructure to increase private and foreign investment to support its development goals. The Government also plans to create 100 economic zones all over the country in the next decade using a wide variety of arrangements. The on-going Private Sector Development Support Project (PSDSP) supported the establishment of Bangladesh Economic Zone Authority (BEZA) and Bangladesh High Tech Park Authority (BHTPA). PSDSP is also supporting preparation of master plan for setting up Bangabandhu Sheikh Mujib Shilpanagar (BSMSN) in Mirsharai, Sonagazi and Sitakundu Upazilla of Chattogram and Feni Districts. The master plan of BSMSN is at the final stage of completion. BSMSN is expected to be developed on an area of around 30,000 acres.

The proposed Bangladesh Private Investment & Digital Entrepreneurship (PRIDE) Project will build upon the foundation laid down in PSDSP and strengthened capacity to start delivering by BEZA and BHTPA on their mandates. Presently, a number of development activities are ongoing in the Zone 2A and 2B. PRIDE would support further development of Zone 2A and 2B. Basic information and scale of operation of some of the planned activities in Zone 2A and 2B are known for which BEZA has prepared an ESA. Such information is not available for a number of other activities in 2A and 2B at this stage which has been included in this ESMF. PRIDE would also support development of a third piece of land (250-500acre) engaging an International Master Developer (IMD). These activities to be implemented in the IMD zone has also been included in this Environmental and Social Management Framework (ESMF).

1.2 The PRIDE Project

The PRIDE project aims to promote private investment and job creation in economic zones and digital entrepreneurship in hi-tech parks. The project will spearhead the adoption and mainstreaming of green industrial park concepts in the implementation and development of economic zones in Bangladesh. The project has four components. The first three components will be implemented by BEZA and the fourth component twill be implemented by BHTPA.

Component 1: Creating an Enabling Environment for Private Investment and Job Creation

This component will finance technical assistance, goods and training and cover disbursement linked indicators to achieve institutional and regulatory reforms, crowd in private participation, and achieve key results targets. The technical assistance and Disbursement Linked Indicators (DLIs) will increase good governance, good international practices, and be associated with expenditures under Components 2-3. The sub-components under component 1 include the following:

Sub-component 1.1: Promoting good governance and administrative efficiency

This sub-component will promote good governance and administrative efficiency by rendering BEZA a more effective partner to private investors. Important outputs will cover review and revision of BEZA's mission and vision statements; design and implementation of a comprehensive human resources policy; the establishment, recruitment, training and equipment of special operations units;

development of BEZA's nascent one stop shop services center to introduce streamlined administrative services; establishment of formal coordinating mechanisms to allow BEZA to play a more effective role vis-à-vis other public entities and private partners, including at the division level; development of clear rules when economic zones may have public ownership/participation; separation and introduction of a fire wall between the regulator and developer roles; establishment of special purpose entities when economic zones has public participation to improve governance and promote inclusive development and; development of a practical framework and guidelines for green and resilient economic zones at the national level.

Sub-component 1.2: Promoting public private participation

The project will finance technical assistance and training to support the PPP Special Operations Unit develop a PPP program, including the delivery of specific PPP transactions, with the aim of attracting internationally reputed developers and operators. The project will provide support for legal, regulatory and institutional reforms. It will develop procedures and guidelines for identifying, selecting, preparing, structuring, negotiating, implementing and monitoring PPP transactions. The preliminary pipeline of potential transactions includes:

a. PPP for Green Zone Master Developer (200 ha, in two phases): feasibility study, transaction advisory services, capital contribution for land elevation, and possibly partial capital contribution for key green infrastructure. The latter may include desalination, rain water capture, water resource management, solid waste management, waste pyrolysis/energy, solar energy production, sewage management, waste water treatment, flood management, etc.
b. PPP for Sea Port, Port Facilities and Land Reclamation: feasibility study, transaction advisory services, support to help mobilize public financing for port superstructure, capital investment from other financing sources for port superstructure, etc. Total funding would likely amount to approximately US$1bn and BEZA has received unsolicited proposals that the project will integrate in an open and competitive selection process.
c. PPP for Desalination and Wastewater Treatment: feasibility study, transaction advisory services and capital investment to buy down the cost of green, best practice solutions. Other green zone activities such as solar power, rain water capture and flood management will be considered at the pre-appraisal stage.

Component 2: Supporting phased development of the BSMSN Green Industrial City

The second component will support the phased development of the BSMSN Green Industrial City along the Dhaka-Chattogram corridor following the adoption of the new Master Plan. While BSMSN in Mirsharai-Feni is ultimately expected to cover approximately 30,000 acres by 2040, the project would focus on three plots of land: 2A (474 acre), 2B (939 acre). A third piece of 250-500 acre of unallocated land would be developed with help of an international master developer (IMD zone).

The sub-components will include the following:

Sub-component 2.1: Developing environmentally sustainable and resilience infrastructure

This sub-component will finance works, goods and technical assistance to apply and implement the new EIP Framework for Green and Resilient Economic Zones in BSMSN 2A-2B and in the

International Master Developer area. The approach will eventually be scaled up at a national level under a parallel technical assistance.

Sub-component 2.2: Last mile infrastructure to implement the Master Plan for BSMSN

Besides the infrastructure under sub-component 2.1, the project will also finance some traditional last mile infrastructure to connect 2A, 2B and the Master Developer Area, including to local roads and grids, and factory units within these sites. These investments will follow the priorities identified in the Master Plan for BSMSN.

Component 3: Creating a dynamic private market for serviced industrial land

The third component will help create a dynamic private market for serviced industrial land. Potential interventions under this component will include review and revision of the regulations and procedures around the licensing of PEZs and technical assistance to strengthen the capacity to monitor and enforce the regulations; direct support to help identify, evaluate, design and build in resilience and sustainability in the infrastructure investments and services provided by PEZ operators and; grant mechanism program to support new tenants in PEZs that would help raise labor productivity by incentivizing firm investment in skills formation by accredited institutions. The matching grant program will operate on a reimbursable basis and only for legitimate expenses for those who successfully complete the training and obtain certified credentials.

Component 4: Strengthening the Digital Entrepreneurship and Innovation Ecosystem

The fourth component will be implemented by BHTPA. It aims to strengthen the foundation of the digital entrepreneurship and innovation ecosystem in Bangladesh. It will create the country's largest agglomeration of IT and ITeS SMEs in Dhaka's Janata STP and promote digital entrepreneurship more broadly among young professionals and women. It will design and implement a program that supports digital entrepreneurship at three levels. This component has not been covered in this ESMF. A separate ESMF has been prepared for other sub-components by BHTPA.

1.3 Purpose of the ESMF

As mentioned earlier, PRIDE would support further development of zone 2A,2B and also support a zone comprising of 250-500 acres of land to be developed by engaging in international master developer. This zone would incorporate green industrial park principles. The investment will set an example for sustainable, resilient and environmentally sound industrial development to attract international supply chains. The capital contribution for this project will be for land elevation, and possibly partial capital contribution for some key green infrastructure that could cover desalination, rain water capture, water resource management, waste pyrolysis/energy, solar energy generation, sewage management, waste water treatment or flood management. The location of the site, criteria for selection, and key performance indicators will depend on the feasibility study and market engagement. As location, design and scale of operation of these sub-projects are not yet known, this ESMF has been prepared to set out detail procedures to be followed before implementation of these sub-projects once detail information would be available. In addition, a Regional Environmental and Social Assessment (RESA) including Cumulative Impact Assessment (CIA) will be conducted during the preparation of the project.

For most of the activities in zone 2A and 2B, a separate ESA report has been prepared. However, there are some planned activities within Zones 2A,2B for which sufficient information is not available to conduct a reasonable assessment of environmental and social impact at this stage. These sub-projects have also been included in this ESMF.

The main purposes of this ESMF are to:

- Provide tools and guidelines for risk categorization of all the sub-projects to be implemented under PRIDE project for which detail information are not available at this stage.
- Set out the detailed procedures to be followed for various sub-project categories to assess and manage environmental and social risks.
- Consider in an integrated manner the potential environmental and social risks, benefits and impacts of the program and identify measures to avoid, minimize and manage risks and impacts while enhancing benefits
- Ensure all relevant environmental and social issues are mainstreamed into the design and implementation of the sub-projects
- Provide guidance for preparation of various safeguard documents
- Provide guidance for ensuring stakeholder engagement at various stages of sub-project implementation.

1.4 Methodology

The methodology followed in preparing the ESMF consists of the following steps:

- Review Project documents and meeting/discussions with various stakeholders including BEZA and World Bank
- Review policy and regulatory requirements
- Reconnaissance field visits and initial scoping and screening to determine the key environmental and social parameters and aspects that are likely to be impacted by the Project activities
- Collection and analysis of baseline environmental and social data, with the help of secondary literature review, and field data collection
- Consultations with the stakeholders including beneficiary/ affected communities and developing the consultation process
- Review the potential and likely impacts of the program activities and carrying out the screening of the sub-project.
- Outline the detailed procedures to be followed to comply with the WB and GoB rules and regulations including preparation of various safeguard documents, monitoring mechanism, stakeholder engagement, disclosure requirement, grievance redress and institutional arrangement.

1.5 Content of the ESMF Report

The ESMF has been structured as follows:

- Executive Summary giving an overview of the ESMF
- Chapter 1 Introduction provides a brief overview of the project background, Scope & Purpose of the ESMF, approach & methodology of the project.
- Chapter 2 provides a description & objective of the project, its various components, project area, current land use pattern

- Chapter 3 outlines the relevant policies, legislative and regulatory framework for this project
- Chapter 4 gives information about the baseline conditions in the project influence areas
- Chapter 5 describes potential/expected environmental and social risks and impacts of the project
- Chapter 6 describes typical mitigation measures for different sub-projects
- Chapter 7 details the procedures to be followed in this Environmental and Social Management Framework
- Chapter 8 includes stakeholder consultation and disclosure objective, methodology & tools for the stakeholder consultation. This chapter also summarizes the stakeholder consultations undertaken to date and also proposed for the project. Grievance redress mechanism outline is also provided within this section.
- Chapter 9 outlines institutional and monitoring arrangements for the project

CHAPTER 2. PROJECT DESCRIPTION

An Environmental and Social Assessment (ESA) has been prepared for all the activities in 2B and 2B for which scale of operation and other pertinent information are known. But detail information of some of the activities in 2A and 2B are not known at this stage. Also the location and information of the infrastructure to be constructed in the IMD zone are not known. This ESMF has been prepared for assessment and management of environmental and social risks of these infrastructure in 2A and 2B and IMD zones as well as sub-component 1.2 and the component 3 of the PRIDE project. A summary of the works involved in PRIDE and their inclusion in ESA or this ESMF has been clarified in **Table 2-1**.

Table 2-1: Summary of Works in IMD Zone, Zone 2A and 2B

Sub-project	Status of activities under ongoing PSDSP (ongoing/planned)	Proposed Investments/Sub-projects to be undertaken by PRIDE project	Activities under IMD or Zone 2A & 2B	Included in ESA/ ESMF
Sub-project I.1: Land elevation ***Sub-project I.2:*** Desalination plant ***Sub-project I.3:*** Rain water capture ***Sub-project I.4:*** Water resource management ***Sub-project I.5:*** Solid waste management ***Sub-project I.6:*** Waste pyrolysis/energy ***Sub-project I.7:*** Solar energy production ***Sub-project I.8:*** Sewage management ***Sub-project I.9:*** Waste water treatment ***Sub-project I.10:*** Flood management	planned	Location of IMD zone is yet to be identified. Design and scale of the sub-projects not yet been defined.	**IMD**	**ESMF**
Sub-project A.1: Construction of arterial and non-arterial roads, footpath and plot entry culvert.	Construction of new access road and widening of existing ones of approximately 19 km and 4 bridges are underway and expected to be completed by end January 2020.	Construction of approximately 30km of arterial and non-arterial roads, footpath and plot entry culvert.	**BSMSN 2A & 2B**	**ESA**
Sub-project A.2: Construction of	Construction of 16 Vent regulator on Ichhakhali khal	Construction of approximately 30km of integrated stormwater	**BSMSN 2A & 2B**	**ESA**

Sub-project	Status of activities under ongoing PSDSP (ongoing/planned)	Proposed Investments/Sub-projects to be undertaken by PRIDE project	Activities under IMD or Zone 2A & 2B	Included in ESA/ ESMF
integrated stormwater management network.	ongoing	management network including resilient drains, infiltration and retention facilities.		
Sub-project A.3: Water supply network	Feasibility study of water network completed. Work in progress to Install 5 test tube wells, 3 production deep tube wells, pipelines and construction of underground water reservoir	Construction 30km water distribution network.	**BSMSN 2A & 2B**	**ESA**
Sub-project A.4: Site upgradation	Site development works incl. landfilling of 1500 acres. Coastal embankment (super dyke) is being constructed at 9 m average mean sea level for 7.7 km along the coastlines of BSMSN-2A and BSMSN-2B. The coastal embankment construction is expected to be completed by end April 2020. River embankment with a bund of 8m average mean sea level and a cyclone shelter have been constructed to protect the area and people from impacts of cyclones. A mangrove has been planted alongside the coastline. Mangrove was also planted alongside the coastline.	Construction of infrastructure and site development measures to enhance flood and liquefaction resilience performance of flood prevention measures (super dyke, embankments, site development) through green and gray investments (open Space/ Landscaping, Greenery along road; Percolation Pits, etc.), infrastructure Maintenance.	**BSMSN 2A & 2B**	**ESA**
Sub-project A.5: Construction of telecommunication network	Not yet started.	A total of 30km telecommunication cable network.	**BSMSN 2A & 2B**	**ESA**
Sub-project A.6: Construction of some key public buildings and facilities	Construction of Administrative Building, Office Building and Accommodation Shed ongoing	Construction of a key public buildings and facilities such as fire stations and cyclone shelters that serve as an emergency response and operation centre in the event of disasters.	**BSMSN 2A & 2B**	**ESA**
Sub-project A.7: Construction of Internal Power Distribution Network	Not yet started	Construction of approximately 30km of Internal Power Distribution, Transformer, Street Light (LED / Solar), Internal Substation, Fire Hydrant, etc.	**BSMSN 2A & 2B**	**ESA**

Sub-project	Status of activities under ongoing PSDSP (ongoing/planned)	Proposed Investments/Sub-projects to be undertaken by PRIDE project	Activities under IMD or Zone 2A & 2B	Included in ESA/ ESMF
Sub-project A.8: Construction of sewer network and waste water/sewage treatment plant	Not yet started	The design and alignment of the sewer network are not finalized. The sewer network will consider green and resilient features and designs	**BSMSN 2A & 2B**	**ESMF**
Sub-project B.1: Construction of a Common effluent treatment plant (CETP)	Not yet started	A CETP with a capacity to treat 48,000 m3/day. 18 acres' land have been earmarked to for the CETP where influent norms at the inlet will be set at BOD5 – 600 mg/L, COD – 1260 mg/L and TDS – 2100 mg/L.	**BSMSN 2A & 2B**	**ESA**
Sub-project B.2: Construction of a desalination plant	Not yet started	The desalination plant will be constructed to supply process water with a quality that can be used without further treatment by most of the industrial unit investors in BSMSN. As per BEZA current strategy, BSMSN 2A and 2B water demand will be met by 101 MLD of treated water from Feni River surface water treatment plants and groundwater production tube wells. The envisioned desalination plant will support to cover the demand of BSMSN-IMD area.	**BSMSN 2A & 2B**	**ESMF**
Sub-project B.3: Construction of a Rooftop and floating solar power system on buildings in EZs (The roof tops panel would be installed In all the industry roof tops which would be suitable for such installation. The floating panels would be installed in the artificial water bodies which would be created	Not yet started	The location and design of the rooftop and floating power system are not finalised. The potential rooftop solar capacity is 60 MWp while floating is 10 MWp. The total available rooftop surface is around 1.4 km^2. The water basins in the selected zones cover an area of 0.1 km^2, but the proximity to the sea should provide additional capacity.	**BSMSN 2A & 2B**	**ESMF**

Sub-project	Status of activities under ongoing PSDSP (ongoing/planned)	Proposed Investments/Sub-projects to be undertaken by PRIDE project	Activities under IMD or Zone 2A & 2B	Included in ESA/ ESMF
in the Zone to facilitate storm water discharge and rain water harvesting)				
Sub-project B.4: Construction of high-pressure steam pipelines connecting tenant firms	Not yet started	High-pressure steam pipelines connecting tenant firms will be constructed. This will be constructed to send steam and receive condensate between suitable industrial plants. Location and design yet to be determined.	**BSMSN 2A & 2B**	**ESMF**
Sub-project B.5: Development of a landfill site for solid waste generated	Not yet started	Although the location of the solid waste land fill has been decided but detail design is not finalized.	**BSMSN 2A & 2B**	**ESA**
Sub-project B.6: Construction of a biogas plant	Not yet started	A biogas plant will be constructed on two acres of land to process up to 300 tons of municipal solid waste per day.	**BSMSN 2A & 2B**	**ESA**

In addition to the sub-projects mentioned above, the sub-component 1.2 and the component 3 will also be covered by the ESMF. Under the Sub-component 1.2 (Promoting public private participation), the PRIDE project will finance technical assistance and training to support the PPP Special Operations Unit develop a PPP program, including the delivery of specific PPP transactions, with the aim of attracting internationally reputed developers and operators. The project will provide support for legal, regulatory and institutional reforms. It will develop procedures and guidelines for identifying, selecting, preparing, structuring, negotiating, implementing and monitoring PPP transactions. The preliminary pipeline of potential transactions includes PPP for Green Zone Master Developer (200 ha, in two phases); PPP for Sea Port, Port Facilities and Land Reclamation and; PPP for Desalination and Wastewater Treatment. The third component of PRIDE (Creating a dynamic private market for serviced industrial land) will help create a dynamic private market for serviced industrial land. Potential interventions under this component will include review and revision of the regulations and procedures around the licensing of PEZs and technical assistance to strengthen the capacity to monitor and enforce the regulations; direct support to help identify, evaluate, design and build in resilience and sustainability in the infrastructure investments and services provided by PEZ operators and; grant mechanism program to support new tenants in PEZs that would help raise labor productivity by incentivizing firm investment in skills formation by accredited institutions. The matching grant program will operate on a reimbursable basis and only for legitimate expenses for those who successfully complete the training and obtain certified credentials. The details sub-projects and activities to be financed under sub-component 1.2 and component 3 are not identified yet. Once these are identified, BEZA will follow the environmental and social process as described in

this ESMF. All ToRs for feasibility and technical studies of proposed infrastructure (e.g. sea port, desalination plant, WTP) will have to include identification of environmental and social risks and impacts and mitigation measures.

2.1 Description of the sub-projects included in the ESMF

Depending on the nature and location, the planned sub-project activities are likely to result in positive and negative impacts on the project area during their construction and O&M phases. These impacts will be further crucial when the project locations are in the proximity to environmentally sensitive or densely populated areas. Hence, there is a need for systematic environmental and social management with pre-defined framework for risk mitigation. As all project locations and activities are not finalized, in order to identify and manage associated environmental and social risks, this ESMF has been prepared for the project.

2.1.1 Planned Sub-Projects in IMD Zone

All the sub-projects identified for the IMD have been included in the ESMF as these sub-projects require some form of study/assessment in order to establish the site/location, scale and design of the interventions. Brief descriptions of each sub-project is as follows:

Sub-project I.1: Land elevation

The IMD area will be landfilled using local/imported sand but the location and extent of this activity is not known. Remaining parts of the BSMSN are/will be raised to 7m MSL. The total BSMSN area will be protected by a super dyke with elevation of 10m MSL.

Sub-project I.2: Desalination plant

The present fresh water resource in the vicinity is insufficient to support large scale industrial activities sustainably. Therefore, a seawater desalination plant has been proposed under PRIDE for IMD but its site, design, etc. are not known as yet. A similar sub-project has also been proposed for Zone 2A and 2B.

Sub-project I.3: Rain water capture

Rain water harvesting has been included for the IMD as a measure to improve the overall water resources balance for the project. However, the location and extent as well as design features have not been defined yet.

Sub-project I.4: Water resource management

The activities under this sub-project have not been defined yet. However, it is expected that the interventions will aim to reduce the environmental footprint and operational risks related to IMD activities by optimizing resource use and costs.

Sub-project I.5: Solid waste management

IMD will generate different types of solid wastes. This sub-project will involve the collection, treatment and recycling/reuse/disposal of solid wastes. The type and amount of wastes are not known yet and therefore the extent of treatment has not been established.

Sub-project I.6: Waste pyrolysis/energy

Some of the wastes generated from the IMD will need to be incinerated through some form of waste pyrolysis. This process can also produce some energy that can be captured and used for some of the industrial processes in the IMD. At this stage the nature and extent of this sub-project is not known.

Sub-project I.7: Solar energy production

In order to reduce the energy footprint of the IMD, solar energy will be used to produce electricity to power some of the industrial and non-industrial activities. The design of the solar energy system has not been developed yet.

Sub-project I.8: Sewage management

A large number of workers are expected to be employed and reside in the IMD. The human wastes generated will require proper collection, treatment and final disposal of the treated by-products. Although sewage collection and treatment processes are well established, the specific design for the IMD is not known yet.

Sub-project I.9: Waste water treatment

Apart from human wastes, other liquid effluents are expected to be generated from IMD activities. These will require proper treatment in an ETP/CETP. It is expected that tenants of the IMD will have to have their own pre-treatment facilities for their liquid wastes. The design of such a treatment plant for the IMD has not been developed yet.

Sub-project I.10: Flood management

Although the super dyke is expected to protect the BSMSN, internal storm water/flood management is still required for the IMD zone. The design of the flood management scheme will depend on location of the IMD zone and internal layout pattern.

2.1.2 Sub-Projects in 2A,2B

The sub-projects under PRIDE in Zones 2A and 2B that are included in this ESMF are described below.

Sub-project A.8: **Construction of sewer network and wastewater/ sewage treatment plant**

A conventional wastewater treatment system would also include underground collection network and trunk mains for conveying wastewater and sewage to the WWTP. Other option could be to reduce or process wastewater by packaged plant or other types of technologies. Water from sinks, showers, bathtubs and laundry facilities can be collected, filtered and treated (usually through chlorination), and then reused on-site for cleaning premises, watering of plants or to flush toilets. This type of recycling would be best suited for waste water generated by domestic or commercial

sources, rather than just industrial. Treated effluent from sewage treatment plants can also be reused (reclaimed).

Another option is to combine a septic-tank system, which collects wastes in large tanks, and uses constructed wetlands to "treat" the effluent that flows out of the tanks. This type of system can be used as an alternative to a centralized sewage treatment plant. Vegetation growing in the constructed wetlands removes the excess nutrients in the effluent, which can then be used for different purposes.

More advanced systems use a sophisticated filtration system, rather than settling tanks, to separate liquids from solids, and the resulting effluent is then discharged into a constructed wetland for final treatment. The type of sewer network and treatment plan to constructed has not been determined yet.

Sub-project B.2: Construction of a desalination plant Desalination plant (US$90m)

According to the Water Resource Assessment Study of BEZA (2019), surface water and groundwater resources available for supply will not be sufficient to meet the demand of the BSMSN. The study recommended among others for desalination plants to meet the gap between demand and supply from conventional sources. The proposed desalination plant will supply processed water with a quality that can be used without further treatment by most of the industrial unit investors in BSMSN.

Sub-project B.3: Construction of a Rooftop and floating solar power system Rooftop and floating solar

Rooftop surfaces of different buildings in BSMSN 2A and 2B can be used for installation of solar power panels. In addition, floating solar panels can be placed in the water bodies to be developed. These would be artificial water bodies which would be constructed to facilitate storm water discharge and rain water harvesting. Once the design, type and specification of such panels would become known, sub-project specific environmental and social assessment (IEE or ESIA) would assess adverse environmental impacts and suggest mitigation measures. A preliminary assessment shows that potential rooftop solar capacity could be around 60 MWp; while that of floating solar capacity is 10 MWp. The integration of solar power solutions in BSMSN will help reduce the environmental footprint and render the area more attractive for both the adjacent residential and commercial areas in addition to industrial tenants.

Sub-project B.4: Construction of high-pressure steam pipelines connecting tenant firms Steam network

High pressure steam can be recovered from certain plants (e.g. Steel plants) and can be used in others (e.g. Textiles). The recovered steam can be supplied to condensing turbines to produce shaft power for rotating machines. Through this kind of symbiosis significant energy savings may be effected. PRIDE will finance such steam pipelines construction.

CHAPTER 3. LEGAL, REGULATORY AND ADMINISTRATIVE FRAMEWORK

3.1 Introduction

The ESMF guides the implementing agency in designing and implementation of environmentally sustainable sub-project interventions. It is anticipated that proposed PRIDE interventions in IMD Zone and BSMSN Zones 2A and 2B may have some environmental impacts on the surrounding related to land acquisition, resettlement etc. The Environmental Social Standards (ESSs) of the Bank as well as the national and international conventions, treaties and protocols provide specific guidelines to minimize and/or mitigate environmental impacts resulting from development interventions. This chapter provides a brief summary of relevant ESSs and national and international conventions, treaties and protocols. Furthermore, Bank's EA source books have also been reviewed for identification of potential environmental concerns.

3.2 World Bank's Environmental & Social Framework

The World Bank classifies all projects into one of four categories: High Risk, Substantial Risk, Moderate Risk or Low Risk. In determining the appropriate risk classification, the World Bank takes into account relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential environmental and social risks and impacts; and the capacity and commitment of the Borrower to manage the environmental and social risks and impacts in a manner consistent with the Environmental and Social Standards (ESS). Other areas of risk may also be relevant to the delivery of environmental and social mitigation measures and outcomes, depending on the specific project and the context in which it is being developed.

ESS 1: Assessment and Management of Environmental and Social Risks and Impacts

The objective of ESS1 are:

i. To identify, evaluate and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs. Adopt a mitigation hierarchy approach to:
    a. Anticipate and avoid risks and impacts;
    b. Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels;
    c. Once risks and impacts have been minimized or reduced, mitigate; and
    d. Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.

ii. b. To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project.

iii. To utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate.

iv. To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity.

ESS 2: Labour and Working Conditions

The Objectives of ESS 2 are:

i. To promote safety and health at work.
ii. To promote the fair treatment, non-discrimination and equal opportunity of project workers.
iii. To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate.
iv. To prevent the use of all forms of forced labour and child labour.
v. To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.
vi. To provide project workers with accessible means to raise workplace concerns.

ESS 3: Resource Efficiency and Pollution Prevention and Management

The Objectives of ESS 3 are:

i. To promote the sustainable use of resources, including energy, water and raw materials.
ii. To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
iii. To avoid or minimize project-related emissions of short and long-lived climate pollutants.
iv. To avoid or minimize generation of hazardous and non-hazardous waste.
v. To minimize and manage the risks and impacts associated with pesticide use.

ESS 4: Community Health and Safety

The Objectives of ESS 4 are:

i. To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life-cycle from both routine and non-routine circumstances.
ii. To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams.
iii. To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.
iv. To have in place effective measures to address emergency events.
v. To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.

ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

The Objectives of ESS 5 are:

i. To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives.
ii. To avoid forced eviction.
iii. To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) providing timely compensation for loss of assets at replacement cost and (b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.
iv. To improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure.

v. To conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant.
vi. To ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected.

ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

The Objectives of ESS 6 are:

i. To protect and conserve biodiversity and habitats.
ii. To apply the mitigation hierarchy4 and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity.
iii. To promote the sustainable management of living natural resources.
iv. To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.

ESS 7: Indigenous Peoples/Sub-Saharan African Historically underserved Traditional Local Communities

The Objectives of ESS 7 are:

i. To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.
ii. To avoid adverse impacts of projects on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts.
iii. To promote sustainable development benefits and opportunities for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in a manner that is accessible, culturally appropriate and inclusive.
iv. To improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with the Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities affected by a project throughout the project's life-cycle.
v. To obtain the Free, Prior, and Informed Consent (FPIC) of affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in the three circumstances described in this ESS.
vi. To recognize, respect and preserve the culture, knowledge, and practices of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, and to provide them with an opportunity to adapt to changing conditions in a manner and in a timeframe acceptable to them.

ESS 8: Cultural Heritage

The Objectives of ESS 8 are:

i. To protect cultural heritage from the adverse impacts of project activities and support its preservation.
ii. To address cultural heritage as an integral aspect of sustainable development.
iii. To promote meaningful consultation with stakeholders regarding cultural heritage.
iv. To promote the equitable sharing of benefits from the use of cultural heritage.

ESS 9: Financial Intermediaries
The Objectives of ESS 9 are:

i. To set out how the FI will assess and manage environmental and social risks and impacts associated with the sub-projects it finances.
ii. To promote good environmental and social management practices in the sub-projects the FI finances.
iii. To promote good environmental and sound human resources management within the FI.

ESS 10: Stakeholder Engagement and Information Disclosure
The Objectives of ESS 10 are:

i. To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties.
ii. To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance.
iii. To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life-cycle on issues that could potentially affect them.
iv. To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.
v. To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances.

3.3 World Bank's Environmental, Health & Safety Guidelines

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards. These General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines which provide guidance to users on EHS issues in specific industry sectors. For complex projects, use of multiple industry-sector guidelines may be necessary. A complete list of industry-sector guidelines can be found at: www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are taken into account.

The applicability of specific technical recommendations should be based on the professional opinion of qualified and experienced persons. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent. If less stringent levels or measures than those provided in these EHS Guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any

proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment.

3.4 Review of National Environmental Acts, Rules, Polices and Strategies

3.4.1 Constitution of Bangladesh

Article 18A of the constitution refers to one of the fundamental principles of the state policy regarding protection and improvement of the environment and biodiversity: it states that the State shall endeavour to protect and improve the environment and to preserve and safeguard the natural resources, bio-diversity, wetlands, forests and wild life for the present and future citizens.

3.4.2 Bangladesh Environment Conservation Act, 1995

The National Environmental Management Action Plan (NEMAP) is a wide- ranging and multi- faceted plan, which builds on and extends the statements, set out in the National Environmental Policy. NEMAP was developed to address issues and management requirements related to the environment during the period 1995 to 2005; it also sets out the framework within which the recommendations of the National Conservation Strategy are to be implemented. NEMAP was developed to achieve the following broad objectives:

- Identification of key environmental issues affecting Bangladesh;
- Identification of actions necessary to halt or reduce the rate of environmental degradation;
- Improvement of the natural environment;
- Conservation of habitats and bio-diversity;
- Promotion of sustainable development; and
- Improvement of the quality of life of the people.

To attain the above-mentioned objectives, the plan groups all the relevant necessary actions under four headings, namely: institutional, sectoral, location- specific and long-term issues.

3.4.3 Environment Conservation Rules, 1997

The ECR, 1997 is the first set of rules promulgated under the ECA, 1995. These rules provide for, inter alia, the following:

- The NEQS for ambient air, surface water, groundwater, drinking water, industrial effluents, emissions, noise, and vehicular exhaust;
- Categorization of industries, development projects, and other activities on the basis of actual (for existing industries/development projects/activities) and anticipated (for proposed industries/development projects/activities) pollution load;
- Procedure for obtaining ECC;
- Requirements for undertaking IEE and EIA's as well as formulating EMP according to categories of industries/development projects/activities; and

- Procedure for damage-claim by persons affected or likely to be affected due to polluting activities or activities causing hindrance to normal civic life.

3.4.4 Bangladesh Climate Change Strategy and Action Plan (BCCSAP)'09

The GOB also prepared the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) in 2008 and revised in 2009. This is a comprehensive strategy to address climate change challenges in Bangladesh. There are 44 specific programs proposed in the BCCSAP under six themes.

3.4.5 National Environmental Policy, 1992

The Bangladesh National Environmental Policy, approved in May 1992, sets out the basic framework for environmental action together with a set of broad sectoral action guidelines. Key elements of the Policy are:

- Maintaining ecological balance and ensuring sustainable development of the country through protection, conservation and improvement of the environment;
- Protecting the country from natural disasters;
- Identifying and regulating all activities that pollute and destroy the environment;
- Ensuring environment-friendly development in all sectors;
- Ensuring sustainable and environmentally sound management of the natural res; and
- Promoting active association, as far as possible, with all international initiatives related to environment.

3.4.6 National Water Policy, 1999

The NWP promulgated in 1999 with the intension of guiding both public and private actions in the future for ensuring optimal development and management of water that benefit both individuals and the society at large.

3.4.7 Standing Orders on Disaster, 2010

In order to manage the paradigm, shift in disaster management, a disaster management regulatory framework is established under which the Bangladesh Disaster Management Framework is implemented, and in which work of Ministries, Departments, NGOs and civil society are undertaken. The regulatory framework provides the relevant legislative, policy and best practice framework under which the activity of Disaster Risk Reduction (DRR) and Emergency Response Management (ERM) in Bangladesh is managed and implemented.

3.4.8 National Fisheries Policy, 1999

The Fisheries Policy highlights the need to conserve fish breeding grounds and habitats. It intends to promote fisheries development and conservation in all water bodies. The project should consider these policies to protect the habitats, migration and connectivity of fish and fisheries resources around the project area. Measures to reduce any potential negative impacts on local fish populations will be incorporated into all stages of the Project.

3.4.9 National Strategy for Waste Management

The strategy for solid waste management is essential in order to minimize the environmental, social and economic problems. To minimize these problems, recently the GoB has taken some initiatives and accordingly in December 2010, the DoE under MOEFCC has formulated a national "3R" strategy for waste management in a draft form. It is the latest strategy which will take time to implement globally. For the proposed project, the "3R" strategy shall be followed to minimize the waste impact on the environment.

The principle of "3R" is stated as reducing waste, reusing and recycling resources and products.

- Reducing means choosing to use with items with care to reduce the amount of waste generated.
- Reusing involves the repeated use of items or parts of items which still have usable aspect.
- Recycling means the use of waste itself as resources.

3.4.10 The Groundwater Management Ordinance, 1985 (Ordinance No. xxvii of 1985)

This is an ordinance to manage groundwater resources. This Act authorizes the Thana Parishad to grant a license for installing tube wells under its jurisdiction. The Upazilla/ Thana Parishad may grant the license if the Parishad is satisfied that the installation of the tube well applied for:

- Will be beneficial to the areas where it is to be installed, or
- Will not have any adverse effect upon the surrounding areas, or
- Is otherwise feasible.

The EZ project will comply with this ordinance by managing groundwater resources. Tube well shall not be installed in any place without the license granted by Upazilla Parishad.

3.4.11 The Protection and Conservation of Fish Act, 1950

The Act was enacted to provide for the protection and conservation of fish. Under the Act, the Protection and of Fish Rules were adopted in 1985. This is a set of rules in line with the overall objectives of the Act. Rule 5 of the Rules provides that no person shall destroy or make any attempt to destroy any fish by explosives, gun, bow, and an arrow in inland waters or within coastal waters.

3.4.12 National Land Use Policy, 2001

The NLUP, enacted in 2001, aims at managing land use effectively to support trends in accelerated urbanization, industrialization and diversification of development activities. The NLUP urges that increasing the land area of the country may be not possible through artificial land reclamation process, which is cost-effective only in the long run. Major content of this policy are following:

- Stopping the high conversion rate of agricultural land to non-agricultural purposes;
- Utilizing agro-ecological zones to determine maximum land-use efficiency;
- Adopting measures to discourage the conversion of agricultural land for urban or development purposes;

- Improving the environmental sustainability of land-use practices.

3.4.13 The Penal Code, 1860

The Penal Code of 1860 has some 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; Section 277: Falling Water or Public Spring or Reservoir; Section 278: Making Atmosphere Noxious to Health; Section 284: Negligent Conduct with Respect to Poisonous Substance; Section 285: Negligent Conduct with Respect to Fire or Combustible Matter; and Section 286: Negligent Conduct with Respect to Explosive Substance. According to the Section 277, whoever voluntarily corrupts or fouls the water of any public spring or reservoir, to render it less fit for the purpose for which it is ordinarily used will be punished under the law. According to the Section 278, whoever voluntarily vitiates the atmosphere in any place so as to make it noxious to the health of persons in general dwelling or carrying on business in the neighbourhood or passing along a public way will get punishment.

3.4.14 Wildlife Conservation (Protection and Safety) Act, 2012

The act has been formulated for the conservation and safety of wildlife to manage the protected areas. The act depicts 10 new types of protected areas. The bill with many other provisions proposed stern action for violation of the law. It proposed one-year imprisonment and Taka 50,000 fine for such a violation. The law also proposed at least two years and the highest seven years of imprisonment and minimum Taka one lakh and maximum Taka 10 lakh fine for killing a tiger or an elephant.

The act is applicable for the proposed EZ for conservation and safety of wildlife, management of protected areas, preservation of Wildlife Sanctuaries, parks, reserves.

3.4.15 The Forest Act, 1927 and the Forest (Amendment) Act, 2000

The Forest Act, 1927 is the first and omnibus law of the land for forestry. It provides for reserving forests over which the Government has an acquired property right. According to the Act the Government (Forest Department) can prohibit certain activities in the declared Reserved Forest area such as any intervention kindles, keeps or carries any fire; trespasses or pastures cattle, or permits cattle to trespass; causes any damage by negligence in felling any tree or cutting or dragging any timber; etc.

3.4.16 Bangladesh National Building Code (BNBC), 2015 (final draft)

The Bangladesh National Building Code (BNBC) clearly sets out the constructional responsibilities according to which the relevant authority of a particular construction site shall adopt some precautionary measures to ensure the safety of the workmen. The BNBC also stipulates the general duties of the employer to the public as well as workers.

3.4.17 Industrial Policy, 1999

The Industrial Policy, 1999 was perhaps the most comprehensive policy, which sought to give the private sector a dominant role: Focus the role of the government as a facilitator in creating an enabling environment for expanding private investment.

3.4.18 National Agriculture Policy, 2013

The National Agriculture Policy, 2013 approved by the Government focuses on agriculture production, alleviating poverty through generating jobs and ensuring food security. The main objective of the policy is to ensure' food and nutrition security for all and improvement of rural livelihoods through increased crop production with higher productivity and creating employment opportunities through diversification of agricultural activities. The policy outlined nine specific objectives. Although the policy does not emphasize the coastal zone separately, all specific objectives are applicable to the development of coastal zone agriculture

3.4.19 Bangladesh Country Investment Plan (CIP), 2011

The Bangladesh Country Investment Plan provides a coherent set of priority investment programs to improve food security and nutrition in an integrated way. It is a comprehensive plan, builds on the existing framework**,** reflects the Government's investment priorities and aims to: (i) plan and invest resources in a coordinated way; (ii) increase convergence and alignment of budget and external sources of funding, and; (iii) to mobilize additional resources. Proposed investments relate to strengthening physical, institutional and human capacities in the field of agriculture, water management, fisheries, livestock, agricultural marketing, food management, safety nets, and nutrition and food safety.

3.5 Review of National Social Acts, Rules, Polices and Strategies

3.5.1 Constitutional Rights of the Tribal Peoples

The Constitution of Bangladesh ensures affirmative action for small ethnic communities and prohibits discrimination inter alia on grounds of race, religion or place of birth, Article 23A of which provides, "the State shall take steps to protect and develop the unique local culture and tradition of the tribes, minor races, ethnic sects and communities". It also spells out in Article 28 (4), "nothing in this Article shall prevent the State from making special provision in favour of women or children or for the advancement of any backward section of citizens".

3.5.2 The Acquisition and Requisition of Immovable Property Act (ARIPA), 2017

Legal Framework for Land Acquisition in Bangladesh

The principal legal instrument governing land acquisition in Bangladesh is Acquisition and Requisition of Immovable Property Act, 2017 (ARIPA 2017). The ARIPA 2017 requires that compensation be paid for (i) land and assets permanently acquired (including standing crops, trees, houses); and (ii) any other damages caused by such acquisition. The Act also provides for the acquisition of properties belonging to religious organizations like mosques, temples, pagodas and graveyards if they are acquired for public interest. The ARIPA, however, excluded the acquisition of

properties used by the public for the purpose of religious worship, graveyards and cremation grounds. The Act stipulates certain safeguards for the landowners and provides for payment of "fair value" for the properties acquired.

3.5.3 Bangladesh Labour Act, 2006

The Bangladesh Labour Act, 2006 provides the guidance of employer's extent of responsibility and workmen's extent of right to get compensation in case of injury by accident while working. Some of the relevant Sections are:
Section 150. Employer's Liability for Compensation: (1) If personal injury is caused to a workman by accident arising out of and in the course of his employment, his employer shall be liable to pay compensation in accordance with the provisions of this Act; and (2) Provided that the employer shall not be so liable - (a) in respect of any injury which does not result in the total or partial disablement of the workman for a period exceeding three days; (b) in respect of any injury, not resulting in death or permanent total disablement, caused by an accident which is directly attributable to - (i) the workman having been at the time thereof under the influence of drink or drugs, or (ii) the wilful disobedience of the workman to an order expressly given, or to a rule expressly framed, for the purpose of securing the safety of workmen, or (iii) the wilful removal or disregard by the workman of any safety guard or other device which he knew to have been provided for the purpose of securing the safety of workmen.

Section 151. Amount of Compensation: Subject to the provisions of this Act, the amount of compensation shall be as follows, namely: - (a) where death results an amount equal to fifty from the injury cent of the monthly wages of the deceased workman multiplied by the relevant factor; or an amount of fifty thousand rupees, whichever is more; (b) where permanent total an amount equal to disablement results from sixty the injury per cent of the monthly wages of the injured workman multiplied by the relevant.

3.5.4 Bangladesh EPZ/EZ Labor Law Ordinance No 01, 2019:

Chapter 3 of this law states that women workers of an industry should not be engaged in any kind of work in the very next of eight (08) months of the birth of her children. She will not be engaged in any kind of work which are too difficult or she have to stand for long time in the prior or post of the birth of her children. She will be paid for total eight (08) weeks both in the prior (04 weeks) and after (04 weeks) of the birth of her children.

Chapter 4 of this law emphasis on the occupational health safety, Cleanliness, safe work environment, safety and welfare management. Any specific target or amount has not been set for occupational health safety, Cleanliness, safe work environment, safety and welfare management.

Chapter 7 of this law describes wage board for minimum salary. It clearly states that any worker should not be engaged in the salary less than minimum salary.

3.6 Comparison of GOB legislations and ESF, 2016

The GOB legislations and ESF, 2018 of World Bank have been compared and gaps are summarized in **Table 2-3**.

Table 2-3: Comparison of National Environmental and Social Policies and Regulations with ESF, 2018

SN	ESS	Equivalent National Environmental Policy and Regulations	Policy Gaps and its remedy redressal
1	ESS-1 Assessment and Management of Environmental and Social Risks and Impacts	National Environmental Policy, 1992 National Environmental Management Action Plan, 1995 Environmental conservation Rules, 1997 and subsequent amendments in 2002, 2003 and 2010 The Environment Conservation Act, 1995 and subsequent amendments until 2010 Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009 BEZA Act, 2010 The Acquisition and Requisition of Immovable Property Act, 2017	The national policies and regulations are consistent with the requirements of ESS 1.
2	ESS-2 Labour and Working Conditions	Bangladesh Labour Law, 2006, Bangladesh Labour Act, 2013 and Bangladesh Labour Rules, 2015 Bangladesh EPZ/EZ Labour Law Ordinance No 01, 2019 Industrial Policy, 1999	The national legal provisions almost cover all requirements of ESS2.Under this project, a Project's Labour management procedure has been prepared to regulate working conditions and management of worker relations including workers specific GRM, terms and conditions of employment, non-discriminations and equal opportunity, protection of work force, prohibition of child/forced labour and provision of OHS.
3	ESS-3 and EHS Guidelines of IFC Resource Efficiency and Pollution Prevention and Management	National Fisheries Policy, 1998 Water Supply and Sanitation Act, 1996 The Ground Water Management ordinance, 1985 National Water Bodies Protection Act, 2000 National Agriculture Policy, 2013 The National Water Act, 2013 The Protection and Conservation of Fish Act	The majority of ESS3 requirements are addressed by existing regulations and indirectly for resource efficiency and climate change aspects.

SN	ESS	Equivalent National Environmental Policy and Regulations	Policy Gaps and its remedy redressal
		1950 subsequent amendments in 1982 Noise Pollution (Control) Rules 2006 Disaster Management Act, 2012 Standing Order on Disaster, 2010 The Sustainable and Renewable Energy Development Authority Act, 2012 (Act No. 48 of 2012) National Strategy for Waste Management Environment Court Act, 2000 and amendment in 2002 The Vehicle Act, 1927 The Motor Vehicles Ordinance, 1983; and The Bengal Motor Vehicle Rules, 1940 National Land Transport Policy (NLTP), 2004 National 3R Strategy for Waste Management, 2010	
4	ESS-4 Community Health and Safety	National Water Bodies Protection Act, 2000 Noise Pollution (Control) Rules 2006 National Strategy for Waste Management Bangladesh National Building Code (BNBC), 2006 Bangladesh EPZ/EZ Labour Law Ordinance No 01, 2019	In the existing GoB regulatory systems (laws, rules, policies and acts), there is no direct community health and safety. Hence, these policies fulfil the community health and safety partially. The gaps are addressed through suitable provisions in ESMP. In addition, contractor will be responsible to implement the ESMP regarding community health and safety which includes OHS plan, labour Influx management Plan, workers camp management plan, traffic and road safety management plan etc.
5	ESS-5 Land Acquisition Restrictions on Land Use and Involuntary Resettlement	The Acquisition and Requisition of Immovable Property Act, 2017 National Land Use Policy, 2001	Gap exists specifically related to aspects such as identification of non-titleholders as PAPs and cut off dates for non-titleholders. The gaps are addressed with suitable provisions in RPF.
6	ESS-6 Biodiversity Conservation	National Biodiversity Strategy and Action Plan (2004) The Forest Act, 1927 and subsequent amendments in 1982 and 1989; National Forest Policy, 1994 Wildlife Conservation (Protection and Safety) Act, 2012	Provisions from the acts meet the ESS requirements. ESMP will be prepared to address the wildlife presence and movement outside the protected area and in and around the project corridor.

SN	ESS	Equivalent National Environmental Policy and Regulations	Policy Gaps and its remedy redressal
		Bangladesh Biodiversity Act, 2017	
7	ESS-7 Indigenous Peoples	Not applicable for the project	
8	ESS-8 Cultural Heritage	-	Currently no official cultural heritage policy is available in Bangladesh hence provisions from the act do not fully meet the ESS requirements. Chance find procedures is included in ESMP. Impacts on religious structures (not protected, but social and cultural value) will be mitigated or managed through provisions for restoration.
9	ESS-9 Financial Intermediaries	Not applicable	
10	ESS-10 Stakeholder Engagement and Information Disclosure	Environmental conservation Rules, 1997 and subsequent amendments in 2002, 2003 and 2010 Right to Information Act, 2009	Stakeholder Engagement and Information Disclosure issues have been addressed in the national policies and regulation. Under this Project, a Stakeholder Engagement Plan (SEP) has been prepared to address specific purpose of the project.

Based on comparative analysis of national regulatory frameworks with ESSs, the requirements in the country regulatory frameworks were found to be consistent. In case of stakeholder engagement, specifically, the EIA notification DoE, GoB 1997 requires conducting of public hearings during process of impact assessment, but is limited to project that are categorized as Category- Red.

In the event of any conflict or inconsistency between the provisions of this GOB regulatory framework and the provisions of World Bank's ESF, the more stringent one will prevail.

3.7 Environmental Standards

The appropriate national environmental standards are applied under the ECR, 1997 and amendments. The standards, commonly known as Environmental Quality Standards (EQS), are legally binding. There is a separate schedule on industry specific standards, other than the general industrial emission and effluent standards.

CHAPTER 4. ENVIRONMENTAL AND SOCIAL BASELINE

An overview of the existing baseline information obtained from primary data and secondary literature review is presented in this chapter. Detailed baseline environment of the Project area (covering biophysical and socioeconomic environment) will be collected and presented in the sub-project ESIAs.

4.1 Project Influence Area

The project influence area incorporates two concepts such as area of direct impacts and area of indirect impacts. Area of direct impacts are considered as the physical footprint of the project such as right-of-way, construction sites, work staging areas, and areas affected during the operational phase. Area of indirect impacts are more difficult to define precisely but includes areas which may experience induced or cumulative changes in combination with activities not under the direct control of the project.

Although the PRIDE interventions considered in this ESMF study is confined within BSMSN (IMD Zone as well as 2A & 2B), the sub-projects can have potentially significant environmental and social impacts in the adjoining areas. In general, direct environmental impacts will tend to be within 1km of the construction/operation sites and indirect environmental impacts can potentially extend over several kilometres depending on the type of activity and prevailing conditions. Therefore, a 10 km buffer zone area around the BSMSN EZ site has been considered as the project influence area. Some of the impacts such as social issues might cover an even larger geographical area. The overall socio-economic benefits will reach out to other parts of the country as labourers will be coming to BSMSN from across the country. The study area includes the project area and the project influence area.

4.2 Physical Environment

4.2.1 Climate

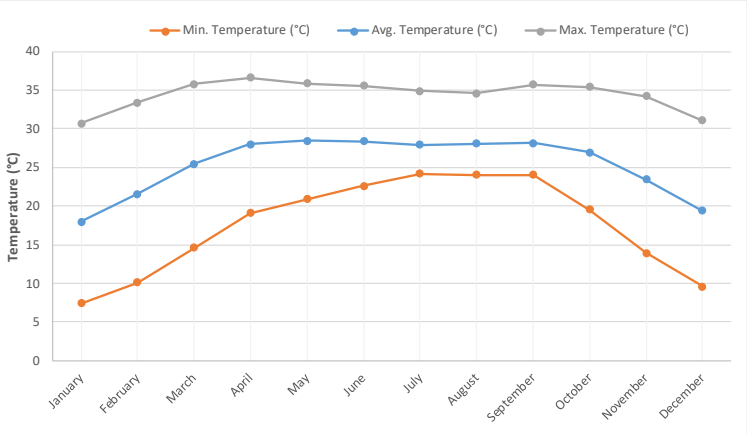
Bangladesh is located at the central part within the Asiatic monsoon region where the climate is tropical. Relatively small size of the country and generally low-lying area cause moderate spatial variation of temperature, precipitation, relative humidity, wind speeds and other climatic variables. However, the climate of Bangladesh exhibits pronounced temporal variability. This is because of the moisture-laden monsoon winds flowing predominantly from the south-west during summer and the comparatively dry and colder north-western winds during winter. The project area lies in the South-Eastern climate zone of the country and shows three main seasons, i.e.

- **The Southwest Monsoon**: May to October- 90% of the annual rainfall occurs during this period and relative humidity is high.
- **The Northeast Monsoon**: It lasts from November to March.
- **The Hot Season**: This hottest season extend from about late March to May. The highest daily temperatures generally occur at this time, and Flash floods often occur from the rivers entering the eastern part of the region from the Tripura Hills.

The climate is tropical in Chattogram. Chattogram has significant rainfall most months, with a short dry season. Meteorological condition has been established using data on different metrological parameters accumulated from Bangladesh Meteorological Department for Chattogram Division.

Temperature

The temperature of the country is related to the period of rainfall. In general, cool seasons coincide with the period of lowest rainfall. **Figure 4-1** shows the monthly average mean, maximum and minimum temperature of the study area. Maximum average temperature over the year is usually observed in April - September and minimum average temperature in January.

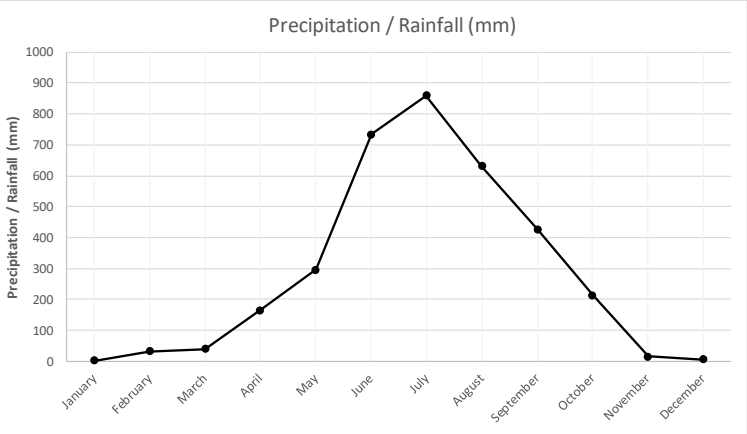


Source: Bangladesh Meteorological Department (Sitakunda Station)

Figure 4-1: Average Annual Temperature Data of Study area (from 2009 to 2018)

Rainfall

The general pattern of precipitation (which consists entirely of rain) follows the monsoon pattern with the cooler, drier months of November to March, increasing rains in April and May, and highest rainfall in the summer months of May to October when the prevailing wind direction from the southwest brings moisture-laden air from the Bay of Bengal. The winter period (November to February) is dry with very little rainfall. Even though the temporal pattern of rainfall is pretty much similar throughout the country, there is pronounced spatial variation of rainfall over the country with the north-eastern and south-eastern part of the country receiving relatively higher amount of rainfall compared to the western part. The project area receives around 3419 mm rainfall annually, which is much higher than the average annual rainfall of the country (i.e. 2400 mm). **Figure 4-2** shows the monthly average precipitation/rainfall (mm) of the study area.

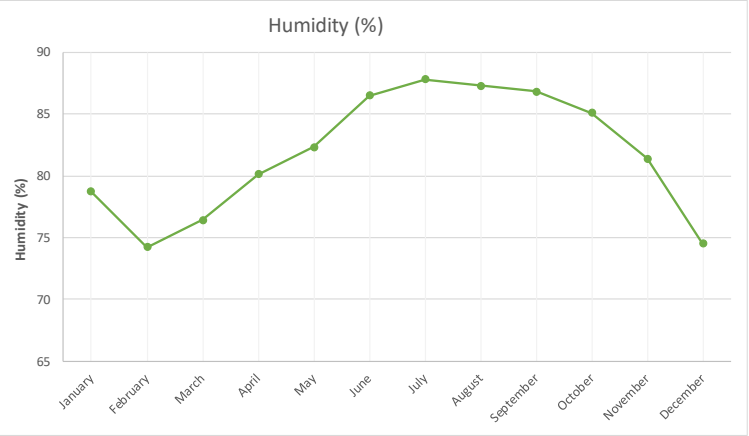


Source: Bangladesh Meteorological Department (Sitakunda Station)

Figure 4-2: Average Annual Precipitation /Rainfall Data of Study area (from 2009 to 2018)

Humidity

The spatial and temporal variation of Relative Humidity throughout the year is very low in Bangladesh. In the project area, the relative humidity varies from 74% to 87%. **Figure 4-3** shows the monthly average humidity (%) data of the study area.



Source: Bangladesh Meteorological Department (Sitakunda Station)

Figure 4-3: Average Annual Humidity (%) Data of Study area (from 2009 to 2018)

Wind regime

The winter season in Bangladesh comprises of December, January and February. During the winter season (December, January and February) the north-easterly winds prevail over the country blowing from land to sea except northern hilly areas where mainly easterly wind prevails.

During the summer season (March to May) heating belt shifts northward due to the apparent northward movement of the sun. The summer months' experience high temperature and falling of air pressure over the country.

Generally, monsoon season onsets early June and withdraws by the end of September in Bangladesh. During this season, the persisting low pressure over northern India and Bangladesh intensifies and attracts the trade winds of the southern hemisphere.

The post-monsoon season in Bangladesh continues from October to November. During this season the low pressure trough over Bangladesh territory becomes weaken and gradually replaces by a high pressure system. The low pressure conditions transfer to the Bay of Bengal by early November resulting in the formation of depressions which of them sometimes intensified into a cyclonic storm.

Evaporation

Evapo-transpiration reaches its maximum level in April when temperature, sunshine and wind are all at, or close to, their maximum levels for the year. Potential evapo-transpiration data for 4 stations of the Chattogram Region are presented in table 25below. Feni is nearest to the site at distance of app 15.0 km in NNW direction. In Feni evapo-transpiration varies from 68 to 145 mm/day and yearly evapo- transpiration in Feni is 1288 mm/day

Sunshine Hours

The monthly average sun-shine hour in Sitakunda varies from 4 to 9 hour/day in a year. Highest sunshine hours are recorded in month of April, May and June. In general, maximum average sun-shine hour of 12 hours in a day is found in April, May and June.

4.2.2 Ambient Air Quality

Summary of the ambient air quality results are presented in **Table 4-1**. The above result for ambient air quality measuring shows the SO_2, NO_X, CO, $PM_{2.5}$, PM_{10} and SPM concentration of the ambient air. From the above analysis it is observed that the concentration of all the parameters are below the allowable limit as per DoE standard (Bangladesh) for Moghadia Nurul Absar Chowdhury High School. In case of 2A & 2B zones, SPM, PM_{10} and $PM_{2.5}$ values are above the DoE standard. Primary test results are provided in **Annex K**.

Table 4-1: Results of Ambient Air Quality

Sample Location with GPS Coordinate	Ambient Air Pollution Concentration in µg/m^3					
	SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	co
Moghadia Nurul Absar Chowdhury High School (GPS coordinate: 22°44'37.52"N 91°32'37.85"E)	88.52	62.96	18.90	LOO	63.67	NII
Within 2A & 2B Zones (GPS coordinate: 22°44'31.5"N & 91°26'55.9"E)	255.14	161.90	68.17	31.22	45.98	NII
Unit	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	ppm
Method Analysis	Gravimetric	Gravimetric	Gravimetric	West-Geake	Jacob & Hochheiser	Sensor
Duration	8	24	24	24	24	1
DoE (Bangladesh Standard	200	150	65	365	100	35

4.2.3 Water Resources

Surface Water System & Drainage

Surface Water System

Major water body within 10 km study area is river Feni, Feni reservoir, Ichakhali canal and Bamon Sundar Canal. Project site lies in the flood plain of Feni River. It is important to mention that 2A and 2B are already been developed and would not require any further earth filling. The expected earth filling in the potential IMD zone will be minimal and this would be done by dredged material from sea following The Bangladesh Water Development Board guideline for such dredging (i.e maintaining at least a distance of 1km from the shore). Ichakhali canal passe within the project area (2A & 2B). Other waterbodies in the 10 km radius area are Kachoppia khal, Daburkhali khal, Jailiachora khal, Kananchori khal, Maidrchora khal and Lambakhali khal. Feni River originates in the eastern hills of Tripura and enters Bangladesh at

Belchhari of Matiranga Upazilla of Khagrachhari District. If flows through Ramgarh (Khagrachhari), Fatikchhari (Chattogram) and then flows along the border of Chattogram (Mirsharai Upazilla) and Feni (Chhagalnaiya, Feni, Sonagazi Upazilla) districts, before discharging into the Bay of Bengal near Sonagazi. The length of the river is 108 Km. The principal tributary of the Feni River is the Muhuri River, which drains the Feni plain. Lemua canal is also a tributary to this river.

Table 4-2: Flow Data of Feni River (monthly average: m3/s)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1991	20.2	14.0	11.0	16.7	147.3	170.3	293.0	212.9	206.1	126.3	52.0	34.9
1992	21.8	19.3	119.9	13.3	15.4	113.6	49.9	132.5	96.6	57.8	22.5	9.5
1993	16.4	18.0	25.3	18.1	83.1	56.1	190.3	90.7	120.9	76.7	53.2	35.7
1994	30.2	23.5	4.5	27.7	47.8	100.6	277.6	146.5	111.8	80.8	47.5	42.8
1995	25.0	17.8	49.3	16.4	197.4	127.1	245.3	327.8	66.8	69.3	26.6	28.9
1996	16.1	14.4	12.0	12.2	74.9	154.0	60.0	128.0	41.0	99.0	166.7	19.7
1997	19.3	15.8	14.5	26.8	48.1	68.6	138.8	158.5	112.1	39.8	13.0	15.4
1998	32.2	31.7	24.3	43.4	86.1	256.6	112.7	176.2	197.3	69.2	49.0	26.4
1999	32.4	17.5	24.2	28.5	28.5	94.8	70.4	134.3	93.4	84.4	50.0	38.2
2000	25.2	34.1	43.8	48.9	122.5	143.2	184.1	245.8	125.4	90.8	92.6	77.3
2001	43.8	35.2	34.2	53.7	19.3	28.1	22.9	35.4	43.6	37.6	23.0	8.1
2002	4.1	1.7	1.1	1.0	2.2	32.2	222.9	72.7	23.4	23.0	9.3	4.1
2003	1.8	0.9	1.1	3.5	0.9	48.1	11.0	25.3	29.7	27.0	20.1	4.7
2004	1.3	0.8	0.7	10.5	0.7	72.7	107.8	363.6	236.3	250.1	174.9	144.5
2005	69.5	12.9	14.7	18.0	73.9	135.7	147.9	224.4	163.1	203.6	160.3	119.3
2006	85.8	82.0	81.7	95.4	90.1	169.1	214.3	313.1	137.2	117.4	90.2	83.7
2007	77.4	15.8	30.8	53.0	179.9	227.1	82.7	20.8	89.0	74.2	-	-
2008	21.4	14.7	15.1	14.1	19.4	31.5	52.2	114.0	104.9	103.3	102.2	100.7
2009	3.3	2.1	2.5	3.2	7.2	5.9	79.6	213.0	166.7	110.8	110.0	104.8
2010	40.7	11.6	7.4	7.3	27.2	89.5	76.4	86.5	76.4	91.9	55.1	34.1
2011	38.5	39.5	44.1	44.7	48.1	46.8	111.4	227.5	107.1	47.9	24.2	35.9
2012	33.0	27.9	33.5	34.0	106.6	119.1	99.5	-	-	-	-	-
Average	30.0	20.5	27.1	26.8	64.8	104.1	129.6	164.3	111.9	89.6	63.9	46.1
75% dependable	16.5	11.4	10.0	14.1	21.1	58.3	68.8	105.2	61.9	50.4	30.5	20.1

Source: IEE, BAN: Irrigation Management Improvement Project, Muhuri Irrigation Project, Chattogram

Ground Water System

Chattogram District is covered with Piedmont and estuarine deposits. These deposits have transmissivity of 400 sqm/day. These deposits are not favourable aquifers for extensive withdrawal. Aquifer material is covered with 25-30m thick zone of silt and clay. Clay thickness gradually increases towards the Bay. Sandy materials are predominantly medium to coarse.

A shallow aquifer of about 20-50m thickness exists near the surface. Main aquifer is deep seated whose nature and extent are not known. Shallow aquifer exists at a depth of about 50m depth to the main aquifer is not precisely known. Aquifers are semi-confined to confine in nature. Transmissivity of the Chattogram district varies from 114-600 sqm/day. Storage coefficient varies from 0.0007 to 0.03. Permeability of the aquifer varies from 3-10 sqm/day.

There is currently heavy use of groundwater for irrigation which is used to support the shortfall of surface water. Shallow groundwater is available within 2 to 4m below the ground surface in the project area but its quality it is not good and availability is variable. Ground water zone map of Bangladesh is given in **Figure 4-4**.

Recharge of groundwater in the project area occurs by slow vertical percolation of rain irrigation water, seepage loss of the run–off the rivers and stored water in canals, khals, streams and rivers in groundwater. There is net groundwater inflow from the uplands to the north which may be a main source of recharge. The rate of percolation of water derived from rainfall to the aquifer is retarded due to thickness and impermeability of the upper clay layer. Recharge begins from the month of May peaks during August; the upper water bearing horizons quickly become saturated and due to the heavy surface soil, much of the potential recharge is rejected.

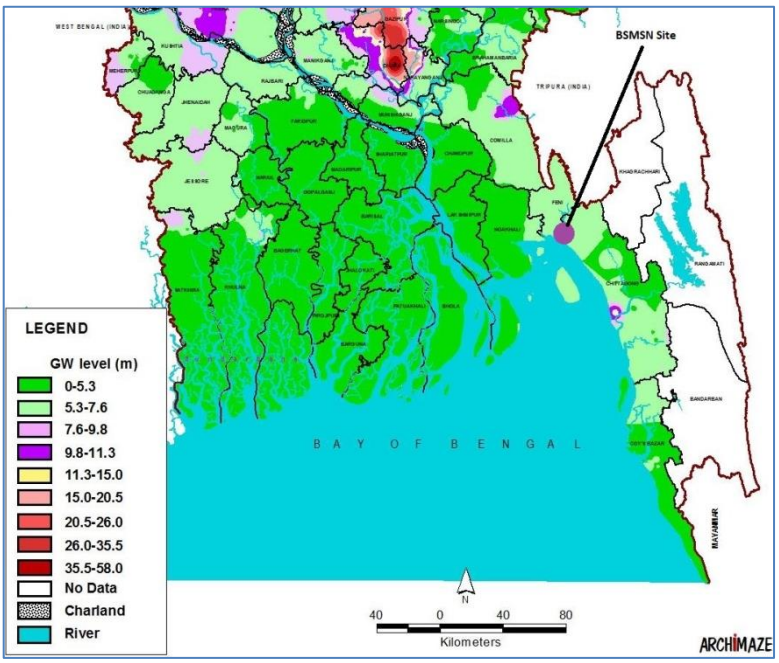


Figure 4-4: Groundwater Zoning Map

4.3 Historical cyclone storm surge data

Numbers of cyclones have struck Chattogram in past and has caused severe damages at few times. The project site is located in the high risk area of Bangladesh. Twenty-seven cyclones are recorded in last 56 years that had hit the Chattogram District of Bangladesh. Storm surge inundation risk map for Bangladesh coastal area presented in **Figure 4-5**.

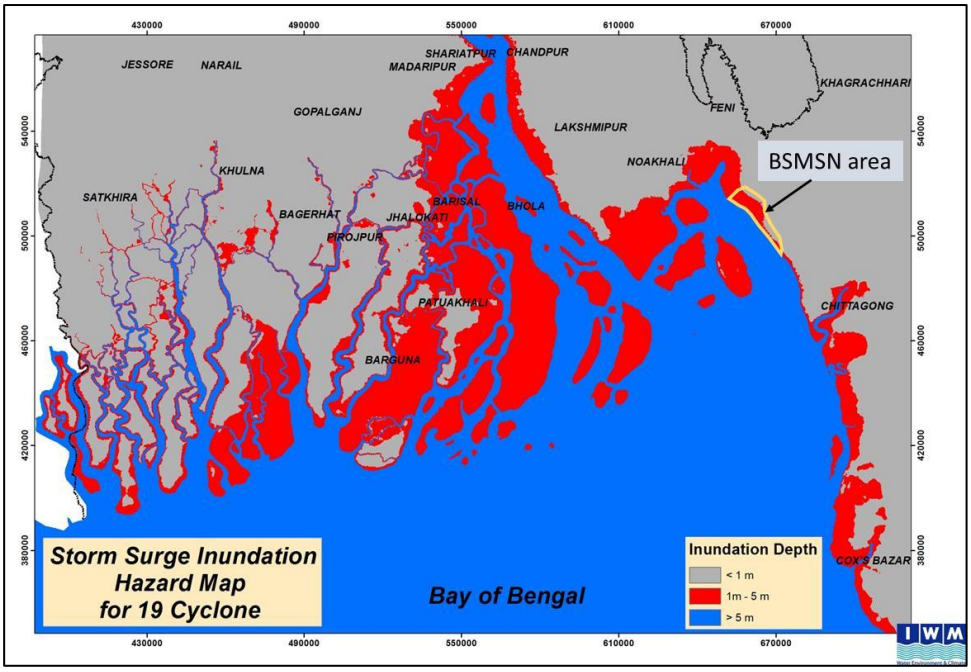


Figure 4-5: Storm Surge Inundation Risk Map

4.4 Land Resources

4.4.1 Topography

EZ site is generally flat, low lying and poorly drained. The land use of the project site is 'wetland'. Ichakhali Canals and tributaries of Ichakhali Canals are present at the site which gets flooded during the monsoon & high tides. Site development work is running and most of the land is already developed. At present average elevation of the site is approximately 7m MSL.

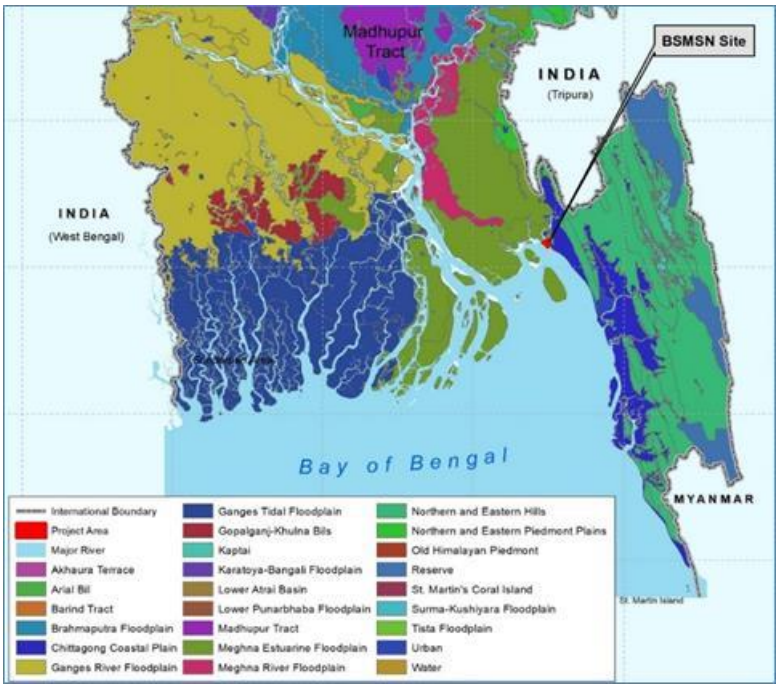


Figure 4-6: Physiographic Map

4.4.2 Land Use Pattern

Zones 2A & 2B sites are already developed by sand filling. Total EZ site measures 1450 acres & the usable area is 1300 acres. Land use break down for the site is given in **Table 4-3**.

Table 4-3: Land use details in Zone 2A and 2B

Land Use Land Cover Class	Area (Acres)	Area Percentage (%)
Develop Area	1339	92.34%
Ichakhali Canal	111*	7.65%
Total	1450	100%

*Source: EIA Report of Mirsharai EZ II

4.5 Aquatic Flora and Fauna

Fish habitats of the area are creeks, Khal, rivers, aquaculture ponds, natural ponds and beels. Water in these bodies varies from fresh to brackish. Both natural and cultured fisheries exist in the study area. The Feni river estuary has moderate species diversity. Species diversity is higher in the estuarine mouth compared to that of its upstream direction. There is no species of economic and/or conservation importance in the project influence area.

4.6 Terrestrial Flora and Fauna

Mammals & Reptiles

No significant wild fauna was found in study area. As per discussion with local people it was learned that deer and fox are found in planted mangrove forests but none were spotted during visit. Apart from the mammals, reptiles like chameleon, garden lizard & Gohar Saanp were also observed during the visit. Apart from this, villagers informed that cobras and pythons are also present in this region. In Ramgarh reserve forest, located more than 10km away, wild animals like Fox, Monkeys, Langoor, Ullunk, Wild Cats, Wild Boar, Bisons, Deer, Otter/Udbilaw (*Lontra Canadensis*), Kat Biral, Elephant, Bonrui, Rabbits, Deers, Wild goats & wild goats. The forest is not located in the downstream but towards the East side of the project area. The water bodies adjacent to the project sites are not used by the wild animals in the forest.

Avifauna

Avifauna like Gugu/Dove (streptopelia chinensis), Paira/Pigeon, Doyal (Magpie Ribbon), House sparrow/Choroi, Parrot/Tiya, Crow (Corvus splendens), Myna/Shalik, Babui/Baya Weaver (Ploceus philippinus), Dhooli Bawk, Sarosh/Eastern Great Egret (Ardea modesta), Kaali Bawk, Machranga/Kingfisher (Halcyn smyrensis), Eagle, Koyal/Kokil (Eudynamys scolopaceus), Baali, Dhanesh/Indian grey hornbill (Ocyceros birostris), Baijja hash, blue throated barbet (Megalaima asiatica), Duck (Anatidae anatinae), Dhar Bawk/Egret, Konch Bawk/Pond Heron (Ardeola grayii) are found in the study area. Some aquatic birds like Northern Pintail, etc. were also seen during visit.

Status of Mangroves in Project area

Bangladesh Forest Department made mangrove plantation in Mirsharai and Sitakunda Upazila of Chattogram district in different phases starting from 1965-66. The main purpose of the plantation was to build a natural barrier against storm surges and flooding. There is no mangrove within the

project area. However, there are areas within greater BSMSN where such mangrove exists. . Due to the construction of super dike by the Government (beyond the PRIDE projects), some part of this mangrove would be affected due to lack of tidal water flow, which is a pre-requisite for mangrove tree. However, the usefulness of the planted mangroves as a natural barrier against storm surges will be limited after construction of the super dike. Nonetheless, to offset this loss, government has planned plantation of mangrove forest along the whole coast line outside the super dike. It is also important to mention that 2A and 2B zone also has a part of the super dike to protect the area from storm surges which is being constructed under the current PSDS project (please refer to the 2nd column of Table 2-1). This is not a planned activity under A.4 of PRIDE project. Overall, the PRIDE project is not going to cause additional harm to these mangrove forest.

4.7 Socio-Economic and Cultural Profile

4.7.1 Demographic Profile

Population

According to the Census 2011 report, the total population in Mirsharai Upazilla was 3,98,716 and and for Sonagazi it was 2,62,547. Total HH of the Mirsharai Upazilla was 7954 & total land area is 119,324 acres. Songazi Upazilla had 50,167 HH and total land area is 70,400 acres. The population density per sq. km of was 826 persons for Mirsharai Upazila and it was 922 for Sonagazi Upazilla. The 2011 Census data reveals that the decadal population growth rate for the Mirsharai Upazilla was 8.07% in comparison to the 2001 Census data. For Sonagazi Upazilla it was 11.9%/yr. The floating population of both Upazillas was a very small percentage of the total Upazilla population.

Table 4-4: Demographic Details of Mirsharai and Sonagazi Upazillas

Administrative Unit	Total Population	Area (Acres)	Total HH	Average HH size	Gender ratio*	Floating Population (HHs)	Population Density (per sqkm)
Mirsharai Upazilla	3,98,716	1,19,324	79,545	5	89	164	826
Sonagazi Upazilla	2,62,547	70,400	50,167	5.2	89	14	922

*Gender ratio = 100 x no. of Males/ no. of Females

Source: Population and Housing census 2011, Community report: Chattogram and Feni, BBS

In Mirsharai and Sonagazi Upazilla, majority of the population fall within the age group of 15-49. In both Upazillas, the percentage of young population is quite high compared to the dependent population. This implies that the majority of the population belongs to the employable age group, which is vital for fuelling the economic growth of the local area.

Table 4-5: Population- age wise details of Mirsharai and Sonagazi Upazillas

Administrative Unit	Age Group			
	0-14	15-49	50-64	65+% Population
Mirsharai Upazilla	34.2	50.5	9.6	5.7
Sonagazi Upazilla	37.7	47.8	9.0	5.5

Source: Population and Housing census 2011, Community report: Chittagong and Feni, BBS

Ichakhali, Moghadia and Saherkhali Union of Mirsharai Upazilla and Char Chandia and Sonagazi Union of Sonagazi Upazilla are within the Economic Zone (Zone 2A & 2B) influence area. According to the Census 2011 report, the total population in Ichakhali Union was 27980, Moghadia Union was 23406 and Saherkhali Union was 16912. Total population in Land area of these unions are 15754, 2626 and 8609 acres respectively. Total HH of Ichakhali, Moghadia and Saherkhali Union are 5205, 4832 and 3049 nos. It is observed that the population density per sq. km of Ichakhali Union was 439 persons, Moghadia Union was 2203 persons and Saherkhali Union was 485 persons. In Sonagazi Upazilla, the population of Char Chandia Union was 40592 and in Sonagazi Union it was 22164 in 2011. Total number of households were 7276 and 4299, respectively. The land area of the two unions were 14271 and 11008 acres, respectively. The population densities were 703 and 4094 people/sqkm, respectively.

Table 4-6: Demographic Details of different unions

Administrative Unit	Area (Acres)	Total HH	Average HH size	Gender ratio*	Floating population (HHs)	Population (2011)	Population Density (per sqkm)
Ichhakhali Union	15754	5205	5.37	84	16	27980	439
Maghadia Union	2626	4832	4.8	85	0	23406	2203
Saherkhali Union	8609	3049	5.5	81	0	16912	485
Char Chandia Union	14271	7276	5.6	91	0	40592	703
Sonagazi Union	11008	4299	5.2	87	0	22164	498

*Gender ratio = 100 x no. of Males/ no. of Females

Source: Population and Housing census 2011, Community report: Chittagong and Feni, BBS

In Ichakhali Union (47.9%), Maghadia union (49.7%) and Saherkhali Union (48.7%), majority of the population fall within the age group of 15-49. This was also found in the two Unions of Sonagazi Upazilla. The percentage of young population is quite high than the dependent population. Therefore, this implies that the majority of the population belongs to the employable age group, which is vital for fuelling the economic growth of the local area.

Table 4-7: Population- age wise details of different unions

Union Name	Age Group			
	0-14	15-49	50-64	65+% Population
Ichhakhali Union	37.1	47.9	9.3	5.8
Maghadia Union	34.1	49.7	9.9	6.4
Saherkhali Union	35.1	48.7	9.7	6.3
Char Chandia Union	39.4	47.3	8.2	5.1
Sonagazi Union	38.3	47.4	8.8	5.5

Source: Population and Housing census 2011, Community report: Chittagong and Feni, BBS

Religion & Culture

In 2011, the majority of the population in Mirsharai Upazilla is dominated by Muslims (86.12 %), followed by Hindus (12.36%), Buddhists (1.22 %) and Christians (0.018 %). In Songazi Upazilla, the distribution was: Muslims (93.78 %), followed by Hindus (6.17%), Buddhists (0.04 %) and Christians (0.003 %).

Table 4-8: Distribution of Population by Religion in Mirsharai and Sonagazi Upazillas

Administrative Unit	Muslims	Hindus	Christians	Buddhists	Others
Mirsharai Upazilla	343374	49266	70	4852	1154
Sonagazi Upazilla	246209	16208	8	97	25

Source: Population and Housing census 2011, Community report: Chittagong and Feni, BBS

The majority of the population in Ichakhali Union, Maghadia Union and Saherkhali Union were dominated by Muslims (86.79 %), followed by Hindus (13.20%) and Buddhists (0.10%). In the two Unions of Sonagazi Upazilla, the distribution was: Muslims (93.70%), followed by Hindus (6.30%) and then Buddhists (0.003%).

Table 4-9: Distribution of Population by Religion in Different Unions

Administrative Unit	Muslims	Hindus	Christians	Buddhists	Others
Ichhakhali Union	24594	3326	2	51	7
Maghadia Union	19208	4185	0	13	0
Saherkhali Union	15405	1506	0	1	0
Char Chandia Union	37889	2702	0	1	0
Sonagazi Union	20913	1250	0	1	0

Source: Population and Housing census 2011, Community report: Chittagong and Feni, BBS

4.7.2 Literacy rate and educational facilities

The literacy rate in Mirsharai Upazilla (55.1%) was lower than the Chattogram District level (58.9 %). The female literacy rate (53.3 %) was lower than the male literacy rate (57.1%) in Mirsharai Upazilla. The literacy rate in Sonagazi Upazilla was considerably lower compared to Mirsharai Upazilla.

Table 4-10: Literacy Rates in Mirsharai and Sonagazi Upazillas

Administrative Unit	Percentage of Literacy Rate		
	Both Sex	Male	Female
Chattogram District	58.9	61.1	56.7
Feni District	59.6	61.1	58.3
Mirsharai Upazilla	55.1	57.1	53.3
Sonagazi Upazilla	51.6	52.8	50.5

Source: Population and Housing census 2011, Community report: Chattogram, BBS

CHAPTER 5. IDENTIFICATION OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

5.1 Potential Environmental and Social Impacts

From the list of identified sub-projects, typical impacts on physico-chemical environment (air, noise, water, soil, sediment, etc.), biological environment (terrestrial and aquatic flora fauna) and socio-economic environment (OHS, community interruption, labour influx, traffic, etc.) are expected. However, the extent and scale of the impacts can vary depending on the location and design of the sub-projects.

In order to assess expected environmental and social impacts of sub-projects under PRIDE, it is necessary to consider the major sub-project activities during different project phases (e.g. pre-construction, construction, etc.). Although major activities would vary for different sub-projects some activities would be common. For example, site clearing work, setting up of labor camp and stock yards are typical pre-construction phase activities. For the identified sub-projects, typical impacts on physico-chemical environment (air, noise, water, soil, sediment, etc.), biological environment (terrestrial and aquatic flora fauna) and socio-economic environment (OHS, community interruption, labour influx, traffic, etc.) are expected. However, the extent and scale of the impacts can vary depending on the siting and design features of the sub-projects. In order to assess expected environmental and social issues of sub-projects under PRIDE, it is necessary to consider the major sub-project activities during different project phases (e.g. pre-construction, construction, operation).

There are common impacts during pre-construction and construction phase of all the sub-projects. For example, impacts during the construction phase may include:

- Impacts associated with sourcing of landfilling and building materials (sand, gravel, aggregate, earth)
- Operation of vehicles and equipment during site preparation, stack yards and labour shed construction, hauling of equipment is likely to increase the noise level and dust emission
- Discharge of waste water from labour sheds and work place is likely to pollute the receiving water
- Generation of solid waste is likely to block drainage channels and contaminate land resources
- Additional traffic/rerouting is likely to cause traffic congestions particularly in areas where settlements are situated
- Operation of project equipment, drilling, piling, welding and cutting, demolition, crushing of stones and bricks, traffic movement, generators, labour concentration is likely to increase the noise level and dust emission
- Construction of the pipeline and associated facilities will be mainly along roads in the project area. As the area is not yet developed, it is unlikely to cause any adverse impact
- If the sewer pipelines are constructed below the ground water table, dewatering (specifically for open excavation for laying pipelines) will be required. In that case the pumped water might case adverse impact on the land and water resources

5.1.1 Potential Environmental Impacts

Ecological Impacts

Site clearing activities can lead to removal of vegetation, which can have impacts on the biodiversity in the surrounding area. Removal of terrestrial flora can result in loss of habitats for fauna. In addition, there are number of aquaculture ponds, which can be filled up as a part of land development. Migratory birds coming in the project site may decrease due to noise and loss in food resources. Baseline assessment identified the presence of deers in the project influence area and these may also be affected. Disturbance of aquatic ecosystems can occur during bridge/culvert construction. Bangladesh Forest Department made mangrove plantation in Mirsharai and Sitakunda Upazila of Chattogram district in different phases starting from 1965-66. There are areas within BSMSN where such mangrove exists. This is a man-made mangrove forest. No mangrove plantation exists within 2A & 2B zones. The main purpose of the plantation was to build a natural barrier against storm surges and flooding. Due to the construction of super dike by the Government, some part of this mangrove would be affected due to lack of tidal water flow, which a pre-requisite for mangrove tree. Thus, usefulness of the planted mangroves as a natural barrier against storm surges will be limited after construction of the super dike. PRIDE project is not going to cause additional harm to these mangrove forest. A forest and wetland management guideline is provided in **Annex Q**.

In addition, the solid waste treatment facility can induce the creation of new habitats for pests. Rodents, roaches and flies amongst other pests may be attracted to the facility and may have impacts on the local community given that they are potential disease vectors. This would be taken care of in the design of the landfill facility and would be included in the sub-project specific ESIA. This will most likely not require use of pesticide, rather would be handled through appropriate design and operation of the facility.

Air and Dust Pollution

Movement of vehicles, cutting and filling (earthworks) can contribute to air and dust pollution. This can lead to impacts on nearby fauna.

The main air pollutants generated by operation of the mechanical and biological treatment facilities can be:

- ammonia;
- hydrogen sulphide;
- methane.

Emission sources at the auxiliary and laboratory facilities can be:

- exhaust hoods at the chemical-bacteriological laboratory;
- welding stations;
- repair stations at the electrical maintenance workshops;
- painting section of the building maintenance workshops.

Noise and Vibration

Increased noise level (noise from the mechanical machinery and equipment, vehicles, removal of the site clearing materials, tree cutting, compaction of land filling work etc.) may occur during the site

preparation and land development works of the sub-projects. Excessive noise and vibration can cause nuisance to fauna.

Surface Water and Groundwater Impacts

The project site is confined on two sides by Bamonsundor khal and Daborkhali khal respectively. These water bodies can be impacted by accidental oil spillage from construction vehicles or from contaminants in storm runoff water.

Groundwater impacts can occur due to various project activities. As the main source of water would be the desalination plant, impact on ground water might not be high. However, percolation from waste disposal sites can cause pollution of aquifers if proper measures are not considered in the design.

Soil Pollution

During land development work there will be unlikely impact on soil quality from the leakage of fuels and lubricants (fuel and lubricants) from construction machinery and stored waste, petroleum products and chemicals can pollute the soil, penetrate into groundwater or drain into surface water bodies. If temporary camps for workers are set up on a construction site, pollution of the environment can be caused by poorly constructed/maintained sanitary facilities in the camps.

Waste delivery and handling operations may also generate litter dispersion. Waste delivery trucks will empty their content onto landfill. This design should eliminate the dispersion of litter.

5.1.2 Potential Social Impacts

Land Acquisition and/or Requisition

Depending on the specific location and design of some of the sub-projects, some private lands may be acquired or temporarily used. This can lead to land acquisition and relocation or restriction of access for people and project affected households. In addition, there may be squatters and/or encroachers in public land to be acquired for IMD. An RPF has been prepared which will be followed to prepare site specific RAP once the location and design of the sub-projects are known.

Traffic

There will be increased traffic of loaded transport vehicles to/from the sub-project sites. Thus, in/around the project area significant effort will be required for managing traffic flow to/from the project site to minimized congestion and accidents.

Labour Influx

Large influx of labour is likely due to the scale of the proposed sub-projects. Consequently, social issues such as conflicts, crime, gender based violence (GBV) may occur. The large-scale labor influx may have significant adverse impacts on the women and girls in the communities near to the project area. The labor influx could potentially increase the risk of forced marriage of adolescent girls to employed men working at the project as it might seem as the best livelihood strategy for an adolescent girl. The influx of workers may potentially increase the demand for sex work, sexual abuse, workplace harassment, etc.Occupational Health and Safety (OHS)
The large number of workers in sub-projects will face potential occupational health and safety risks such as accidents, injury and death due to unsafe site conditions. Unhealthy or stressful working conditions can also be an issue.

Noise and Vibration
Increased noise and vibration (from machinery and equipment, vehicles, etc.) may occur during the construction works of the sub-projects. Excessive noise and vibration can cause disturbance to neighbouring communities.

Public Health
Throughout the project implementation, different waste streams will be generated: excavation of soil, human wastes, construction wastes, biodegradable wastes, packaging wastes, possible hazardous wastes, etc. Improper handling and disposal of these wastes can cause public health impacts. Also, local landfills may be over used if alternative disposal sites are not provided for waste materials from the sub-projects. Pollution or over exploitation of surface water and groundwater resources can lead to social conflicts, increased poverty levels (e.g. in vulnerable groups) and public health risks.

Air pollution may be caused by emissions from vehicles, machines and equipment, which can lead to health impacts of nearby communities.

During the operational phase of landfills (for solid wastes), emission of noxious odors can be a problem. The facility should be equipped with odor control measures; such as the maintenance of internal negative pressure and the installation of a biofilter. Failure to maintain these measure can lead to significant surges in odor levels.

5.1.3 Employment and Universal Access

Vulnerable groups such as poor and hard-core poor, women/elderly headed households, people with disabilities may not get fair opportunity to work or be benefitted from the sub-projects. Unskilled workers from vulnerable groups can be engaged in activities such as: site clearance, excavation, loading and offloading of materials and deliveries, etc. Further, the construction labour force will be requiring food and other items, which can be supplied by local eateries, shops and the local community. Employment generation benefits should improve the quality of life of the labourers and enhance their living standards. The study area is also predominantly rural in nature and this is expected to change to a more mixed land use profile with the development of BSMSN over time. The socio-economic benefits that industrial development in BSMSN will lead to increased employment and associated activities in the study area. Employment generation, both direct and indirect, through PRIDE sub-projects should have a significant positive impact on human development and poverty reduction in the project influence area. However, such

massive industrial growth may also lead to land speculation, influx of migrant skilled workers shrinking the job opportunities for local people, increased insecurity of community women and risks of GBV. The RESA will identify such risks and BEZA will need to include remedial measures to avoid any adverse impacts and ensure access to development benefits for the local residents. This should also be included as a topic of discussions in stakeholders engagement forums.

5.1.4 Gender Based Violence (GBV)

Large concentration of workers can lead to increased incidents of gender based violence in the sub-project sites and also in the project influence area. The Project's GBV risks are assessed as "substantial" due to the labor requirements to deliver civil works. The project will develop a stand-alone GBV action plan. The action plan will include a separate grievance redress mechanism with GBV referral pathways and response protocol that will be set up during the project preparation phase. In addition, a supervision team comprising of social and GBV specialists of the IA will monitor and support the implementation of the action plan. The action plan will suggest specific provisions to ensure safety for and feedback from women and girls within some of the economic zones. Besides, stakeholders' involvement, GBV sensitization training for the contractors, workers and affected community will be organized to mitigate the potential risks. BHTPA will include a GBV referral system in its project GRM as Component 4 will not require major civil work. A GBV service provider mapping will also be included in the plan. In the contractor's bid documents GBV requirements and expectations will also be included including the need for a CoC (Code of Conduct). During implementation, C-ESMP and the implementation of GBV Action Plan will be monitored. Training of contractor personnel on GBV issues and expectations/ requirement will be conducted.

5.2 Typical Mitigation Measures

The ESMF suggests a broad range of mitigation and enhancement measures to reduce negative impacts and enhance benefits of from IMD Zone and BSMSN 2A & 2B sub-project interventions under PRIDE. Mitigation measures are identified and designed to avoid or eliminate or offset adverse environmental impacts, or reduce them to acceptable levels during both construction and operation phases of a sub-project intervention. Example mitigation measures for environmental and social issues for each sub-project are provided in **Annex C**.

Some common mitigation measures (applicable for all sub-projects) are as follows:

- Any organic wastes from construction camp site or any source at construction site should be properly collected and composted
- Encourage use of renewable energy, such as solar, wind or biomass energy, to meet energy requirements to reduce carbon footprints of buildings during construction and operation phases.
- Toxicity of dredged materials (from Bay of Bengal) to be used for filling work should be tested prior to commencing filling activities
- Emission of dust can be mitigated by a number of measures together or separately.
    - Ensure that all trucks, vehicles, and electrical devices used in the project area will comply with technical and environmental safety regulations
    - Install dust cover on vehicles at the construction sites and during transportation in the city. Dust control (watering dusty areas) on non-paved access roads
    - Schedule the operation times for vehicles, machines working in the construction area to reduce air emissions
    - Use of adapted Protective Personal Equipment (ear plugs, goggles, helmets, gloves, masks) where necessary

  - Schedule the operation times for vehicles, machines working in the construction area to reduce air emissions
- Noise pollution may be mitigated to certain degrees following the measures:
  - Perform the pre-construction activities within the day time and minimize work done during the night.
  - Regulate the speed of traffic inside the site and in the surrounding areas in construction sites.
  - Construct sound walls as feasible in selected areas.
  - Regularly carry out maintenance and routine inspections on vehicles to ensure that they are meeting the technical standards. Old vehicles and construction machinery with poor quality shall be prohibited for being used within the project‘s activities.
  - Noise volume should not exceed 55 dBA at the nearest off-site reception location.
- For aesthetic reasons maintain cleanliness within the sites/facilities along with appropriate landscaping of the grounds with planting of suitable trees, grass, and flowers.
- Prepare an effective plan to reduce GBV
- Prepare and implement RAP to acquire land (if required)
- Prepare effective traffic management plan
- Encourage engagement of PAPs in the development works
- Training PAPs for their livelihoods restoration
- Plantation of tree within zone and outside the super dike constructed under 2A and 2B If any tree is to be cut, then plantation should be undertaken in minimum ratio of 1:3. A forest and wetland management guideline is provided in **Annex Q**.

CHAPTER 6. METHODOLOGICAL FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT

6.1 Introduction

This chapter outlines the framework for assessing and managing environmental and social issues in different sub-projects. It also provides necessary procedures and tools for screening and assessing environmental and social impacts. The environmental and social assessment of PRIDE IMD Zone and Zone 2A & 2B sub-projects need to be carried out based on the provisions of the Environment Conservation Acts and Rules of GoB and the relevant World Bank's Environmental and Social Standards (ESSs).

6.2 Environmental and Social Management Procedure

6.2.1 Overall Procedure

The overall environmental and social management procedure is shown in the figure below. After the sub-project has been developed with outline design and location/alignment options, screening of environmental and social risks can be done. It is expected that most of the sub-projects will require some form of feasibility study. This will help in the preparation of E&S documents such as IEE/ESA, ESIA, RAP and ESMP. The recommendations from these E&S documents need to be incorporated by the detailed design team and also incorporated into the tender (bidding) documents. BEZA would then need to implement the proposed mitigation measures, monitor and report compliance.

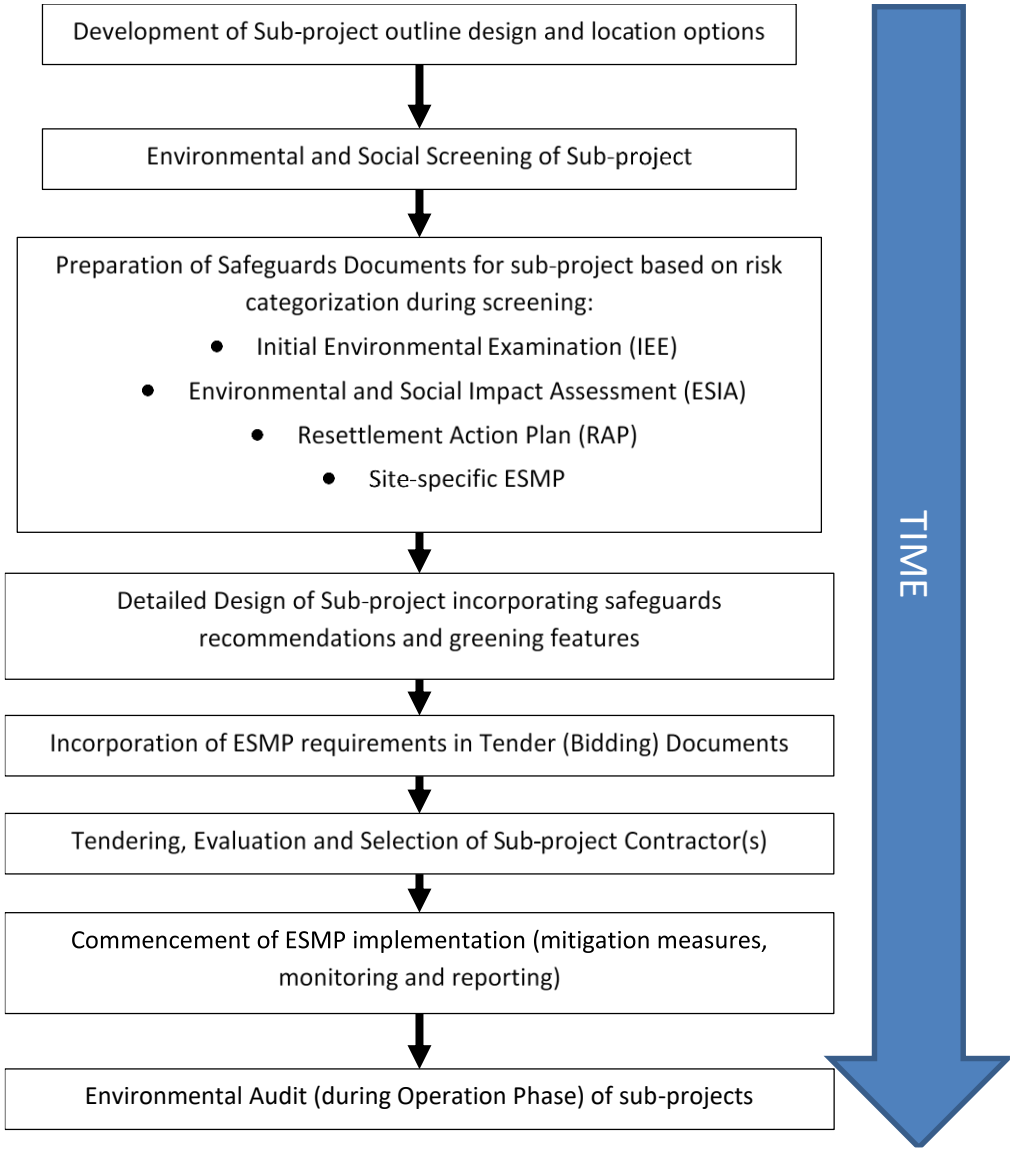


Figure 6-1: Overall Environmental and Social Management Procedure

6.2.2 Sub-Project Screening and Categorization

The formal environmental and social assessment in the IMD Zone and Zone 2A & 2B sub-projects starts with the Environmental and Social Screening of proposed interventions using the screening formats provided in this ESMF (**Annex G & Annex H**). Environmental and Social Screening will determine whether sub- project interventions will require a a full scale ESIA including the ESMP or and IIE with a site-specific ESMP**.**

The environmental and social screening would involve: (i) reconnaissance of sub-project area and its surroundings; (ii) identification of major sub-project activities; and (iii) preliminary assessment of the impacts of these activities on the ecological, physico-chemical and socio-economic environment of the sub-project surrounding areas and considerations that need to be further investigated through IEE/ESA or ESIA.

Environmental and social risk classification takes into account relevant potential risks and impacts, such as:

a. the type, location, sensitivity and scale of the Project including the physical considerations of the Project; type of infrastructure (e.g., dams and reservoirs, power plants, airports, major roads); volume of hazardous waste management and disposal;
b. the nature and magnitude of the potential E&S risks and impacts, including impacts on greenfield sites; impacts on brownfield sites including (e.g., rehabilitation, maintenance or upgrading activities); the nature of the potential risks and impacts (e.g. whether they are irreversible, unprecedented or complex); resettlement activities; and possible mitigation measures considering the mitigation hierarchy;
c. the capacity and commitment of the Borrower to manage such risks and impacts in a manner consistent with the ESSs, including the country's policy, legal and institutional framework; laws, regulations, rules and procedures applicable to the Project sector, including regional and local requirements; the technical and institutional capacity of the Borrower; the Borrower's track record of past Project implementation; and the financial and human resources available for management of the Project;
d. other areas of risk that may be relevant to the delivery of E&S mitigation measures and outcomes, depending on the specific Project and the context in which it is being developed, including the nature of the mitigation and technology being proposed, considerations relating to domestic and/or regional stability, conflict or security.

A Project is classified as ***High Risk*** after considering, in an integrated manner, the risks and impacts of the Project, taking into account the following, as applicable. a. The Project is likely to generate a wide range of significant adverse risks and impacts on human populations or the environment. This could be because of the complex nature of the Project, the scale (large to very large) or the sensitivity of the location(s) of the Project. This would take into account whether the potential risks and impacts associated with the Project have the majority or all of the
following characteristics:

(i) long term, permanent and/or irreversible (e.g., loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the Project;
(ii) high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large);
(iii) significant adverse cumulative impacts;
(iv) significant adverse transboundary impacts; and
(v) a high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.);

b. The area likely to be affected is of high value and sensitivity, for example sensitive and valuable ecosystems and habitats (legally protected and internationally recognized areas of high biodiversity value), lands or rights of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and other vulnerable minorities, intensive or complex involuntary resettlement or land acquisition, impacts on cultural heritage or densely populated urban areas.

c. Some of the significant adverse ES risk and impacts of the Project cannot be mitigated or specific mitigation measures require complex and/or unproven mitigation, compensatory measures or technology, or sophisticated social analysis and implementation.
d. There are significant concerns that the adverse social impacts of the Project, and the associated mitigation measures, may give rise to significant social conflict or harm or significant risks to human security.

e. There is a history of unrest in the area of the Project or the sector, and there may be significant concerns regarding the activities of security forces.

f. The Project is being developed in a legal or regulatory environment where there is significant uncertainty or conflict as to jurisdiction of competing agencies, or where the legislation or regulations do not adequately address the risks and impacts of complex Projects, or changes to applicable legislation are being made, or enforcement is weak.

g. The past experience of the Borrower and the implementing agencies in developing complex Projects is limited, their track record regarding ES issues would present significant challenges or concerns given the nature of the Project's potential risks and impacts.

h. There are significant concerns related to the capacity and commitment for, and track record of relevant Project parties, in relation to stakeholder engagement.

i. There are a number of factors outside the control of the Project that could have a significant impact on the ES performance and outcomes of the Project.

A Project is classified as ***Substantial Risk*** after considering, in an integrated manner, the risks and impacts of the Project, taking into account the following, as applicable.

a. the Project may not be as complex as *High Risk* Projects, its ES scale and impact may be smaller (large to medium) and the location may not be in such a highly sensitive area, and some risks and impacts may be significant. This would take into account whether the potential risks and impacts have the majority or all of the following characteristics:

(i) they are mostly temporary, predictable and/or reversible, and the nature of the Project does not preclude the possibility of avoiding or reversing them (although substantial investment and time may be required);
(ii) there are concerns that the adverse social impacts of the Project, and the associated mitigation measures, may give rise to a limited degree of social conflict, harm or risks to human security;
(iii) they are medium in magnitude and/or in spatial extent (the geographical area and size of the population likely to be affected are medium to large);
(iv) the potential for cumulative and/or transboundary impacts may exist, but they are less severe and more readily avoided or mitigated than for *High Risk* Projects; and
(v) there is medium to low probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.), and there are known and reliable mechanisms available to prevent or minimize such incidents;

b. The effects of the Project on areas of high value or sensitivity are expected to be lower than *High Risk* Projects.

c. Mitigatory and/or compensatory measures may be designed more readily and be more reliable than those of *High Risk* Projects.

d. The Project is being developed in a legal or regulatory environment where there is uncertainty or conflict as to jurisdiction of competing agencies, or where the legislation or regulations do not adequately address the risks and impacts of complex Projects, or changes to applicable legislation are being made, or enforcement is weak.

e. The past experience of the Borrower and the implementing agencies in developing complex Projects is limited in some respects, and their track record regarding ES issues suggests some concerns which can be readily addressed through implementation support.

f. There are some concerns over capacity and experience in managing stakeholder engagement but these could be readily addressed through implementation support.

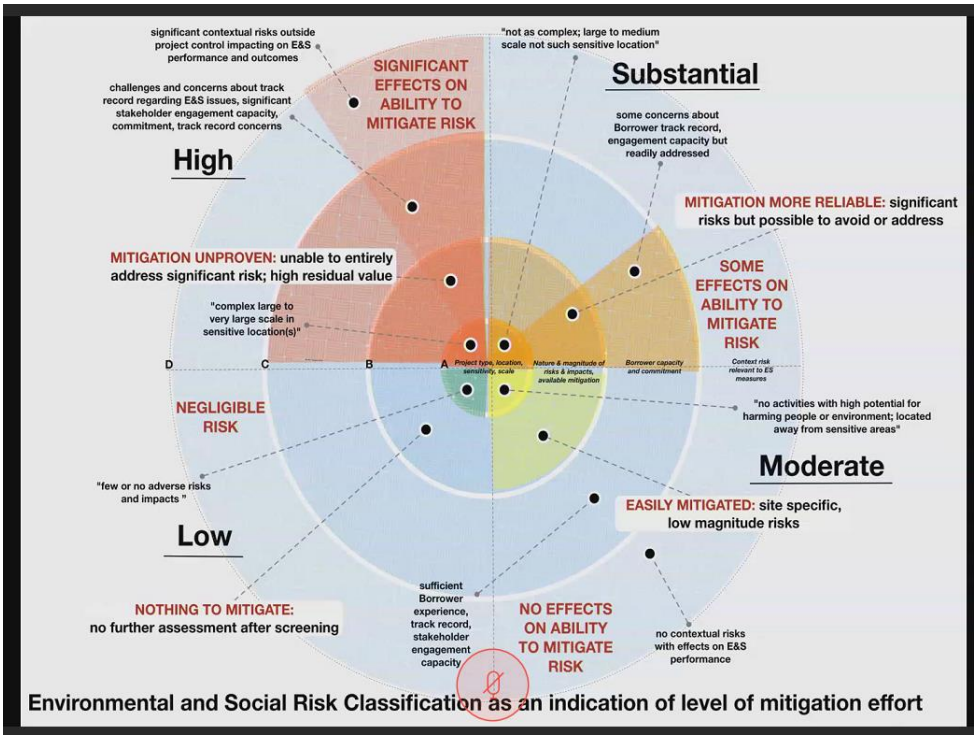
A project is classified *as **Moderate Risk*** after considering, in an integrated manner, the risks and impacts of the Project, taking into account the following, as applicable:

a. the potential adverse risks and impacts on human populations and/or the environment are not likely to be significant. This is because the Project is not complex and/or large, does not involve activities that have a high potential for harming people or the environment, and is located away from environmentally or socially sensitive areas. As such, the potential risks and impacts and issues are likely to have the following characteristics:

(i) predictable and expected to be temporary and/or reversible;
(ii) low in magnitude;
(iii) site-specific, without likelihood of impacts beyond the actual footprint of the Project; and
(iv) low probability of serious adverse effects to human health and/or the environment (e.g., do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.).

b. The Project's risks and impacts can be easily mitigated in a predictable manner.

A project is classified as ***Low Risk*** if its potential adverse risks to and impacts on human populations and/or the environment are likely to be minimal or negligible. These Projects, with few or no adverse risks and impacts and issues, do not require further ES assessment following the initial screening.



The outcome of the screening process is determination of the category of the sub-project in terms of its environmental and social risks. PRIDE sub-projects will be categorized as: High, Substantial, Moderate or Low based on ESSs of WB and as per ECR 1997 categories are: Green, Orange A, Orange B and Red. Thus, considering potential environmental impacts and their significance, proposed sub-project interventions identified in the initial stage of implementation will be categorized into four levels:

1) High Risk
2) Substantial Risk
3) Moderate Risk
4) Low Risk

The table below provides a summary of the preliminary categorization for the sub-projects currently identified. These categories can be updated after screening of the sub-projects, when more details about the sites and designs become available.

Table 6-1: Preliminary Sub-Project Risk Categorization

Proposed Risk Category	Sub-project	Likely WB ESF Categorization	Expected Category as per GOB ECR 1997 Rules
High	***Sub-project I.2:*** Desalination plant	• High	• Red
	Sub-project I.6: Waste pyrolysis/energy	• High	• Red
	Sub-project I.9: Waste water treatment	• High	• Red
	Sub-project B.2: Construction of a desalination plant	• High	• Red
	Sub-project B.4: Construction of high-pressure steam pipelines connecting tenant firms	• High	• Red
Substantial	***Sub-project I.5:*** Solid waste management	• Substantial	• Red
	Sub-project I.8: Sewage management	• Substantial	• Red
	Sub-project A.8: Construction of sewer network and waste water/sewage treatment plant	• High	• Red
Moderate	***Sub-project I.7:*** Solar energy production	• Low	• Orange B
	Sub-project B.3: Construction of a Rooftop and floating solar power system	• Moderate	• Orange B
	Sub-project I.1: Land elevation	• Moderate	• n/a
Low	***Sub-project I.4:*** Water resource management	• Low	• Orange A
	Sub-project I.3: Rain water capture	• Low	• n/a
	Sub-project I.10: Flood management	• Low	• n/a

6.2.3 Environment and Social Management Procedures

High and Substantial Risk Sub-Projects

As per the procedures provided in the table below, for High and Substantial Risk Category sub-projects, detailed ESIA will be required. These should include site-specific information (e.g. environmentally sensitive areas, or need to better define and understand potential issues, brief description of impacts specifying well defined mitigating measures and adopting accepted operating practices and monitoring). A sample TOR for conducting full scale ESIA has been attached in **Annex A**. Content of an ESIA report is provided in **Annex B1**.

Table 6-2: Procedures for High and Substantial Risk Sub-Projects

Sub-Project Phase	Procedure	Responsibility
Project Identification / Pre-Feasibility	Social and Environmental Screening of sub-project (Annex G and H)	BEZA, PMU
	Consultations with key stakeholders (as per SEP)	BEZA, PMU
	Preparation of ToR for ESIA (example provided in Annex A)	Prepared by PMU, reviewed and cleared by BEZA and the WB
Feasibility Study / Design	Conduct ESIA (Annex B1)	Prepared by Independent consulting firm, reviewed and cleared by BEZA and WB
	Public consultations (as per SEP)	BEZA, PMU
	If required, prepare RAP following the RPF prepared for the project (sample TOC in Annex O).	BEZA, PMU, independent consultant
	Review and modify ECOPs (provided in Annex F)	BEZA, PMU
	If required, prepare Cultural Heritage Management Plan (outline in Annex N).	BEZA, PMU, independent consultant
Detailed Design & Tendering	Ensure Mitigation measures (from ESMP) are included in Design	BEZA, PMU
	Ensure ESMP and LMP aspects are included in Bidding Documents	BEZA, PMU
Construction Works	Implement and monitor ESMP	BEZA, PMU, PMC
	Update ESIA (and ESMP) as required	BEZA, PMU, independent consultant
Post-Construction	Environmental Audit	BEZA, third party

Moderate Risk Sub-Projects

As per the procedures provided in the table below, Moderate Risk Category sub-projects will require an IEE with a site-based ESMP. The IEE is a review of the reasonably foreseeable effects of a proposed development intervention/activity on the environment. Participation and consultation with local communities are important in identifying the potential impacts and suitable mitigation measures.. The major activities involved in carrying out an IEE include the following:

- Preparation of an environmental baseline within the sub-project influence area, against which impacts of the proposed sub-project would be evaluated;
- Assessment and evaluation of impacts of major project activities on the baseline environment during construction phase and operational phase;
- Identification of mitigation and enhancement measures and environmental code of practice (ECoP);
- Development of site-specific environmental and social management plan (ESMP) including preparation of environmental monitoring plan with responsibility and estimation of budget for implementation of ESMP.

Table 6-3: Procedures for Moderate Risk Sub-Projects

Sub-Project Phase	Procedure	Responsibility

Sub-Project Phase	Procedure	Responsibility
Project Identification / Pre-Feasibility	Social and Environmental Screening of sub-project (Annex G and H)	BEZA, PMU
	Consultations with key stakeholders (as per SEP)	BEZA, PMU
	Preparation of ToR for IEE	Prepared by PMU and reviewed and cleared by BEZA and WB
Feasibility Study / Design	Conduct IEE and prepare ESMP	Prepared by Independent consulting firm, reviewed and cleared by BEZA and WB
	Public consultations (as per SEP)	BEZA, PMU
	If required, prepare RAP following the RPF prepared for the project (sample TOC in Annex O).	BEZA, PMU, independent consultant
	Review and modify ECOPs (provided in Annex F)	BEZA, PMU
Detailed Design & Tendering	Ensure Mitigation measures (from ESMP) included in Design	BEZA, PMU
	Ensure ESMP and LMP aspects are included in Bidding Documents	BEZA, PMU
Construction Works	Implement and monitor ESMP	BEZA, PMU
	Update IEE (and ESMP) as required	BEZA,PMU
Post-Construction	Environmental Audit	BEZA PMU

Low Risk Sub-Projects

As per the procedures provided in the table below, for Low Risk Category sub-projects, a site-specific ESMP will be required to ensure enhancements such as greening measures are implemented. The ESMP should clearly lay out: (a) the measures to be taken during both construction and operation phases of a sub-project to eliminate or offset adverse environmental and social impacts, or reduce them to acceptable levels; (b) the actions needed to implement these measures; and (c) a monitoring plan to assess the effectiveness of the mitigation measures employed. The major components of an ESMP include:

- Mitigation and enhancement measures
- Monitoring plan
- Estimation of cost of EMP

Example ESMP and Monitoring Plan are provided in **Annex C**.

Table 6-4: Procedures for Low Risk Sub-Projects

Sub-Project Phase	Procedure	Responsibility
Project Identification / Pre-Feasibility	Social and Environmental Screening of sub-project (Annex G and H)	BEZA,PMU
	Consultations with key stakeholders (as per SEP)	BEZA,PMU
	Prepare preliminary ESMP (guideline provided in Annex C)	BEZA,PMU
Feasibility Study / Design	Update ESMP based on design	BEZA, PMU
	Review and modify ECOPs (provided in Annex F)	BEZA, PMU

Sub-Project Phase	Procedure	Responsibility
Detailed Design & Tendering	Ensure Mitigation measures (from ESMP) included in Design	BEZA,PMU
	Ensure ESMP and LMP aspects are included in Bidding Documents	BEZA, PMU
Construction Works	Implement and monitor ESMP	BEZA, PMU
	Update ESMP as required	BEZA, PMU
Post-Construction	Environmental Audit	BEZA, PMU

National Environmental Clearance Requirements of the Proposed Investments and Sub-projects

The legislations relevant for environmental assessment for proposed investments and sub-projects are the Environmental Conservation Act 1995 (ECA'95) and the Environmental Conservation Rules 1997 (ECR'97). Department of Environment (DoE), under the Ministry of Environment and Forest (MoEF), is the regulatory body responsible for enforcing ECA'95 and ECR'97.

It is the responsibility of the BEZA as a proponent to conduct an IEE/EIA of sub-projects, the responsibility to review EIAs for the purpose of issuing Environmental Clearance Certificate rests with DoE. Development works are classified into three categories Green, Orange A, Orange B and Red. Steps to be followed for environmental clearance for different categories are shown in **Figure 6-2**.

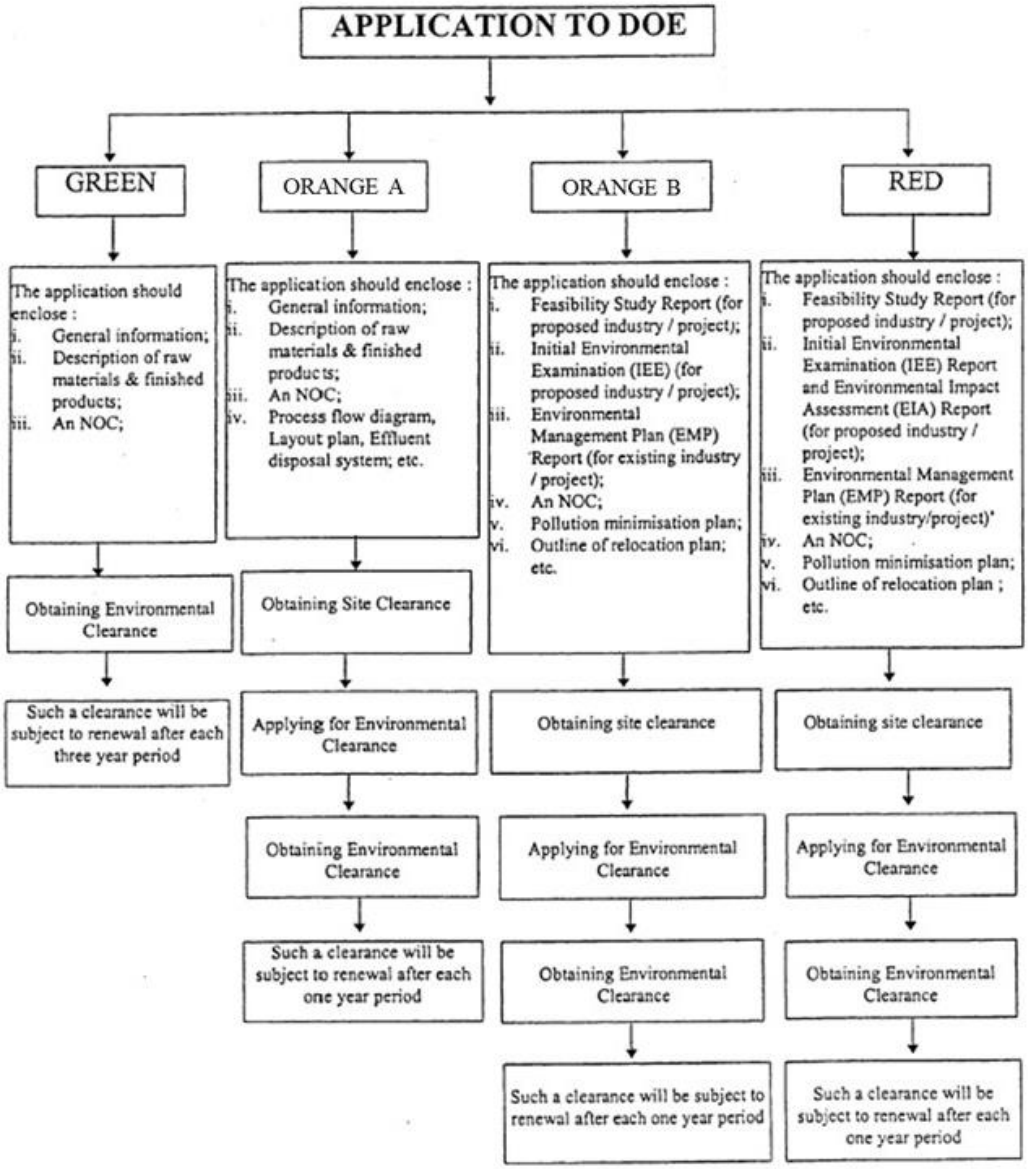


Figure 6-2: DoE Environmental Clearance Steps

6.3 Monitoring and Reporting Procedures

6.3.1 Monitoring Frequency

Contractor EHSS Officers would be on site on a daily basis or otherwise defined in the ESMP' mitigation measures to inspect active work sites and verify compliance with all applicable mitigation measures for the work phase. PMU E&S specialists shall monitor the site on a biweekly/monthly basis during civil works, depending on the sub-project scope. More frequent monitoring may be conducted if needed to ensure compliance with the mitigation measures and resolution of any issues that are noted.

6.3.2 Compliance Reporting

Monthly Compliance Reports

Contractor ESHS Officers shall prepare and submit a monthly compliance report to supervisory consultant, project participant and PMU to document compliance activities completed during the month, and to track the resolution of any issues that may have occurred. The reports should include the following information for the period:

- Summary of compliance activities
- Updated list of all ESHS incidents that occurred during the project
- Follow up information from any past issues that are still being resolved
- Photographs of project activities related to implementation of ESMP mitigation measures

Biannual Compliance Reports

The PMU shall prepare and submit a biannual compliance report to the World Bank on the compliance activities completed during the period and to track the resolution of any issues that may have occurred, for all sub-projects under implementation. The PMU will use daily compliance checklists and monthly compliance reports prepared by the construction contractors to develop the biannual report.

The biannual report should include the following information for the period:

- Key recommended follow up issues, actions, time frame and responsibility center.
- An introduction, Reporting period and monitoring locations
- Summary of completed construction activities
- Estimate of remaining construction and schedule
- Summary of compliance activities
- Progress to date in implementing the ESMF, including key aspects monitored: such as waste management, health and safety practices, dust management, water quality, other environmental incidents and accidents, environmental awareness and training undertaken, etc.
- PMU's and supervisory consultants' oversight activities (i.e., site visits)
- Updated list of all ESHS incidents that occurred during the project, including attached notices of non-compliance that were issued
- Follow up information from any past issues that are still being resolved

A guideline of Environmental and Social Monitoring Plan is enclosed within **Annex C**. A tentative environmental compliance monitoring plan template is provided in **Annex M**. It can be used as guideline to prepare the sub-project specific monitoring plan. However, this attachment is not indicating the limitation of work rather it can be modified based project circumstances and depends on the sub-project specific activities. If any changes are needed, it would be done with the consent of ES specialist of BEZA and the World Bank.

CHAPTER 7. STAKEHOLDER ENGAGEMENT, GRIEVANCE MECHANISM AND DISCLOSURE

7.1 Introduction

Stakeholder refers to individuals or groups who are affected or likely to be affected by the project and the term "stakeholder engagement" refers to a way to describe the process of engagement between a project developer and those potentially affected by the subprojects or way of supporting the implementation. Stakeholder engagement can cover a range of activities and approaches and those are; consultation, engagement, external relations, information disclosure and dissemination, community participation etc. In the PRIDE project BEZA has already designed a common stakeholder engagement plan (SEP) for all of the EZs under PRIDE project.

As a part of updating ESA for the 2A & 2B, stakeholder consultations, focus group discussions (FGDs) and key informant interviews (KIIs) were carried out (from 5th November 2019 to 8th November 2019) in the project influence area to seek opinion and suggestion of the stakeholders through applying the provisions of ***ESS-10*** of the ***Environmental and Social Framework*** of the World Bank.

7.2 Stakeholder Identification and Analysis

During preparation of the ESA and ESMF under the present study, all the stakeholders have been primarily synthesised into two categories that have been identified as:

- Project-affected parties: those who are or likely to be affected by the project, and
- Other interested parties: who may have an interest in the project and who could Influence the opinions of affected parties either positively or negatively, or affect the implementation process or the sustainability of the project's outcomes

7.2.1 Project-affected parties

The 2A and 2B area is fully occupied by the BEZA and sand filling along with other physical works have been going on. Therefore, no individual person will be affected by the project interventions within the territory of the 2A and 2B.

7.2.2 Other interested parties

The projects' stakeholders including local people, land owners, house owners, Civil society, locally active NGOs, government officials, farmers, transport owners, women and vulnerable groups, fishermen, etc. will be impacted during construction of the project directly or indirectly due to labour influx and project construction activities.

7.3 Information disclosure and consultation

A combination of mixed methods of information disclosure and consultation process was adopted at this stage of ESA preparation. The methods used in the consultation process were: (i) Key Informants Interview (KII), (ii) Public Consultation, (iii) Focus Group Discussion (FGDs) and (iv) Walk in Interview during Survey. Consultation and information disclosure were held in the zone of influence of 2A and 2B. In all occasions the date, time and venue of the consultation was decided by the stakeholders keeping in view their prior engagement and availability. Group discussion with various occupational

groups in the project influence area were conducted in the public places convenient to them while KIIs were done by visiting the offices/place of the key informants.

7.4 Consultation and Participation

Three consultation meetings were held at Moghadia union, Saherkhali union and Ichakhali union during 6-7 November 2019 with 142 people (Male 116 Female 26) including community including affected people of Sheikh Hasina Avenue, local government representatives, farmers, women and vulnerable people. Local people of various occupational groups were consulted through focus group discussions and officials from relevant government offices at Upazila level including Agriculture, Fisheries, Forest, Water Development Board, Local Government and Engineering Department and Local Administration were consulted as key informants. List of attendees in Stakeholder Consultations is provided in **Annex D.** Photographs and list of participants has been provided as **Appendix I.**

During consultation with the people in groups or individually, they were briefed about the project including potential benefits, potential positive and adverse impacts and mitigation measures as well. People also raised some issues related to the probable impacts on them considering other EZs in the country. They also suggested/demanded some mitigation measures for their livelihoods and sustainable development.

Table 7-1: Summary of issues and concerns raised by the people

Issues	Concerns raised by the people
Environmental and Social	Necessary precautions on environmental and social issues are to be taken to avoid the various impacts anticipated during the preconstruction, construction and operation stages of the project.
Compensation to all affected people	Some of the PAPs of Sheikh Hasina Avenue are not getting the compensation for their lost assets. Compensation payment procedures would be easy and transparent.
Livelihood restoration	Local people particularly fishermen move to the sea through Ichakhali and other canals. So none of the canals would be blocked and their fishing ground would not be disturbed. Woodcutters, agricultural and other labourers should have alternative livelihood opportunities during construction and operation phase of the project.
Protect mangrove forest	A large area of Mangrove Forest has been destroyed by the EZ (2A & 2B area) due to sand filling. More mangrove forests are in the surrounding area within EZ proposed territory. These mangrove should be kept uninterrupted for the wild species and grazing field for the Buffaloes and cows
Employment opportunity for the local people	Local labourers are not getting job opportunities in the EZ preparatory activities. A clear policy should be adopted to deploy local people in the project activities during construction and operation phase.
Compensation at replacement cost	People, who lost/will lose their land due to the project activities or other additional (associated) activities, should be compensated at replacement cost so that they can purchase alternative land.

7.5 Grievance Redress Mechanism

Considering the overall need for the total project period, BEZA will establish a three-tier Grievance Redress Mechanism (GRM) to address complaints and grievances of the project affected people throughout the life cycle of the project. A separate mechanism will be established for labour related issues under contractors and sub-contractors. Project-affected-people in the PRIDE project and any other stakeholder may submit comments or complaints about less valuation of the affected assets; delay in compensation payment; adverse effect on the squatters/unauthorised occupants and their livelihood, effect on the society and the local community due to construction related activities leading to noise and dust pollution, conduct of the migrant workers, local workers and the contractor, GBV and spread of STD, etc.

7.5.1 Grievance Mechanism Structure

A three-tier grievance redress mechanism has been proposed for the affected people and other stakeholders (Project GRM) under PRIDE Project to address all grievances/claims and allow the people to go to the upper level or to the courts of low for seeking final judgment. The GRM will be at community level project level and BEZA level. A separate GRM for the construction workers (Labour GRM) has also been formulated which will be activated at the construction sites to address complaints/grievances of the labourers. Sample Grievance Registration Form is provided as **Annex J**.

Community level

The community level grievance redress committee (GRC) shall have the following members:

- Assistant Manager-BSMSN (Convener), BEZA
- An Elected Member of the Union Parishad or Upazila Parishad
- A Female Member of the Union or Upazila Parishad
- A Representative of the PAPs in the EZ/subproject
- An Elected UP chairman
- Social development officer (Member Secretary)
- A member of the NGO working in the locality on Social Development/Gender/GBV issues

The Community level GRC shall resolve or reach a decision in fifteen (15) days from the date of lodging the complaint. The chairperson of the GRC shall communicate the committee's decision to the aggrieved persons in writing and maintain a record of all decisions related to each case.

Project Level Grievance Redress Mechanism

The project level GRM shall have the following Grievance Redress Committee (GRC) members: -

- Project Director (Convener) / Director Administration of the Industry (during Operation Level)
- Assistant Manager-BSMSN
- An Elected Member of the Union Parishad or Upazila Parishad (Project Level Only)
- A Female Member of the Union or Upazila Parishad (Project Level Only)
- A Representative of the PAPs in the EZ/subproject/staff or worker's representative of the Industry (operational level)
- An Area Representative of an NGO working in the area on Social Development /Gender/GBV and labour issues

- Social/ Resettlement Specialist/ HR Manager (Member Secretary)

The project level GRC shall resolve or reach a decision in fifteen (15) days from the date the complaint is received. The GRC members can consult the local level GRC and visit the field for clarification, where required. The chairperson of the GRC shall communicate the committee's decision to the aggrieved persons in writing and maintain a record of all decisions related to each case.

Grievance Mechanism

Information about the GRM will be publicized as part of the initial disclosure consultations in the participating Upazila, union and villages. Brochures will be distributed during consultations and public meetings, and posters will be displayed in public places such as in government offices, project offices, village notice boards, community centres, etc. Information about the GRM will also be posted online on the BEZA website (http://www.beza.gov.bd).

The overall process for the GRM will include six steps as described below:

- ***Step 1: Uptake***. Project stakeholders will be able to provide feedback and report complaints through several channels: in person at offices (village/mahalla, Union, project, and Upazila offices) and at project sites, and by mail, telephone, and email.
- ***Step 2: Sorting and processing.*** Complaints and feedback will be compiled by the Assistant Manager/Social Development Officer and recorded in a register. Submissions related to the resettlement and compensation program will be referred to the planning department for processing and resolution.
- ***Step 3: Acknowledgement and follow-up.*** Within seven (7) days of the date a complaint is submitted, the responsible person will communicate with the complainant and provide information on the likely course of action and the anticipated timeframe for resolution of the complaint.
- ***Step 4: Verification, investigation and action.*** This step involves gathering information about the grievance to determine the facts surrounding the issue and verifying the complaint's validity, and resolve the complaints following the figure 6.1. It is expected that many or most grievances would be resolved at this stage. All activities taken during this and the other steps will be fully documented, and any resolution logged in the register.
- ***Step 5: Monitoring and evaluation.*** Monitoring refers to the process of tracking grievances and assessing the progress that has been toward resolution. This will be accomplished by maintaining the grievance register and records of all steps taken to resolve grievances or otherwise respond to feedback and questions. **Typical grievance resolution process is shown on Figure7.1.**
- ***Step 6: Providing Feedback.*** This step involves informing those to submit complaints, feedback, and questions about how issues were resolved, or providing answers to questions. On a monthly basis, the Planning Department will report to the Executive Chairman on grievances resolved since the previous report and on grievances that remain unresolved, with an explanation as to steps to be taken to resolve grievances that have not been resolved within 30 days.

Any GBV related complaints will be handled in a survivor-centric manner in line with the World Bank guidelines provided in the WB good practice note on gender-based violence. GBV-related complaints will be dealt with strict confidentiality, based on the wishes of the GBV-survivor. Any GBV-survivor will be referred to an NGO assigned for the project by the Borrower to manage and respond to GBV cases. This NGO will support GBV survivors in accessing service providers and guiding them through options of lodging a complaint.

Process of grievance resolution is presented in **Figure 7-1**.

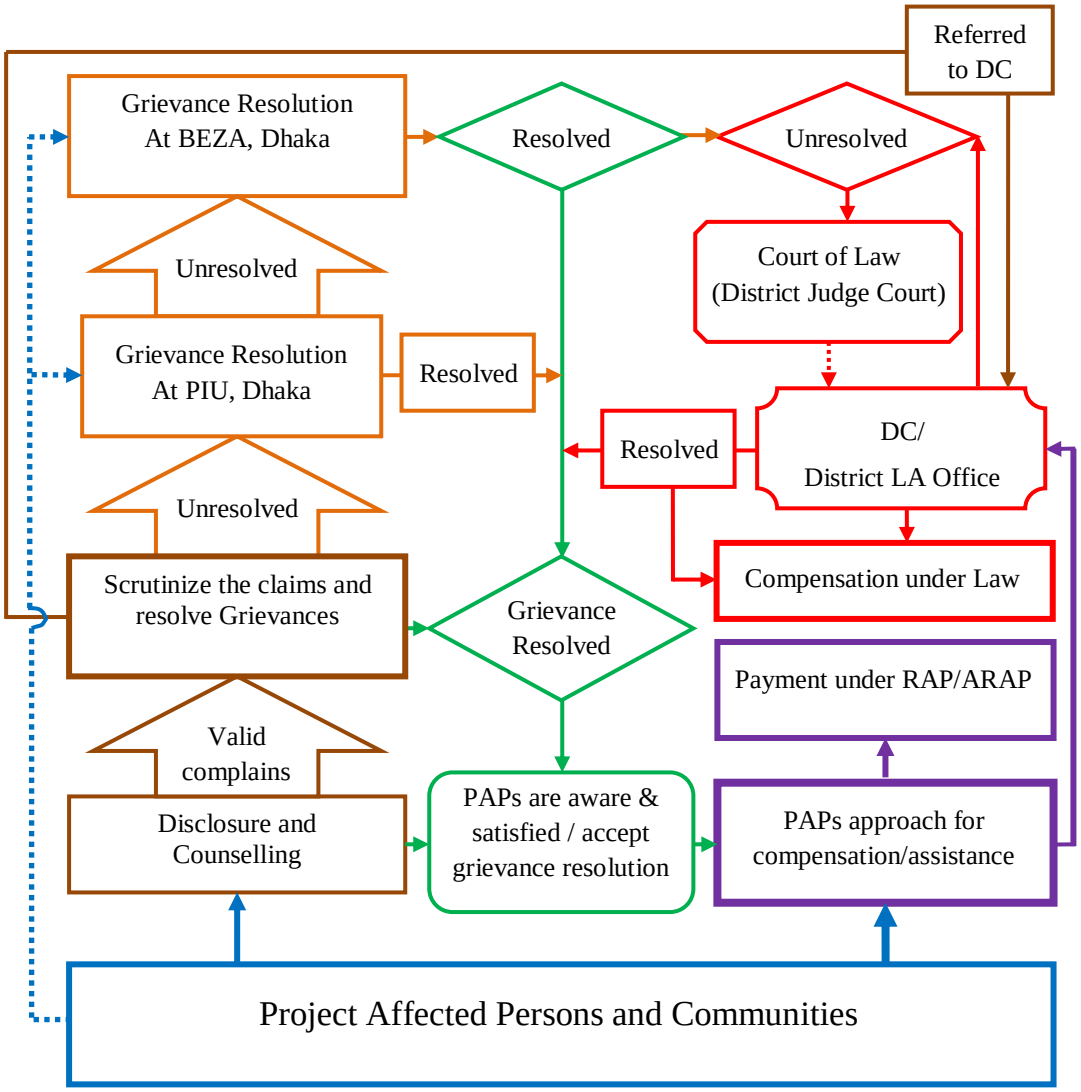


Figure 7-1: Grievance Resolution Process

GRM for Dealing with Labour Issues.

The GRM with its present scope addresses the grievances/ complaints lodged by the project affected persons and other local stakeholders. But according to the lessons learned in various project contexts, there is also an urgent need to establish a separate GRM to deal *exclusively* with those that involve workers employed by the Contractors for site development, construction and other activities. Such grievances may involve wage rates and unpaid overtime works; irregular and partial payments; lack/ inadequacy of living accommodations; lack of clean drinking water and sanitation

facilities; lack of medical care in emergencies; lack of protection against gender-based violence / sexual exploitation and abuse (GBV/SEA) of female workers by labour suppliers/ *sardars*, supervisors, and others who also deal with workers.

The GRCs dealing with labour grievances/complaints will have members who are directly and indirectly associated with the construction and other works under the individual Contract packages of the PRIDE Project. Each GRC will have 5 members:

(a) Project Executing Agency (here BEZA) official who is in charge of all construction and other activities at individual work sites, will act as convener;

(b) Resident engineer of the Construction Supervision Consultant;

(c) A male worker representing the workers;

(d) A female worker representing the workers;

(e) A PEA official, designated by the Project Director, who is not associated with the construction activities in the field, but a member of the PIU.

7.5.2 GRM Monitoring and Reporting

Day-to-day implementation of the GRM and reporting to the World Bank will be the responsibility of the Project Director of PRIDE project. To ensure management oversight of grievance handling, the Internal team will be responsible for monitoring the overall process, including verification that agreed resolutions are actually implemented.

7.5.3 GRM contact information - BEZA

Information on the project and future stakeholder engagement programs will be available on the project's website and will be posted on information boards in the project office, villages, Union Parishad Office, Upazila Office crossed by the line. Information can also be obtained from BEZA offices in Mirsharai and Dhaka.

The point of contact regarding the stakeholder engagement program at BEZA is given below:

Description	Contact details
Company:	Bangladesh Economic Zones Authority
To:	Project Director
Address:	111 CR Datta Raod (level 12), Dhaka
E-mail:	mahmud.faruk@gmail.com, social.stcb@beza.gov.bd
Website:	www.beza.gov.bd
Telephone:	02-9632459

7.6 Access to Information

The SEP will be released in the public domain simultaneously with the ESMF and ESMP reports and will be available for stakeholder review during the same period of time.

Distributions of the disclosure materials will be through making them available at venues and locations frequented by the community and places to which public have unhindered access. Free printed copies of the ESMF/ESMPs and the SEP in Bangla and English will be made accessible for the general public at the following locations:

- The Headquarters of BEZA
- The District Administration office of Chattogram and Feni
- The Project office in Mirsharai;
- Upazilla Headquarters of Mirsharai, Sitkunda and Sonagazi
- Union Parisad Office
- Local NGO offices Mirsharai; and
- Other designated public locations to ensure wide dissemination of the materials.
- Newspapers, posters, radio, television;
- Information centers and exhibitions or other visual displays;
- Brochures, leaflets, posters, nontechnical summary documents and reports;
- Official correspondence, meetings

Electronic copies of the ESMF and SEP will be placed on the project web-site:
http://www.beza.gov.bd

CHAPTER 8. INSTITUTIONAL FRAMEWORK

8.1 Institutions and Roles in Project Implementation

The key institutions relevant for ESMF implementation are shown in **Figure 8-1**. Reporting, instructions, liaison/consultation and advice/inspection channels are also shown. PMU/PMC of PRIDE has the most important role for ESMF implementation and updating.

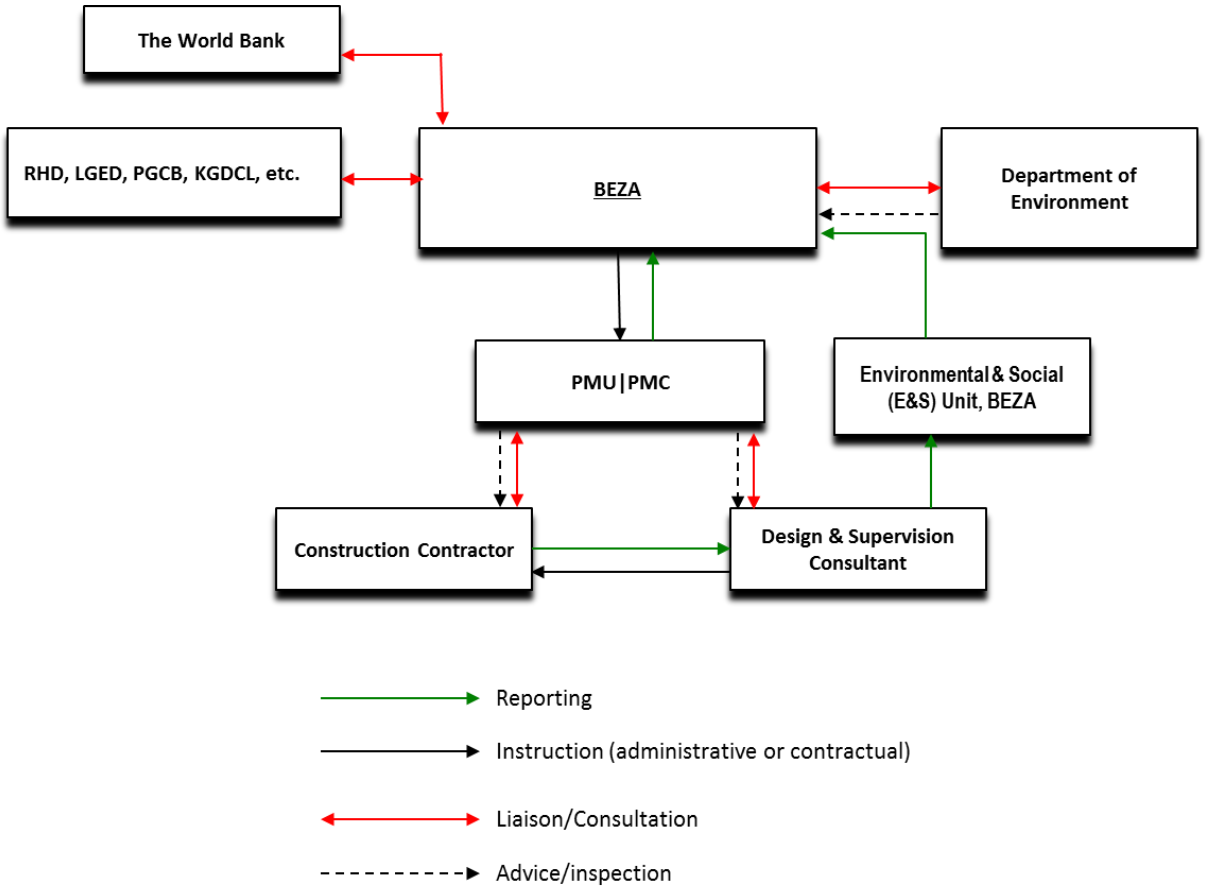


Figure 8-1: Institutional Setup for Environmental and Social Management

8.2 Other Relevant Institutions related to Environmental Management

The institutional framework for the management of environment control is complex and number of Government agencies are involved herewith. Among them the key responsible Government institutions are Department of Environment (DoE), Bangladesh Inland Water Transport Authority (BIWTA), and The Water Resources Planning Organization (WARPO).

The table below presents a summary of key responsibilities of major government institutions who are involved in different capacities for environmental protection and compliance.

Table 8-1: Institutional responsibilities, environmental protection and compliance

Institution	Responsibilities related to environmental protection and compliance
Department of Environment (DoE),	• Conserve environment and improve environmental standards; • Control, mitigate and prevent environmental pollution;

Institution	Responsibilities related to environmental protection and compliance
Ministry of Environment, Forest and Climate Change	• Undertake safety measures and determination of remedial measures to prevent environmental degradation and pollution; • Set 'best practice based' water quality standards for inland surface water uses and discharge; • Routine monitoring of water quality to prevent pollution in water bodies; • define environmental impact assessment (EIA) procedures • Issue Environment Clearance Certificate (ECC) and controlling, preventing and regulating industrial pollution effecting environment; • Declare Ecologically Critical Area (ECA) and protect degraded ecosystems; • Conduct inquiries on pollution of the environment and rendering direction, guidance and assistance to any other authority or organization regarding those matters; • Providing technical input to various Government committees; • Setting forth further regulations and guidelines for regulating activities affecting the environment;
Department of Forest, Ministry of Environment, Forest and Climate Change	• Monitor the state of forest, biodiversity and ecosystem services to provide relevant management and decisions • Enforcement of acts, rules, regulations and administrative orders pertaining to forests, wildlife and biodiversity conservation
The Water Resources Planning Organization (WARPO), Ministry of Water Resources	• Regulate the development and wise use of water resource • Carrying out the task of national water planning for the sustainable use and conservation of water resource. • Monitoring and evaluation of the implementation of Bangladesh Water Act.

8.3 Roles and Responsibilities of Key Organisations

Roles and responsibilities of key organizations are listed in **Table 8-2**.

Table 8-2: Roles and responsibilities of various organizations

SN	Organization	Responsibility
1.	BEZA	• Would ensure environmental and social safeguard compliance of the project as per the ESCP and ESMP • Would review and clear all the safeguard documents prepared by consultants • Provide guidance to PMU for successful implementation of ESMP • Review progress of ESMP implementation • Co-ordinate with other agencies as and when required. •
2.	Department of Environment	• Define environmental impact assessment (EIA) procedures • Approve environmental impact assessment report of the project • Inspect the compliance with the environmental regulations during the project's construction and operation • Issue Environment Clearance Certificate (ECC) and controlling, preventing and regulating pollution effecting environment; • Conduct inquiries on pollution of the environment and rendering direction, guidance and assistance to any other authority or organization regarding those matters.
3.	Construction Contractor	• The contractor shall develop site specific ESMP before construction,

SN	Organization	Responsibility
		as part of their method statement and submit to PMU for reviewing and approval; • The contractor has to submit a monthly report on safeguard issues, mitigation, and results throughout the construction period. In case of unexpected problem, the contractor will consult PMU and PMC; • Ensure that the construction work will complied with the approved EIA/EMP and the site EMP; • Control and minimize environmental impacts; • Ensure that all staff and workers understand the procedure and their tasks in the environmental management program; • Ensure environmental hygiene.
4.	Project management Unit (PMU)	In order to effectively manage ESMP implementation, an ESMP management team will be established and made operational after awarding the contract to contractor. Project Director will be the head of team and will be assisted by the PMC.
5.	Project Management Consultants (PMC)	• Review the C-ESMP submitted by the contractor and should check adequacy as per the ESMP of the project • Responsible for monitoring the contractor's activities and to ensure adequate implementation of the ESMP by contractor. • Providing guidance to the PMU regarding any environmental and social issues which may arise during pre-construction and construction phase. • Keep track of contractor's day to day activities, their commitment for implementation of ESMP, quality of work, adherence to safety guidelines and method statements. • Evaluate Safety, Health and Environmental (SHE) plan covering various construction activities, health of workers/ labourers to be submitted by contractor for each activity. This plan should include evacuation plan, emergency management & response plan • Closely monitor the sanitation and hygiene at the construction labour camp, construction site, first aid facilities at sites and labour camps, accident monitoring at the site, safety aspects, PPE usage, first aid box etc. • Ensure that all construction and site vehicles should abide by the latest emission norms of the country. • Monitor that all workers & labour of contractor should have valid ID cards to assess the site. • Monitor that adequate safety trainings are being given to the workers, adequate mock drills are conducted at site by contractor, availability of emergency evacuation plan, emergency assembly area, availability of certified first aid trainer at all the construction site • Assure that contractor has carried out proper third Party Inspection (TPI) for lifting equipment like crane. • Recommend to the PMU to take punitive action in non-compliance of ESMP & SHE Plan • Submit monthly performance report on the level of compliance & non-compliance by the contractor.
8.	Other organization such as RHD, KGDCL, etc.	Need to follow the environmental and social management plan during construction work.

8.4 Institutional Setting and Implementation Arrangement

Key responsibility for implementation of this ESMF would lie with BEZA. The institutional aspects of BEZA for implementation of this ESMF would be similar as described in the ESA report. For proper assessment and management of the E&S risks, BEZA would be required to appoint Environmental, Social Development and Gender Specialists in the PMU to facilitate undertaking ESIAs/ESAs of various sub-projects as per ESMF and monitor implementation of ESMP. BEZA also needs to ensure adequate Environmental and Social development specialists in the Project Monitoring Consultant (PMC).

PMU will submit monthly and quarterly progress reports on Environmental and Social Compliances to GM (P&D). After reviewing it will be sent to World Bank. Institutional setting and implementation arrangement of BEZA for environmental and social issues is shown in **Figure 8-2.**

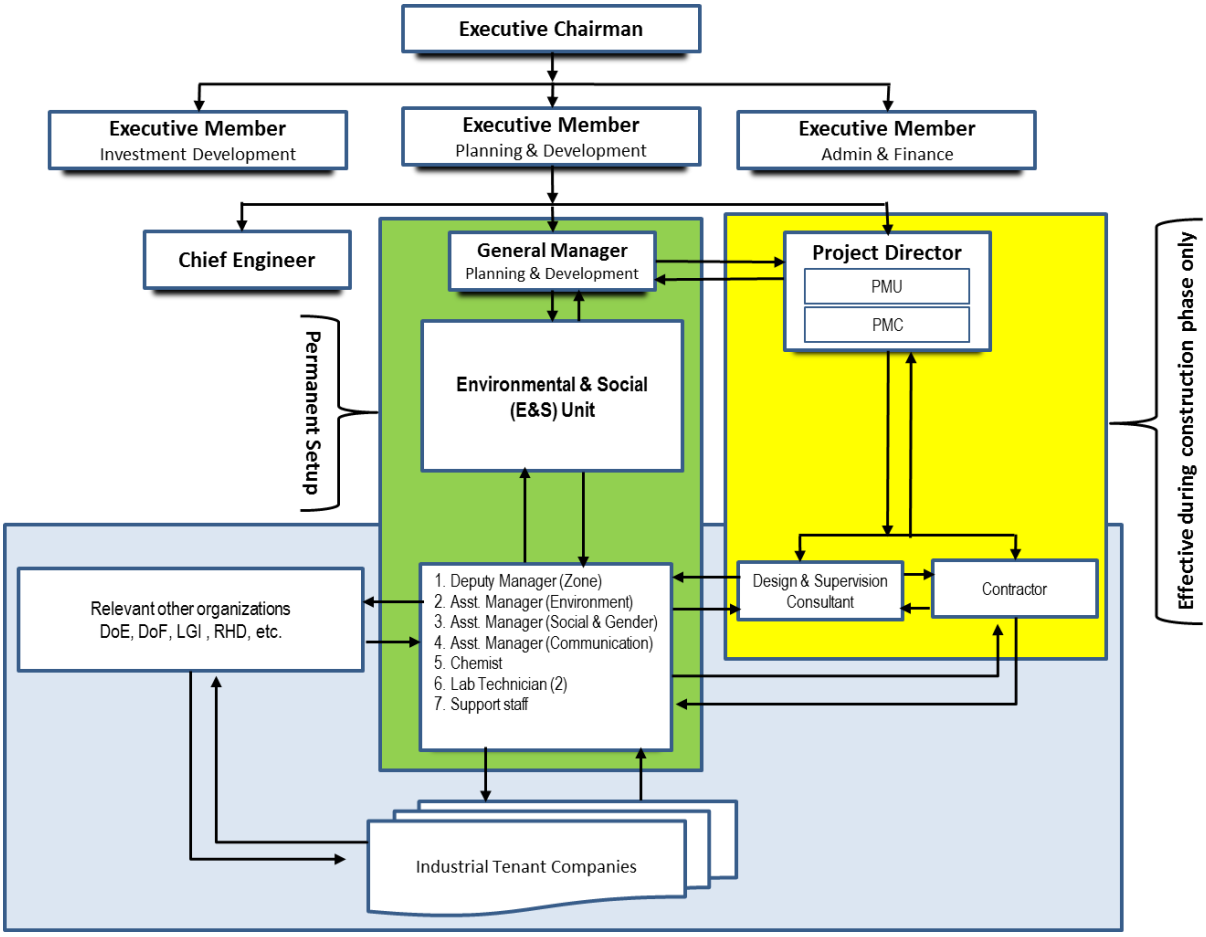


Figure 8-2: Institutional setting and implementation arrangement of BEZA for environmental and social issues

8.5 Assessment of Capacity of BEZA

A careful assessment of BEZA has been made which shows that there is no defined institutional setup to supervise the safeguard activities under the project. There is no dedicated social and environmental cell or unit in BEZA for monitoring and managing social, environmental and health and safety risks for the development projects, except the Individual Environmental and Social Consultants at head Office. For long term sustainable solution to manage environmental and social

risks and impacts of projects, capacity building activities need to be included in the project design. A permanent E&S unit should be set up in BEZA with adequate number of specialists to oversee implementation of ESMP and ESCP during the project period and co-ordinate all the E&S activities during operation phase.

BEZA can adopt the E&S counsellor model being used in EPZ for ensuring assessment and management of environmental and social risks during the operation phase.

8.6 Action Plan to Strengthen Staffing, Capacity, Systems and Implementation

During the project period, the Environmental and Social Consultants will have to be deployed in PMU. Training shall be imparted, on a regular interval, to the BEZA officials and Staff on Safeguard Issues. The ESMF document will be used as a training material for capacity building of BEZA officials/ staff and the Environmental & Social Specialist will act as facilitators for the capacity building sessions. If the Consultants, ES & SS, do not feel confident on their subjects, the ESIA consultants will initiate training for the BEZA officials as a TOT course on safeguard issues. Later on, the BEZA officials and Consultants will train up the Contractors' people on safeguard compliances.

On-the-job training is essential for the capacity building of Contractors' people (Supervisors and Labour Supervisors of Contractor). BEZA, with support of third-party resources as needed (independent experts, NGOs, etc.), will design and implement training for targeted groups involved in the Project to improve their awareness of risks and mitigate the impacts of the project.

Table 8-3: Capacity development support (training)

Training to be provided	Targeted Groups and Timeframe	Timeline of Trainings
Environmental and Social Framework: Training on ESF and the 10 ESSs including preparation of ESMF, ESIA, IEE and ESMP	Personnel directly related with project at BEZA head office and Filed office (if available)	Prior to Project effectiveness for 7 days
Occupational Health and Safety Module: Personal protection equipment Workplace risk management Prevention of accidents at work sites Health and safety rules Solid and liquid waste management Hazardous waste management e.g. fuelling of vehicles Preparedness and response to emergency situations Awareness campaign on HIV/AIDS	*Local Officials of BEZA, PMC, Locally active NGOs, Contractors*	Prior to the Project effectiveness 4 sessions with each comprising 2 days
Labour and Working Conditions: Terms and conditions of employment according to national working laws and regulations	*Local officials of BEZA, Contractors Health Safety Officer, Labour Sardars (Leaders)*	Prior to the Project effectiveness 4 sessions with each comprising 2 days

Training to be provided	Targeted Groups and Timeframe	Timeline of Trainings
Contractor and sub-contractor codes of conduct Worker's organizations Child labour and minimum age employment rules		(can be merged with OHS module)
Grievance Redress Mechanism Module, design and production of a training module addressing the following aspects: • Registration and processing procedure • Grievance redress procedure • Documenting and processing grievances •Use of the procedure by different stakeholders	ES, SDS, GS, Local Governments, Civil Society, Local NGOs working with host population and, Contractors	Prior to Project effectiveness and thereafter once every six months Each session for 1 day
Construction Waste Management: Information about the risks, along with health and safety advice, see the World Bank Group Environmental Health and Safety Guidelines on managing construction waste and the relevant international good practices Basic knowledge about handling procedures and risk management Using protective and safety equipment Information about the waste sorting process Safe procedures for managing waste in dumps Hazardous waste management Refuelling procedure Spillage of soil management	ES, EHS, SDS, Contractors	Prior to Project effectiveness and thereafter every three months Each session for 1 day
GBV Risk Module Raising awareness and measures to prevent and mitigate GBV risks The topics, activities and targeted groups will be developed in the GBV Action Plan including GBV-specific GRM	BEZA Local officials, Contractors Health Safety Officer, Labour Sardars (Leaders), Local NGOs	Prior to Project effectiveness and thereafter every six months Each session for 2 days

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