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Environmental and Social Management Framework (ESMF)

Resilient Urban and Territorial Development Project (RUTDP)

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Abbreviation and Acronyms

List of Acronyms

ARAP	Abbreviated Resettlement Action Plan
ARIPA	Acquisition and Requisition of Immovable Property Act
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BOD	Biological Oxygen Demand
BWDB	Bangladesh Water Development Board
CBO	Community Based Organization
CC	Climate Change
COD	Chemical Oxygen Demand
DoE	Department of Environment
DSM	Design, Supervision & Management
DoF	Department of Fisheries
ESA	Environmental and Social Assessment
ECA	Ecological Critical Area
ECA	Environmental Conservation Act
ECC	Environmental Clearance Certificate
ESCoPs	Environmental and Social Codes of Practices
ECR	Environment Conservation Rules
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMC	Ethnic Minority Community
EMCF	Ethnic Minority Community Framework
EMP	Environmental Management Plan
EMU	Environmental Management Unit
ESA	Environmental and Social Assessment
ESCP	Environmental Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESR	Environmental Screening Report
ESS	Environmental and Social Standards
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FPIC	Free, Prior and Informed Consent
FS	Feasibility Study
GAP	Gender Action Plan
GBV	Gender Based Violence
GDP	Gross Domestic Product
GoB	Government of Bangladesh
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism

ha	Hectare
HH	House Hold
IEE	Initial Environmental Examination
IFC	International Finance Corporation
IP	Indigenous Peoples
IPDP	Indigenous Peoples Development Plan
LGED	Local Government and Engineering Department
LGD	Local Government Division
LMP	Labour Management Procedures
M&E	Monitoring and Evaluation
MLGRD&C	Ministry of Local Government, Rural Development and Co-operatives
MSDS	Material Safety Data Sheet
MoEFCC	Ministry of Environment, Forest and Climate Change
MoF	Ministry of Finance
NGOs	Non-Government Organizations
NOC	No Objection Certificate
O&M	Operation and maintenance
PA	Protected Area
PAD	Project Appraisal Document
PMU	Project Management Unit
PAP	Project Affected Persons
PIU	Project Implementation Unit
PPC	Project Preparation Committee
PPE	Personnel Protective Equipment
PSC	Project Steering committee
PIC	Project Implementation Committee
RAP	Resettlement Action Plan
ROW	Right of Way
RPF	Resettlement Policy Framework
RUTDP	Resilient Urban and Territorial Development Project
SEA/SH	Sexual Exploitation and Abuse/ Sexual Harassment
SEP	Stakeholders Engagement Plan
TBD	To Be Determined
ToC	Table of Contents
ToR	Terms of Reference
ULB	Urban Local Bodies
UP	Union Parishad
USD	United States Dollar
WB	World Bank
WC	Word Committee

Executive Summary

Introduction

Bangladesh is one of the most populous and densely populated countries in the world. About 40 percent of its 169.40 million people live in the urban areas of the country. There has been increased rural to urban movement by the population over the last two decades seeking better living conditions. The increased migration has caused a major shift in the need for urban infrastructure to support services where the population is congregating to. Urban population as a percentage of total population increased from around 8% (at independence in 1971) to nearly 38.95% (BBS data, 2022). Though the present urban dwellers constitute about 38.95 percent of the total populations of Bangladesh, the share and contribution of urban centers to GDP is more than 60 percent indicating that the productivity of labor in urban areas is much higher than in rural areas.

The government must effectively oversee the process of urbanization to harness its positive aspects, bolstering both cities and smaller towns to enhance their resilience and foster economic growth for the country's development. Well-managed urban expansion and progress have been shown to be a successful means of contributing to economic advancement, reducing poverty, and promoting shared prosperity. The Sustainable Development Goals (SDGs) prioritize sustainable urban development, aiming for an improved quality of life, especially for the impoverished, by ensuring proper land planning, enhanced urban governance with increased accountability and transparency, and greater public involvement. This also involves strengthening the institutional and financial capabilities of municipal bodies like Pourashavas and City Corporations.

Taking into account these considerations and needs, the Government of Bangladesh has initiated a Comprehensive Urban and Territorial Development Project known as the "Resilient Urban and Territorial Development Project (RUTDP)." It is anticipated that the investments in basic urban services proposed under this project will elevate the standard and quality of civic amenities in the project areas and elevate the overall quality of life for urban residents.

Project Description

RUTDP is the first of the three planned Series of Project (SOP). It will support targeted economic and social interventions in seven (7) urban clusters which are located along a priority economic development corridor connecting Cox's Bazar in the southeast of the country to Panchagarh in the northwest in creating a dynamic system of secondary cities with the objective to broadening economic growth and strengthening the economic integration between rural and urban areas. The first phase of this SOP Project will be implemented over a period of six (6) years (2024 – 2030). This first project in a Series of Projects (SOP) will support targeted economic and social interventions in priority clusters of cities and their adjoining rural hinterlands along the priority economic development corridor. The RUTDP will be implemented in 87 selected Pourashavas and City Corporations (14 nodal cities and 73 Pourashavas and City Corporations) along the priority growth corridor. Along the corridor, the Project identified seven (7) priority urban clusters, which are strategically located and have the potential to play more transformative roles in boosting resilient growth and socioeconomic development, in supporting their respective regions. The seven clusters covers the districts at the North-West (cluster 1 and 2), South and South West (cluster 3 and 5), South-East (cluster 6 and 7) and Middle part of the couty (cluster 4). The project will be implemented in 87 selected pourashavas and city corporations (14 nodal cities and 73 regular cities and their adjoining UPs) along the corridor and regions. The pourashavas and city corporations in cluster 1 and 2 are relatively drought prone, experiencing less rainfall and higher temperature comparing to the other parts of the country. The pourashavas and city corporation s under cluster 3 and 5 are located at the South West part

and includes coastal districts which are vulnerable to the adverse effect of climate change such as salinity intrusion, cyclone and tidal water surge. This region is an important part of the international trade route. This is part of a regional corridor connecting Bangladesh with India, as part of the Asian Highway Trade Corridor. Cluster 4 is the densely populated middle part of the coutry with higher level of environmental pollution. Pourashavas and city corporations under cluster 5 and 6 are located at the South east part of the coutnry. Topography of this region is mostly hilly streched along the cost of the Bay of Begal. This region is charecterized by the highest concentration of manufacturing industry, international seaport, and tourism activities. The project area is spread over thirty six districts of Bangladesh, which fall in five different administrative divisions of the country. The project development objectives (PDO) are (i) to increase access to climate resilient urban infrastructure and services, and (ii) to strengthen urban management capacity in selected urban centers.The main project beneficiaries will be about 21.00 million people (of whom 50% will be women). It comprises of three components: 1. Climate resilient urban service and infrastructure investments, 2. Project Management, Technical Assistance and Capacity Building, 3. Contingency Emergency Response (CERC). The potential investments under RUTDP will include basic urban services such as reconstruction/rehabilitation of road with streetlight, storm drainage with footpaths, public toilet, kitchen market, bus terminal, supermarkets, community centres, parks/public place development, municipal building etc. Within the existing resource envelope, each Pourashavas and City Corporation will prioritize its own investment drawing from this menu of eligible investment options in consultation and participation of all adjoining UPs. The project will also support operation & maintenance (O&M) to all selected cluster Pourashavas and City Corporations.

Policy, Legal and Regulatory Framework

LGED will follow all the relevant policies, plans and regulatory framework of Bangladesh Government, and Environmental and Social Framework (ESF) of the World Bank. The key GOB legislation relevant for environmental assessment for the project components are the Environmental Conservation Act 1995 (ECA'95) and the Environmental Conservation Rules 2023 (ECR'23). Environment Conservation Act ’1995 and its amendments clearly states the requirement of obtaining environmental clearance certificate in a prescribed manner from the Director General of DoE before commencing operation and one of the key procedures to obtain the Environmental Clearance Certificate is to undertake an environmental assessment. As part of a government entity, LGED is obliged to abide by all these acts and rules, in addition to other GOB acts, rules or guidelines. All the World Bank’s environmental and social standards of the WB ESF are relevant to this project except ESS 9. However, there are few gaps between the GOB and World Bank’s regulatory requirements for which measures have been suggested to bridge these gaps. In Bangladesh, projects do not require to formulate their own Labor Management Procedures/Plans and labor related laws do not require assessment of labor influx, Occupational Health and Safety (OHS) or management issues. Moreover, issues related to stakeholder engagement/ public consultation, Community Health and Safety (CHS), hazard and risk analysis, mitigation hierarchy, etc. are absent in GOB legislative/regulatory documents, which will be complemented by adopting WB ESSs. A few more gaps between the GOB and WB regulations have been identified for which most stringent actions have been suggested in the relevant chapter.

Preparation of Environmental and Social Management Framework

As detailed full information regarding sub-project location/design is not available at this stage of project preparation, a framework approach has been adopted for identification and management of Environmental and Social risks associated with various project activities, and to guide the E&S management approaches for sub-projects. The implementing agency (LGED) has therefore prepared this Environmental and Social Management Framework (ESMF) for assessment with objects to identify and address E&S risks and impacts

during various phases of the project, to ensure that all relevant environmental and social issues are taken into account during the design and implementation of the sub-projects, to analyze possible environmental and social risks, benefits, and consequences and adopt measures to avoid, reduce, and manage risks and impacts while maximizing benefits. This framework document would also help ensure compliance of national rules and regulations, as well as World Bank ESF. The document would guide Environmental and Social (ES) screening and conducting environmental and social assessment and preparing various ES management plans for the sub-projects once design and locations are finalized. This framework has been prepared primarily following the feasibility study report and available secondary data.

Potential Environmental and Social Impacts

There will be two types of investments. **'**Quick Wins**'** type of investments, a significant share of which will be implemented in the first 18 months after project effectiveness, to be implemented in all the 87 Pourashavas/City Corporations. The longer-term **'**catalytic interventions' that aim to boost economic growth in the selected clusters and will benefit not only the targeted Pourashavas and City Corporations but also the linkages between Pourashavas/City Corporations and surrounding Pourashavas/City Corporation and Union Parishads.

Project activities include improvement of urban road, drains, footpaths, revenue generating initiatives like construction/renovation of bus terminals, paurashava/kitchen markets, community centers, public toilets, municipal buildings, etc. The infrastructures within the 73 pourashavas and city corporations are small to medium in nature while under the nodal cities are expected to be larger. The environmental and social impacts of the activities within the 73 pourashavas and city corporations are not expected to be significant. No major land acquisition would be required though some cases of resettlement might need to be addressed. None of the project interventions are expected to be located in an around the protected or ecologically critical areas and hence no major impact on biodiversity and flora or fauna is expected. However, for the reconstruction/renovation/expansion of roads, cutting of trees might be needed. Impacts would mostly be limited to construction phases which are temporary and confined within the boundary of the construction sites. There would be some issues during the operation phase particularly in the case of kitchen markets, community buildings etc. particularly due to generation of solid and liquid waste. The predicted impacts may also include drainage congestion and water logging during the construction period, surface water and ground water pollution, generation of construction related dust, air and noise pollution. However, in case of construction of regional/cross boundary level large infrastructure and revenue generating investments such as regional bus terminals, community centers and markets in 14 nodal cities, impacts might be related to ES issues such as resource efficiency, universal accessibility, occupational health and safety, and community health and safety. Considering these impacts the environmental risk of the project has been rated as "substantial". Social risks of the project is also rated "substantial" in consideration of the location and scale of civil works as stated, as few of these may involve small scale land acquisition and involuntary displacement of people largely economic displacement. The proposed activities fall under 'Orange' category as per ECR 2023 of the country.

All of the project districts have small or insignificant presence of ethnic minority communities (EMCs) and at the pourashavas and city corporation level, they are present only in three, Ramgarh, Teknaf and Cox's Bazaar. An Ethnic Minority Community Framework (EMCF) has been prepared to address EMC issues and approaches per the ESS7 during implementation. However, civil and construction works under this project will be in the urban areas and with close supervision in adjoining rural areas. Influx of non-local workers will

be there but with close supervision and location of the sites, the risk of Gender Based Violence (GBV) including Sexual Exploitation & Abuse (SEA)/Sexual Harassment (SH) is anticipated to be 'moderate'. During the construction phase, all potential consequences are amenable to substantial mitigation using both accessible and viable approaches. A labor management procedure (LMP) per ESS2 has been developed separate of this ESMF for managing labor issues (OHS and CHS) and any associated risks of SEA/SH. Many consequences at operation-phase can either be avoided or reduced by design considerations.

Procedure for Assessment and Management of Environmental and Social risk Management

As mentioned above, the Project will take a framework approach for environmental and social risk assessment and management, allowing the project life cycle to follow the national regulatory framework and World Bank ESF including the applicable sub-project/component specific environmental and social screening required to analyze the project's environmental and social risks and impacts. Based on the outcome of the screening exercise, the subsequent site-specific ES assessment and/or ESMPs will be prepared following the procedures set out in the ESMF. The ES assessment and ESMPs should clearly describe: (a) ES risks and impacts of subprojects, (b) the measures to be taken during both construction and operation phases of a subproject to eliminate or offset adverse ES impacts, or reduce them to acceptable levels; (c) the actions needed to implement these measures; and (c) a monitoring plan to assess the effectiveness of the mitigation measures employed.

Stakeholder Consultation and Disclosure

Stakeholders Engagement Plan (SEP) has been developed for RUTDP which will be the prime guiding document for stakeholders' engagement in the project process. The coordination and monitoring mechanisms established in the SEP would be overseen by LGED and DSM consultant (Design, Supervision and Management Consultant), and other relevant agencies at the Pourashavas and City Corporation level (Pourashva and City Corporation level). As per the SEP, consultations with different stakeholders were carried out in preparing this ESMF to obtain their views on project interventions and any anticipated ES risks and impacts. Those consultation meetings have come up with some suggestive measures to undertake, such as, (i) Necessary precautions are to be taken to avoid the various impacts during the preconstruction, construction, and operation stages of the project (ii) Resilient Infrastructure to be constructed considering different natural calamities, (iii) drains to be constructed with proper outfalls. The ESMF has been publicly disclosed through the government website and the executive summary would be translated into local language and made available at the local offices. All the site-specific ES assessment reports and ESMPs would also be disclosed publicly and the ESMPs would be translated into the local language and made available to the local community.

Institutional Framework and Capacity Building

The project will be housed at the Local Government Division (LGD) of the Ministry of Local Government, Rural Development & Co-operatives (MoLGRD&C). The Local Government Engineering Department (LGED) under LGD will implement the Project establishing a Project Management Unit (PMU) within LGED. A Project Director (PD) of the level of Superintending Engineer will lead the PMU. The PD will be supported by two Deputy PD (DPD), three Senior Assistant Engineers, , individual E&S consultants (An Environmental Specialist, a Social Development Specialist, and a Gender Specialist)**and** a design, supervision and management (DSM) Consultant (firm) and deputed staff.

At the Pourashavas and City Corporation level, Project Implementation Units (PIUs) will be established responsible for the planning, implementation, management and reporting of local investments and

technical assistance activities. PIUs will be comprised of regular Pourashavas and City Corporation staff that are deputized to coordinate project-financed activities at the local level. The DSM firm will assist all PIUs in dealing with E&S management of the project.

The PMU will coordinate closely with the PIUs at the Pourashavas and City Corporation level on identification, design and implementation of subprojects including supervision and management. The Municipal Support Unit (MSU) of LGED at the respective regions will provide technical support and capacity building to the participating Pourashavas and City Corporations with resources from the PMU. A Project Steering Committee (PSC), chaired by the LGD Secretary and composed of representatives from the Ministry of Finance (MoF) and other national ministries, will oversee the project and monitor overall project implementation. A Project Implementation Committee (PIC), chaired by the LGED Chief Engineer and composed of senior technical officials from relevant ministries and agencies, will support the PSC.

Monitoring Mechanism for ESMP Implementation

There will be several tiers in the monitoring framework to ensure the proper implementation of ESMPs. Contractors, throughout the construction or implementation period, will ensure that E&S risks and impacts are minimized while working at sites and adequate health and safety measures are put in place not only for their workers but also for the surrounding communities. Contractors' employed site managers and E&S Specialists shall take all reasonable steps to protect the environment and the people on and off the sites. The contractor is thus responsible for self-monitoring on the implementation of all E&S management, legally binding under the contract agreement with the Pourashavas and City Corporations; and responding to the E&S clauses and specifications. The contractors will provide monthly E&S compliance report to the respective PIU. The PIUs will compile E&S Monitoring report to share with the PMU every quarter, which is to be reviewed and cleared by the E&S Specialists at PMU.

The DSM Consultants shall stand in the first tier of the monitoring mechanism. When the contractors are mobilized in the field, E&S consultants from DSM will ensure that contractors are adherent to every suggestive measure delineated in ESMP, on top of the best engineering practices at sites including OHS, CHS and SEA/SH risks management. DSM will prepare regular monitoring reports based on the findings of stringent supervision and monitoring on its part.

PMU will have E&S specialists to conduct field visits frequently and monitor that all staff of the contractors and other counterparts involved in project implementation follow the E&S requirements to ensure the best practices in the field. The Monitoring and Evaluation (M&E) wing of LGD will conduct periodic review and end-term evaluation of the project activities engaging a Third-Party Monitoring (TPM) Consultant.

The highest tier in the monitoring system is bestowed upon the respective PSC. The PMU, und*er the* guidance of the PSC, will also ensure that E&S management training is provided to all Project personnel by MSU. Indicative cost for implementing ESMF is 7.5 Million USD, details of which is given in Table 6.7 in Chapter 6.

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CHAPTER 1: INTRODUCTION

1.1 Background

Bangladesh is one of the most populous and densely populated countries in the world. About 40 percent of its 169.40 million people live in the urban areas of the country. There has been increased rural to urban movement by the population over the last two decades seeking better living conditions and greener pastures. The increased migration has caused a major shift in the need for urban infrastructure to support services where the population is congregating to. Urban population as a percentage of total population increased from around 8% (at independence in 1971) to nearly 38.95% (BSS data, 2022). Though the present urban dwellers constitute about 38.95 percent of the total populations of Bangladesh, the share and contribution of urban centers to GDP is more than 60 percent indicating that the productivity of labor in urban areas is much higher than in rural areas.

As the current stock of urban and social infrastructure has not grown in the line with the fast-moving demographical shift, many towns (small cities, municipal towns and bigger cities), suffer deficiency in services they must provide to the teeming masses in their jurisdictions. As a consequence, the urban service development index is remarkably inefficient in case of urban service delivery, institutional governance and capacity building. The gap between service and infrastructure deficits is worsening in areas of high economic and urban growth as well as in areas especially vulnerable to natural hazards. Bangladesh is a climate vulnerable country. A large number of people, especially the poor, are likely to be affected by the increasing negative effects of climate change (cyclones, floods, heavier downpours of rains in relatively short time, urban heating, monsoons) leading to increasing climate migrants moving and droughts have made their agricultural works impossible. There are also many other dimensions to the country's climate change risks. Urban governance remains a key challenge to harnessing Bangladesh's growth and poverty reduction.

The phenomenal rate of urbanization is posing a major development challenge. The cities and towns of Bangladesh, suffer from acute problems of deteriorating infrastructure in the form of poor housing, inadequate availability of drinking water, paucity of drainage and sewerage facilities, logjam of urban transport, and pollution, amongst others. Slums and squatter settlements have become integral part of urban life in the country. Chaotic urban development and the accompanying unemployment, environmental degradation, lack of basic services, crime and the proliferation of slums are major obstacles to creating better cities and better urban living conditions. This does not necessarily mean that urbanization is bad, but to meet the progress and advancement sought by the population moving to urban areas more and more, the government has to adopt policies to harness the goods that the process of urbanization bring while taking concrete actions to minimizing the inherent negative effects of delayed planning for an eventuality that cannot be stopped. What is important is to realize that urbanization is an unavoidable element of economic development that requires careful planning and management. The government needs to manage urbanization in such a way that captures the beneficial aspects to strengthen cities and secondary towns to build in resilience and capture economic growth for the development of the country. Well managed urban growth and development have proven as potent tools to contributing to economic advancement, poverty reduction and shared prosperity as quality of the lives of citizens, especially, the poor and vulnerable, improve.

In response to the urban governance challenges, the Government's New Urban Agenda (NUA) represents a shared vision of *8th Five Year Plan* for a better and more sustainable future by taking advantage of the opportunities presented by urbanization as an engine of sustained and inclusive economic growth, social

and cultural development, and environmental protection.

1.2 Resilient Urban and Territorial Development Project (RUTDP)

In consideration of urban context and utilization of experiences and lessons learnt from different urban projects (i.e. MSP, MGSP) aiming to address the huge unmet demand, the Government of Bangladesh (GOB) has taken "Resilient Urban and Territorial Development Project (RUTDP)" in light with GOB's plans to ensure that "the gains from RUTDP are scaled-up nationwide. The RUTDP is envisioned to constitute the GOB's "next generation operation to move forward sustainable decentralization, regional and resilient climate-adaptive development as well as institutional regeneration that would bring impetus to local and regional economic development through building new and more resilient economic infrastructure and assets, job creation and real/strong poverty reduction for our country emphasizing Technical, Economic, Social, Environmental, Institutional and Country wide Capacity Building issues.

RUTDP is the first of the three planned Series of Project (SOP). It will support targeted economic and social interventions in seven (7) urban clusters which are located along a priority economic development corridor connecting Cox's Bazar in the southeast of the country to Panchagarh in the northwest in creating a dynamic system of secondary cities with the objective to broadening economic growth and strengthening the economic integration between rural and urban areas. The first phase of this SOP Project will be implemented over a period of six (6) years (2024 – 2029). This first project in a Series of Projects (SOP) will support targeted economic and social interventions in priority clusters of cities and their adjoining rural hinterlands along the priority economic development corridor. The RUTDP will be implemented in 87 selected Pourashavas and City Corporations (14 nodal cities and 73 regular cities and their adjoining UPs) along the priority growth corridor. Along the corridor, the Project identified seven (7) priority urban clusters, which are strategically located and have the potential to play more transformative roles in boosting resilient growth and socioeconomic development, in supporting their respective regions. The seven clusters covers the districts at the North-West (cluster 1 and 2), South and South West (cluster 3 and 5), South-East (cluster 6 and 7) and Middle part of the couty (cluster 4). The project will be implemented in 87 selected Pourashavas and City Corporations (14 nodal cities and 73 regular cities and their adjoining UPs) along the corridor and regions. The Pourashavas and City Corporations in cluster 1 and 2 are relatively drought prone, experiencing less rainfall and higher temperature comparing to the other parts of the country. The Pourashavas and City Corporations under cluster 3 and 5 are located at the South West part and includes coastal districts which are vulnerable to the adverse effect of climate change such as salinity intrusion, cyclone and tidal water surge. This region is an important part of the international trade route. This is part of a regional corridor connecting Bangladesh with India, as part of the Asian Highway Trade Corridor. Cluster 4 is the densely populated middle part of the coutry with higher level of environmental pollution. Pourashavas and City Corporations under cluster 5 and 6 are located at the South east part of the coutnry. Topography of this region is mostly hilly streched along the cost of the Bay of Begal. This region is charecterized by the highest concentration of manufacturing industry, international seaport, and tourism activities. The project area is spread over thirty six districts of Bangladesh, which fall in five different administrative

It is firmly anticipated that the proposed project will contribute to improving basic urban services and municipal governance in 87 pre-selected Pourashavas and City Corporations. In view of the stated prevailing challenges of the sector and the planned interventions the rationale to proceed with the proposed project is well founded.

The Urban Local Bodies (Pourashvas and City Corporations) are playing a vital role in the national development in Bangladesh. It achieved rapid social and economic progress in recent decades with

average gross domestic product (GDP) reaching more than 6 percent annually and accelerated to over 8 percent, led by productivity of the urban areas of the country. Strong labor market gains contributed to a sharp decline of the national poverty rate; it also inspires rural-urban migration. It is expected the population would be approximately equalize in urban and rural areas by 2035. It has been likely said that all of the Bangladesh will be an urban place within next few decades, or the remotest village will be within a few kilometers of an urban center.

On the other hand, Bangladesh's cities are characterized by extremely poor infrastructure and low level of services. The country faces optimum challenges in coping with the infrastructure and service requirements of its rapidly growing urban population. Investments in urban and municipal infrastructure have been historically low resulting in the demand for massive economic support from the Government and Development Partners, mainly to create employment opportunities and better performing infrastructures in Pourashvas and City Corporations. Local and regional economic development is desperately being demanded by City corporations and pourashavas to provide access to better opportunities for citizens continually flocking to the towns and cities. Poor infrastructure and services are constraints to Bangladesh's competitiveness, affecting its productivity, connectivity and livability. Despite the positive contribution of urbanization to economic growth, rapid and haphazard growth has led to serious urban management challenge. Good urban governance and effective management have become prerequisites for providing adequate access to Urban Infrastructure services. However, so far, the capabilities of most municipalities to provide urban services and maintain a healthy urban environment have not grown in tandem with the pace of urbanization.

In consideration of urban context and utilization of experiences and lessons learnt from different urban projects (i.e. MSP, MGSP) aiming to address the huge unmet demand, the Government of Bangladesh (GOB) has taken "Resilient Urban and Territorial Development Project (RUTDP)" in light with GOB's plans to ensure that "the gains from RUTDP are scaled-up nationwide. The RUTDP is envisioned to constitute the GOB's "next generation operation to move forward sustainable decentralization, regional and resilient climate-adaptive development as well as institutional regeneration that would bring impetus to local and regional economic development through building new and more resilient economic infrastructure and assets, job creation and real/strong poverty reduction for our country emphasizing Technical, Economic, Social, Environmental, Institutional and Country wide Capacity Building issues of the pre-selected 87 Pourashavas and City Corporations along the priority economic development corridor.

1.3 Rationale of the ESMF

The exact locations, size and extent of the sub-projects are unknown and the details of the subprojects to be implemented under RUTDP will be finalized during project implementation phase using participatory preparation and adoption of Capital Investment Plan (CIP). A framework approach has therefore been adopted for Environment and Social risk assessment and management and this Environmental and Social Management Framework (ESMF) has been prepared to ensure that all subprojects at the implementation stage are adequately screened/ assessed for adverse environmental and social impacts in response to the requirements of the national legal framework and the World Bank ES Standards applicable for the Project.

1.4 Purpose and objectives of the ESMF

The purpose of ESMF is intended to be used as a practical tool for identification of Environmental and

Social risks and preparation of management plan during project formulation, design and implementation. The objective of the ESMF is to ensure that all subprojects are adequately screened/ assessed for the environmental and social issues, and site specific Environmental and Social Management Plan (ESMP) are prepared accordingly. The ESMF will provide necessary guidance on environmental and social considerations, a checklist of potential issues of the project activities to be considered and built into the design of the project, environmental and social screening of subprojects and guidance on the preparation of site-specific assessments and management plans.

In order to ensure the effective environmental and social management of RUTDP, the ESMF will provide guidance on pre-investment works/studies (such as environmental and social screening, environmental and social assessment, environmental and social management plans, etc.), provide set of steps, process, procedure, and mechanism for ensuring adequate level of environmental and social consideration and integration in each investment in the project-cycle and describes the principles, objectives and approach to be followed to avoid, minimize or mitigate impacts. The specific objectives for preparing ESMF are to:

- To integrate the environmental and social concerns into the identification, design and implementation of all project interventions in order to ensure that those are environmentally sustainable and socially feasible;
- To ensure all relevant environmental and social issues are mainstreamed into the design and implementation of the projects/sub-projects of the RUTDP;
- To consider in an integrated manner the potential environmental and social risk, benefits and Impacts of the project and identify measures to avoid, minimize and manage risks and impacts while enhancing benefits;
- To ensure compliance with national laws and regulations, and World Bank requirements. The ESMF presents potential impacts of the RUTDP, mitigation, enhancement, contingency and offsetting measures, environmental and social management and monitoring plan, and institutional framework for implementing ESMP;
- To provide guidelines for LGED and the participating Pourashavas and City Corporations to manage environmental and social risks associated with design and implementation of subprojects under the project;
- To enhance the capacity of LGED and Pourashavas and City Corporations for preparing ES screening, Initial Environmental Examination (IEE), ESIA and ESMP.

The ESMF is a living document and will be reviewed and updated periodically as needed.

1.5 Approach and Methodology of the ESMF

The ESMF has been prepared following methodology consisting of the steps listed below:

- Review Project documents and meeting/discussions with various stakeholders including concerned government departments, local media and NGOs;
- Review of the policy and regulatory requirements of the country as well as the financing institution, the World Bank;
- Collection and analysis of various reliable baseline environmental and social data.
- Consultations with the stakeholders including beneficiary/affected communities, consultants from WorldBank, LGED officials, Pourashavas and City Corporations officials and developing the consultation process;
- Assess the potential risks and impacts of the project activities;

- Prepare an outline of environmental and social management issues according to the requirements of the GOB and ESSs of the World Bank ESF;

ESMF has also considered the findings of the Feasibility study conducted for the project. The identified findings have been used as major ingredients for ESMF development.

1.6 Content of the ESMF Report

The ESMF has been structured as follows:

- Executive Summary giving an overview of the ESMF
- Chapter 1 Introduces a brief overview of the project background, rationale, and purpose of the ESMF and methodology of its preparation.
- Chapter 2 provides a description & objective of the project, its various components, and project Location.
- 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 or project districts.
- Chapter 5 describes potential/expected environmental and social risks and impacts of the project
- Chapter 6 describes the Methodological framework to be followed for environmental and social management of the project.
- Chapter 7 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 8 outlines Institutional and implementation arrangements including capacity building and monitoring and evaluation of activities for environmental and social management.

CHAPTER 2: PROJECT DESCRIPTION

2.1 Background

RUTDP will be implemented as a Series of Project (SOP) to achieve the overall objective as a series of three operations to be implemented over a 12-year time span. The first phase of this SOP Project will be implemented over a period of six (6) years (2024 – 2030) with a total investment of US$560 million (IDA: US$100 million, SUW: US$300 million and GoB: US$160 million). This will be considered as Phase 1 of the SOP (SOP1). Upon successful implementation and achievement of PDO of Phase 1, next phase will be launched.The overall Program Development Objective (PDO) are: (i) to increase access to climate resilient urban infrastructure and services, and (ii) to strengthen urban management capacity in selected urban centers. SOP1 covers physical investment and institutional support in selected cities while SOP2 and SOP3 projects will contribute to the achievement of the two program development objectives by (i) investing in additional cities and economic corridors in a more selected and concentrated manner with the aim of scaling up the size and nature of investment, and (ii) continue investing in a few selected cities under SOP1 that have demonstrated outstanding performance and exceeded their development objectives both in terms of physical investment and institutional strengthening. The long-term outcome of this SOP is to support a shift to a spatially more targeted and differentiated investment approach to initiate urban transformation that helps to accelerate economic growth, contribute to poverty reduction, and increase sustainability in these economic corridors..

2.2 Project Objective

The objectives of the project are (i) to increase access to climate resilient urban infrastructure and services and (ii) to strengthen urban management capacity in selected urban centers. The main project beneficiaries will be about 21.00 million people (of whom 50% will be women) in participating cluster Pourashavas and City Corporations/UPs. Other beneficiaries include staff from implementing agencies from cluster Pourashavas and City Corporations/UPs, LGED and LGD who will benefit from the capacity building and technical training activities.

2.3 Project Location and Population

The project covers 87 Pourashavas and City Corporations (14 nodal cities and 73 regular cities and their adjoining UPs where needed) in the selected growth corridor connecting Cox's Bazar in the southeast of the country to Panchagarh in the northwest . The estimated population is 17,138,818 (BBS 2022) of the selected pourashavas and city corporations. A map showing the 87 Pourashavas and City Corporations, 14 nodal cities and 7 clusters are appended below:

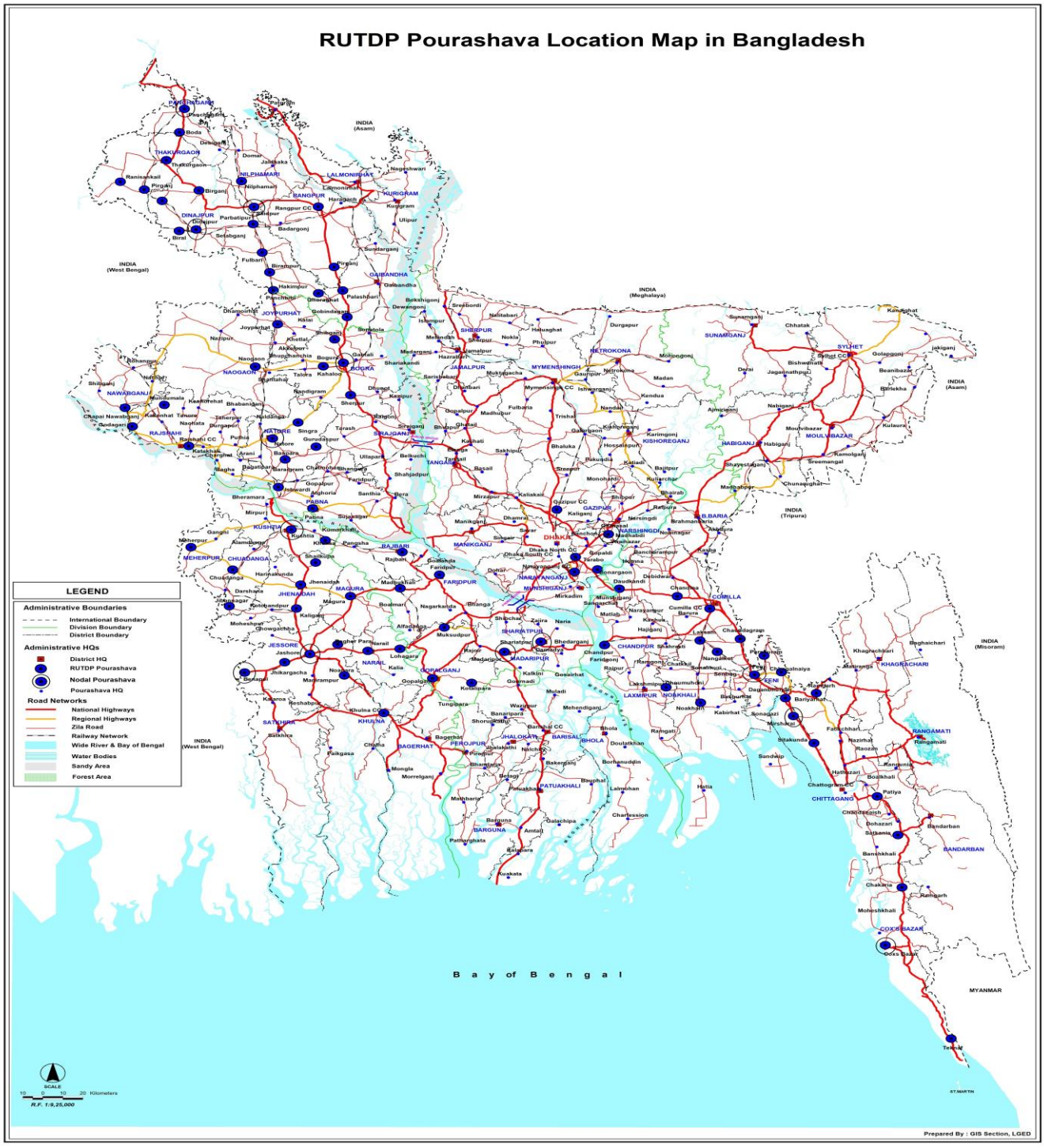


Figure 2.1 Map of 87 Pourashavas and City Corporation including 14 nodal cities and 7 cluster

2.4 Project Components

Resilient Urban and Territorial Development Project (RUTDP) will contribute to improving basic urban services and municipal governance in 87 pre-selected cluster Pourashavas and City Corporations (73 regular cities and 14 nodal cities) through four components, namely: **Component 1:** Climate resilient urban services and infrastructure investments; **Component 2 :** Project Management, Technical Assistance and Capacity Building; Component 3: Contingent Emergency Response (CERC).

The eligible menu of potential investments under RUTDP will include resilient basic urban services - road rehabilitation/reconstruction of roads with streetlight; storm drainage with footpaths; bridges and culverts; public toilets; kitchen markets; bus terminals; supermarkets; community centers; parks/public place development, municipal building. Within the existing resource envelope, each Pourashavas and City Corporation will prioritize its own investments drawing from this menu of eligible investment options in consultation and participation of all adjoining UPs. The project will also support operation & maintenance (O&M) to all selected cluster Pourashavas and City Corporations.

Component 1: Climate resilient urban services and infrastructure investments: Component 1 includes three sub-components: Sub-component 1.1– Infrastructure investments in the selected 14 Nodal Cities; Sub-component 1.2 – Basic Urban Service Improvement through Infrastructure Investments in Selected Pourashavas and City Corporations to carry out eligible infrastructure investments that support climate resilient urban basic services, and Sub-component 1.3 – Support for operation and maintenance through Performance-based Conditions (PBCs)**.**

Subcomponent 1.1 support climate-resilient infrastructure investment in selected 14 Nodal cities *(*Total US$290.40 million, of which IDA US214.60 million and GoB US$75.80 million). Four categories of infrastructure will be eligible for investments under this subcomponent:

(i) Road system and streetscape improvements that integrate carriageway, footpaths, bicycle lanes, street furniture, streetlight, plantation, traffic management, and road safety measures. These sub-projects will incorporate both climate-resilient and gender-responsive design features. For example, to make roads more resilient to climate-induced flooding, they will be designed as part of an integrated urban flood risk management system. Energy efficient streetlighting will be used to improve personal safety and access especially for women.

(ii) Public buildings and Open spaces, including revenue-generating assets (municipal and wholesale markets, community centers, municipal buildings, bus terminals, public toilets, parks, waterside developments) with separate toilets for women in public buildings and designated spaces for women in parks and open spaces where appropriate. Public buildings and open spaces will incorporate appropriate climate-resilient and green building design features, such as cool roofs, reflective surfaces, urban greenery, open public green areas with nature-based solutions, where appropriate.

(iii) Infrastructure for adapting to climate and disaster risks including managing and reducing waterlogging and flooding in urban areas with integrated cross-boundary flood risk management and drainage system; and reducing impacts of urban heat with cool roofs, urban greenery, public open green areas, and rainwater harvesting.

(iv) Infrastructure for the Nodal city and surrounding Union Parishads by increasing connectivity (e.g., strategic roads for improving mobility between Nodal city and adjoining Union Parishads, regional bus terminals, etc.) and promoting new economic opportunities (e.g., facilities for tourism, urban regeneration, waterfront development, etc.).

Sub-component 1.2: Basic Urban Service Improvements through Infrastructure Investments in the Selected Pourashavas and City Corporations to carry out eligible infrastructure investments that support climate

resilient urban basic services (Total US$128.95 million, of which IDA US$96.00 million and GoB US$32.95 million)). This subcomponent will support climate resilient and gender responsive infrastructure investments to improve urban service provision in 67 Pourashavas and six City Corporations. It will focus on two categories of investment:

(i) Road system and streetscape improvements that integrate carriageway, footpath, streetlight, plantation, traffic management, and road safety measures that will incorporate climate resilient and gender responsive design features, as described above.

Public buildings and open spaces including climate resilient revenue-generating/economic assets (municipal and wholesale markets, community centers, bus & truck terminals, recreation parks and waterside developments, etc.), that are gender responsive (with separate female toilets in public buildings and designated spaces for women in parks and open spaces) where appropriate. Public buildings and open spaces will incorporate appropriate climate resilient, gender responsive and green building design features, as described above.

Sub-component 1.3: Performance Based Conditions (PBCs) to Support Operation and Maintenance (Total US$80 million, of which IDA US$60 million equivalent and GoB US$20 million). The intended value of introducing PBC under the project is to bring a performance-based incentive culture to participating Pourashavas and City Corporations, that could potentially evolve into more systematic institutional reforms under future SOPs. This subcomponent will finance the operation and maintenance (O&M) of urban infrastructure in Pourashavas and City Corporations who meet the requirements stipulated in the PBCs. It is critical to properly operate and maintain urban infrastructure to absorb and withstand climate impacts over their lifetime. As the implementing agency, the Local Government Engineering Department (LGED) will support Pourashavas in meeting the PBCs; evaluate their performance; and allocate funds to those that meet the PBCs. The performance assessment process and indicators will be elaborated in the Project Implementation Manual (PIM). Under this component, project resources will be disbursed based on the achievement of targets under three Performance-based Conditions:

i. PBC1 will incentivize the Nodal Cities to prepare, adopt and implement climate resilience action plans following standardized guidelines issued by LGED. Each plan will be based on a comprehensive climate risk assessment, GHG inventory and identification of adaptation and mitigation measures covering different sectors such as urban transport, drainage, water supply and sanitation, energy/building, and green space. Nodal cities will sign a Memorandum of Understanding (MOU) with their adjoining UPs for cross-boundary sub-projects (e.g., drainage, flood control drainage, etc.). DSM Consultants will help them to develop these plans. The target is for the fourteen (14) Nodal Cities to prepare and adopt cross-sectoral climate resilience action plans included in the Pourashava Development Plans.
ii. PBC2 will incentivize the 81 Pourashavas to increase their own source revenues to improve their fiscal autonomy. Increased OSR is critical in meeting their recurring expenditures, scale up urban, adopt climate resilient measures, and reduce their dependence on fiscal transfers, especially given the existing low levels in OSR mobilization. Under PBC2, the Pourashavas are expected to implement measures identified in their Revenue Enhancement Action Plans, such as improving e-governance, deploying field teams to increase collections, and using GIS-based property assessment software to increase property assessments. Overall, the target is to achieve 20% increase from the baseline in OSR for 81 Pourashavas.
iii. Finally, PBC3 aims to increase social accountability and access of the most vulnerable segments of society to urban services and spaces. It does this by incentivizing Pourashavas to include women and other vulnerable groups in the Town-level Coordinating Committees (TLCCs) which play a decisive role in the selection, planning and implementation of sub-project. The target is for eighty-

one (81) Pourashavas to have TLCCs with at least one-third female members (already mandated by law) and co-chaired by a woman.

Within SOP1, the project will initially implement "front runner" packages for the first 18 months, while preparing for the integrated plans which would help identify more sizable and strategic investments for the Nodal Cities. Preliminary engineering designs for the first 18-months' proposed investments are currently underway and are expected to be completed within three months following the completion of Appraisal. Environmental and Social (ES) screening of these sub-projects, along with preparation of site-specific ES assessment and Environmental and Social Management Plans (ESMPs), would be carried out in parallel and completed by the same time.

Component 2: Project Management, Technical Assistance and Capacity Building (Total US$60.65 million, of which IDA US$29.4 million equivalent, and GoB US$31.25 million)

Component 2 comprises three subcomponents: Sub-component 2.1 - Capacity Building, Sub-component 2.2 - Technical Assistance to participating Pourashavas, and Sub-component 2.3 - Project Management and Operational Support.

Sub-component 2.1: Capacity Building. This sub-component will provide targeted capacity building, training, and support for the institutional strengthening of Pourashavas and City Corporations under Component 1. These activities focus on improving local government operational and financial performance, including increasing own-source revenues (OSR) and procurement processes. Capacity building will also be provided for e-GP rollout, environmental and social performance, gender-responsive planning and design, incorporating climate and disaster risk mitigation measures, and disability/universal accessibility. To further support gender development, capacity building and leadership training will be provided to female members of the TLCCs to ensure their effective participation and eligibility for leadership positions.

Sub-component 2.2: Technical Assistance. This sub-component will provide technical assistance in three areas: (i) urban management and cluster-level planning for Pourashavas and City Corporations; (ii) operation and management of food markets; and (iii) long-term multi-sectoral, integrated climate resilience planning the sub-regional level. For the first area, technical assistance will strengthen the capacity of Pourashavas and City Corporations in the preparation of: (i) multi-sectoral and climate resilient Pourashava development plans for 14 nodal cities; (ii) revenue enhancement action plans for 87 Pourashavas and City Corporations to improve OSR mobilization; and (iii) O&M plans for 87 Pourashavas and City Corporations to improve asset management and maintenance. Pourashavas and City Corporations will be assisted to mainstream food safety and reduce food loss and waste in markets to be built under RUTDP and in existing kitchen markets. TA will also finance preparatory and feasibility studies for subsequent stages of the SOP and preparation of a strategy plan for solid waste management.

Sub-component 2.3: Project Management and Operational Support. This component will support project management and operation through a Project Management Unit (PMU) at LGED Headquarters in Dhaka and Project Implementation Units (PIUs) in Pourashavas and City Corporations. It will cover the cost of project management, including financing the day-to-day administration, management, monitoring and coordination of project activities by the PMU and the PIUs, operational audit, financial management, environmental and social risk management, procurement, monitoring and evaluation, and reporting. It will also finance consultancy services provided by the DSM consultants, the Municipal Services Unit (MSU),

Third Party Monitoring (TPM), PMU Individual Consultants, PAM Consultants, Sub-Project Readiness Consultants, Operational Audit, etc. Details will be provided in the PIM. .

Component 3 Contingent Emergency Response.

CHAPTER 3: POLICY, LEGAL AND REGULATORY FRAMEWORK

3.1 Introduction

Regulatory requirements towards protection and conservation of environment and various environmental resources and also towards protection of social environment from adverse impact of projects and activities associated with them have been enunciated by the requirements of GoB as well of the World Bank ESF. A review of the pertinent requirements of GOB and WB and a gap analysis has been summarized in this chapter.

3.2 Relevant Environmental Policies of the Government of Bangladesh

Governance and management of the environmental sector is molded to a large extent by some key specific policies. The polices which are relevant to RUTDP have been briefly mentioned in Table 3.1.

Table 3.1: *Summary of Relevant Environmental Policies of GoB*

Policy	Key Features	Applicability
National Environmental Management Action Plan (NEMAP), 1995	The NEMAP built on the NEP to address specific issues and management requirements during the period 1995-2005, and remains a backbone of efforts to articulate national sustainability strategies. The plan includes a framework within which the recommendations of a National Conservation Strategy (NCS) are to be implemented. The NEMAP was developed with the following objectives: (i) Identify key environmental issues affecting Bangladesh (ii) Identify actions to halt or reduce the rate of environmental degradation (iii) Improve management of the natural environment (iv) Conserve and protect habitats and biodiversity (v) Promote sustainable development (vi) Improve the quality of life To this end, the NEMAP grouped all the relevant necessary actions under four heads: institutional, sectoral, location-specific and long-term issues. The institutional aspects reflect the need for inter-sectoral cooperation to tackle environmental problems requiring new institutional	NEMAP covers a number of sectoral issues and actions; some of the specific actions proposed in relation to reducing the vulnerability to natural disasters like flood, cyclone, etc. are integrated into project activities. This plan also puts emphasis on sustainable use of water resources, preventing degradation of water bodies, tree plantation, protection of biodiversity, ensuring health and sanitation, taking flood proof measures, compensation for project-affected people. Specifically the policy to be followed for the

Policy	Key Features	Applicability
	mechanisms at national and local levels. The sectoral aspects reflect the way the ministries and agencies are organized and make it easier to identify the agency to carry out the recommended actions. The location specific aspect focuses on particularly acute environmental problems at local levels. And the long-term issues include environmental degradation trends that threaten to emerge as serious threats to the country's environmental quality and well-being if not proactively addressed.	subproject designing and implementation.
Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009	The GoB 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. Bangladesh Climate Change Strategy and Action Plan built on and expanded the NAPA. It is built around the following six themes: **Food security, social protection and health** to ensure that the poorest and most vulnerable in society, including women and children, are protected from climate change and that all programs focus on the needs of this group for food security, safe housing, employment and access to basic services, including health. **Comprehensive disaster management** to further strengthen the country's already proven disaster management systems to deal with increasingly frequent and severe natural calamities. **Infrastructure** to ensure that existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructure (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change. **Research and Knowledge management** to predict that the likely	Relevant as the country is vulnerable to climate change effect and vulnerability to different disasters is increasing across the country, and the project is targeting those vulnerable groups as the key beneficiaries of the project. To be consider the climate change issues during design and implementation.

Policy	Key Features	Applicability
	scale and timing of climate change impacts on different sectors of economy and socioeconomic groups; to underpin future investment strategies; and to ensure that Bangladesh is networked into the latest global thinking on climate change. **Mitigation and low carbon development** to evolve low carbon development options and implement these as the country's economy grows over the coming decades. **Capacity building and Institutional strengthening** to enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change. There are 44 specific programs proposed in the BCCSAP under the above six themes.	

Policy	Key Features	Applicability
National Environmental Policy, 1992 (amended in 2018)	Bangladesh adopted the National Environmental Policy (NEP) in 1992 to chart a path towards the country's sustainable development. The NEP 2018 is a revision of the NEP 1992 in the context of the new reality of climate change. The NEP 2018 also outlines a more up to date understanding of the extent and magnitude of environmental degradation that has become a fact of life in the world in general, and in Bangladesh in particular. The NEP 2018 outlines the problems of population growth, poverty, illiteracy, and lack of awareness and healthcare services, limitation of arable land, unplanned development and urbanization, and industrialization as the major impediments to the conservation of the environment. The NEP sets out the basic framework for environmental action together with a set of broad sectoral guidelines for action. Major elements of the policy are: (i) maintaining the ecological balance for ensuring sustainable development; (ii) protection against natural disasters; (iii) identifying and controlling activities which are polluting and/or destroying the environment; (iv) ensuring environment-friendly development in all sectors; (v) promoting sustainable and sound management of natural resources; and (vi) active collaboration with international initiatives related to the environment. The NEP, amongst other aims, seeks to ensure that transport systems, including roads and inland water transport, do not pollute the environment or degrade resources. The policy states that environmental impact assessment should be conducted before projects are undertaken. The NEP 2018 includes additional elements addressing climate change mitigation and adaptation as key environmental issues facing the country, and integrating a comprehensive 3R approach to the massive and growing problem of industrial and	With regard to the components under RRUTDP, the NEP directly relates to some of the sectoral areas, such as land and water resources management, air pollution control, biodiversity, ecosystem conservation and biosafety, energy and mineral resources, Climate change preparedness & adaptation, disaster management, *inter alia*, which are applicable within the scope of the project. National environmental policy to be consider for design and implementation of the subprojects.

Policy	Key Features	Applicability
National Plan for Disaster Management (2021-2025), 2020	This strategic plan to guide the implementation of disaster management in the light of the government's vision, mission and national and international approaches plans and programs on disaster risk management. The plan includes areas of investment for disaster risk management through a Risk Informed Development Plan and emphasized its implementation with participation of all concerned.	This project interventions have the clear objective to enhance the resilience of target vulnerable villages to floods, and improve the disaster preparedness and response capacity of government agencies.

3.2.1 Other Environment-Related Plan and Policies

In addition to the environmental policy instruments mentioned in table 3.1, a number of other national policy efforts have significant environmental content. Additional Bangladesh policies, their key features, and applicability to the subject Project are detailed in Table-3.2

Table 3.2: *Summary of Relevant Environmental Plan & Policies of GoB*

Policy	Key Features	Applicability
National Water Policy, 1999	The policy aims to provide guidance to the major players in water sector for ensuring optimal development and management of water. The policy emphasizes efficient and equitable management of water resources, proper harnessing and development of surface and groundwater, availability of water to all concerned and institutional capacity building for water resource management. It also addresses issues like river basin management, water rights and allocation, public and private investment, water supply and sanitation and water need for agriculture, industry, fisheries, wildlife, navigation, recreation, environment, preservation of wetlands, etc. The policy has several clauses related to the project for ensuring	Applicable for the preservation of water quality.

Policy	Key Features	Applicability
	environmental protection.	
National Land Use Policy, 2001	The National Land Use Policy was adopted by Bangladesh government in 2001, setting out guidelines for improved land-use and zoning regulations. The main objectives of this policy are to ensure criteria-based uses of land and to provide guidelines for usage of land for the purpose of agriculture, housing, afforestation, commercial and industrial establishments, rail and highway and for tea and rubber gardens. Overall, this policy promotes a sustainable and planned utilization of land. The main contents of this policy are: Stopping the high conversion rate of agricultural land to nonagricultural 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.	Applicable as the project will by and large focus on conserving nature at its original state, and not cause any transformation of land use.
Bangladesh Delta Plan 2100	Bangladesh Delta Plan 2100 is the most comprehensive and holistic plan ever formulated and undertaken by the Government of Bangladesh. Considering the exceptionally strong development record throughout the last decade, aspirations to reach the Upper Middle Income (UMIC) country status level by 2030 and so many development challenges still persisting including huge population pressure and climate	Among the five specific goals of Delta Plan 2100, the project will focus directly on ensuring safety from floods and climate change related disasters and at the same time, will put emphasis on conserving and preserving wetlands and ecosystems and promoting their wise use across all stages of the

Policy	Key Features	Applicability
	change vulnerability, the government has formulated this plan in order to reap the synergistic benefit from all actions, activities, plans, strategies and programs of all different ministries and wings of the government. This Delta Plan has divided Bangladesh into 8 hydrological regions and corresponding six Hotspots based on the similar vulnerabilities they are exposed to. With the grim effects of climate change and other delta related challenges, the country is facing more other challenges from growing urbanization, declining land availability, infrastructure shortages, energy supply constraints and labor skills, and all these challenges also need an overarching solution or efforts far more than sectoral plans or programs. Delta plan comes up with all these effective efforts with numbers of long-and short-term course of actions and plans. Among many others, following specific issues are Climate Change,considered more holistically in Delta Plan 2100: National and Trans-boundary water Environment and Ecological Issues, Sustainable land use and Spatial Planning across dynamic delta management Sustainable agriculture, food security, nutrition and livelihoods. Dynamizing Inland Water Transport system Urban Water Management Governance and Institutions Delta Knowledge hub and data management, etc.	project period.

Policy	Key Features	Applicability
Eighth Five Year Plan	Perspective Plan 2041 (PP2041) that actually aims to the start of first phase of the four phased 2041 (PP2041) that actually aims to the start of the implementation of PP 2041 in a way that it brings Bangladesh closer to the goals of attaining UMIC status, attaining major SDG targets, and eliminating extreme poverty by FY2031. This FYP has six core themes, including establishing a sustainable development pathway that is resilient to disaster and climate change and entailing sustainable use of natural resources.	The project will contribute directly to the Government's strategies by taking a community participatory approach to build and maintain flood resilient infrastructure and social structures that aim to reduce flood risks of affected communities

3.2.2 Environment Related Legislations in Bangladesh

The GOB Acts and Regulations, which are guiding environmental protection and conservation (ECR, 2023) in Bangladesh and are relevant to the RUTDP have been outlined in the Table 3.3.

Table 3.3: *Summary of Applicable Environmental Laws and Regulations of GoB*

Act/ Rules	Key Provisions and Purpose	Applicability to RUTDP
Environment Conservation Act, 1995	The Environment Conservation Act authorizes the DoE to undertake any activity to conserve and enhance the quality of the environment and to control, prevent and mitigate pollution. The DoE is designated as the regulatory body and enforcement agency for all environment-related activities. The Act enables the following critical components of DoE's remit: i. declaration of Ecologically Critical Areas; ii. Administration of the procedure for obtaining Environmental Clearance Certificates for new industrial projects; iii. regulation with respect to vehicles emitting smoke harmful to the environment; iv. Environmental regulations for development activities; v. standards for quality of air, water, noise, and soils (including river bed materials) for different areas and for different	According to this law no industrial unit or project shall be established or undertaken without obtaining, in the manner prescribed by rules, an Environmental Clearance Certificate from the Director General of DoE.

Act/ Rules	Key Provisions and Purpose	Applicability to RUTDP
	purposes; vi. acceptable limits for discharging and emitting waste; and vii. Formulation of environmental guidelines to control and mitigate environmental pollution, conservation and improvement of the environment. Amendments to the ECA in 2000, 2002 and 2010 added significant substantive and procedural scope, defining the following new areas of authority: i. ascertaining responsibility for compensation in cases of damage to ecosystems; ii. Increased provision of preventive measures, including fines and imprisonment, and the authority to take cognizance of offences; iii. Restrictions on polluting automobiles; iv. Restrictions on the production and sale of environmentally harmful items like polythene bags; v. obtaining assistance from law enforcement agencies for environmental actions; vi. Definition and enforcement of punitive measures; vii. Authority to try environmental cases; viii. Prohibition on hill cutting except where established to be in the national interest; ix. authority to regulate management of hazardous waste produced by ship breaking yards; x. prohibition of filling or alteration of waterways except when judged to be in the national interest; and xi. Additional powers to compel compliance with emissions standards.	
Environment Conservation Rules, 2023	These are a set of rules, promulgated under the ECA, 1995 and its amendments. The Environment Conservation Rules provide categorization of industries and projects and identify types of environmental assessment required against respective categories of industries or projects. The Rules set: The National Environmental Quality Standards (NEQS) for ambient air, various types of water, industrial effluent, emission, noise, vehicular exhaust etc.; The requirement for and procedures to obtain environmental clearance; and The requirement for IEE and ESIA according to categories of industrial and other development interventions. The Environment Conservation Rules, 2023 were issued by the GOB in exercise of the power conferred under the Environment Conservation Act (Section 20), 1995. Under these Rules, the following aspects, among others, are covered: Declaration of ecologically critical areas; Classification of industries and projects into four	In accordance with the Environment Conservation Rules (ECR) of 2023, the Project is classified as Orange Category, requiring an Initial Environmental Examination (IEE), and also may require an ESIA if found necessary during the screening process to obtain clearance for

Act/ Rules	Key Provisions and Purpose	Applicability to RUTDP
	categories; Procedures for issuing the Environmental Clearance Certificate (ECC); and Determination of environmental standards. Rule 3 defines the factors to be considered in declaring an 'Ecologically Critical Area' as per Section 5 of the ECA (1995). It empowers the Government to declare the area as the Ecologically Critical Areas (ECA), if it is satisfied that the ecosystem of the area has reached or is threatened to reach a critical state or condition due to environmental degradation. The Government is also empowered to specify which of operations or processes may be carried out or may not be initiated in the ecologically critical area. Under this mandate, the Ministry of Environment, Forest and Climate Change (MoEFCC) has declared Sundarbans, Cox's Bazar-Teknaf Sea Shore, Saint Martin Island, Sonadia Island, Hakaluki Haor, Tanguar Haor, Marzat Baor and Gulshan-Baridhara Lake as ecologically critical areas and prohibited certain activities in those areas. Rule 7 of the 2023 ECR provides a classification of industrial units and projects into four categories, depending on environmental impact and location. These categories are: Green; Yellow; Orange ; and Red. The categorization of a project determines the procedure for issuance of an Environmental Clearance Certificate (ECC).	construction. For conducting ESIA ToR to be developed and submit during clearance process.
Environment Court Act, 2010	The Environment Court Act, 2000 has been enacted to establish one or more Environment Court/s in each district with a Joint District Judge and the said judge shall in addition to his ordinary function dispose of the cases that fall within the jurisdiction of an Environment Court. This Act sets out an effective adjudication system for protecting, conserving and preserving the environment and promoting the environmental justice. The act has mandated the Department of Environment (DoE) to file a case and investigation thereof. It also has set to resolve the disputes and establish justice over environmental and social damage raised due to any development activities. This act allows government to take necessary legal action against any parties who creates environmental hazards/ damage to environmentally sensitive areas as well as human society.	According to this Act, the Department of Environment (DoE) can take legal actions if any environmental degradation occurs due to project interventions.
The Ground	Describes the management of ground water	Yes, construction

Act/ Rules	Key Provisions and Purpose	Applicability to RUTDP
Water Management Ordinance (1985)	resources and licensing of tube wells	sites of the sub-projects may require deep tube wells for meeting up water use.
The Water Supply and Sanitation Act (1996)	Regulates the management and control of water supply and sanitation in urban areas.	Yes, sub-projects will include construction of water supply and sanitation facilities.
Bangladesh National Building Code (BNBC), 2020	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.	Follow the guidelines to ensure structural integrity of buildings
Biodiversity Act, 2017	It provides for the creation of the National Committee and the Biodiversity Management and Surveillance Committees at local levels (i.e., Districts, Upazilas, Municipalities, and Unions). In general, all these committees are mandated to: assist the Government in implementing the National Biodiversity Strategy and Action Plan (NBSAP) and to visit the biodiversity enriched areas in their respective territories; and, monitor the progress of implementation of the NBSAP.	Project needs to include these local committees, so that they can monitor project impact on the local biodiversity.
Public Procurement Rule, 2008	Applies to the procurement of goods, works or services by any government, semi-government or any statutory body established under any law; includes measures regarding the safety, security and protection of the environment in construction works; requires contractors to take all reasonable steps to safeguard the health and safety of all workers on site, protect the environment on and off the site, and avoid damage or nuisance to persons or to property of the public or others.	The PPR (2008) will be followed during procurement process of the subprojects

3.3 Review of National Social Policy, Legal and Regulatory Framework

National legislations relevant to managing social risks and impacts under the proposed Project cover right to information, labor management, basic urban services, land acquisition and resettlement, and engagement of stakeholders. Table 3.4 provides a summary of the key provisions of relevant national

legislations and their applicability in the project:

Table 3.4: *Summary of Applicable Social and Resettlement Laws and Regulations of GoB*

Act/ Policy	Key Provisions and Purpose	Applicability to RUTDP
Bangladesh Labor Law, 2006 (amendment 2018)	It is a comprehensive law covering labour issues such as conditions of services and employment, youth employment, benefits including maternal benefits, compensation for injuries, trade unions and industrial relations, disputes, participation of workers in company's profits, regulation of safety of workers, penalty procedures, administration and inspection. This Act pertains to the occupational rights and safety of factory workers and the provision of a comfortable environment for working. It also includes rules on registration of laborers, misconduct rules, income and benefits, health and fire safety, factory plan. The amendment of 2018 further ensures the occupational health and safety rights of the worker by replacing some of the clauses of 2006 law, such as paid leave and associated facilities, parental leave etc.	Compliance to provisions on employment standards, occupational health and safety, welfare and social protection, labor relations and social dialogue, and enforcement. Prohibition of engaging children and adolescents in work force.
Bangladesh Labor Rules, 2015	Includes rules on registration of laborers, misconduct rules, income and benefits, health and fire safety, factory plan.	Contractors to implement occupational health and safety measures
The Acquisition and Requisition of Immovable Property Act (ARIPA), 2017	It is the principal legislation governing eminent domain land acquisition in Bangladesh. The Act 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 the public interest. The Ministry of Land (MoL) is the authorized government agency to undertake the process of land acquisition. The MoL	ARIPA 2017 defines the land acquisition process and contains pertinent information related to compensation payment to titleholders; though the project will avoid acquisition of land to the extent feasible, in certain circumstances, private land may be required for regional

Act/ Policy	Key Provisions and Purpose	Applicability to RUTDP
	partly delegates its authority in relation to land acquisition to the Commissioner at Divisional level and to the Deputy Commissioner at the District level. The Deputy Commissioners (DC) is empowered by the MoL to process land acquisition under the act and pay compensation to the legal owners of the acquired property. Khas (government-owned land) lands should be acquired first when a project requires both Khas and private land. If a project requires only khas land, the land will be transferred through an inter-ministerial meeting following the acquisition proposal submitted to DC or MoL. The Government of Bangladesh does not have a national policy on involuntary resettlement. The new Act of 2017 has incorporated specific provisions to address social and economic impacts that were not previously included in the 1982 land acquisition ordinance and therefore these provisions under the new law would reduce the gaps between the national legislative framework of the government and WB policies.	infrastructures or revenue generating investments at the nodal Pourashavas and City Corporations.
CHTR 1958 Chittagong Hill Tracts (Land Acquisition) Regulation 1958	The project area also covers the hill districts of Bangladesh where CHTR 1958 is applied instead of ARIPA 2017	Acquisition of land under customary rights practiced by the ethnic minority communities will be completely avoided
Chittagong Hill Tracts (Land Acquisition) (Amendment) Act 2019	This was enacted to make the CHTR 1958 equivalent to ARIPA 2017	As above.
Right to Information Act, 2009	The act says in its preamble -the Act makes provisions for ensuring free flow of information and people's right to information. The freedom of thought, conscience and speech is recognized in the Constitution as a fundamental right and the right to information is an alienable part of it. Since all powers of	World Bank ESF also put emphasis on project information to be publicly disclosed, and extensive stakeholder consultations having

Act/ Policy	Key Provisions and Purpose	Applicability to RUTDP
	the Republic belong to the people, it is necessary to ensure right to information for their empowerment. The right to information shall ensure that transparency and accountability of all public, autonomous and statutory organizations and of other private organizations constituted or run by government or foreign financing shall increase, corruption shall decrease and good governance of the same shall be established. It is expedient and necessary to make provisions for ensuring transparency and accountability. However, under the clause 4 of this law, every citizen shall have the right to information from the authority, and the authority shall, on demand from a citizen, be bound to provide him with the information. This law also inscribes relevant clauses on preservation, publication, procedure to request and provide information with legitimate exceptions on grounds when publication or providing certain types of information is not mandatory.	to be conducted before, during and after the project implementation, in order to integrate local people with the project objectives and make necessary plausible changes in project design/ decision making according to the requirement expressed by the local stakeholders. In all cases, project documents relevant to implementation shall be disclosed publicly.

3.4 Applicable International Treaties Signed by the GoB

Bangladesh has signed most international treaties, conventions and protocols on environment, pollution control, bio-diversity conservation and climate change, including the RAMSAR Convention, the Bonn Convention on Migratory Birds, the Rio de Janeiro Convention on Biodiversity Conservation, and the Kyoto Protocol on Climate Change. An overview of the relevant international treaties signed by GoB is shown in Table 3.5.

Table 3.5: *International Conventions, Treaties and Protocols Signed by Bangladesh*

Conventions/ Treaties	Years	Ratified/ Accessed (AC)/ Accepted (AT)/ Adaptation (AD)	Relevance
Convention on Wetlands of International Importance (“Ramsar _onvention”.1971)		20.04.1992 (ratified)	Protection of significant wetland and prevention of draining or filling during construction
Convention Concerning the Protection of the World Cultural		03.08.1983 (AT) 03.11.1983	Prevention of damage or destruction of culturally

Conventions/ Treaties	Years	Ratified/ Accessed (AC)/ Accepted (AT)/ Adaptation (AD)	Relevance
and natural Heritage (Paris, 1972)		(ratified)	and/or historically significant sites, monuments, etc.
Convention on Biological Diversity, (Rio de Janeiro, 1992.)	1992	05.06.1992	Protection of biodiversity during construction and operation.
United Nations Framework Convention on Climate Change, (New York, 1992.)	1992	15.04.94	Reduction of emission of greenhouse gases.
Kyoto protocol to the United Nations Framework Convention on Climate Change		21.8.2001 (AC) 11.12.1997 (AD)	Reduction of emission of greenhouse gases.
International Convention for Protection of Birds, Paris	1950	Signed	Protection of the birds in their wild state.
Convention Concerning the Prevention and Control of Occupational Hazards caused by Carcinogenic Substances and Agents, Geneva.	1974	Signed	To protect workers against hazards arising from occupational exposure to carcinogenic substances and agents.
Convention Concerning the Protection of Workers Against Occupational Hazards in the Working Environment due to Air Pollution, Noise and Vibration, Geneva	1977	Signed	Protection of workers' health against occupational hazards in the working environment due to air pollution, noise and vibration.
Convention Concerning Occupational Safety and Health and the Working Environment, Geneva.	1981	Signed	Ensuring occupational health and safety of workers in all branches of economic activity.
Vienna Convention for the Protection of the Ozone Layer, Vienna	1985	02.08.90 (AC) 31.10.90 (entry into force)	Preventing human activities that may have adverse effects on ozone layer.
Convention Concerning	1985		To promote a safe and healthy working environment. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures will be included in the subproject ESMP.
Montreal Protocol on	1987	31.10.90 (entry	Reduction of the

Conventions/ Treaties	Years	Ratified/ Accessed (AC)/ Accepted (AT)/ Adaptation (AD)	Relevance
Substances that Deplete the Ozone Layer, Montreal.		into force)	abundance of the substances that deplete the ozone layer in the atmosphere, and thereby protect the earth's fragile ozone Layer/
Convention Concerning Safety in the	1990	Signed	Regulating the management of chemicals
Use of Chemicals at Work, Geneva.			in the workplaces, in order to protect workers from the harmful effects of these substances.
London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, London.		18.03.94 (AC) 16.06.94 (entry into force)	Apply the protocol on substances that deplete ozone layer.
Convention on Biological Diversity, Rio De Janeiro	05.06. 92	03.05.94	Conservation of biological diversity (or biodiversity) and sustainable use of its components.
Agenda 21, UNCED, Rio de Janeiro	1992	Signed	Conservation of bio-diversity, sustainable use of its components and access to genetic resources.
Montreal Protocol on Substances that Deplete the Ozone Layer, Montreal.	1987	31.10.90 (entry into force)	Reduction of the abundance of the substances that deplete the ozone layer in the atmosphere, and thereby protect the earth's fragile ozone Layer/
Copenhagen Amendment to the Montreal protocol on Substances that Deplete the Ozone Layer, Copenhagen, 1992	1992	27.11.2000 (AT) 26.2.2001 (Entry into force)	Apply the protocol on substances that deplete ozone layer.
Montreal Amendment of the Montreal Protocol on Substances that Deplete the Ozone Layer, Montreal		27.7.2001 (Accepted) 26.10.2001 (Entry into force)	Controls in the trade of ozone depleting substances and the use of licensing procedures to control the import and export of new, recycled and reclaimed ozone depleting substances.

Conventions/ Treaties	Years	Ratified/ Accessed (AC)/ Accepted (AT)/ Adaptation (AD)	Relevance
Sendai Framework for Disaster Risk Reduction (2015-2030)	2015	Adopted	The project is aligned with three of the four priorities for action to prevent new and reduce existing disaster risks, namely: (i) Understanding disaster risk; (ii) Investing in disaster reduction for resilience and; (iii) Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction.
Copenhagen Amendment to the Montreal protocol on Substances that Deplete the Ozone Layer, Copenhagen, 1992	1992	27.11.2000 (AT) 26.2.2001 (Entry into force)	Apply the protocol on substances that deplete ozone layer.
Montreal Amendment of the Montreal Protocol on Substances that Deplete the Ozone Layer, Montreal		27.7.2001 (Accepted) 26.10.2001 (Entry into force)	Controls in the trade of ozone depleting substances and the use of licensing procedures to control the import and export of new, recycled and reclaimed ozone depleting substances.

3.5 World Bank's Environmental and Social Standards

World Bank investments under Investment Project Financing (IPF) are required to follow the Environmental and Social Framework (ESF) consisting ten (10) Environmental and Social Standards (ESSs) [Annex-F]. The ESSs are designed to manage the risks and impacts of the project through the means that are appropriate to the nature and scale of the project/interventions and proportionate to the level of environmental and social risks and impacts, and improve the environmental and social performance, through a risk and outcomes-based approach. These standards, therefore, set out the requirements for the identification and assessment of environmental and social risks and impacts associated with the project through Investment Project Financing and will (a) support in achieving good international practice relating to environmental and social sustainability; (b) assist in fulfilling the national and international environmental and social obligations; (c) enhance nondiscrimination, transparency, participation, accountability and governance; and (d) enhance the sustainable development outcomes of project through ongoing stakeholder engagement.

3.6 Gap Analysis of World Bank Requirements and National Laws

Gap analysis between WB's ESSs and GoB Regulations was conducted and the results of the gap analysis

indicated that the Environmental and Social risk assessment and management system for development projects in Bangladesh is open-ended and similar to other country's ESA systems, does not cover all the World Bank ES Standards. The ECR'2023 that categorizes the industries based on potential risks/impacts has not put any guidance on the ways to classify a project, which includes different industries (e.g., construction of bridges, culverts or roads, buildings, etc.) under a single title. The Department of Environment (DoE), which is the legislative body for upholding this instrument, generally gives a clear indication when the project proponent approaches to the authority and there are also several guidelines for industries promulgated from the DoE which in principal cover most of the project activities undertaken in the country. Further, the ECA/ECR does not even define the scope of the ESIA study (or the IEE), leaving it to the argument for ESIA preparation and the scope is determined through initial assessment/screening. The coverage of the ESIA study therefore would depend on the expertise of the ESIA team or the DoE reviewers. There is no assurance that each ES Standard (1-8 and 10) are considered in the ESIA study and the formulation of the ESMP. Although the ESIA is heavy towards the environmental aspects, more and more social issues are incorporated in the assessment. Moreover, the practice under normal circumstances does not include labor management issues. Another critical gap pertains to lack of provisions for requiring the preparation of project-specific ES management plans. The eminent domain land acquisition system for example does not require the preparation of RAP in case of having only the non-titled entities. The projects are also not required to formulate their own Labor Management Procedures/Plans. Given the gaps, this ESMF will follow the most stringent standards and requirement. Table 3.6 below has given an overview of the gaps between GoB laws and WB ESSs and steps to be adopted to address those gaps for this project.

Table 3.6: *Gaps between GoB Laws and World Bank ESSs*

WB ESF Standard	Gaps in National Policy/Legal Instruments (in relation to ESSs)	Gap Filling Measures
ESS1: Assessment and Management of Environmental and Social Impacts and Risks	(i) ESIA study screening and scoping do not guarantee coverage of all ESSs in the assessment. (ii) ESIA study does not advocate including both the environment and social impacts at same scale but the ESF does. (iii) The stakeholder engagement during the conduct of the ESIA is limited and the ESIA report is not disclosed.	ESMF has put forth all relevant measures to follow the ESS1 requirements, given in the relevant sections of Environmental Management Procedures. It's obvious from all the previously promulgated document from the department of environment (DoE) that none of the acts, rules or guidelines put adequate emphasis on addressing social impacts in Environmental Assessment, and stakeholder engagement or disclosure of information was not set obligatory (the requirement was not evident in any legal documents). However, in recently (Feb'

WB ESF Standard	Gaps in National Policy/Legal Instruments (in relation to ESSs)	Gap Filling Measures
		2021) circulated 'EIA Guidelines for Industries' by the DoE has incorporated both of the said requirements, which supplements the requirement set by the relevant ESSs.
ESS2: Labor and Working Conditions	(i) The Labor Act does not specifically require that development be assessed and reviewed in terms of labor and working conditions including OHS requirements before approval. (ii) The Labor Act does not require development projects to prepare Labor Management Plans/Procedure or OHS Plan.	A separate LMP has been prepared which will guide requirements for OHS plan. The labor management procedure will be prepared to regulate working condition and management of workers relation including worker specific GRM, terms and conditions of employment, nondiscrimination and equal opportunity, GBV, protection of workforce, the prohibition of child/forced labor, safe working conditions, and provision of OHS.
ESS3: Resource Efficiency and Pollution Prevention and Management	Existing energy and water conservation policies, laws and regulations do not require development projects to assess resource efficiency issues and incorporate resource efficiency measures in their ES risk management plans.	ESMP to be developed for each subprojects to address this issue, and incorporate mitigation measures for efficient use of water resources.

WB ESF Standard	Gaps in National Policy/Legal Instruments (in relation to ESSs)	Gap Filling Measures
ESS4: Community Health and Safety	Covered under 'ESIA Guidelines for Industries' but the systems/laws do not provide clear requirements for the development project and implementation.	DoE Environmental clearance in general always recommends to careful vigilance or oversight on Community health and safety issues, irrespective of project nature and location. Risks related to sub-project specific community health and safety will be screened out, and necessary assessment and mitigations measures will be in place as part of Environmental & Social Management Plan
ESS5: Land Acquisition, Land Use Restriction and Involuntary Resettlement	ARIPA 2017: (i) does not require the preparation of RAP in case of non-titled entities; (ii) does not provide compensation or assistance to those who do not have formal legal claim to the land; (iii) does not provide transitional allowances for restoration of livelihoods for informal settlers; (iv) relies on cash compensation, no developmental objectives; (v) no provision to give special attention to the vulnerable groups (vi) valuation of lost asset is not based on "replacement cost' standard	Land acquisition will be avoided in all type of interventions in the 73 regular cities. However, in extreme circumstances, small scale acquisition will be accommodated in only regional and nodal city level. A separate RPF has been prepared for the project for managing any involuntary acquisition of private land or reponssession of public land from private uses. Potential sites which are at risk of requiring land acquisition will be dropped out or scrutinized for investment feasibility. Resettlement Plan will be prepared for any subproject involving involuntary resettlement includignn acquisiton of private land or repossession of public land from private uses. Attempts will be made to ensure that compensation for any land acquisitions and rehabilitation of displacement persons are completed before commencement of civil works as applicable.
ESS6: Biodiversity	No equivalent requirements	The project will apply

WB ESF Standard	Gaps in National Policy/Legal Instruments (in relation to ESSs)	Gap Filling Measures
Conservation and Sustainable Management of Living Natural Resources	on: (i) the application of hierarchy of measures; (ii) the preparation of Biodiversity Management Plan; (iii) differentiated measures on types of habitats. in any of the national instruments.	mitigation hierarchy measures in Environmental and Social Assessment process as directed in ESS1, and differentiated measures will be adopted based on the types of habitats that a sub-project/activity may find within the influence area.
ESS7: Indigenous People (IP)	Tribal peoples in Bangladesh enumerated as "ethnic minority population/community" (EMC)[1] in some areas resemble the characteristics of indigenous peoples (IPs) per the ESS7. None of the national legal binding /regulatory documents articulates the equivalent requirements on: (i) coverage of IP impacts in the IEE/ESIA; (ii) special treatment or differentiated approach to IPs and vulnerable groups; (iii) conduct of FPIC; (iv) development of IP Plan. However, the Constitution recognizes the tribal peoples as backward population groups and identify them as small tribes, minor races, ethnic sects and communities for special considerations in development processes.	This ESS is applicable to the project though the interventions will largely be implemented in urban setting. Some participating Pourashavas and City Corporations are in the hill districts and the regional and cluster level investments may in some cases extend to rural areas. Appropriate assessment on relative vulnerabilities and impacts due to the project activities will be conducted or identified, if any tribal peoples are found at or near any sub-project sites; Ethnic Minority Community Plan (EMCP) will be developed per ESS7 using FPIC, when the EMCs are screened to be with indigenous status per ESS7.
ESS8: Cultural Heritage	No equivalent requirements on: (i) the application of hierarchy of measures; (ii) the development of Cultural Heritage Management Plan; (iii) the development and	World Bank's Chance Find procedure will be followed, if cultural heritage or resources are found at any point.

[1] Population and Housing Census 2022, Bangladesh Bureau of Statistics, Republic of Bangladesh

WB ESF Standard	Gaps in National Policy/Legal Instruments (in relation to ESSs)	Gap Filling Measures
	adoption of project-specific Chance Find Procedures; and (iv) the engagement of cultural heritage experts.	
ESS9: Financial Intermediaries	Not applicable to country system. Project proponents regardless of funders are subject to the same country laws.	Not applicable
ESS10: Stakeholder Engagement and Information Disclosure	The ECA/ECR does not specifically require consultation but the IEE/ESIA guidelines issued by DOE and other agencies recommends public consultations during scoping and the preparation of the IEE/ESIA. There is also no provision for any stakeholder engagements during project implementation	A separate SEP has been prepared. Guideline for stakeholder's engagement provided in the project SEP/ESMF will be followed.

3.7 Application of GoB Policies, Acts and Rules on RURDP components and Project Categorization

The legislations relevant to the environmental assessment for the RUTDP components are the Environmental Conservation Act 1995 (ECA'95) and the Environmental Conservation Rules 2023 (ECR'2023). Article-12 of Environment Conservation Act '1995, the key Act governing environmental protection in Bangladesh, clearly states the requirement of obtaining environmental clearance certificate in a prescribed manner from the Director General of DoE before commencing operation or establishment, and one of the key procedures to obtain the Environmental Clearance Certificate is to undertake an environmental assessment. This assessment might simply be a screening and categorization or an IEE or a comprehensive ESIA. In order to set an illustrative directive for abiding by the act, Bangladesh Government through the Environmental Conservation Rules '2023 as specified in rule 7(2), present a categorization of all the potential industrial interventions or projects into distinct type considering the site of the interventions and impact on the environment.

The procedure and required documents for obtaining environmental clearance in favor of each category have also been mentioned in the ECR. As part of a government entity, LGED is obliged to abide by all these acts and rules, in addition to other GOB acts, rules or guidelines.

As per ECR'2023, the components/sub-components and associated activities under this project are likely to fall in 'Orange ' or below Category and as per ESF from low to substantial. During the detailed design stage, the study team and LGED should consult with the DoE to take the final decision for the level of assessment and further clearances. Initially, it is suggested that the project should conduct Environmental and Social

Assessment and prepare ESMP for those activities prior to the start of actual intervention.
While it is the responsibility of the IAs to conduct ESA and prepare ESMP of the project activities, the responsibility to review ESA and ESMP *for* issuing Environmental Clearance Certificate rests on DoE. Though, the project involves a good number of sub-projects/activities under different work packages, a sample ESA (IEEs) along with respective site-specific ESMP will suffice the requirements for obtaining clearance certificate in favor of the project. The Department of Environment (DoE), the technical arm of the Ministry of Environment, Forest and Climate Change (MoEFCC) is the regulatory body and the enforcement agency of all environmental issues. Like all other projects, this project also needs to meet the requirement of the DoE. ***The procedures for "Orange" Category include submission of:***

- An Initial Environmental Examination (IEE) or ESIA (if found necessary), and
- An Environmental Management Plan (EMP) [i.e., respective ESMPs]

Environment clearance has to be obtained by the respective implementing agency or project proponent (private sector) from DoE. The environmental clearance procedure, for Orange- Category projects can be summarized as follows:

(1) Application to DoE for Obtaining Site Clearance
(2) Applying for Environmental Clearance with submitting necessary documents (NOC, Feasibility Study Report, sample IEEs, ESIA if screening warrants ESMF, etc.) online and presenting the same as hardcopies
(3) Obtaining Environmental *Clearance*
(4) Clearance Subject to Annual Renewal.

3.8 Application of World Bank ESSs

All ESSs will be applicable on the RUTDP, except ESS 9 (Financial Intermediaries).

CHAPTER 4: ENVIRONMENTAL AND SOCIAL BASELINE

4.1 Introduction

In order to develop a comprehensive Environmental and Social Management Framework (ESMF) for the RUTDP, an environmental and social baseline study was carried out by the feasibility consultants in 87 selected Pourashavas and City Corporations (81 Pourashavas and 6 City Corporations) included under the RUTDP. The specific objectives of the baseline study were to gather information on the existing physical environment and ecological surveys and other studies (e.g., physical infrastructures, water supply and sanitation, solid waste management, water quality, and noise level measurements) of the areas within and around the project sites and to assess people's perception on different aspects of the proposed project. The data and information gathered during the baseline study provides a detailed description of the existing conditions of physical and biological environment in and around the project areas of the selected pourashavas and city corporations. This baseline conditions has been generated based on the secondary information and reconnaissance field visit within the proximity of the selected pourashavas and city corporation's area. In addition, information collected during the baseline survey by feasibility study (FS) team has also been used to enrich the chapter with authentic primary observation at this ESMF stage.

4.2 Description of Environmental and Social Baseline

General Background of the project area

The RUTDP to be implemented in selected 87 pourashavas and city corporations (14 nodal cities and 73 regular cities and their adjoining UPs) covering the following three growth corridors and regions: (i). Dhaka-Mawa-Shariatpur-Madaripur-Gopalgonj-Khulna-Benapole corridor; (ii). Khulna-Jashore-Pabna-Natore-Bogura-Rangpur-Dinajpur-Panchagarh corridor and (iii). Dhaka-Chattogram-Cox's Bazar corridor. The project area is spread over **thirty seven districts** of Bangladesh, which fall in **five different administrative divisions** of the country as shown in table 4.1.

Table 4.1: *Corridor wise Administrative divisions and areas in project districts and Pourashavas and City Corporations with Population*

Corridor	Division	District	Ethic minority population in the district[2]	Name of Pourashavas and City Corporation	Area (sq.km.)	Population Density per Sq. Km.	Presence of Ethnic Minority Peoples (%)
Shariatpur-Madaripur-Gopalgonj-...	Dhaka	Shariatpur	437	Shariatpur	24.92	2,832	-
		Madaripur	508	Madaripur	14.22	6,281	-
		Faridpur	6,452	Faridpur	19.07	9,087	-
				Madhukhali	12.00	2,853	-
		Rajbari	508	Rajbari	11.65	6,887	-
		Gopalganj	2,470	Muksudpur	16.77	1,675	-

[2] Bangladesh Bureau of Statistics, Republic of Bangladesh, Population and Housiong Census 2022)

Corridor	Division	District	Ethic minority population in the district[2]	Name of Pourashavas and City Corporation	Area (sq.km.)	Population Density per Sq. Km.	Presence of Ethnic Minority Peoples (%)
				Gopalganj	14.25	5,134	-
				Kotalipara	2.05	4,036	-
	Khulna	Khulna	3,260	Khulna City Corp.	50.61	14,201	-
		Jashore	5,386	Jashore	14.71	19,544	-
				Jhikargacha	9.43	4,952	-
				BagherPara	3.03	3,898	-
				Noapara	25.11	4,871	-
				Benapol	11.15	4,667	-
Khulna-Jashore-Pabna-Natore-Bogura-Rangpur-Dinajpur-Panchagarh	Khulna	Narail		Narail	26.90	2,240	-
				Lohagara	17.01	2,118	-
		Jhenaidah	8,278	Jhenaidah	44.33	3,466	-
				Kaliganj	15.89	4,065	-
				Shailkupa	20.92	2,402	-
		Magura	8,548	Magura	43.92	3,190	-
		Chuadanga	707	Chuadanga	37.37	3,271	-
				Jibannagar	13.03	2,790	-
		Meherpur	161	Meherpur	15.90	3,865	-
		Kushtia	2,117	Kushtia	13.32	11,016	-
				Khoksa	6.49	3,865	-
	Rajshahi	Pabna	2,368	Ishwardi	19.59	4,818	-
				Pabna	27.27	7,546	-
		Natore	11,189	Bonpara	12.61	1,952	-
				Natore	14.84	7,796	-
				Gurudaspur	13.61	3,434	-
				Singra	29.39	1,609	-
		Rajshahi	47,832	Rajshahi City Corporation	97.18	5,688	-
				Godagari	14.29	3,965	-
				Mundumala	31.76	927	
		Chapai Nawabganj	23,275	Chapai Nawabganj	32.90	7,913	-
		Bogura	5,993	Bogura	68.63	8,324	-
				Kahaloo	6.82	2,901	-
				Shibganj	13.67	2,256	-
				Sherpur	7.70	4,654	-
		Naogaon	107,292	Naogaon	37.08	5,784	-
		Joypurhat	26,324	Joypurhat	18.55	5,302	-
	Rangpur	Gaibandha	4,149	Gobindaganj	14.47	3,782	-
				Palashbari	18.38	3,167	-

Corridor	Division	District	Ethic minority population in the district[2]	Name of Pourashavas and City Corporation	Area (sq.km.)	Population Density per Sq. Km.	Presence of Ethnic Minority Peoples (%)
		Rangpur	15,940	Rangpur City Corporation	50.69	13,975	-
				Pirganj	14.89	1,877	-
		Dinajpur	52,939	Ghoraghat	18.63	1,737	-
				Hakimpur	16.40	2,468	-
				Birampur	27.53	2,346	-
				Fulbari	16.04	3,090	-
				Parbatipur	13.44	3,089	-
				Dinajpur	24.50	10,858	-
				Birol	10.50	2,286	-
				Birganj	6.30	4,402	-
				Setabganj	20.23	1,925	-
		Nilphamari	127	Saidpur	34.82	5,201	-
				Nilphamari	29.75	3,569	-
		Thakurgaon	15,511	Pirganj	29.41	1,342	-
				Ranisankail	9.15	2,766	-
				Thakurgaon	30.03	3,823	-
		Panchagarh	2,011	Boda	14.32	1,471	-
				Panchagarh	22.00	2,952	-
Dhaka-Chattogram-Cox's Bazar		Gazipur		Gazipur City Corp.	329.00	19,756	
	Dhaka	Narsingdi	508	Madhabdi	5.10	13,851	-
		Narayanganj	1,267	Narayanganj City Corp.	46.68	20,731	-
				Tarabo	19.39	11,073	-
				Sonargaon	9.06	5,157	-
	Chattogram	Cumilla	2,044	Daudkandi	13.18	5,000	-
				Chandina	15.12	4,412	-
				Cumilla City Corp.	42.34	10,378	-
				Laksam	19.86	5,067	-
				Nangalkot	13.06	2,915	-
				Chauddagram	16.64	3,281	-
		Chandpur	2,044	Chandpur	22.91	9,889	-
		Noakhali	1,003	Noakhali	16.67	9,201	-
		Feni	906	Feni	22.00	10,165	-
				Chhagalnaiya	25.25	2,549	-
				Parshuram	22.38	1,890	-
		Lakshmipur	150	Lakshmipur	19.42	6,097	-
		Chattogram	2,863	Baraiyarhat	2.12	7,797	-
				Mirsharai	10.49	2,203	-
				Sitakunda	27.97	2,300	-
				Satkania	12.51	5,125	-
				Patiya	9.95	7,921	-

Corridor	Division	District	Ethic minority population in the district[2]	Name of Pourashavas and City Corporation	Area (sq.km.)	Population Density per Sq. Km.	Presence of Ethnic Minority Peoples (%)
		Khagrchhari	349,378	Ramgarh	20.87	1,697	9.21
		Cox's Bazar	14861	Chakaria	15.76	6,587	-
				Cox's Bazar	7.94	30,051	4.18
				Teknaf	4.04	8,836	12.63
	Total/ In Avg.		**728,806**		1760.37	6,027	0.17

The project area comprising of 87 pourashavas and city corporations under thirty six districts, covering 2121.13 square kilometer with an average of population density per Sq. Km. is 8,080. This project intervention, thus, are targeting one-fifth areas of the country's urban areas (cities), where the recurring climatic events take at enormous scale and urbanization procees is need base. Therefore resilient infrastructures and capacity building & institutional arrangement of these pourashavas and city corporations will accelerate the urbanization process and economic development in course of time.

4.2.1 Climate

According to the Climate Risk Index 2021, Bangladesh ranks sixth among those 10 countries in the world that are most vulnerable to climate change-induced natural disasters (Eckstein, Künzel and Schäfer, 2021). Bangladesh regularly faces different types of climatic hazards such as floods, cyclones, heat waves, cold waves, droughts, storms, hailstorms, shoreline recession, tidal surges, salinity intrusion, River bank erosion and relative sea-level rise. Rainfall variability is the key for climatic hazards in Bangladesh. Heavy rainfall causes floods, flash floods & landslides and the high rainfall variability causes drought in Bangladesh. The southern Bangladesh will be more exposed to both temperature & wind-driven climatic hazards (Cyclone, tidal flood, Sea level rise, river erosion and salinity induced problem) while the north-western Bangladesh will be more exposed to rainfall driven climatic hazards (drought, riverine and flash flood, river erosion)[3].

The Planning Commission, Ministry of Planning, Government of Peoples Republic of Bangladesh and Asian Development Bank (ADB) jointly published the Bangladesh *Climate and Disaster Risk Atlas.*[4] The atlas indicates the spatial extent of multiple hazards in Bangladesh including drought, earthquake, flood, flash flood, cyclone, saline soils, erosion hazards etc as shown in figure 4.1.

[3] Masum, J. H., 2019: Climatic Hazards in Bangladesh: A Literature Review. Coastal Development Partnership (CDP), Bangladesh, Coastal Development Partnership (CDP), Bangladesh, ISBN: 978-984-34-7002-4

[4] Planning Commission, Ministry of Planning and Asian Development Bank. (2021). Bangladesh Climate and Disaster Risk Atlas: Hazards—Volume I. Dhaka, Bangladesh and Manila, Philippines.

Figure 4.1: *Spatial extent of Major hazards in Bangladesh.*

Source: Planning Commission and ADB (2021).

Bangladesh has a subtropical monsoon climate characterized by wide seasonal variations in rainfall, high temperatures and humidity. The most striking feature of its climate is the reversal of the wind circulation between summer and winter, which is an integral part of the circulation system of the South Asian subcontinent. There are three distinct seasons in Bangladesh: a hot, humid summer from March to June; a cool, rainy monsoon season from June to October; and a cool, dry winter from October to March.

Temperature and Precipitation:

In general, maximum summer temperatures range between 30°C and 40°C. April is the warmest month in most parts of the country. January is the coldest month, when the average temperature for most of the country is about 10°C.

Corridor	Districts
Dhaka-Mawa-Khulna-Benapole	Shariatpur
	Madaripur
	Faridpur
	Rajbari
	Gopalganj
	Khulna
	Jashore
Khulna-Jashore-Pabna-Natore-Bogura-Rangpur-Dinajpur-Panchagarh	Narail
	Jhenaidah
	Magura
	Chuadanga
	Meherpur
	Kushtia
	Pabna
	Natore
	Rajshahi
	Chapai Nawabganj
	Bogura
	Naogaon
	Joypurhat
	Gaibandha
	Rangpur
	Dinajpur
	Nilphamari
	Thakurgaon
	Panchagor
Dhaka-Chattogram-Cox's Bazar	Narsingdi
	Narayanganj
	Cumilla
	Chandpur
	Noakhali
	Feni
	Lakshmipur
	Chattogram
	Chattogram
	Khagrchhari
	Cox's Bazar

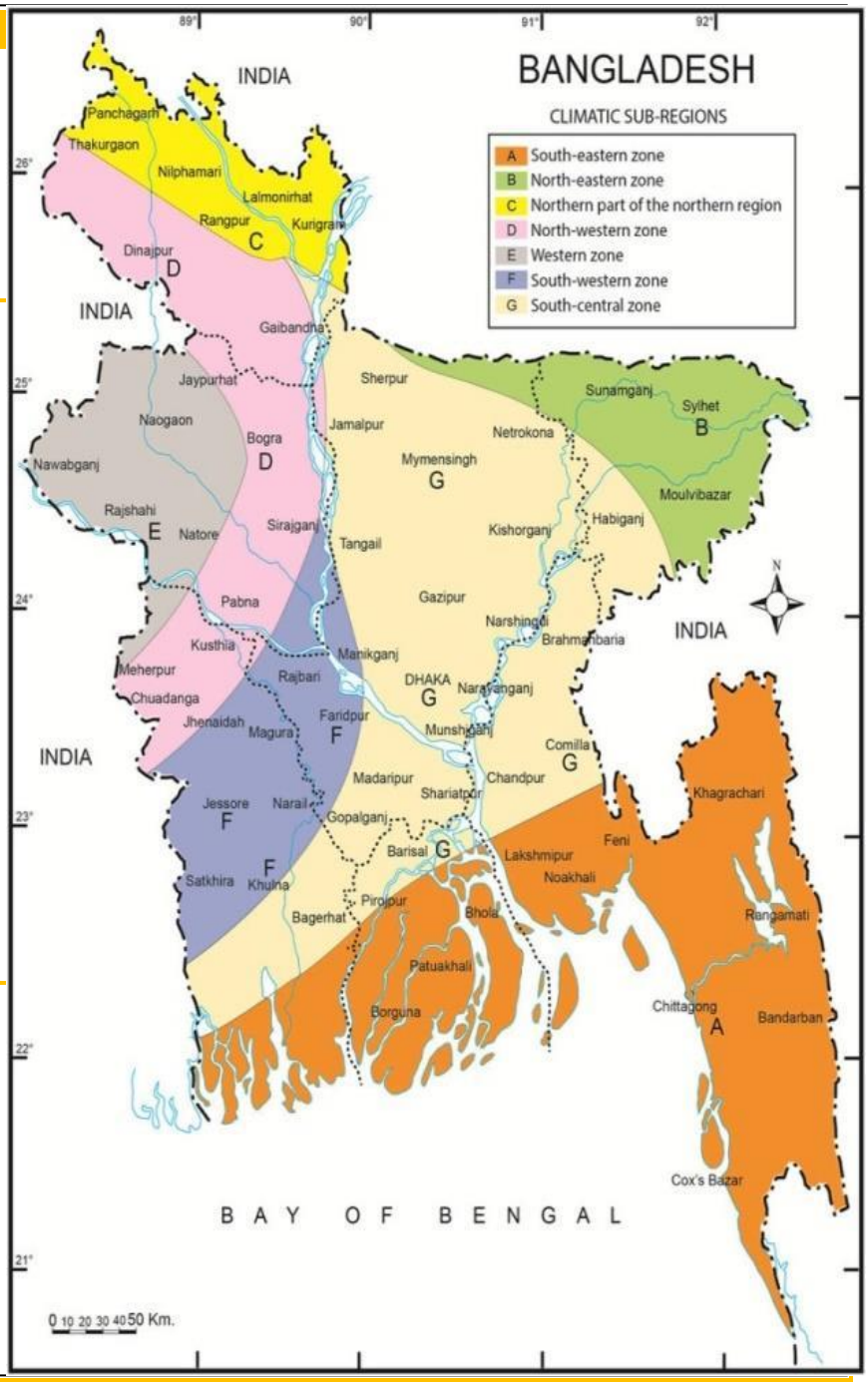


Table 4.2 *Climatic Sub-Regions of project Corridors* *Figure 4.2 Climatic Sub-Regions of project Corridors*

There are widespread differences in the intensity of the seasons at different places of the country and based on these differences, Bangladesh can be divided into seven distinct climatic zones (refer to table 4.2 and figure 4.2 above) . The first climatic zone is an area of extremes, mean max. temperature goes well above 32°C whereas in winter the mean temperature becomes below 10°C. Dry summer, with a scorching westerly wind, and wet rainy season with 2,000 to 3,000 mm of rainfall further characterize the variation.

The later region are of lesser extreme, the rainfall is lower that makes the area both atmospherically and pedologically drier.

Khulna-Jashore-Pabna-Natore-Bogura-Rangpur-Dinajpur-Panchagarh corridor:

The project districts under Khulna division of Khulna-Bogra-Rangpur corridor fall into the South-Western climatic zone and some area (Kustia, Meherpur and Chuadanga) falls under North-western climatic zone. The range of temperature is much lesser than northern part, and most of the several hailstorms, Nor'Wester's and tornadoes are recorded in this area and the rainfall is abundant (above 1,900 mm). The mean summer temperature is below 35°C, but heavier dewfall in winter. The project districts under **Rajshahi division**, fall into the North-western and western climatic region, where rainfall is between 1500 mm and 1800 mm and the mean summer temperature is below 35°C, but heavier dew-fall in winter.

Dhaka-Mawa-Shariatpur-Madaripur-Gopalgonj-Khulna-Benapole corridor :
Rajbari and part of Faridpur under Dhaka division show the climatic characteristics of South-Western climatic zone; Narsingdi, Narayanganj, Madaripur, Shariatpur and Gopalganj demonstrate the characteristics of South-central climatic zone where the rainfall is abundant (above 1,900 mm) and the range of temperature is much lesser than western part, and most of the several hail storms, nor'westers and tornadoes are recorded in this area.

Dhaka-Chattogram-Cox's Bazar Corridor:

The project districts under **Chattogram division**, fall into the South-eastern, southern and hilly region where the climate is tropical and has significant rainfall most months, with a short dry season. According to Köppen and Geiger, this climate is classified as Am. The average temperature in Chattogram is 25.3 °C. About 2777 mm/ 109.3 inch of precipitation falls annually.

Relative Humidity & Solar Radiation and Evaporation

The spatial and temporal variation of Relative Humidity throughout the year is very low in project area. The relative humidity varies from 62% to 89% . Relative humidity of 40-60% feels pleasant.. In Dhaka division, humidity averaging 84%, July is the most uncomfortable and February is easier to endure. In Rajshahi division, humidity averaging 85%, August is the most uncomfortable and March is easier to endure. In Chattogram dividsion, humidity averaging 84%, July is the most uncomfortable and in February, on the other hand, it is easier to endure. In Khulna division, relative humidity averaging 86%, July is the most uncomfortable and February is easier to endure. In Rangpur division, humidity averaging 83%, August is the most uncomfortable and March is easier to endure. Table 4.3 shows the monthly humidity (%) of few project districts under each corridor.

Table 4.3: *Monthly Normal Humidity (%) district wise*

District	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Dhaka	71	64	62	71	76	82	83	82	83	78	73	73
Madaripur	77	72	70	74	79	84	86	85	85	82	78	78
Faridpur	77	72	67	72	79	85	87	85	85	82	78	78

District	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rajshahi	78	71	63	65	75	83	87	86	86	83	78	78
Bogra	77	70	66	72	78	84	86	85	86	82	77	77
Rangpur	82	75	68	74	81	85	86	85	87	84	80	81
Dinajpur	79	70	63	68	76	82	84	84	85	82	78	78
Chittagong	73	70	74	77	79	83	85	85	83	81	78	75
Comilla	77	75	77	81	82	86	87	86	86	84	80	79
Cox's Bazar	72	71	75	78	80	87	89	88	86	82	77	74
Feni	76	73	74	79	81	85	87	86	86	84	80	78
Noakhali	79	76	76	78	81	86	88	87	86	83	80	80
Khulna	78	74	73	76	79	85	87	86	87	84	80	79
Jessore	77	72	69	72	77	84	87	86	86	83	79	78
Chuadanga	78	72	65	68	74	83	86	86	86	83	78	78
Country	76	72	71	75	79	85	86	86	85	83	79	77

Source: Bangladesh Meteorological Department

The average incident solar radiation is comparatively higher during the period between February to May than the other months of the year. Among the project areas, the Bogura-Dinajpur corridor and Dhaka district is less than the other districts (shown in Fig 4.3). Consequently, the amount of evaporation is also higher during that period.

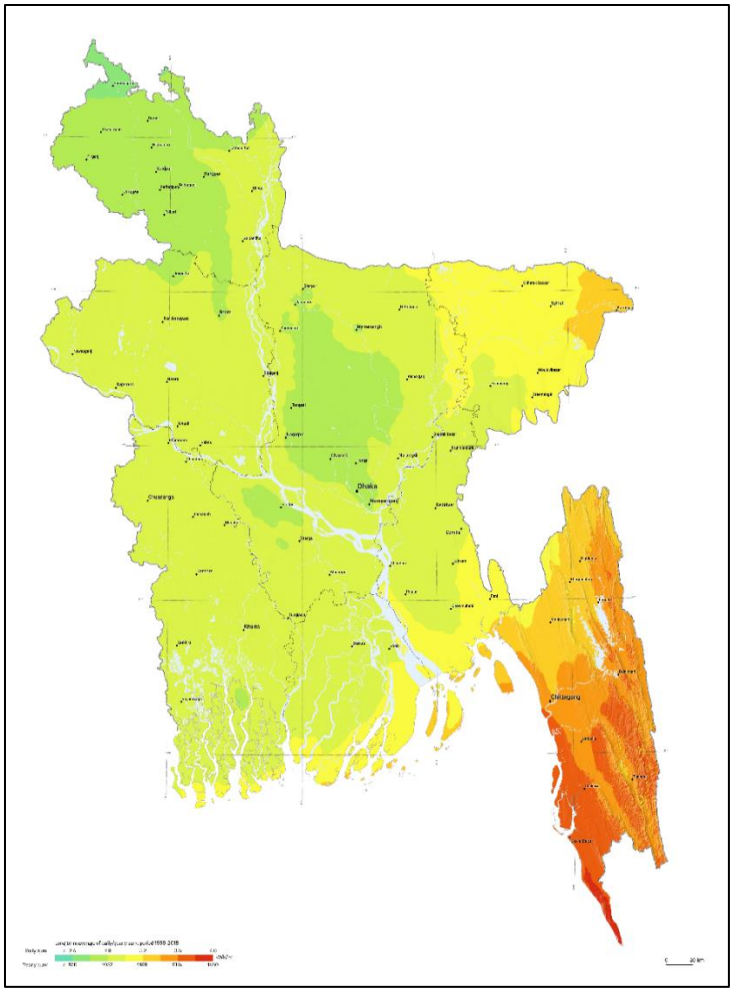


Figure 4.3: *Solar Radiation Index at Project area*
Source: https://datacatalog.worldbank.org/search/dataset/0039840 or https://globalsolaratlas.info/download/bangladesh

Cyclones and storm surge

The PC and ADB (2021) identifies the entire coastal zone as the cyclone and storm surge vulnerable areas (Figure 4.4). In fact, the tropical cyclones are the worst form of meteorological disasters. Low-lying coastal districts along the Bay of Bengal are particularly vulnerable due to cyclones, storm surges and sea level rise.[5] On average, five cyclones originate in the Bay of Bengal every year during the monsoon period.[6] Cyclones are most severe natural disasters in Bangladesh, with almost half of all deaths caused by cyclones globally being reported in Bangladesh.[7] Figure represents the cyclone risk areas of Bangladesh with cyclone tracks.

[5] Ali A. Vulnerability of Bangladesh to climate change and sea level rise through tropical cyclones and storm surges. Water Air Soil Pollut. 1996; 92:171–9.
[6]Shamsuddoha M, Chowdhury RK (2007). Climate change impact and disaster vulnerabilities in the coastal areas of Bangladesh. Dhaka: Coast Trust; 2007.
[7]Nicholls RJ. Synthesis of vulnerability analysis studies. In: Beukenkamp P, et al, editors.Proceedings of the world coast conference 1993. The Hafue: National Institute forCoastal and Marine Management, Coastal Zone Management Center Publication;1995. p. 181–216.

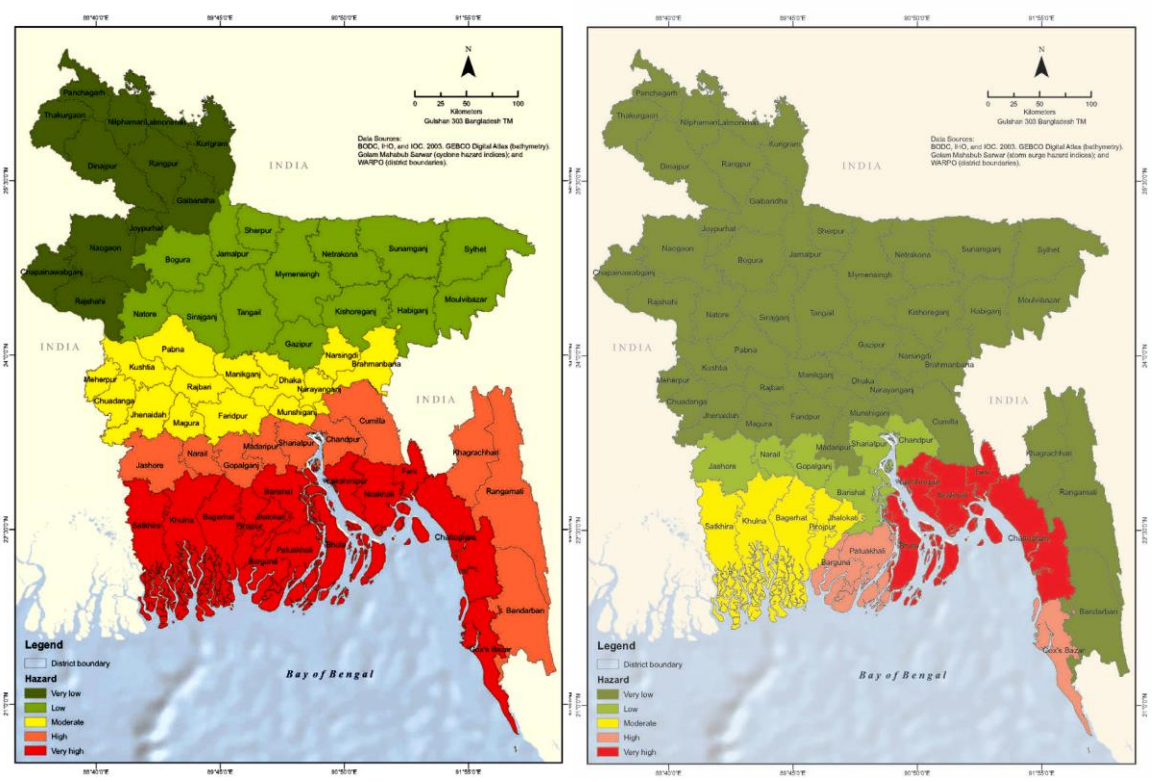


Figure 4.4: *Cyclone Risk Index map of Bangladesh (Left) ; Storm surge Index of Bangladesh (Right)*
Source: PC and ADB 2021

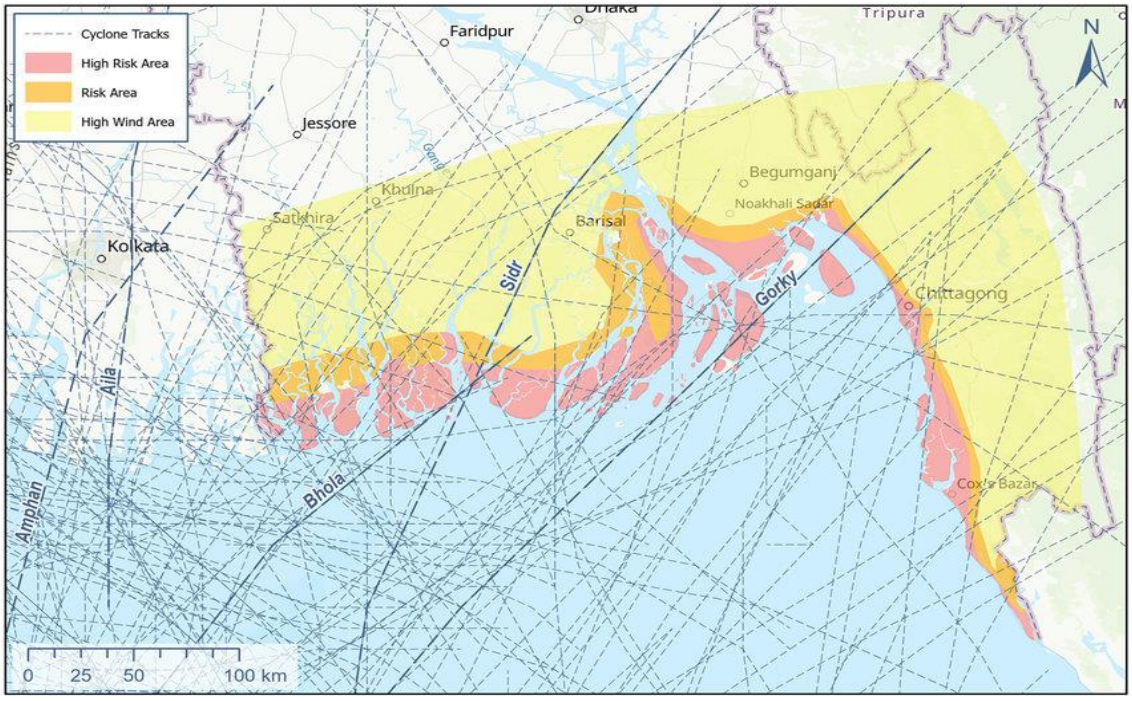


Figure 4.5: *Cyclone tracks and cyclone risk zones of Bangladesh (Source: GED 2018)*

Delineation of the coastal zone by Integrated Coastal Zone Management Plan (ICZMP, 2003), among the 19 district (*Bagerhat, Barguna, Barisal, Bhola, Chandpur, Chattogram, Cox's Bazar, Feni, Gopalganj, Jessore, Jhalokhati, Khulna, Lakshmipur, Narail, Noakhali, Patuakhali, Pirojpur, Satkhira and Shariatpur*) of coastal zone of bangladesh the project areas covered the majority area. 11 districts (*Chandpur, Chattogram, Cox's Bazar, Feni, Gopalganj, Jessore, Khulna, Lakshmipur, Narail, Noakhali and Shariatpur*) of project area are within south-eastern and south western coastal area. Cyclone risk level of selected districts within project area are shown in Table 4.4.

Table 4.4: *Delineation of coastal zone with cyclone risk status*

Corridor	Upazila	Cyclone risk status
Dhaka-Chattogram-Cox's Bazar	Chandpur Sadar	
	Faridganj	
	Haimchar	
	Hajiganj	
	Kachua	
	Matlab	
	Shahrasti	
	Anowara	H
	Banshkhali	H
	Boalkhali	
	Chandonaish	
	Chandgaon	
	Chittagong Port (Bandar)	H
	Double Mooring	H
	Fatikchari	H
	Hathazari	
	Kotwali	H
	Lohagara	
	Mirsarai	H
	Pahartali	H
	Panchlaish	H
	Patiya	H

Corridor	Upazila	Cyclone risk status
	Rangunia	
	Rawzan	
	Sandwip	H
	Satkania	
	Sitakunda	H
	Chakaria	H
	Cox's bazar Sadar	H
	Kutubdia	H
	Maheshkhali	H
	Ramu	H
	Teknaf	H
	Ukhia	H
	Chagalnaiya	
	Companiganj	H
	Hatiya	H
	Dagonbhuiya	
	Feni sadar	
	Parshuram	
	Sonagazi	H
Dhaka- Gopalgonj-Khulna-Benapole	Gopalganj Sadar	
	Kashiani	
	Kotalipara	
	Muksudpur	
	Tungipara	
	Abhaynagar	
	Bagherpara	
	Chaugacha	

Corridor	Upazila	Cyclone risk status
	Jhikargacha	
	Keshabpur	
	Jessore Sadar	
	Manirampur	
	Sharsha	
	Batiaghata	
	Dacope	H
	Daulatpur	
	Dumuria	
	Dighalia	
	Khalishpur	
	Khan Jahan Ali	
	Khulna Sadar	
	Koyra	H
	Paikgachha	
	Phultala	
	Rupsha	
	Sonadanga	
	Terokhada	
Dhaka- Gopalgonj-Khulna-Benapole	Bhedarganj	
	Damudya	
	Goshairhat	
	Naria	
	Shariatpur Sadar (Palong)	
	Zanjira	
	Lohagara	

Corridor	Upazila	Cyclone risk status
	Narail Sadar	

Source: Integrated Coastal Zone Management Plan, 2003

Flood and Flash flood

Bangladesh is prone to four types of floods (Islam, 1997 and 2006 as quoted from GED 2018):

1. Floods caused by high intensity rainfall during the monsoon result in 'normal' floods. They cause relatively little damage or even are beneficial as the silt and biomass that is deposited on the floodplain increases the fertility of the soil and extend irrigation. These floods can however be aggravated by inadequate drainage, when water levels in the major rivers are high, or by blockage caused by roads and other infrastructure.
2. River floods are caused by spilling of water over the banks of major rivers due to heavy rains in the upstream catchment. This type of flood is often catastrophic, especially when the major rivers rise simultaneously.
3. Flash floods occur in the eastern and northern hilly regions. Flash floods have a relatively short duration, but generally have high velocities and a rapid increase in water levels. This makes them very destructive at local levels.
4. Cyclone induced tidal surges occur in the coastal areas consisting of large estuaries and low-lying lands. The surges mainly occur during the pre- and post-monsoon periods.

Normal flooding in rainy season affects about 22% of the country each year; the land use and settlements are well adapted to it (PC-ADB 2021). The most disastrous floods, in terms of lives and livelihoods lost, typically occur in the coastal areas when high tides coincide with the major cyclones (Brammer, 2004[8]). A massive area of Bangladesh is within the estuary of three large rivers—Brahmaputra, Ganges, and Meghna. During the heavy river floods in 1992 and 1998, more than half of the national territory was flooded (GED 2018). The flood in 2017 affected 3,917,184 people in 24 districts and damaged 309,542 ha of cropland (Relief Web 2017[9]). The PC-ADB (2021) study of climate disaster risk atlas has published maps of flood hazard risk index maps of Bangladesh (Figure 4.6). The flood affected districts under RUTDP are showed in Table 4.5

[8] Brammer, H. (2004) Can Bangladesh be Protected from Floods? The University Press Limited (UPL) Dhaka, Bangladesh. pp – 262.

[9] Relief Web. 2017. Monsoon Floods in Bangladesh. https://reliefweb.int/report/bangladesh/monsoon-floods-bangladesh-situation-report-02-16-august-2017

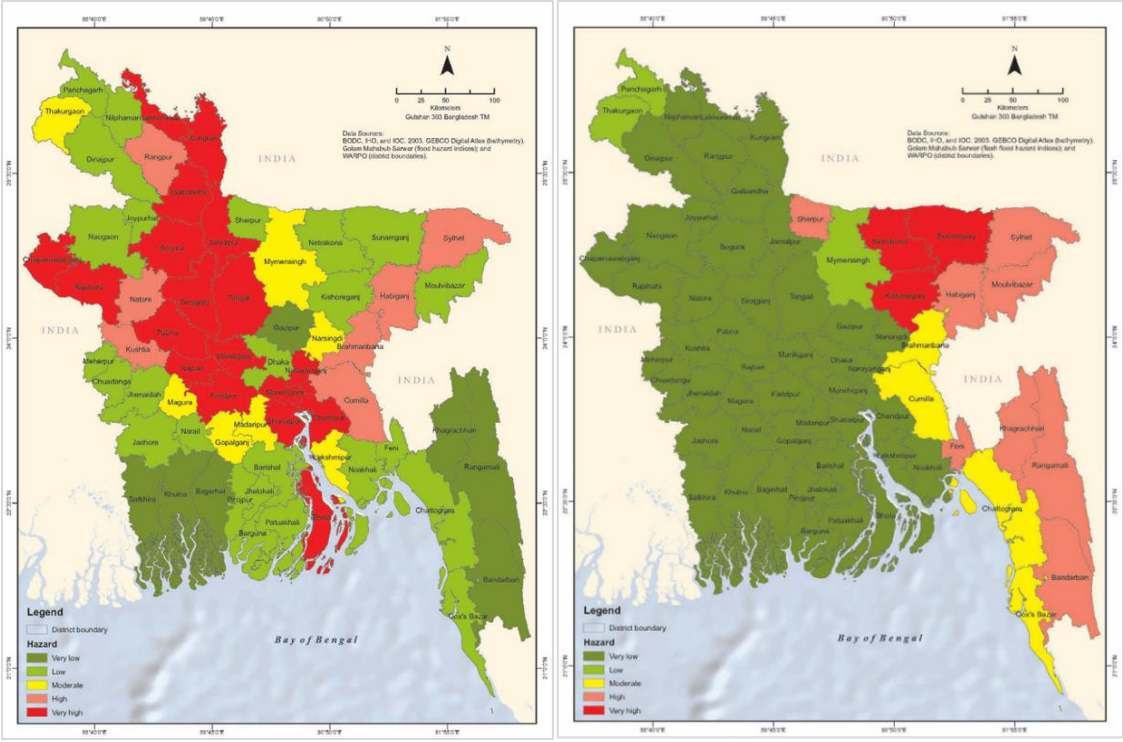


Figure 4.6: *(left) Flood Hazard Index of Bangladesh; (right) Flash flood Hazard Index of Bangladesh*

Source: PC-ADB 2021

Table 4.5: *Floods and Flash floods with risk status at project area*

Corridor	Districts	Types of Flood	Flood Risk Status
Dhaka-Mawa-Shariatpur-Madaripur-Gopalgonj-Khulna-Benapole	Khulna	Riverine Flood	VL
		Flash Flood	VL
	Jashore	Riverine Flood	L
		Flash Flood	VL
	Shariatpur	Riverine Flood	H
		Flash Flood	VL
	Madaripur	Riverine Flood	M
		Flash Flood	VL
	Faridpur	Riverine Flood	H
		Flash Flood	VL
	Rajbari	Riverine Flood	H
		Flash Flood	VL
	Gopalganj	Riverine Flood	M
		Flash Flood	VL

Khulna-Jashore-Pabna-Natore-Bogura-Rangpur-Dinajpur-Panchagarh	Khulna	Riverine Flood	VL
		Flash Flood	VL
	Jashore	Riverine Flood	L
		Flash Flood	VL
	Narail	Riverine Flood	L
		Flash Flood	VL
	Jhenaidah	Riverine Flood	L
		Flash Flood	VL
	Magura	Riverine Flood	M
		Flash Flood	VL
	Chuadanga	Riverine Flood	L
		Flash Flood	VL
	Meherpur	Riverine Flood	L
		Flash Flood	VL
	Kushtia	Riverine Flood	VH
		Flash Flood	VL
	Pabna	Riverine Flood	H
		Flash Flood	VL
	Natore	Riverine Flood	VH
		Flash Flood	VL
	Rajshahi	Riverine Flood	H
		Flash Flood	VL
	Chapai Nawabganj	Riverine Flood	H
		Flash Flood	VL
	Bogura	Riverine Flood	H
		Flash Flood	VL
	Naogaon	Riverine Flood	L
		Flash Flood	VL
	Joypurhat	Riverine Flood	L
		Flash Flood	VL
	Gaibandha	Riverine Flood	H
		Flash Flood	VL
	Rangpur	Riverine Flood	VH
		Flash Flood	VL
	Dinajpur	Riverine Flood	L
		Flash Flood	VL
	Panchagarh	Riverine Flood	L
		Flash Flood	L
	Thakurgaon	Riverine Flood	M
		Flash Flood	L
	Nilphamari	Riverine Flood	L
		Flash Flood	VL

Dhaka-Chattogram-Cox's Bazar	Cumilla	Riverine Flood	VH
		Flash Flood	M
	Chandpur	Riverine Flood	H
		Flash Flood	VL
	Noakhali	Riverine Flood	L
		Flash Flood	VL
	Feni	Riverine Flood	L
		Flash Flood	VL
	Lakshmipur	Riverine Flood	M
		Flash Flood	VL
	Chattogram	Riverine Flood	L
		Flash Flood	M
	Khagrchhari	Riverine Flood	VL
		Flash Flood	H
	Cox's Bazar	Riverine Flood	L
		Flash Flood	M
	Narsingdi	Riverine Flood	M
		Flash Flood	VL
	Narayanganj	Riverine Flood	H
		Flash Flood	VL

**VH= Very High, H=High, M=Moderate, L=Low, VL=Very Low

Drought

Besides salinity in the coastal region of Bangladesh and flood hazards, the country also has been experiencing severe drought hazard mainly during dry season and also in the monsoon because of inadequate and uneven rainfall (GED 2018). Drought-prone areas are located in the northwestern and northern regions of Bangladesh and are spread over an area of 5.46 million hectares (ha) in the districts of Chapai Nawabganj, Naogaon, Rajshahi, Natore, Rangpur, Dinajpur, Joypurjhat, Panchagorh, Takurgaon, Pabna, and Bogura (Planning Commission and ADB 2021). Among the regions, the northwestern Barind tract is especially prone to drought. Drought varies from place to place. Over the years it is seen that north-western region suffers most from the drought. As much as 17% of the Aman crops, the main paddy crops in the wet season, may be lost in a typical year due to drought. The drought frequency has increased by at least 10% in North Bengal of Bangladesh over the periods of 1979–2018 (Mondol et al. 2021)[10]. Figure 4.7 shows the drought prone areas of Bangladesh (BARC-CIMMYT, 2006)[11] where the northwestern corner (Bogura-Rajshahi-Natore-Naogoan-Chapai Nawabganj) denote severe to very severe droght. To combat the drought, it is essential for Bangladesh to utilize its water resources, both surface and groundwater. Depletion of groundwater resources as well as arsenic contamination is occurring at alarming rate in the groundwater reservoirs due to over and unplanned withdrawal. The drought prone districts under RUTDP are showed in Table 4.6

[10] Mondol, MAH., Zhu, X., Dunkerley, D., Henley, BJ. (2021) Observed meteorological drought trends in Bangladesh identified with the Effective Drought Index (EDI), Agricultural Water Management, Volume 255, 2021, 107001, ISSN 0378-3774, https://doi.org/10.1016/j.agwat.2021.107001

[11] BARC-CIMMYT (2006). Bangladesh Country Almanac ver.3.0. A CD-based spatial database. A User Friendly GIS Tool for Agricultural, Forestry and Natural Resource Management.

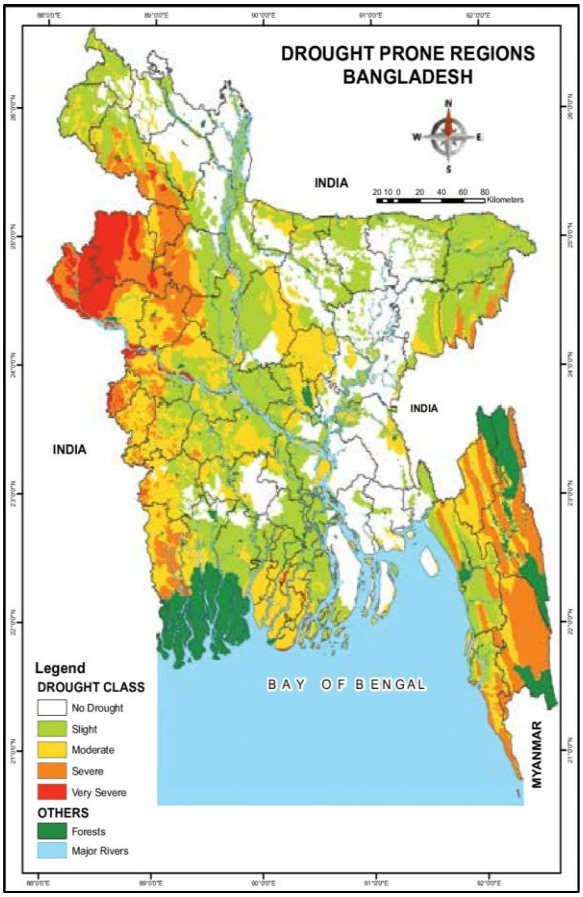


Figure 4.7: *Drought prone areas of Bangladesh.* Source: BARC-

Table 4.6: Corridorwise *Drought prone areas*

Corridor	Districts	Drought risk Status
Khulna- -Natore-Bogura-Rangpur-Dinajpur-Panchagarh	Gaibandha	M
	Rangpur	M
	Dinajpur	Se
	Nilphamari	M
	Thakurgaon	M
	Panchagarh	S
	Narail	M
	Jhenaidah	M
	Magura	M
	Chuadanga	M
	Meherpur	M
	Kustia	S
	Pabna	S
	Natore	Se
	Rajshahi	VSe

Corridor	Districts	Drought risk Status
	Chapai Nawabganj	VSe
	Bogura	Se
	Naogaon	VSe
	Joypurhat	Se
Dhaka- -Gopalgonj-Khulna-Benapole	Rajbari	S
	Gopalganj	ND
	Shariatpur	ND
	Madaripur	ND
	Faridpur	S
	Khulna	S
	Jashore	M
Dhaka-Chattogram-Cox's Bazar	Cumilla	ND
	Narsingdi	ND
	Narayanganj	ND
	Chandpur	ND
	Noakhali	ND
	Feni	ND
	Lakshmipur	ND
	Chattogram	M
	Khagrchhari	M
	Cox's Bazar	M

*** ND= No drought, S= Slight drought, M=Moderate drought, Se=Severe drought, VSe= Very Severe drought*

4.2.2 Topography, Geology, Hydrology, Soils and Seismity

Geology of Bangladesh is generally dominated by poorly consolidated sediments deposit over the past 10,000 to 15,000 years (Holocene age). It is mostly characterized by the rapid subsidence and filling of a basin in which a huge thickness of deltaic sediments were deposited as a mega-delta out built and progressed towards the south. The delta building is still continuing into the present Bay of Bengal and a broad fluvial front of the Ganges-Brahmaputra-Meghna river system gradually follows it from behind.

Topography and drainage:

Data and information on topography are very important for the design of certain sub-projects, such as road, drain, and water distribution line. For example, it is important to know whether the area where the road would be constructed suffers from water-logging or inundation problems, which could rapidly deteriorate the road condition. For the design of these sub-projects, it may be necessary to carry out topographic survey in the sub-project area. However, for environmental assessment (IEE and ESIA), secondary information on topography and drainage should be sufficient. The format used in the "overall environmental assessment" could be followed for presentation of necessary data/ information on topography/ drainage.

Geology and Soil Characteristics

Characteristics of soil could be important if a particular sub-project involves significant excavation/ earthworks because wind-blown dust from these activities could contribute to air pollution. In such cases, characteristics of soils (particularly heavy metal content) are often determined as a part of baseline survey. However, considering the nature and scale of the sub-projects to be implemented under the RUTDP, geology and soil characteristics do not appear to be critical for environmental assessment. The format used in the "overall environmental assessment" could be followed for presentation of general data/ information on geology and soil.

The majority of soils are located in three physiographic types, i.e., Piedmont plain, Tista Floodplain and Barind Tract/Terrace. The soils of Piedmont plain and Tista Floodplain are noncalcareous grey soils (i.e., Gleysols) and Terrace is shallow grey soils (i.e., Planosols).

The soil composition is mainly alluvial soil (80%) of the Teesta River basin, and the remaining is barind soil. The predominant soil texture is sandy loam. The pH of the topsoils ranges from 5.5 to 6.5. The soils are in general fertile and are rich in potash and phosphates. Tista Silt Comprises parts of the former greater districts of **Rangpur,** Dinajpur, Bogura and Pabna. It covers an area of approximately 16,000 sq km. The predominant soil texture is sandy loam. The pH of the topsoils ranges from 5.5 to 6.5. The soils are in general fertile and are rich in potassium and phosphorus.

Narsingdi and Cummilla falls under the Brahmaputra floodplain. The dominant soil texture is sandy loam. The soils are acidic in character and the pH ranges from 5.5 to 6.8. The soils are naturally fertile and are recharged every year by fresh deposition by the floodwaters.

The riverine lands of Gangetic floodplain underly the Gopalganj. Soil texture here varies from clay loam to sandy loam. The pH of the soils ranges from 7.0 to 8.5. The soils are moderately fertile and are characterised by calcium carbonate content and are well supplied with phosphate and potassium. The Gopalganj and its adjacent **Khulna region** which falls under the Dhaka-Mawa-Shariatpur-Madaripur-Gopalgonj-Khulna-Benapolecontains the peat and grey floodplain soil (coastal floodplain soil). The Khulna region contains the acid sulphate soils, basically these soils salinity is high.

In the Dhaka-Chattogram-Cox's Bazar corridor Patiya and Chokoria, **Cox's Bazar** pourashaves are in the flat low-lying areas along the coastal belt and the estuarine islands. The soils are saline and the pH values are neutral to slightly alkaline. The soils are well supplied with potash and phosphates.
In the Khulna-Jashore-Pabna-Natore-Bogura-Rangpur-Dinajpur-Panchagarh corridorRajshahi region especially the Barind Tract is different from other parts of the country due to its undulating topography having compact and low fertile soils. The High Barind Tract, lying in Rajshahi, Chapai Nawabganj and Naogaon districts, is one of the distinct areas of Barind, occupying 160,000 ha, roughly 21% of the region.
Land in the High Barind Tract exhibits grey terrace soil, silty loam to silty clay in texture, and is poorly drained, with a 6–8-cm thick plow pan and low organic matter content (0.8–1.2%). Figure 4.8 shows a general soil map. These situations make the area drought prone along with poor crop productivity. The east and southeast of the Barind is the lower Atrai Basin of Naogaon and Natore district. During the rainy season a vast area of lowland is flooded completely where silts and organic matter from aquatic weeds are deposited on soil and therefore the fertile soils of the specific areas are especially suited to Boro rice cultivation. Cropping pattern is the yearly sequence, temporal and spatial arrangement of crops in a given land area. Cropping pattern depends on physical, historical, social, economic and institutional factor as well as government.

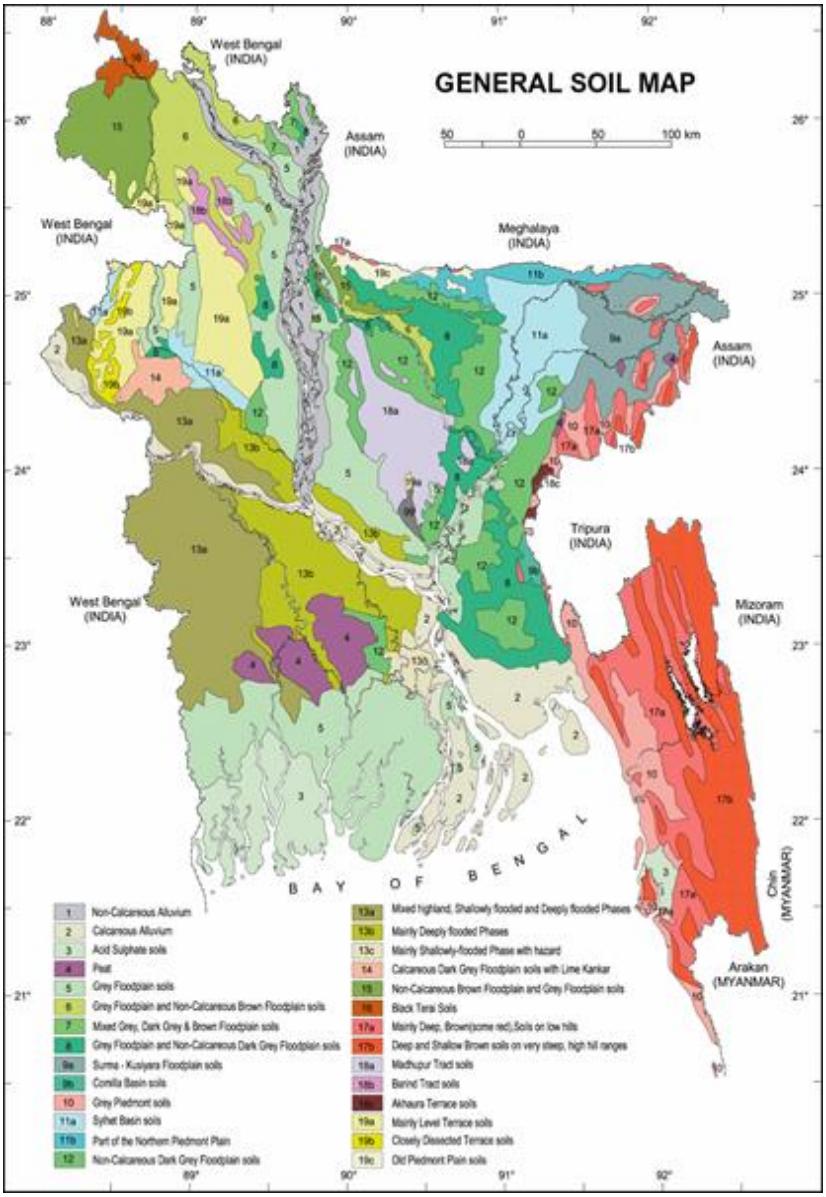


Figure 4.8: *Soils of Bangladesh. Source: BARC-CIMMYT (2006)*

Seismicity and Eartquake zonning

The major structural elements of the Bengal Basin (Bangladesh) areas are identified by a combination of existing, observable surface features. To the north of Bengal Basin is the Shillong Plateau, a Precambrian block believed to have been moved upward during Pliocene-Pleistocene time. The Dauki Fault borders the southern margin of the plateau. The Indo-Burman Ranges define the eastern margin of the basin, comprising a folded, thrusted and wrench faulted arc complex, developed along the edge of the Eurasian Plate due to subduction of oceanic crust and overlying sediments. In the Bengal Basin the Eastern Fold Belt marks the outermost part of this compression zone. The Rangpur Saddle, a Pre-Cambrian basement high located between the Indian Craton and the Shillong Plateau, to the southwest and northeast respectively, separates the Bengal Basin from the Himalayan Foredeep. The Bogura Shelf area rests on a Pre-Cambrian

surface, gradually dipping towards southeast. The shelf itself is 60 to 130 km wide and its southeastern margin is defined by the continental slope. To the east of the slope is the foredeep, where the eastern part is folded as a result of plate collision and currently the folded belt connects the foredeep to the east subdividing the foredeep into two depocentres, the Surma Trough to the north-east and the Hatiya Trough to the south-east, separated by the Tangail-Tripura High. The tectonic map of Bangladesh and adjoining areas is given in figure 4.9 for clearer understanding.

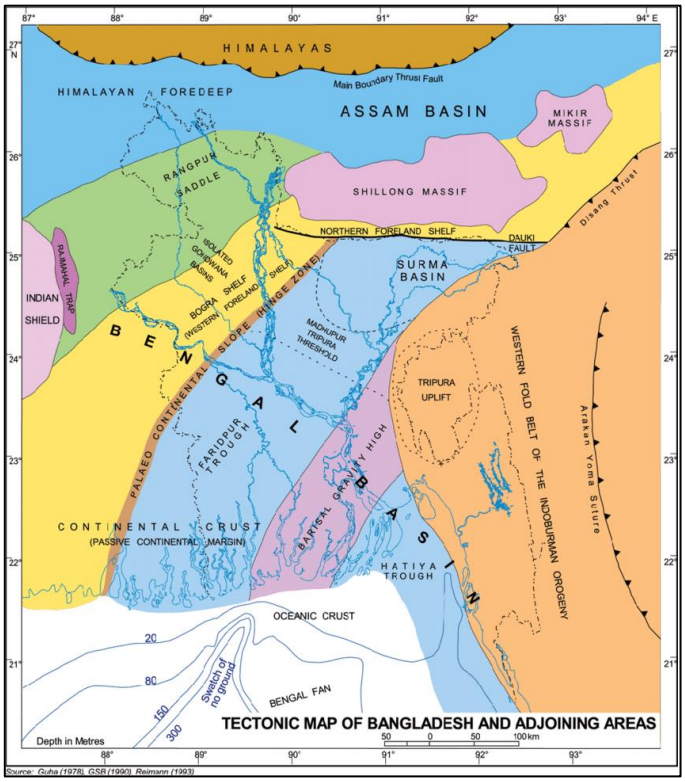


Figure 4.9: *Tectonic map of Bangladesh and adjoining areas*

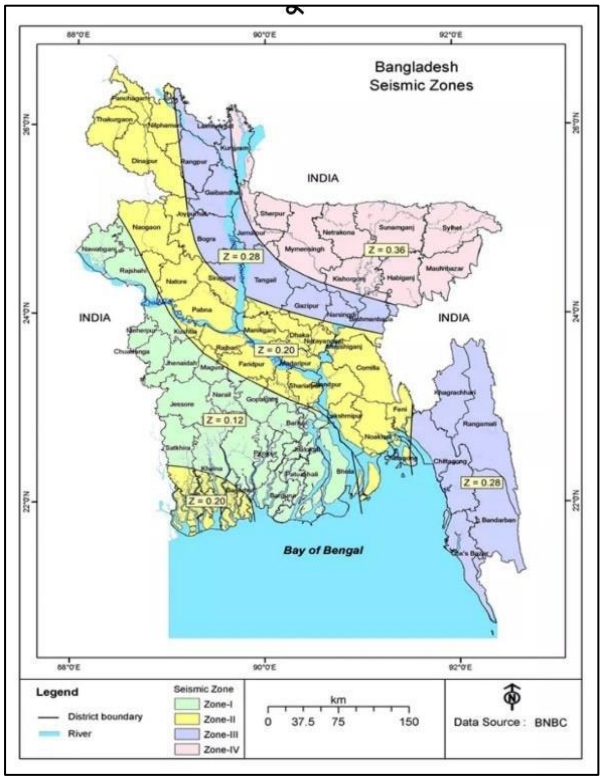


Figure 4.10*: Seismic zoning map of Bangladesh*
(Source: BNBC'2020)

As shown above (Figure 4.10) the seismic zoning map divides the country into four seismic zones with different expected levels of intensity of ground motion. Each seismic zone has a zone coefficient, which provides expected peak ground acceleration values on rock/firm soil corresponding to the maximum considered earthquake (MCE). Those coefficient has been counted based on the presence of different seismic plates in and around the country and adjoining areas, the risk potential caused by the movement of plates and release of internal energies; and the **project corridors** fall within the seismic zones as per following Table 4.7.

Table 4.7: *Seismic zoning and risk potential of the project districts*

Corridor	Districts	Seismic Zone	Risk Potential/ Seismic Intensity
Khulna- -Natore-Bogura-Rangpur-	Gaibandha	Zone-III	Severe
	Rangpur	Predominantly Zone-III A small part in Zone-II	Moderate to Severe

Corridor	Districts	Seismic Zone	Risk Potential/ Seismic Intensity
Dinajpur-Panchagarh	Dinajpur	Zone-II	Moderate
	Nilphamari	Zone-II	Moderate
	Thakurgaon	Zone-II	Moderate
	Panchagarh	Zone-II	Moderate
	Narail	Zone-I	Low
	Jhenaidah	Zone-I	Low
	Magura	Zone-I	Low
	Chuadanga	Zone-I	Low
	Meherpur	Zone-I	Low
	Kustia	Predominantly Zone-I A small part in Zone-II	Low to moderate
	Pabna	Zone-II	Moderate
	Natore	Zone-II	Moderate
	Rajshahi	Predominantly Zone-I A small part in Zone-II	Low to moderate
	Chapai Nawabganj	Zone-I	Low
	Bogura	Predominantly Zone-III A small part in Zone-II	Moderate to Severe
	Naogaon	Zone-II	Moderate
	Joypurhat	Predominantly Zone-III A small part in Zone-II	Moderate to Severe
Dhaka- -Gopalgonj-Khulna-Benapole	Rajbari	Zone-II	Moderate
	Gopalganj	Zone-I	Low
	Shariatpur	Zone-II	Moderate
	Madaripur	Zone-II	Moderate
	Faridpur	Zone-II	Moderate
	Khulna	Zone-I	Low
	Jashore	Zone-I	Low
Dhaka-Chattogram-Cox's Bazar	Cumilla	Zone-II	Moderate
	Narsingdi	Zone-III	Severe
	Narayanganj	Zone-II	Moderate
	Chandpur	Zone-II	Moderate
	Noakhali	Zone-II	Moderate
	Feni	Zone-II	Moderate
	Lakshmipur	Zone-II	Moderate
	Chattogram	Zone-III	Severe
	Khagrchhari	Zone-III	Severe
	Cox's Bazar	Zone-III	Severe

Hydrology and water resources:

Availability of fresh water in Bangladesh is highly seasonal and depends on monsoon rainfall both inside and outside of Bangladesh in the GBM (Ganges-Brahmaputra-Meghna) catchments. Monsoon accounts for 70 – 85% of annual rainfall, and about 92% of the annual run-off; 8% is generated by rainfall within the country. The entire water ecosystem of Bangladesh, comprised of the GBM Rivers, their tributaries and distributaries, and perennial and seasonal water bodies like haors, baors and beels, is characterized by this seasonality of rain and its variability. All three river systems originate outside Bangladesh. Of the 230 rivers in the country 57 are trans-boundary rivers and Bangladesh is situated at their lowest points. Of the 57, 54 come down from India and 3 from Myanmar. The same pattern of seasonality in rainfall is applicable to river flows as well, as river flows greatly depend on monsoon rainfall and the summer snow melt in the upper Himalayas.

For the design of some sub-projects such as storm drain, bridge, box culvert, information such as water level/ highest flood level are very important. In general, information on highest flood level is also an important design consideration for most sub-project types. Information on water resources is important in the design of water supply system. For environmental social assessment (IEE and ESIA), information on hydrology (e.g., river network, flow, highest water level) and water resources (e.g., discharge, groundwater level).

The hydrology of the proposed project districts are inextricably related to the presence of some big rivers flowing across or through the areas. Among the division, **Rangpur** is crisscrossed by the river Donai, Ghagat, Tista, and Brahmaputra-Jamuna, while Karatoya flows through the division Rajshahi and the hydrology of South-central part (Faridpur, Madaripur, shariatpur district) is largely dependent on the flows of river-Padma, Kumar, Arial Khan and Banar. Pabna and Kustia sees the presence of two mighty river system-Ganges-Padma and Brahmaputra-Jamuna. The **Khulna division** crisscrossed by the river Rupsha, Kopotakkho, Bhairab, chitra, Mathavanga etc.. All these rivers contribute in replenishing the groundwater reserves in the division as well as maintaining the total water budgeting that has a tremendous effect on local agricultural yields.

4.2.3 Environmental Quality

Ambient Air

Specific data on ambient air quality is not likely to be available for any of the Pourashavas and City Corporations covered under the RUTDP. In 2019, Department of Environment conducted a survey campaign on air quality testing in several selected districts in Bangladesh. However, considering the close proximity from the districts in the respective divisions, Rajshahi from Rajshahi division, Narayanganj form Dhaka Division, Khulna from Khulna division and Chattogram from Chattogram division have been chosen as reference districts to have a rough idea of how the air quality in those districts and surrounding project districts are evolved. The quality of air across the districts in Bangladesh differ significantly for the effects of urbanization, temperature/climatic difference, and effects of blowing wind directions, density of people and commuters, and such other criteria. In comparing with the Country standard for all the parameters' value in following table, Air quality in the districts near to Dhaka have much high concentration of pollutants as observed in the Table 4.8, specifically particulate matter (may originating from construction works) and NOx (from vehicular movement). Particulate matters also can be originated from agricultural fields, car engines, power plants, etc. However, air quality in most of the project districts is expected to be within the tolerable and country standard limit, as those districts do not have a good industrial setups; but the elevated level of PM2.5 from the agricultural fields, local industries, and construction works and this

level of PM2.5 may get further elevated if suggested code of conducts/ mitigation measures are not followed in the working sites. In fact, effects of winds during the dry season and vehicular movement for construction works at site will also deteriorate the air quality for the time being.

Table 4.8: *Air quality in reference districts covering all corridors*

Division	Reference Districts	Concentration level of particulate matter (PM10)	Concentration level of Particulate matter (PM2.5)	Concentration level of tropospheric Ozone (O3)	Concentration level of Carbon monoxide (CO)	Concentration level of Sulphur Dioxide (SO2)	Concentration level of Nitrogen Oxides (NOx)
Rajshahi	Rajshahi	148.11	73.76	5.14	1.02	2.98	81.56
Dhaka	Narayanganj	229.54	102.45	3.38	1.05	13.10	40.45
Khulna	Khulna	48	28.3	3.13	0.70	DNA	21.1
Chattogram	Chattogram	132	78	DNA	DNA	DNA	DNA
National Standard		**150.00**	**65.00**	**157.00**	**10.00**	**80.00**	**100**

DNA= Did Not Assess Source: Department of Environment, April 2019

Noise level:

Noise is typically generated from operation of machines and equipment (e.g., pile drivings, excavators, concrete mixing machine), and movement of sub-project vehicles. Noise is of particular importance if the sub-project is located close to sensitive installations such as educational institutions, health care facilities, religious establishments, and human settlements. Activities to be carried out during construction phase of many sub-projects would generate noise. For these sub-projects, baseline noise level should be measured and recorded, so that these could be compared with those generated during construction/ operation phase of the sub-projects. The location and frequency of baseline noise level measurements would depend on physical extent of project, and presence of sensitive installations within sub-project influence area, as noted above. The consultant engaged for carrying out IEE should be responsible for measurement of baseline noise level at location(s) within the sub-project influence area. Both day-time and night-time noise levels should be measured, using a calibrated noise level meter.

At baseline study no noise level data was recorded and the noise data is not available for all corridor . That's why from secondary data source (Noise pollution rules, 2006) some selected location i.e., Dhaka city from Dhaka division, Khulna city from Khulna division, Rajshahi city from Rajshahi division and Chattogram city from Chattogram division are recorded (Table 4.11). Table 4.9 and table 4.10 represent the noise quality standard by area & time and noise risk zone evaluation criteria for Bangladesh.

Table 4.9: *Noise quality standards by area and time*

Area category	Permissible noise limit, dB(A) L_{eq}	
	Day	Night
Silent area	50	40
Mixed area	60	50
Residential area	55	45
Commercial area	70	60
Industrial area	75	70

Table 4.10: *Noise risk zones (NRZ) evaluation criteria*

Noise level, L_{Aeq} (dB(A))	Categories
65>	Safe
66 - 71	Tolerable
71 - 76	Low risk
76 - 81	Moderate risk
81 - 86	High risk
86<	Extremely high risk

Source: Noise pollution rules, 2006 (Department of Environment, Bangladesh)

Table4.11: *Comparisons of noise level for different cities in Bangladesh*

Division	Noise level (dB(A))	Year
Dhaka	80.56	2017
Rajshahi	57.3-102.2	2017
Khulna	72.97	2017
Chittagong	72.3	2017

Source: Noise pollution rules, 2006 (Department of Environment, Bangladesh)

Water quality:

A number of sub-projects are likely to have impacts on water quality. These include drain (impact of drainage water on receiving water body), municipal/kitchen/ cattle markets, (effect of drainage water from these establishments on receiving water bodies), bridge, and box culvert(effect of construction activities on water quality of river/ khal/channel). For these sub-projects, baseline water quality of the relevant water body (as well as characteristics of drainage water for "drain" sub-project) should be measured, as a part of baseline survey (by the consultant engaged for carrying out IEE/ ESIA).

With respect to water quality, the dry season is the critical period, and hence water samples for water quality characterization should be collected during the dry season. Important water quality parameters include pH, TDS, TSS, ammonia, nitrate, phosphate, BOD5, and COD. If industrial installations are present within an Pourashavas/City Corporation, color and selected heavy metals (depending on the type of industrial installation present at the pourashavas and city corporation) should also be measured.

Drainage

The drainage situation of different Pourashavas and City Corporations was assessed during the field visits. Drainage system in most of the visited locationss needs immediate improvement. In most of the Pourashavas and City Corporations, the storm water generated after a rainfall is conveyed through a

network of pucca drains into various natural khal systems, which eventually drains into a major stream. It has been found that most of the Pourashavas and City Corporations suffer from inundation and water-logging problems even after light shower.

Sanitation

Most of the Pourashavas and City Corporations visited have been observed to have a significant portion of populations using unhygienic latrines. The sanitation systems mostly existing in different loactions are septic tank system, sanitary pour flush latrines and pit latrines with water seal. No wastewater treatment facility was found in any of the twelve visited Pourashavas and City Corporations. It has been found that wastewater mixes with storm water and discharges in water bodies, causing pollution of natural water bodies. Among the different Pourashavas and City Corporations visited, only Cumilla City Corporation has been observed to have 100% sanitation coverage.

Traffic

Information on road traffic is important for environmental assessment (as well as design) of a number of sub-projects such as road, pedestrian bridge, street light, traffic control, bus terminal, truck terminal, kitchen/ cattle market; community center, bridge and box-culvert. For these sub-projects, it would be necessary to collect traffic data from primary survey, as a part of carrying out IEEand ESIA (by the consultant engaged for this purpose); both number and composition of traffic are important. For other sub-projects, traffic data are not critical.

4.2.4 Biological Environment

Important parameters for description of biological environment include:

- General bio-ecological features of the sub-project area and its surroundings (e.g., bio-ecological zone, Rivers, wetlands, hills, agricultural lands)
- Wildlife sanctuary, protected area, park, ecologically critical area (ECA)
- Floral habitat and diversity (terrestrial and aquatic)
- Faunal (including fish) habitat and diversity (terrestrial and aquatic)
- Threatened flora and fauna

It should be noted that most of the sub-projects to be carried out under RUTDP are likely to have minor ecological impacts. In most cases, the most significant direct impact would result from felling/ cutting of trees/ plants within the sub-project area. A number of sub-projects could result in water pollution and as such impact aquatic fauna including fish. Most of the sub-projects are not likely to have any significant ecological impacts, and for such sub-projects general bio-ecological description of the sub-project area would be sufficient for description of baseline biological environment.

Bio-ecological Zones

IUCN Bangladesh in 2002 classified the country into twenty-five bio-ecological zones (Figure 4.11). The project are falls in the i) Himalayan Piedmont Plain (1), ii) Barind Tract (2), iii) Teesta Floodplain (4a), iv) Ganges Floodplain (4b), iv) ChalanBeel (5b), v) Ganges Floodplain (4b), vi) Saline tidal Floodplain (10), vii) Gopalganj/Khulna peat soil (6), viii) Meghna Estuarine Floodplain (8d), ix) Lalmai-Tiperah Hills (9c), x) Chittagong Hills and CHTs (9a) and xi) Meghna Estuarine (4e) bio-ecological zones. In the Khulna-Jashore-

Pabna-Natore-Bogura-Rangpur-Dinajpur-Panchagarh corridor Barind Tract is the largest Pleistocene physiographic unit of the Bengal basin, covering an area of about 7,770 sq km. It has long been recognized as a unit of old alluvium, which differs from the surrounding floodplains. The Barind Tract covers most parts of the greater Dinajpur, Rangpur, Pabna, Rajshahi, Bogra, Joypurhat, and Naogaon districts of the Rajshahi division. Barind Tract is located in the centre and western part of Rajshahi division. The greater part of the tract is almost plain and is crisscrossed by only a few minor rivers. This tract is considered an ecologically fragile ecosystem with extremely low vegetation cover. On the other hand, Chalan Beel, one of the largest inland depressions of marshy character and also one of the richest wetland areas of Bangladesh is extended over four adjacent districts, Rajshahi, Pabna, Sirajganj, and Natore. The Ganges floodplain is basically consisted of the active floodplain of the Ganges river and adjoin meandering floodplains, and is mostly situated in the administrative districts of greater Jashore, Kushtia, Faridpur and Barishal. The adjoin meander floodplains mainly comprise a smooth landscape of ridges, basins and old channels. Noteworthy aspect here is the Gangetic alluvium a readily distinguishable from the old Brahmaputra, Jamuna and Meghna sediments by its high lime content. Besides, the relief is locally irregular alongside the present and former river courses, especially in the west, comprising a readily alternating series of linear low ridges and depressions. The Ganges channel is constantly shifting within its active floodplain, ending and depositing large areas of new char lands in each flooding season, but it is less braided than that of the Brahmaputra-Jamuna Interestingly enough, both plants and animals move with the pattern of flooding (Brammer, 1996). The saline tidal floodplain of Khulna , Satkhira and Bagerhat district along Dhaka-khulna-Benapole corridor shows the tidal nature and the Gopalganj/Khulna peat soil is unique bio-ecolocial characteristics and only covers a little portion. In the Dhaka-Chattogram-Cox's Bazar corridor the Cumilla district shows the Lalmai-tiperah and Meghna estuarine character.

Biodiversity

The project area consists of several ecological subsystems e.g. open agricultural land, homesteads, roadside vegetation, Hills and hill tracts, barind etc. The open agriculture land ecosystem dominates the area providing widespread habitat types for various species of flora and fauna under flooded and non-flooded conditions. The vegetation covers of agricultural lands are different crop species, weeds and other herbaceous plants species. The faunal species in the agriculture land and roadside bush ecosystems include birds, amphibians, fish, snakes rodents and a few mammals. The homestead ecosystem provides the main tree covered areas within rural Bangladesh including the project site. The homesteads are covered by fruit, timber, fuel wood, medicinal plants and various multipurpose tree species. The wildlife species in homestead ecosystem include the birds, amphibians, reptiles, rodents and mammals like mongoose, jackal, cats, monkey, elephant, etc. Many of the species including mammals are vulnerable or/and endangered in Bangladesh due to habitat loss, over exploitation, natural calamities and lacking of management. The project command area is not the specific habitat for any particular species of flora and fauna hence none such species will be specifically affected due to project implementation. At the Ganges floodplain, the amphibian's species found in the zone include a few species of Toads, frogs and tree frogs. Among the mammalian fauna, fox, jackals, rats, mice squirrels, bats etc. are seen everywhere (GoB-IUCN, 1992). However, at this preliminary stage, as all the sub-project sites are not identified yet, sensitive places around the sites having rich biodiversity or living natural resources cannot be confirmed. It is noted that all the activities under this project is very site-specific, and impacts of construction/rehabilitation works will be confined within a small sub-project boundary or predefined alignment.. The
project activities will be conducted in and around urban areas where it is likely that no protected area, sensitive habitat or any other biodiversity hotspot are located. These have also been included in the exclusion (negative) list.

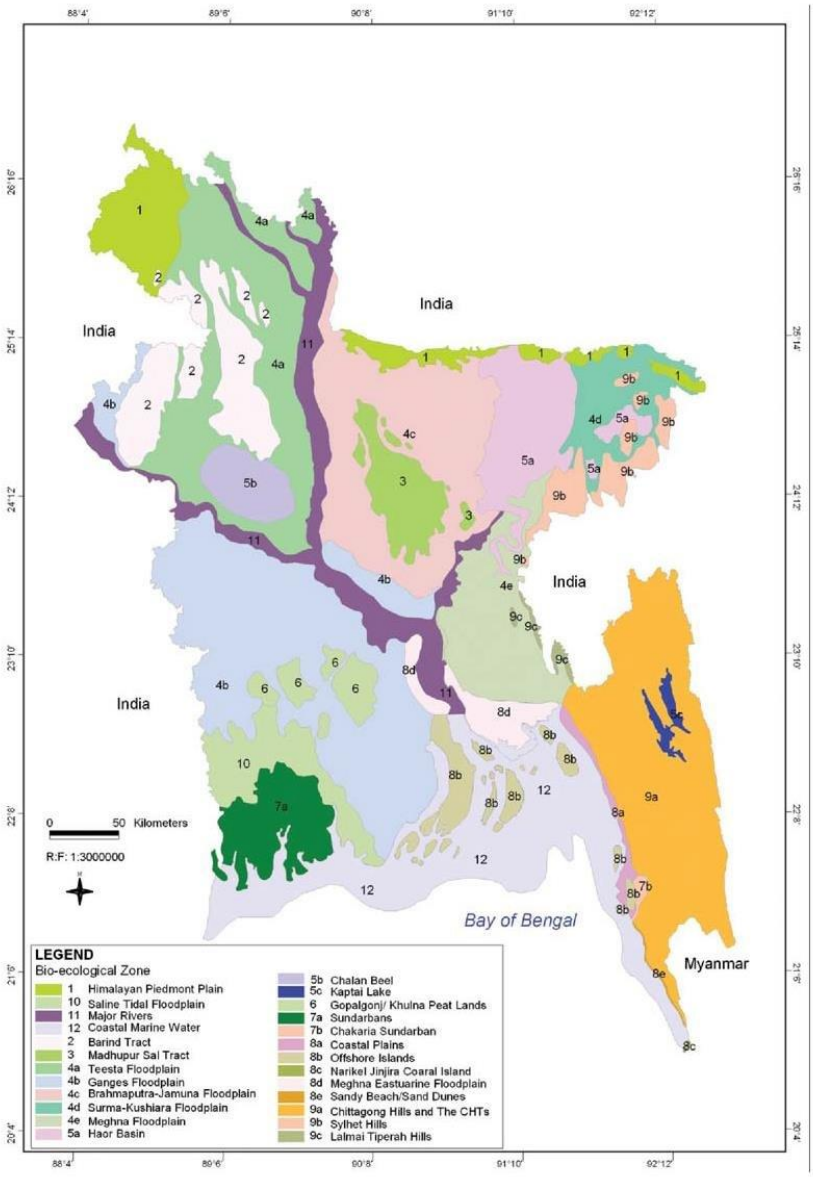


Figure 4.11: *Bio-Ecological zones of Bangladesh*

4.2.5 Socio-Economic Environment

Land Use Pattern, Status of Housing and Built-up Infrastructure

The RUTDP will provide the territorial (region base) urban infrastructure development of Southe-eastern, South-western, North-eastern, Northern and South-central region of Bangladesh. The pourashavas and city corporations have the belonging all urban facilities, though the land use pattern is mixed with residential, agricultural and trade & commerce zone in and around the project boundary.

Beneficiary Population

The RUTDP goes through three coridors (Corridor 1: Khulna-Pabna-Natore-Bogura-Rangpur-Dinajpur-Panchagor; Corridor 2: Dhaka-Mawa-Shariatpur-Madaripur-Gopalgonj-Khulna-Benapole and Corridor 3: Dhaka-Chattogram-Cox's Bazaar) of Bangladesh.As per information by the Population and Housing Census [2022], considering the pourashavas and city corporations population about 10,609,372 people will be benefited directly and many others indirectly, among these beneficiay population 17750 IP's to be directly benifited.

Education

Literacy rate in Bangladesh is now 74.66 percent, according to the preliminary report of "Population and Housing Census 2022".The literacy rate in the urban area is 81.28 percent while in rural area it is 71.56 %. In RUTDP boundary, the selected 87 pourashavas and city corporations have the average literacy rate (74.46%) which is lower than the national literacy rate.

Vulnerability Profile:

Bangladesh Bureau of Statistics (BBS) reported a district level poverty map of Bangladesh, where among the RUTDP, Nilphamari has the highest numbers of poor people (78%, below the upper poverty line) and poverty level in all the project districts in Rangpur division is miserable.

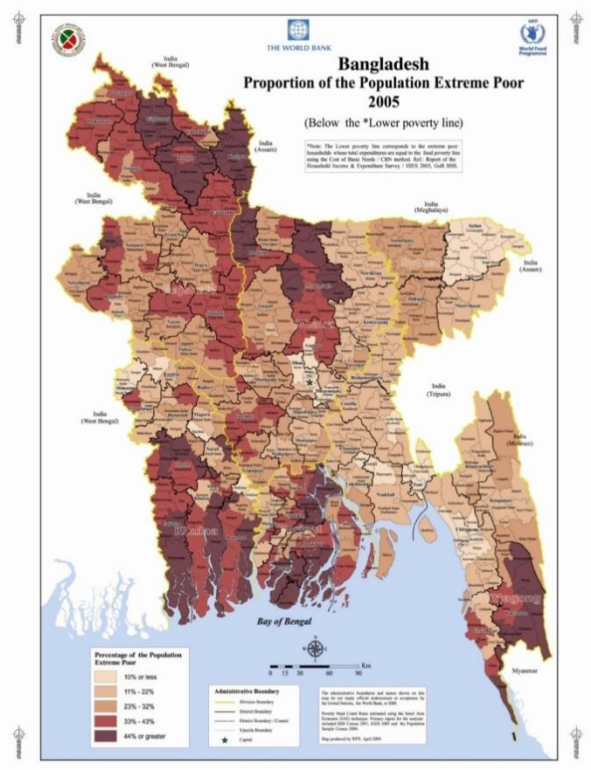


Fig 4.12: *Economicall Vulnerable Population Status*

Ethnic Minority Communities

According to the Population and Housing Census 2022, a total of 728,806 ethic minority peoples are enumerated in the project districts (Table 4.1). Among the selected 87 pourashavas and city corporations under RUTDP operations only three pourashavas and city corporations namely Ramgargh, Cox's Bazar and

Teknaf have ethnic minority people living within the pourashva boundaries, identified during the Feasibility Study for RUTDP. Since some of the cluster based interventions will extend to rural areas, direct and indirect impact areas may have presence of ethnic minority people qualifying the characteristics of indigeneous people as per ESS7. The ESS7 is therefore applicable to the Project and site specific social screening will identify there presence to further assess application of ESS7 to specific subprojets. An Ethnic Minority Community Framework (EMCF) is developed for the Project as per requirements of the ESS7.

Land Acquisition and Resettlement

According to the provisions of land acquisition law, land acquisition is accomplished through administrative instructions. In order to ensure the best use of the most valuable property of the country, the GOB established the District Land Allocation Committee (DLAC) and a Central Land Allocation Committee (CLAC) in 1976. DLAC is responsible for land allocation at the district level, while CLAC deals with land allocation in major cities. However, CLAC has the authority to review all land acquisition cases before the final decision is made at the different levels. The Deputy Commissioner (DC) is the acquiring body by law and processes land acquisition upon receiving request from the requiring body (ministry, division, directorate, board, authorities, and the like). After fulfilling certain obligations as required by law, the process starts with the requiring body. Finally, the DC acquires the land following payment of compensation with funds received from the requiring body. However, according to the law, there is no definitive method of payment of compensation. Once compensation is paid, the ownership transfers to the requiring body. However, the acquisition process is complex and lengthy to go beyond the project implementation period. There is requirement of resettlement of physically displaced people without any definitive procedures in the law.

Pourashavas and city corporations usually repossess the public land in anchored from private uses by serving prior notice allowning certain time to vacate the occupied land that should be used for urban infrastructural development for public interest.[12] After getting notice, the land occupants vacate land voluntarily with or without any support from the pourashavas and city corporations as per community agreement. Residents sometimes request for development of road infrastructure in their neighborhood allowing their owned land strips without any claim or compensation. However, these are not properly documented or universally consented.

Principal Livelihoods and Economic Activities

The Project areas are inhabited by the mixed occupational people where major income comes from farm (agricultural, aquaculture, dried fishes and salt cultivation activities) and nonfarm activities such as business, enterprises, government and non-government salaried employment, transport vehicle ownership and operation. (*Feasibility Study, 2022*)

Cultural Heritage

Within the influence area of the project some historical sites were identified. Religious center, educational institutions and local bazar bring cultural values to the community people.Considering the heritage sites, social & cultural values; the projects will be taken follow the proper guideline by World Bank and Bangladesh govt. agencies and proper maintain by Social safeguard specialist.

[12] The Government and Local Authority Lands and Buildings (Recovery of Possession) Ordinance, 1970

CHAPTER 5: ENVIRONMENT AND SOCIAL IMPACTS AND MITIGATION MEASURES

5.1 Risk Classification Methodology

The assessment of effects, identification of impacts and subsequent considerations of any incorporated mitigation measures will largely depend on the extent and duration of change, the number of people or size of the resource affected and their sensitivity to the change. Potential impacts can be both negative and positive (beneficial), and the methodology defined below will be applied to define both beneficial and adverse potential impacts.

The standards for determining significance are generally specific for each environmental and social aspect but the magnitude of each potential impact is defined along with the sensitivity of the receptor. Generic principles for defining magnitude and sensitivity used for the Project are summarized below.

Environmental and social risk classification considers relevant potential risks and impacts, such as:

- ✓ Category, location, sensitivity and scale of the Project including the physical considerations of the Project; nature of infrastructure (e.g., urban roads, drains, bridges and culverts, kitchen markets, super markets, community centers, bus/ truck terminals, amusement parks/ landscaping, public toilets etc.); volume of waste management and disposal;
- ✓ The nature and magnitude of the potential ES 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; presence of Indigenous Peoples; and possible mitigation measures considering the mitigation hierarchy;
- ✓ 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;
- ✓ Other areas of risk that may be relevant to the delivery of ES 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.

5.1.1 Assigning Risk

Risk or impact classification considers the assessment of magnitude (table 5.2) , quality or sensitivity of the receiving environment and social receptor (table 5.3) in order to determine the significance of each potential impact established using the risk classification matrix given in table 5.1 below. In accordance with the level of risk ES risk classification can be divided into four distinctive categories- High, Substantial, Moderate and Low.

Table 5.1: *Assessment of Risk Classification*

Magnitude of Potential impact	Sensitivity of Receptors				
	Very Severe	Severe	Mild	Low	Negligible
Very High	**High**	**High**	**Substantial**	**Substantial**	**Moderate**
High	**High**	**High**	**Substantial**	**Moderate**	**Low**
Moderate	**Substantial**	**Substantial**	**Moderate**	**Low**	**Low**
Low	**Moderate**	**Moderate**	**Low**	**Low**	**Low**
Nil	**Moderate**	**Low**	**Low**	**Low**	**Low**

5.1.2 Magnitude of Impact

The assessment of magnitude shall be undertaken in two steps. Firstly, the key issues associated with the RUTDP are categorized as beneficial or adverse. Secondly, potential impacts shall be categorized as Very High, High, Moderate and Low based on consideration of the parameters such as:

- ✓ Ability of people and ecosystem to cope with change
- ✓ Spatial extent of the potential impact;
- ✓ Duration of the potential impact;
- ✓ Timing of effects experienced;
- ✓ Likelihood of potential impacts occurring;
- ✓ Relationship of project activities to impacts from other sources in landscape

The magnitude of potential impacts of the Project shall be identified according to the categories outlined in Table 5.2.

Table 5.2 *Parameters for Determining Magnitude of Impact*

Parameter	Very High	High	Moderate	Low	Nil
Ability of people and ecosystem to cope with change	The capacity of ecosystem and people to cope with the impact is not certain	The resilience and adaptive capacity to the impacts is regenerative with extensive management	Ecosystem can cope with the changes with specific planning and management	Ecosystem can cope with the changes with limited responses	Ecosystem can quickly cope with the changes with limited responses
Spatial extent of the potential impact	Widespread far beyond site specific project boundaries	Beyond immediate Project components, site boundaries or local area	Within project boundary	Specific location within Project component or site boundaries with no detectable	within Project component or site boundaries with no impact

Parameter	Very High	High	Moderate	Low	Nil
				potential impact	
Duration of potential impact	Long term (more than 20 years)	Medium Term Lifespan of the Project (5 to 10 years)	Less than Project lifespan	Temporary with no detectable potential impact	no potential impact
Timing of effects experienced	Potential impact is effectively permanent, requiring considerable intervention to return to baseline	Potential impact requires a year or so with some interventions to return to baseline	Baseline returns Naturally or with limited intervention within a few months	Baseline remains constant	No impact on baseline
Likelihood of potential impacts occurring	Occurs under typical operating or construction Conditions (Certain)	Occurs under worst case (negative impact) or best case (positive impact) operating conditions (Likely)	Occurs under abnormal, exceptional or emergency conditions (occasional)	Unlikely to occur	Will not occur
Relationship of project activities to impacts from other sources in landscape	The activity will cause several effects and difficult to predict and manage with all of its negative impact	The activity will cause effects and relatively easier to predict and manage its negative impact	The activity will cause effects and easy to predict and manage	Temporary with detectable potential impact	No impact

After completion, RUTDP is expected to improve and increase the resilient urban facilities and make a positive impact on business transaction and proceeds which will accelerate the urbanization process.

5.1.3 Sensitivity of Receptor

The sensitivity of a receptor shall be determined based on review of the population (including proximity/numbers/vulnerability) and presence of features on the site or the surrounding area. Standards for determining receptor sensitivity of the Project's potential impacts are outlined in Table 5.3.

Table 5.3: *Criteria for Determining Sensitivity*

Sensitivity Determination	Definition
Very Severe	Vulnerable receptor with little or no capacity to absorb proposed changes or minimal opportunities for mitigation.
Severe	Vulnerable receptor with little or no capacity to absorb proposed changes or limited opportunities for mitigation.
Mild	Vulnerable receptor with some capacity to absorb proposed changes or moderate opportunities for mitigation
Low	Vulnerable receptor with good capacity to absorb proposed changes or/and good opportunities for mitigation
Negligible	Vulnerable receptor with very good capacity to absorb proposed changes or/and very good opportunities for mitigation

5.2 Anticipated Potential Impacts

The RUTDP will construct, rehabilite and renovate the urban infrastructure, such as climate resilient urban roads, drains, footpath, streetlights, bridges and culverts, kitchen markets, super markets, community centers, bus terminals, parks/ public places development, landscaping, beautification works, public toilets etc. The size of this type of subproject is small to medium and identical, and the extent of civil works is not significant and limited within the project boundary. However,the project will also involve "regional level investment' in the nodal cities like construction of regional bus terminals, integrated flood risk management system, drainage system regional food markets, community centers, storage facilities etc. for which significant impacts are anticipated and requires site-specific management plan. The project will bring local economic and employment opportunities along key selected corridors and in selected clusters particularly for women and vulnerable groups.. As a framework document, potential Environmental and Social impacts of the activities under the resilient urban infrastructure developments are discussed here for clear understanding and guidance for doing the same for other components.

5.2.1 Construction urban infrastructures

The investments for physical components provides net positive benefit to local people. The urban roads will be reconstructed/rehabilated considering the natural calamities so that the roads can be used all weather conditions. The drains will be constructed considering the rainfall of the catchment areas so that the water logging will be removed from that area. The newly constructed kitchen markets, super markets, and community centers will create good environment for buying & selling of goods, agricultural products by the local people. Development of drainage facilities , restoration of waterbodies and public green areas, rainwater harvesting, solar power generation, etc will reduce impacts of climate change. The newly constructed community centers will be facilitated to the local people for arranging their different functions. Construction of regional bus terminals, connecting logistic corridor roads, etc will improve connectivity, accessibility, and mobility. Construction of integrated flood risk management system, drainage system, water-body management and development, ecological corridors, etc. in and across municipal boundaries will improve . regional disaster risks mitigation and preparedness

5.2.2 Planning and Design Phase

Land Cover and Land Use Changes (ESS 1, 3, 6)

Construction of different infrastructures including roads, dains, footpath, bridges & culverts, kitchen markets, super markets, community centers, bus terminals, amusement parks/ landscaping/public places and public toilets, may change existing land use and land cover at the local level, the improvement works are relatively small in nature, and confined within project boundary but their quantity is significantly high and will be spread over community in and around the project area. For the ease of construction works or storage of construction materials, roadside land-cover may face some changes.

Loss of natural vegetation and trees (ESS 6)

Siting of proposed infrastructures may require cutting of trees and clearing of natural vegetation, which would not be significant in number.

Contractor Selection (ESS 1)

The success or failure of environmental and social mitigation in infrastructure development hinges to a significant degree on the primary contractor's sense of ES responsibility and commitment to compliance with prescribed safeguards measures.

Labor Sourcing (ESS 2)

Procurement of labor has two main potential impacts, which can be either positive or negative, depending on where most workers come from. First, use of mostly or exclusively non-local labor means that a construction camp will be needed, and this has significant potential for environmental and social impacts. Second, hiring mostly non-local workers is a missed opportunity for the project to bring benefits to the local community. The people who live in nearby areas will bear the brunt of any negative impacts that arise during the construction and operation phases, and employment opportunities will go some way in compensating for inconveniences and discomforts experienced.

In order to minimize and prevent construction camp impacts and maximize the project's benefits to the local community, the primary contractor and all of its sub-contractors should be contractually required to hire mostly or exclusively local residents for construction jobs. This should be stipulated in the bidding documents and contracts. However, a separate LMP has been prepared to minimize the risk associated with labor influx.

Gender Based Violence (GBV) (ESS 1, 2, 4, 10)

The local supply of labor is abundant in all the project districts, so labor influx will not be significant in any construction sites, and labor management will not be critical as well. Hence, incidence of gender-based violence including sexual exploitation and abuse and sexual harassment (SEA/SH) in the construction and labor camp sites, will be very less likely.

The Project's GBV risks are assessed as "moderate" due to the labor requirements to deliver civil works. The project will however, put a GBV lense in project oversight and grievance reddresal system based on mapping of service providers The project grievance redress mechanism (GRM) will have focal points and response protocol to attend any GBV related complaints. In addition, a supervision team comprising of social development specialists of the PMU and DSM will monitor and support the system. The measures will include specific provisions to ensure safety for and feedback from women and girls engaged as workforce. Besides, stakeholders' involvement, GBV sensitization training for the contractors, and signing of CoC, workers and affected community will be organized to mitigate the potential risks. During the

implementation, ESMPs will be monitored with focus on GBV. Training of contractor personnel on GBV issues and relevant expectations/ requirement will be conducted.

Seismic risk (ESS 1, 4)

Seismic risk profile of project districts shows that some districts have severe risk potential, though the history of seismic hazards is not so prominent in those areas. However, as the areas are situated on active seismic zone, and any events of seismic tremor of more than 6.0 in Richter scale may cause significant casualty or fatality, proper care should be taken while designing the structures. BNBC 2020 has provided due guidance on building structures in seismic zone and that will be adopted in the design. Strong movement of earth or tremor is riskier when construction works are ongoing; so, contractors will take initiative in providing recurrent training to the workers/staffs to avoid any potential human loss or damage to properties.

Flooding risks (ESS 1,4)

Some of the project areas namely, Shariatpur, Madaripur, Gopalganj, Faridpur, Rajbari, Chandpur, Cumilla, Pabna, Ishwardi, Bogura, Rangpur are prone to flooding, especially during the monsoon. However, flash flooding is also very common in some project areas. Flooding, irrespective of its cause, leaves huge losses on agriculture, livestock, lives and livelihood, and losses tend to bigger as the retention time gets wider. During the design phase, intensive consultation events will be conducted to understand the localized nature of flood potentials and destructions, and knowledge/suggestions from local people will be incorporated in resilient infrastructure design, optimally within the project scope.

Cyclone risks (ESS 1,4)

The southern part of Bangladesh (Khulna, Jessore, Narail, Magura, Gopalganj, Noakhali, Feni, Laxmipur, Chittagong and Cox's Bazar) are prone to cyclone and storm surge, especially during the month of April-May and September-October. Cyclone and storm surges are respective of its causes and impacts: leaves huge losses on agriculture, livestock, lives and livelihood, and losses tend to bigger as the retention time gets wider. During the design phase, intensive consultation events will be conducted to understand the localized nature of cyclone and storm surge potentials and destructions, and knowledge/suggestions from local people will be incorporated in resilient infrastructure design, optimally within the project scope.

Drought risks (ESS 1, 4)

The north western and northern corner (Rangpur, Dinajpur, Panchaghar, Thakurgaon, Jaipurhat, Naogao, Natore, Gaibandha, Rajshahi and Chapai-Nawabganj) are prone to drought, especially during the summer season. Drought are respective of its causes and impacts: leaves huge losses on agriculture, livestocks and livelihood. During the design phase, intensive consultation events will be conducted to understand the localized nature of droughtand knowledge/suggestions from local people will be incorporated in resilient infrastructure design, optimally within the project scope.

Anticipated Resettlement Impacts (ESS 5)

The project approach is to avoid involuntary resettlement to the extent feasible. All subprojects will be identified, designed and implemented within existing available land of the respective pourashavas and city corporations. However, in critical circumstances of accessibility, expansion and redesign for safety and climate resilience, implementation of project interventions may involve acquisition of private land and repossession of public land from formal and informal private uses. As per the feasibility study, summary results of the resettlement screening are given below:

i. No private, public, community, or cultural property of any kind of service delivery facilities as well as commercial activities will be affected;

ii. To prevent the disruption of businesses in existing facilities such as kitchen markets, they may be temporarily relocated on nearby sites. No damages to their business structures are expected since these are made of light construction and could be relocated. These traders may be given priority to avail of stalls in the newly constructed facilities;

iii. A phased approach to the construction of roads, drains, footpaths and streetlights shall be applied in order to minimize the disruption of business located along their alignments. If required, planks/platforms shall be installed to facilitate the entry and exit of customers and business people alike;

iv. Agricultural or industrial productivity will not be hampered by the proposed subprojects;

v. Felling of small trees located may be needed, and a replantation program shall be put in place during the implementation of the subprojects;

Funds for land acquisition and resettlement and their management have been earmarked and provisioned in the project budget. Details of the land acquisition and resettlement management has been discussed in the project Resettlement Policy Framework (RPF).

5.2.3. Construction Phase

Air Quality (ESS 1, 3)

Construction and rehabilitation of infrastructures development may generate emissions from excavation equipment, other machinery and construction traffic. The emissions may also include greenhouse gases (GHGs) from engine fuel combustion (exhaust emissions) and evaporation and leaks from vehicles (fugitive emissions) and emissions from asphalt works. The emissions from construction activities maydeteriorate the ambient air quality and affect the public health. The densely populated areas and crowded market places (bazaars) are particularly vulnerable to these impacts. In addition, dust generated from the above activities will also have impacts on crops and livestock if not properly managed.

Noise Pollution (ESS 1, 3)

Noise and vibration from construction activity can be a serious nuisance for community people. Noise pollution could result from a wide range of construction activities, including *movement of vehicles* (carrying equipment/ material to and from site), *operation of construction equipment* and *generators*. Significant noise is generated from operation of *pile drivings hammer, pile breaking hammer, bulldozers, dump trucks, compactors, mixing machines, excavators, brick breaking / stone crushing machine and generators* etc. Demolition activities, if required, also generate noise. Such noise may cause discomfort to the people living in the surrounding areas at close proximity of the sub-project site, especially if such activities are continued during the night. Noise pollution is particularly important for sensitive establishment e.g., hospitals, educational/religious institutions. The list of construction machineries and equipment are given in table 5.4 below which generate huge noise nuisance at construction sites:

Table 5.4: *Level of Noise Generated by Cosnstructiomn Machineries*

Machineries/ Equipment	Activities for Noise generating	Level of Noise Produce with typical range in dB (as per FTA 2006)
Construction vehicles	Carrying equipment/ material	Moderate (85)
Bulldozers	Demolition of structures	Moderate (85)
Excavators	Excavating the soil	Moderate (85)
Dump trucks	Carrying the debris/ construction wastes	Moderate (85)
Pile drivings hammer	Pile driving activities	High (101)
Pile breaking hammer,	Pile breaking works	High (100)
Brick breaking / stone crushing	Crushing the chips	High (88)
Compactors	For RCC/CC compaction	Moderate (82)
Concrete Mixer	For mixing of CC/ RCC works	Moderate (85)
Generators	Alternative of power	Moderate (81)
Tiles/marble cutter	Tiles cutting/smoothing	Moderate (81)
Metal Cutting saw	Rod cutting	High (115)

Among noise generating activities, operation of pile drivings produces the most significant noise. For full-scale ESIA (if needed), noise level predictions may be made for pile driving other major equipment used in the sub-project works, and used to assess noise pollution impacts in areas surrounding the sub-project site. However, noise modeling should be considered only for sub-projects that involve use of heavy equipment like pile drivings, bulldozers, etc, and require a full-scale ESIA. An indicative outline of ESIA is given as Annex E.

Water Pollution (ESS 1, 3)

Construction activity involving excavation and earthworks inevitably exposes loose soil and dust particles will be blown away to nearby water bodies causing turbidity and water pollution. If soils and stockpiles of erodible materials are inadequately protected from rain and surface runoff, sediment will make its way to local surface waters, and the result will be siltation and sedimentation. These processes will degrade the quality of local waters as habitat for aquatic species, and also lead to clogging of channels and culverts with sediment. If not properly controlled, process water from concrete mixing and pouring can also carry large amounts of fine silt to local waterways, especially where the drains are leading. This increase in turbidity is not likely to have any significant impact on overall water quality and the aquatic fauna primarily because of its temporary and localized nature. The construction camps and other site facilities such as offices and warehouses will also generate considerable quantities of waste effluents.

During construction, both surface and groundwater are at risk of contamination with noxious fluids used in the construction process, including fuels, lubricants. Spills and leaks soak into the soil and make their way to the groundwater table. Construction camps are a common source of surface water contamination, as toilet facilities are typically rudimentary and likely to leak raw or virtually untreated effluent. This may exacerbate existing surface water quality problems.

Water pollution may result from discharge of wastewater (e.g., liquid waste from labor sheds), spills and leaks of oils/ chemical into nearby water bodies (e.g., drain, ditches,pond, low wet land, khal, river). For drain

sub-projects, construction activities would be carried out on water bodies; hence these sub-projects are more likely to generate water pollution. For other sub-projects, the presence and existing use of water bodies surrounding the sub-project site would determine the level of impact. For example, if a pond located close to a sub-project site is used for washing/ bathing or for fish culture, pollution of the pond from sub-project activities would generate significant adverse impacts.

Soil Contamination (ESS 1, 3)

Much like water pollution discussed above, soils in the construction area and nearby lands that are used for agriculture will be prone to pollution from the construction activities, construction yards, workers camps and other construction areas. Fuel and hazardous material storage sites and their handling are also the potential sources for soil and water pollution. Improper siting, storage and handling of fuels, lubricants, chemicals and hazardous materials, and potential spills from these will severely impact the soil and water quality and also cause safety and health hazards.

Traffic Congestion (ESS 1, 4)

Majority of the project sites will be located in urban areas and its adjoining Union Parishad territory, or in urban fringe areas. Therefore, the burden of usual traffic will be more on alraeady busy urban areas. During peak construction time when heavy vehicles and machineries will be transported at full scale, the extra traffic movement may disrupt the normal traffic. A group of trained personnel can be deployed to manage the traffic at different sections and traffic control measures such as sign posting at strategic places and placing traffic cones to divide/direct the lanes, diversion road, etc. may be adopted.

Site Clearance and Restoration (ESS 1, 6)

After the completion of the construction activities, the left-over construction materials, debris, spoils, scraps and other wastes from the working sites and camp areas can potentially create hindrance and encumbrance for the local communities in addition to blocking natural drainage which may also disturb the aquatic ecology and or impact biodiversity**.**

Occupational Health and Safety (ESS 1, 2)

Measures relating to occupational health and safety will be applied to the project. The OHS measures will take into account the General EHSGs. The OHS measures applying to the project will be set out in the contract document. The OHS measures will be designed and implemented to address: (a) identification of potential hazards to project workers, particularly those that may be life threatening; (b) provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (c) training of project workers and maintenance of training records; (d) documentation and reporting of occupational accidents, diseases and incidents; (e) emergency prevention and preparedness and response arrangements to emergency situations and (f) remedies for adverse impacts such as occupational injuries, deaths, disability and disease.

Impact on labor, working Conditions and labor risks, including risks of child labor and forced labor, human trafficking (ESS 2)

The proposed sub-projects will entail employment of a significant number of labor especially during construction. The majority of labor will be locally hired, with the exception of skilled workers who may not be found in the project areas. However, potential risks engaged both for the hired skilled and non-skilled workers especially during construction period includes health hazards, poor living condition, accidental hazards risks, etc. Similarly, hiring labor from external area may cause social risk on the local communities

includes gender based violence, price hiking of daily used products/foods, etc. Substantial risks are associated in-terms of hiring child labors or forced labors, and also due to border districts risk associated to the labor trafficking is also very high. However, a separate LMP has been prepared to minimize the risk associated with labor influx including risks of SEA/SH**.**

Involuntary Resettlement Impacts (ESS 5)

The project will try to avoid taking any private land through involuntary acquisition and avoid any physical displacement of residents for activities under the project. Most of the works will be carried out within the existing available lands. However, in unavoidable circumstances, acquisition of private land and repossesson of public land from private uses will be managed following the project RPF. Site-specific resettlement plans will be developed - if and as necessary - during the project implementation. The RPF and any RAP will ensure the proper calculation and recording of the involuntary displacement impacts as well as identification of the affected people and mitigation of their loss and impacts. The purpose of the RPF and implementation of the RAPs is to ensure that there is no adverse effect on the living conditions and livelihoods of the affected people because of the project.

Community Health and Safety (ESS 1, 4)

Community health and safety risks associated with construction activity are primarily related to proximity; works carried out in densely populated localities offer many more opportunities for members of the public to come into contact with heavy machinery, fall into holes, and get injured by unstable stockpiles of materials. It also increases risk of SEA/SH All the sites will offer heightened risk in this regard, given the high density of residents nearby. Besides, sub-project specific issues such as construction of drain which may create community health and safety in form of risk of falling down into the open trenches, or the impact on health and safety of the shopkeepers and house owners living beside such drains needs to be considered. Additionally, the community may be infected with COVID-19 by the workers when the construction works will be in heavily congested areas.

Community health is most often affected by construction activity when dust levels are very high for long periods, and also when poorly managed construction camps are situated near existing settlements.

Livelihoods (ESS 1, 4)

Construction activity typically affects livelihoods in a few ways. On the negative side, poor management of the construction site can lead to property damage in adjacent areas. In particular, crops in nearby areas may get trampled or damaged by operation and parking of machinery without regard to the site boundary, or by materials stockpiles spreading across the property line. Careless management of the construction process can also sometimes impair access to nearby businesses, leading to loss of revenue; this is also not expected to be relevant at either site. In addition to such negative impacts, construction activity can also have a strong positive impact for local communities, especially if all or most workers are hired from the local population.

Impacts on Ethnic Minority Communities (ESS 7)

Ethnic minority communities (EMCs) if present in the project area can be characterized as indigenous peoples in view of their unique characteristics including language, culture, occupation, and traditions. They might be affected disproportionately by the construction works, and may not get access to the grievance services for making complaints or so. If any of the sub-project sites find EMCs with IP status within or around the site or influence area, the project will assess the impacts and prepare relevant action plan, and follow the measures strictly.

Impact on Cultural Heritage (ESS 8)

There might have some mosques, temples and graves along the proposed sub-projects area, which may be affected by project works (construction/rehabilitation). However, project ESCoPs and site-specific ESMP will guide about and ascertain necessary measures to take for avoiding or minimizing the impacts to the least. Chance Find Procedures will be included in the ESMP and chance find clause will be included in work contracts requiring contractors to stop construction, if cultural heritage is encountered during construction.

Demolition & Construction Waste (ESS 1, 3)

Demolition of existing bus terminal buildings/markets/community centers structures will be required in some sites. The demolition will create some amount of waste that need to be disposed of. Hazardous waste viz. waste oil etc. and the scrap material generated from the demolition of structures, and parts of construction debris (Brick, concrete and masonry) may cause pollution or nuisance. Further, waste generated during construction will consist mainly of packaging, from both construction materials and food products consumed by workers. The volume of waste produced is likely to be relatively small, but can easily get strewn and blown across the landscape and end up in local water bodies, if not appropriately managed.

Solid Waste and Sewage Effluent (ESS 1, 3)

Untreated sewage from the temporary toilets made for labors during construction phase may enter surface water if not adequately designed and positioned. Periods of high rainfall could lead to the overflow of the pit and overland flow, or rapid through-flow of the effluent to surface water prior to its full digestion in the soil. Raw sewage can potentially impact surface water quality by promoting the growth of algae and delivering pathogens may be harmful to human and ecological receptors. Use of toxic materials such as solvents and vehicle maintenance fluid (oil, coolant) and diesel fuel may contaminate surface and groundwater if these are disposed of directly into the ground or washed into the streams. Solid waste from construction workers/camp site may also contaminate surface water as well as groundwater if there are no adequate sanitary facilities.

The waste stream during construction at most project sites can be expected to consist of (i) process water; (ii) excavated material not used in backfilling; (iii) packaging and containers; (iv) solid waste generated by workers (food and food packaging); (v) sewage from any temporary on-site toilets; and (vi) grey water from any temporary on-site kitchens and wash-up facilities. Based on the limited scale of the proposed buildings and absence of plans for any batch plants, process water is likely to be quite limited.

Similarly, waste management facilities, if improperly managed, may result in potential impacts to surface water by the introduction of harmful substances during runoff events. It is important to establish formal solid waste management strategy to properly handle solid waste generated in all sites.

Employment and Poverty Alleviation (ESS 1, 2)

The subproject investments will contribute to eradicating poverty by promoting the expansion of employment and business opportunities. Labor intensive technologies will be adopted during the construction phase which will create short-term employment opportunities for those in the areas for skilled and unskilled labor force.

Women, Children, and Disadvantaged Groups (ESS 2, 4)
Subproject implementation shall also be gender-sensitive such as the participation of women shall be ensured in decision-making processes such as during the meetings of the pourashavas and city corporations ,Councils, TLCCs, and WCs. The participation of women in the construction labor force shall be encouraged.

The design of the subprojects shall address issues on women, children and disadvantaged groups such as the differently-abled, elderly, etc. Subproject designs shall be inclusive such that there will be, as applicable, (i) separate toilets for women and men labor, (ii) lactating rooms for female labor, (iii) baby-changing stations, and (iv) access ramps and handrails for the differently-abled and elderly.

5.2.4 Operation & Maintenance Phase
After identification of the activities and processes that would take place during operational phase of a sub-project, the potential impacts of these activities/ processes on the baseline environment need to be assessed. The potential environmental impacts during operational phase could also be categorized into: (a) ecological impacts; (b) physic-chemical impacts; and (c) socio-economic impacts.

Ecological impacts (ESS 6)
During operational phase, the possible impact of the sub-project activities on the biological environment would be insignificant, except for a couple of sub-projects. These include only storm drain.

As explained earlier, poor quality of drainage water (e.g., due to direct discharge of toilet wastewater into storm drain) could cause pollution of the receiving water body (e.g., rivers, khals/canals, ponds and ditches) and thus adversely affect aquatic flora, fauna and associated terrestrial fauna. Monitoring of water quality (for rivers, khals/canals, ponds and ditches) is therefore necessary to detect possible adverse ecological at an early stage.

Physico-chemical impacts (ESS 1, 3)
Depending on the type of sub-projects a number of physico-chemical parameters could experience both positive and negative impacts during operation phase of the sub-projects. Important issues and parameters include:

- Drainage,
- Water quality,
- Air quality and Noise level,
- Environmental pollution from solid waste

Drainage (ESS 1, 3)
The proposed sub-projects involving construction and rehabilitation of storm drains are likely to bring about improvement in the drainage condition in the sub-project areas, which is a major problem in many pourashavas and city corporations . However, blockage of the drains (e.g., by solid wastes due to improper maintenance) could aggravate drainage problem. Better management of solid waste could significantly facilitate the maintenance of storm drains.

Water quality (ESS 1, 3)
Again due to construction of storm drain, possible pollution of water body (rivers, khals/canals, ponds and ditches) is an important issue during operational phase. Poor quality of drainage water (e.g., due to direct

discharge of toilet wastewater into storm drain) could cause pollution of the final receiving water body; like rivers, khals/canals, ponds and ditches.

A number of sub-projects are likely to contribute to the betterment of water quality (and environment in general) through proper management of wastewater. These include public toilet, and properly operated kitchen market,.

Air Quality and Noise Level (ESS 1, 3)
During operational phase, vehicular movement would be the principal sources of air pollutants and noise. However, majority of the proposed road sub-projects involve rehabilitation, improvement and expansion of existing roads. Therefore, in many cases, risk of air pollution (i.e., particulate pollution) would be reduced due to paving of the existing unpaved roads. However, increased movement of vehicles through roads, bridges, culverts & drains to be constructed under the RUTDP could generate higher air and noise pollution. Also, increased movement of people and vehicles surrounding public places like kitchen market, cattle market, and community center could generate higher noise and air pollution.

Environmental pollution from solid waste (ESS 1, 3)
At operational stage some subprojects (markets, bus terminals, community centers etc.) would generate solid waste which needs to be managed properly. Implementation of the sub-project involving solid waste management (supply of bins, carts, etc) would significantly improve overall environmental condition and reduce the risk of clogging of drains by solid waste. However, lack of solid waste disposal facility at the pourashavas and city corporation is a concern.

Socio-economic impacts (ESS 1, 2, 4)
The RUTDP is aimed at bringing about improvement in the socio-economic conditions of the pourashavas and city corporations through improvement of basic infrastructure. Thus, implementation of the proposed sub-projects is likely to bring about significant improvement in the overall environmental and socio-economic conditions at the pourashavas and city corporations. Important socio-economic parameters that are likely to experience beneficial impacts due to implementation of the sub-projects include:

- Traffic improvement,
- Public health and safety,
- Employment and commercial activities

Traffic improvement (ESS 1, 4)
Implementation of a number of sub-projects is likely to bring about significant improvement in the traffic situation at the pourashavas and city corporations. These include construction of roads and drains with footpath, bridges, box culverts, pedestrian bridge, street light, traffic control measures, bus terminal and truck terminal. However, efforts should be made to properly manage traffic surrounding kitchen market, cattle market, and community center, so that these places public congregation do not aggravate the traffic situation.

Public health and safety (ESS 1, 2, 4)
The proposed sub-projects are also likely to bring about significant positive impact on the public health and safety through improvement of general environment and enhancement of public utility services. The important sub-projects in this regard are drain, kitchen market and super market, park, pedestrian bridge, public toilet, and, waste management.

Employment and commercial activities (ESS 1, 4)

A number of basic infrastructures to be developed under the RUTDP are likely to generate opportunity for employment and expansion of commercial activities. These include kitchen market, super market, bus terminal, road, etc. This project will create employment opportunities and better livelihood for local people which results in rapid accelerating of the urbanization process and will provide better environment to the community people

Long-term employment opportunities will subsequently be created during each subproject's operations phase particularly in relation to O&M activities. It is also expected that the subproject investments on basic urban and economic infrastructures will encourage private sector investments thereby creating more business and employment opportunities

5.3 Impact & Risk Categorization

Given the assessed level of impacts for the urban resilient infrastructures development subprojects discussed in the earlier sections, Table 5.5 gives an Impact Assessment & Risk Rating Matrix summary assessment (not showing all the potential impacts) based on the method explained in Section 5.1,

Table 5.5: Impact Assessment & Risk Rating Matrix Summary Assessment

Activity / Potential Impact	Relevant ESS	Impact Characteristics (when not mitigated)						Magnitude & Sensitivity of Impact		Risk Ratings (when not mitigated)
		Positive Impact or Negative Impact	Spatial	Duration	Timing	Likelyhood	Relationship	Magnitud	Sensitivity	
Planning & Design Phase										
Site Clearance		(-)	IL	M	L	M	L	L	M	L	M
Involuntary Resettlement		(-)	L	L	L	L	L	L	L	L	L
Flora & Fauna		(-)	L	L	L	L	L	L	L	L	L
Community Health & Safety		(-)	M	M	M	M	M	L	M	M	M
Waste Management		(-)	L	L	L	L	L	L	L	L	L

Activity / Potential Impact	Relevant ESS		Impact Characteristics (when not mitigated)					Magnitude & Sensitivity of Impact			Risk Ratings (when
Contractor Selection		(-)	L	L	L	M	M	L	M	M	M
Labour Sourcing		(-)	L	L	L	M	M	L	M	M	M
Gender Based Violence (GBV)		(-)	M	L	M	M	M	M	M	M	M
Construction Phase											
Air Quality		(-)	M	M	L	M	M	L	M	M	M
Noise and Vibration		(-)	M	M	M	M	H	M	M	S	S

Activity / Potential Impact	Relevant ESS		Impact Characteristics (when not mitigated)					Magnitude & Sensitivity of Impact			Risk Ratings (when	
Water Quality		(-)	M	M	M	M	M	L	L	M	M	
Soil Quality		(-)	L	L	L	L	L	L	L	L	L	
Impact on Vegetation		(-)	L	L	L	L	L	L	L	L	L	
Traffic Congestion		(-)	M	M	M	M	M	M	M	S	S	
Occupational Health & Safety		(-)	M	L	L	L	M	L	H	M	S	

Activity / Potential Impact	Relevant ESS		Impact Characteristics (when not mitigated)					Magnitude & Sensitivity of Impact			Risk Ratings (when
Community Health & Safety		(-)	M	M	M	M	M	M	M	M	M
Livelihoods		(+)	M	L	M	M	H	M	M	S	M
Demolition and Construction wastes		(-)	L	L	L	L	L	L	L	L	L
Impacts on SEC		(-)	L	L	L	L	L	L	L	N	L
Cultural Heritage			N	-	-	-	-	-	-	-	-
Operation & Maintenance Phase											
Drainage		(-)	M	M	L	M	M	M	M	M	M

Activity / Potential Impact	Relevant ESS		Impact Characteristics (when not mitigated)					Magnitude & Sensitivity of Impact			Risk Ratings (when	
Water quality		(-)	M	M	M	L	M	M	M	M	M	
Air Quality and Noise Level		(-)	M	M	M	M	M	M	M	M	M	
Environmental pollution from solid waste		(-)	M	M	M	M	M	M	M	L	M	
Traffic movement		(-)	H	M	M	M	M	M	H	M	S	
Public health and safety		(-)	M	M	M	M	M	M	M	M	M	

Activity / Potential Impact	Relevant ESS		Impact Characteristics (when not mitigated)					Magnitude & Sensitivity of Impact			Risk Ratings (when
Employment and commercial activities		(+)	M	M	M	M	M	M	M	M	M

Impact Characteristic:	
Very High/High/Moderate/ Low/Nil	VH/H/M/L/N
Magnitude and Sensitivity of Impact:	
VH/H/M/L/N	Very High/High/Moderate/Low/Nil
VS/S/M/L/N	Very Severe/Severe/Mild/Low/Negligible
Risk Ratings:	
H/S/M/L	High /Substantial / Moderate / Low

5.4 Summary of Impact Assessment

The project will construct, rehabilite and renovate the urban infrastructure, such as urban roads, drains, footpath, streetlights, bridges and culverts, kitchen markets, super markets, community centers, bus terminals, parks/ public places development, landscaping, beautification works, public toilets etc. The size of this type of subproject is small to medium and identical, and the extent of civil works is not significant and limited within the project boundary. However,the project will also involve regional and cross boundary level investment in the nodal cities like construction of regional bus terminals, integrated flood risk management system, drainage system, regional food markets, storage facilities etc. for which significant impacts are anticipated and requires site-specific management plan. The project will bring local economic and employment opportunities along key selected corridors and in selected clusters particularly for women and vulnerable groups. As a framework document, potential Environmental and Social impacts of the activities under the resilient urban infrastructure developments are discussed here. The anticipated impacts during construction phase appear to be air & dust pollution, noise pollution, temporary surface &ground water pollution, drainage congestion and water logging problem along with occupational and community health

and safety. Solidwaste and liquid waste management would be an issue during operation of the kitchen markets, bus terminals and other community infrastructure.

5.5 Potential Environmental & Social Impacts and Mitigation Measures

The ESMF suggests a broad range of mitigation and enhancement measures to reduce negative impacts and enhance benefits from different sub-project interventions under the RUTDP. 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. Typical mitigation measures are given in Annex-H. Example of mitigation measures for environmental and social issues for each sub-project are provided in Annex-I and a guideline of preparing ESMP is given in Annex -G.

CHAPTER 6: PROCEDURAL FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT

6.1 Introduction

This chapter outlines the procedure to be followed 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 RUTDP has primarily identified the types of infrastructures and facilities to be built across the places in 87 pourashavas and city corporations of Southern (south-western and south-eastern) and Northern (basically the northern and north-western) part of the country which are mostly disaster prone (draught, flood, tidal surge, cyclone, salinity intrusion etc.). The environmental and social assessment of RUTDP sub-projects need to be carried out based on the provisions of the applicable regulatory frameworks of Government of Bangladesh (Environment Conservation Rules, 2023) and the relevant ten (10) Environmental and Social Standards (ESSs) of World Bank's ESF.

RUTDP sub-projects will use a structured approach to environmental and social management to allow the project development process following the 10 ESSs of ESF, follow the mitigation hierarchy of avoidance, minimization, mitigation and compensation/offset for negative impacts and enhancement of positive impacts where practically feasible. Following sections describe what needs to be done at each stage of the overall project life of sub-projects implementation, implementation of the project activities, and reporting on progress. Similarly, the project will construct kitchen markets, super markets, community centers and public places/parks, public toilets, where pourashavas and city corporations have their own land.

6.2 Environmental and Social Risk Management Procedure

6.2.1 Overall Procedure

Due to the nature of the proposed sub-project activities under RUTDP and potential environmental and social impacts, the project falls under 'Orange' category according to ECR, 2023 and also falls under "Substantial Risk Project' as per the World Bank ESF, which requires initial environmental examination (IEE)/ESIA and implementation of environmental and social management plan. IEE is a partial assessment (not detailed) conducted according to the national law which is similar to the assessment conducted for moderate and lower risk category of projects as per ESF. The term IEE will be used to replicate the partial assessment throughout this ESMF. ESMF is prepared based on the following principles that can lead the planning and implementation of the sub-projects under the RUTDP.

- The Project Director at PMU, LGED is responsible for the compliance with national policies, regulations and World Bank ESSs and Guidelines, as mentioned in this ESMF. The ESMF will serve as the basis for ensuring the ES compliance of RUTDP.
- LGED is responsible for obtaining environmental clearance from DoE (Department of Environment) by submitting all necessary documents and design and fulfilling the due requirements of other local government agencies and World Bank as required.
- After the sub-project has been identified with design and location/ alignment options, screening of environmental and social risks - will be conducted by PIU/DSM consulting firm. The outcome of the screening process is to categorize the subprojects in terms of its environmental and social risks.

Considering potential environmental and social risks, impacts and their significance, sub-projects to be categorized as Substantial, Moderate or Low. Different instruments required for Substantial, Moderate or Low category project are included in Table 6.6, 6.7 and 6.8. A Design, Supervision and Management (DSM) Consultancy firm will be employed to carry out all forms of interventions after the identification of sub-project sites. Among the preparatory works before floating the bids or the selection of contractors, the major tasks include site specific ES Screening, design modification, preparation of ES documents incorporating site-specific ESMPs and recommendations from consultations and enhancement measures, incorporation of ESMP suggestions to the detailed design and preparation of BoQs, preparation of bidding documents incorporating the ES clauses as part of due diligence. E&S Specialists at PMU will complement the efforts of reviewing and finalization of all documents, on project's behalf, and simultaneously are responsible for coordinating all ES works including continued cooperation with the world bank ES team, conducting trainings on ES issues, monitoring & supervision of contractors' works and the responsibilities undertaken by the E&S consultants of DSM firm. The World Bank needs to review the screening outcomes, categorization process and ES documents and after giving the concurrence from their end, the ES documents are disclosed publicly.

- IEE/ ESIA including ESMP need to be prepared for each sub-project specific activities as determined/ administered by DoE and this ESMF. In this project, a mitigation hierarchy needs to be followed which is to be reflected in sub-project specific ESMPs. The first step in the Mitigation Hierarchy is to locate the sub-project site or design it in such a way so that the impacts can be avoided. However, in some situations, there might be some sub-project activities in/near to vulnerable communities; it is not possible to completely avoid risks and impacts. Therefore, the second step in the hierarchy is to reduce the potential risks and impacts of the proposed sub-project activity to acceptable levels through design considerations. When there are no further design solutions and the potential risks or impacts remain significant, then the third stem in the hierarchy is to develop feasible mitigation measures. The final step in the Mitigation Hierarchy is to offset any remaining significant residual impacts by technically and financially feasible means. This can be in the form of compensation or enhancement of similar environmental/social component in another location. However, proposed measures need to be practical given availability of appropriate skills, materials, equipment given the local conditions (geographical, natural, socio-political, infrastructure, security and disaster vulnerability).
- Suitable contractor(s) are selected through bidding process guided by the project PPSD (Project Procurement Strategy for Development) and contractor's suitability entails the capacity to follow the social and environmental due diligence for (the specific subproject of) the project. After mobilizing in the field, contractor(s) require to comply with the E&S specifications included in the bidding document and also submit any management plan if necessary as directed in this ESMF in later part.
- LGED and pourashavas and city corporations must ensure that contractor(s) follow ES Specfication/Environmental and Social Codes of Practices (ESCoPs) during the preparatory, construction and post-construction (decommissioning/ site clearance after finishing of construction works) phases along with all the recommended measures that delineated into the ES specification and other relevant plans. ES team of DSM and PMU of LGED will be engaged as the monitoring entity for the entire implementation period for carrying out an effective monitoring and supervision of contractors' compliance with ES requirements.
- Monitoring responsibilities for environmental and social issues appropriately relevant to operational period of the sub-project lie with ES consultants of DSM and PMU..

- Detail procedures to be followed for preparation of ES documents for different risk categories of subproject is shown in section 6.2.5.

There are certain other considerations, which need to be carefully evaluated or followed throughout the project period, especially during the preparatory and construction phases of each sub-projects. Such as:

- PMU must ensure that planning and design of any additional activities should ensure minimal cumulative impacts.
- Environmentally Sensitive areas, cultural sites, restricted or disputed lands should be taken care of with appropriate mitigation or compensation measures during implementation.
- Participation of stakeholders (especially local community) should be ensured by the project in planning, implementation and monitoring of each sub-projects and associated activities.
- LGED will ensure appropriate institutional set up for implementing environmental and social management plan and inter-agency coordination (whenever required).
- As with mitigation measures, the expected costs of the enhancement measures need to be included in the project costs. Furthermore, monitoring is required to not only ensure that the enhancement measures are being properly implemented but also to determine whether the benefits of these measures are being realized over time. Again, the costs of monitoring needs to be included in the project budget.
- LGED will undertake public disclosure about the project interventions and potential impacts.

Figure 6.1 shows the steps or procedures to be followed under different stages of the sub-project implementation in a concise outlook. Some of the steps need more clarification for the sake of better implementation of ESMPs and other ES management plans as identified through ES screening, which are described briefly in next sections.

Phases		Environmental and Social Management Procedure/ Steps	Review & Monitoring Requirement
Pre-Construction	1.	Environmental and Social Screening of Sub-project (Survey, consultation and screening by ES team at DSM)	PMU ES safeguard team review and concur to the screening results. If screening warrants detail ESIA, DSM will conduct it.
	2.	Outline Design Preparation (by the design team at DSM with support from ES team)	
	3.	Preparation of ES documents like IEE/ ESIA including ESMP or standalone ESMP depending on the risk category of sub-projects, (by the ES team of DSM in consultation with ES team at PMU)	PMU ES safeguard team review and share with WB for review and Concurrence of proposed IEE/ ESIA including ESMP as required.
	4.	Detailed Design Preparation incorporating ESMP Requirements (by the design team at DSM, in consultation with ES teams of DSM/PMU)	
		Incorporation of ESMP requirement in Bidding Documents through preparation of ES specification (by the ES team of DSM in consultation with ES team at PMU)	
	6.	Tendering, Evaluation and Selection of Contractor(s) (by pourashavas and city corporation , LGED/other procuring authority, as per PPSD)	PMU, LGED will review and provide concurrence on Bid evalutuion report.

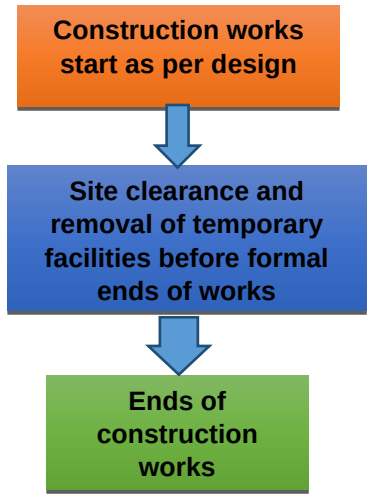
Construction	7.	Commencement of ESMP Implementation including regular consultation with stakeholders (Starts immediately after mobilization of contractor in consultation with ES teams of DSM & PMU) 	Monitoring by ES team of DSM and PMU, pourashavas and city corporation represtatives and Contractor(s)
O &M	8.	Environmental and Social Monitoring (During Operation Stage) of Sub-projects (by the pourashavas and city corporation represtatives, DSM, PMU during the project period and LGED for rest of the lifetime)	Monitoring by pourashavas and city corporation s and LGED

Figure 6.1: *Overall Environmental and Social Risk Management Procedure*

6.2.2 Project Influence Area

It is important to have a clear understanding about the "sub-project influence area" and "baseline environment". The ESMF provides guidelines for identification of sub-project specific influence area and defining environmental baseline. 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 is 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.

In order to establish a sub-project influence area, the activities to be carried out and processes that would take place during both construction phase and operational phase of the sub-project need to be carefully evaluated. Based on the field visits to sub-project sites in 87 pourashavas and city corporations, it is apparent that the sub-project influence area would depend not only on the type of sub-project, but also on the site/ area where it will be implemented. Although the RUTDP interventions considered in this ESMF study is confined within three corridors, 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 Corridors site has been considered as the project influence area. However, subproject influence area will be finalized after discussing with the client once the exact location and interventions have been clearly identified which will be included in the scoping process of IEE/ESIA preparation. . Some of the impacts such as social issues might cover an even larger geographical area.

For example, for a storm drain sub-project, the sub-project influence area would include: (a) catchment areas of the drain; (b) downstream areas of the drain, including the final discharge point (e.g., khal, rivers etc), where the storm water carried through the drain would be discharged; (c) routes of transportation of construction materials (or construction wastes) to (or away from) the sub-project site; and (d) areas of material storage, and labor shed for sub-project works. Visual observation and water quality tests suggest that the water bodies (i.e., khals, canals, rivers etc) receiving drainage water from the pourashavas and city corporations are heavily polluted at many pourashavas and city corporations (with high concentrations of BOD and ammonia, indication presence of domestic wastewater in the drainage water). Therefore, for a drain sub-project, water quality of the receiving water bodies is of particular importance.

Table 6.1 provides general guideline for identification of influence area for different types of sub-projects to be implemented under the RUTDP.

Table 6..1: *Guideline for identifying influence area for different types of sub-projects*

Sub-project	Influence Area
Urban roads	Areas and communities on either side of the road, who are users of the road and who are likely to be affected during construction of the road; Entire road length up to the major intersections at either end of the road, including the drainage network (if any) along the road[13].
Storm Drain	Areas and communities on either side of the drain alignment (i.e., catchment area of the drain section); Downstream section of the drain up to the discharge point[14]; Discharge point (water body; e.g., river, khal, another major drain).
Bus Terminal	Areas and communities within about half kilometer surrounding the proposed location of the bus terminal.
Community Center	Areas and communities within about half kilometer surrounding the proposed location of the community center.
Office Building Complex	Areas and communities within about half kilometer surrounding the proposed location of the building complex.
Park/Public place	Areas and communities within about half kilometer surrounding the proposed location of the park.

[13] It has been found that condition of road is intricately related to drainage; without proper drainage, roads become inundated and deteriorate quickly (especially when used by heavy vehicles).

[14] Discontinuity in storm drain network appears to be common in pourashavas and city corporations; drains are often not constructed up to discharge point, and drains just carry storm water from one area to another without solving water logging problem. Also, storm drains are found to be filled with debris/ solid wastes dumped by the local residents.

Sub-project	Influence Area
Bridge (< 30 m)	Areas on either side of the river/khal/canal covering areas about half km upstream and downstream of bridge location (including major roads/ intersection on either side that would be connected by the bridge); The river/ channel itself about half a kilometer upstream and downstream of the bridge location.
Box Culvert	Areas and communities within about half kilometer surrounding the proposed location of box-culvert; The channel/ khal itself about half a kilometer upstream and downstream of the box-culvert location.
Kitchen Market	Areas and communities within about half kilometer surrounding the proposed location of the kitchen market.
Super Market	Areas and communities within about half kilometer surrounding the proposed location of the super market.
Public Toilet	Areas and communities within about half kilometer surrounding the proposed location of the public toilet.
Street Light	Entire street length up to major intersections at either end of street

6.2.3 Guideline for Environmental and Social Baseline data Collection

For Subproject preparation guideline should be followed for primary and secondary data collection and make the subproject as environmental and social friendly. Table 6.2 presents a guideline for collection of primary and secondary data on physico-chemical environmental parameters for different types of sub-projects to be implemented under the RUTDP and Table 6.3 presents the specific data/ information collection for describing biological environment. Baseline information would be informed by screening and scoping process.

Table 6.2: *Guideline for collection of sub-project specific physico-chemical data/ information*

Sub-project	Data/ information from secondary source	Data from primary survey/ measurement
Urban Roads	Climate; Geology and soil; Hydrology and water resources; Topography and drainage	Traffic
Storm Drain	Climate; Geology and soil; Hydrology and water resources; Topography and drainage	Noise level; Water quality (water bodies receiving drainage water)
Bus Terminal	Climate; Geology and soil; Topography and drainage; Hydrology and water resources	Air quality; Noise level; Traffic
Community Center; Municipal Building; Park/Public Place;	Climate; Geology and soil; Topography and drainage; Hydrology and water resources	Noise level; Traffic

Sub-project	Data/ information from secondary source	Data from primary survey/ measurement
Municipal/Kitchen, stoarage facilities, Market;	Climate; Geology and soil; Topography and drainage; Hydrology and water resources	Air quality; Noise level; Traffic; Water quality (water bodies receiving waste water)
Bridge; Box culvert;	Climate; Geology and soil; Hydrology and water resources	Air quality; Noise level; Traffic; Water quality
Drainage system, water-body management and development	Climate; Geology and soil; Topography and drainage; Hydrology and water resources	Air quality; Noise level

Table 6.3: *Guideline for collection of sub-projectspecific data/ information for describing biological environment*

Sub-project	Data/ information from secondary source	Data from primary survey/ measurement
Roads; Pedestrian Bridge, culvert, Bus Terminals; Community Center; Municipal Building ; Park/public place; Public Toilet; drainage system, water-body management and development; Street Light; Municipal/Kitchen Market;	General bio-ecological features; Wildlife sanctuary, ECA, etc	Number of trees to be felled; Area of be cleared of vegetation
Storm Drain	General bio-ecological features; Wildlife sanctuary, ECA, etc	Floral and faunal diversity; (focusing on the water bodies receiving drain's water)
Bridge, Box culvert and other resilient urban infrastructure	General bio-ecological features; Wildlife sanctuary, ECA, etc	Floral and faunal diversity; Endangered and threatened species.

6.2.4 Environmental and Social Screening and Categorization of Sub-Projects

Environmental and Social screening is essential to gather information on existing baseline status and to assess potential environmental impacts of the sub-project activities. The guidance on determination of influence area for various categories of subprojects has been described in sub section 6.2.2. Screening identifies the consequence of the proposed project in broader sense based on project interventions, locations of the project and its surroundings, anticipated impacts, stakeholder's perceptions and expert judgment, without having very much detailed investigation. Critical issues are also identified through the screening, which needs detailed investigation. Based on the extent of environmental and social impacts obtained from the screening, the decision for further environment and social impact assessment will be taken. It is intended to provide the first level of information for a key decision to be made as to whether

further assessment of the project is required. Depending on the screening result different ES tools will be developed as stated in Section 6.2.5.

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 risks and impacts of sub-project 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/ESIA; (iv) identification of applicable environmental safeguard standards; (v) determine the risk category of the subproject; and, (vi) determine the specific instrument(s) to be prepared for each subproject.

Screening is usually carried out with the help of simple matrix that includes a set of check list to identify the baseline status and proposed potential impacts of the project intervention. A screening format has been developed for all the components under this project (provided in Annex-B). The forms will help to identify issues which can be verified during field investigations and also provide a preliminary idea regarding the nature, extent, and timing of environmental and social issues that would need to be handled during the subsequent stages. During screening, if it is found that any or cumulative effects of sub-project activities may create major irreversible damage or violate existing rules/regulations, the sub-project may be dropped from the implementation list. ES team at DSM will conduct the screening survey and reporting, in consultation with the PMU (ES team.)

Criteria for exclusion of Subprojects:
In order to ensure that the project meets its overall objectives, and that the national legal as well as Bank's ES requirements are met, the following will constitute criteria for the exclusion (negative list) of subproject sites from project finance: (i) require involuntary acquisition of land and displacement of EMC peoples; (ii) affect cultural heritage sites like mosques, temples, graveyards, cremation grounds, and other places/objects that are of religious and cultural significance; (iii) Located within protected area ,buffer zone of protected area, wetland , Wildlife sanctuary and special area for protecting biodiversity (Forest/ Sundarbans/ National Park, Beel, Haor, Mangrove etc.) These are also termed as the negative list for screening criteria. After screening any high-risk sub-project will be excluded and will not be financed under this project.

6.2.4.1 National classification and Environmental Clearance Requirements of the Proposed Investments

The legislations relevant for environmental assessment for proposed investments and sub-projects are the Environment Conservation Act 1995 (ECA'95) and the Environment Conservation Rules, 2023 (ECR'2023). Department of Environment (DoE), under the Ministry of Environment, Forest and Climate Change (MoEFCC), is the regulatory body responsible for enforcing ECA'95 and ECR'2023. Table 6.4 shows the classification of development works as per national requirements.

Table 6.4: *National requirement for general environmental assessment*

Category	General Environmental Assessment Requirement
Green	No environmental assessment required to support application for environmental clearance
Yellow	No environmental assessment required, but detailed project information, including process flow diagrams and effluent treatment arrangement, must accompany application for environmental clearance
Orange	Initial Environmental Examination (IEE) required, depending on the screening result a detailed ESIA may be needed and project can proceed to environmental clearance application once IEE is approved by DoE
Red	Brief IEE required to establish ToR for comprehensive Environmental Impact Assessment (ESIA), and project can proceed to environmental clearance application after ESIA and Environmental Management Plan (EMP) have been approved by DoE, often subject to conditions

It is the responsibility of the RUTDP-PMU as a proponent to conduct IEEof the sub-projects; the project authority would submit application for granting Environmental Clearance Certificate (ECC) in favor of the project, with submitting sample IEE, project ESMF, NOC from local authorities, and appropriate fees and so on. Though the project involves a good number of sub-projects/activities under different work packages, a sample IEEsalong with respective site-specific ESMP will suffice the requirements for obtaining clearance certificate in favor of the project. The responsibility of DoE is to review the documents including the sample IEE for issuing Environmental Clearance Certificate (ECC). Bidding documents for tendering a contract is prepared by the pourashavas and city corporations and DSM with inclusion of design and specifications. Cost estimate of a single component/package is drawn by the BoQ engineer/estimator, where budgeting for ESMP including monitoring cost is included. ES team at DSM prepares the ESMP cost, which is reviewed and finalized by the ES team at PMU. Final estimate of cost requires formal approval from the Project Director. The bidding documents contains a section on Environmental and Social Specification Clauses incorporated under General/Particular Specification.

6.2.4.2 World Bank's project categorization by identifying risks and impacts

The Bank classified all projects (including projects involving Financial Intermediaries (FIs)) into one of four classifications: *High Risk, Substantial Risk, Moderate Risk or Low Risk*. In determining the appropriate risk classification, the Bank takes into account the following 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 & commitment of the Borrower (including any other entity responsible for the implementation of the project) to manage the environmental and social risks and impacts in a manner consistent with the ESSs. 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. These could include legal and institutional considerations; the nature of the mitigation and technology being proposed; governance structures and legislation; and considerations relating to stability, conflict or security.

The Bank also reviews the risk classification assigned to the project on a regular basis, including during implementation, and may be change the classification where necessary, to ensure that it continues to be appropriate.

6.2.4.3 Project Risk Categorization:

National (as per ECR, 2023) and the World Bank's project categorization by environmental and social risks & impacts identification of a proposed investment for general environmental assessment are described in Table 6.5

Table 6.5 Environmnetal and Social Risk Categorization of Projects as per ECR 2023 and WB….

National as per ECR, 2023	
Category	**Risk level**
Green	Negligible
Yellow	Low
Orange	Moderate
Red	High

World Bank	
Category	**Risk level**
High Risk	Very Severe
Substantial Risk	Severe
Moderate Risk	Mild
Low Risk	Low

6.2.5 Preparation of ES Documents

After preparing the design of project component considering the site conditions, relevant legal/ guiding boundaries and available resource options, Environmental and Social documents are prepared befitting the risk categories. As all the subproject components of RUTDP fall under the 'low to substantial risk' categories as per ESF, the procedures for the preparation of relevant documents are laid out below

6.2.5.1 Substantial Risk Sub-Projects

A Project is classified as Substantial Risk after considering in an integrated manner, the risks and impacts of the Project considering the following:

(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 consider 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 trans boundary 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) Migratory 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.

As per the procedures provided in the Table 6.6 below, for Substantial Risk Category sub-projects, detailed ESIA including ESMP 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).

Table 6.6: *Procedures for Substantial Risk Sub-Projects*

Sub-Project Phase	Procedure
ProjectIdentification / Pre-Feasibility	• Social and Environmental Screening of sub-project (Annex B) • Consultations with key stakeholders (as per SEP)
Feasibility Study / Design	• Public consultations (as per SEP) • If required, follow RPF and prepare Resettlement Plan . • Prepare ESIA including ESMP • Review and modify ESCOPs (provided in Annex J) • Prepare Labour Management Procedure
Detailed Design & Tendering	• Ensure Mitigation measures (from ESMP) are included in Design • Ensure ESMP and LMP aspects are included in Bidding Documents
Construction Works	• Implement and monitor ESMP • Update ESIA (and ESMP) as required
Post-Construction	• Environmental Audit

6.2.5.2 Moderate Risk Sub-Projects

As per the procedures provided in the table 6.7 below, Moderate Risk Category sub-projects will require an IEE with a site-specific 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. Structure of IEE is provided in Annex-D. The major activities involved in carrying out an 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 and Social Codes of Practice (ESCoPs);
- 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 6.7: *Procedures for ModerateRisk Sub-Projects*

Sub-Project Phase	Procedure
ProjectIden tification / Pre-Feasibility	• Social and Environmental Screening of sub-project (Annex B) • Consultations with key stakeholders (as per SEP)
Feasibility Study / Design	• Public consultations (as per SEP) • Conduct IEE and prepare ESMP • Follow Labour Management Procedure developed for the project
Detailed Design & Tendering	• Ensure Mitigation measures (from ESMP) are included in Design • Ensure ESMP and LMP aspects are included in Bidding Documents
Construction Works	• Implement and monitor ESMP • Update IEEand ESMP as required

6.2.5.3 Low Risk Sub-Projects

As per the procedures shown in table 6.8 low risk subprojects will not require any further assessment after screening and an ESMP will be prepared incorporating relevant ESCoPs to ensure enhancements measures are implemented .

Table 6.8: *Procedures for LowRisk Sub-Projects*

Sub-Project Phase	Procedure
ProjectIden tification / Pre-Feasibility	• Social and Environmental Screening of sub-project (Annex B) • Consultations with key stakeholders (as per SEP)
Feasibility Study / Design	• Public consultations (as per SEP) • Prepare ESMP incorporating relevant ESCoPs • Follow LMP of the project
Detailed Design & Tendering	• Ensure Mitigation measures in ESCOPs are included in Design • Ensure relevant ESCoPs and LMP aspects are included in Bidding Documents
Construction Works	• Implement and monitor ESMP and ESCoPs •

Preparing the ESMP and IEE in an integrated manner to meet both WB and national requirements is an efficient step to be followed under this project. The project ES team will consider the more stringent or tougher actions or design modifications within the scope of the project, among the measures/ requirements suggested by both WB and national instruments. In this way, the adopted measures will satisfy both the requirements, and design team at DSM will be notified on this provision.

6.3 ENVIRONMENT AND SOCIAL MANAGEMENT PLAN (ESMP)

Guideline for ESMP is attached in Annex-G. A typical mitigation measures and Mitigation/enhancement measures for ESMP are attached in Annex-H and Annex-I. Site specific ESMP will be prepared for respective subprojects basing on these guidelines . Also OHS freamework is attached as Annex- N and OHS management plan will be prepared in accordance with the framework .

6.3.1 Scope and Objectives of ESMP

The prime objective of the ESMP is to manage adverse impacts of program interventions in a way that minimizes the possible adverse impact on the environment and people of the program influence area. The specific objectives of the ESMP are to:

- Identify the mitigation measures during ESMF preparation; and facilitate implementation of those during implementation of RUTDP;
- Maximize and sustain potential program benefits and control negative impacts;
- Draw responsibilities for program proponent, contractors, consultants, and other members of the program team for the environmental and social management of the program;
- Define a monitoring mechanism and identify monitoring parameters in order to:
    - Ensure the complete implementation of all mitigation measures,
    - Ensure the effectiveness of the mitigation measures,
    - Maintain essential ecological process, preserving biodiversity and where possible restoring degraded natural resources and habitats; and
    - Assess environmental training requirements for different stakeholders at various levels.

The ESMP will be managed through a number of tasks and activities and site-specific management plans. One purpose of the ESMP is to record the procedure and methodology for management of mitigation identified for each negative impacts of the program. A set of mitigation measures against possible environmental and social impacts due to the subprojects at its different phases is proposed in Annex-I . The management will clearly delineate the responsibility of various participants and stakeholders involved in planning, implementation and operation of the program.

6.3.2 Inclusion of Relevant Components of ESMP in Contract Documents

Bidding documents will be prepared by the DS consultant which will be reviewed and finalized by the PD. ES specifications are to be prepared on the basis of various ES documents and to be included in the relevant section of the bidding document. Special attention has to be made to include the cost of implementation of the ES specification are accounted for in the Bill of Qantities (BoQ).

6.3.3 Payment Milestones

Payments to contractors would be linked to environmental performance, measured by completion of the prescribed environmental and social mitigation measures. Contractors would be required to join with the executing agency, project management unit, supervising consultants and local population for the mitigation of adverse impacts of the program. For effective implementation of the proposed mitigation and monitoring measures they would attract trained and experienced environmental management staff.

6.3.4 Environmental and Social Codes of Practice (ESCoPs)

The environmental codes of practice (ESCoPs) are generic, non-site-specific guidelines. The ESCoPs consist of environmental management guidelines and practices to be followed by the contractors/implementation organizations for sustainable management of all environmental issues. The contractor will be required to follow them and also use them to prepare site-specific management plans. Details of the ESCoPs listed below are in Annex J.

- ESCoP 1: Waste Management
- ESCoP 2: Fuels and Hazardous Substances Management
- ESCoP 3: Water Resources Management
- ESCoP 4: Drainage Management
- ESCoP 5: Soil Quality Management
- ESCoP 6: Erosion and Sediment Control
- ESCoP 7: Top Soil Management
- ESCoP 8: Topography and Landscaping
- ESCoP 9: Borrow Areas Management
- ESCoP 10: Air Quality Management
- ESCoP 11: Noise and Vibration Management
- ESCoP 12: Protection of Flora
- ESCoP 13: Protection of Fauna
- ESCoP 14: Protection of Fisheries
- ESCoP 15: Road Transport and Road Traffic Management
- ESCoP 16: RUTDPTransport management
- ESCoP 17: Construction Camp Management
- ESCoP 18: Cultural and Religious Issues
- ESCoP 19: Workers Health and Safety.

6.4 Required Site Specific Management Plans (ESS 1-10)

Site Specific Management Plans depending on the outcome of screening required will be prepared by the contractors of the sub-projects as and when required. Selection of the management plans required by the sub-projects will be determined by the ESS requirements, applicable ESCoPs and recommendation of ESMP. These documents will be reviewed and cleared by the ES team of DSM and PMU. Such may include the followings:

Occupational Health and Safety (OHS) Plan: will be prepared and implemented by each contractor on the basis of the OHS Framework at annex N , WBG EHS Guidelines (2007), ESCoPs, mitigation plan, and other GIIP. The Plan will be submitted for review and approval before contractor mobilization. For labor-intensive maintenance works to be carried out by poor people in different areas, OHS measures outlined in the Labor Management Procedures will be implemented by RUTDP - ES safeguard team of DSM/PMU.

Further, to inspect the OHS plan at construction sites and its evaluation will be carried out with different checklist.

Traffic Management Plan: will be prepared by each contractor after discussion with ES safeguard team of DSM/PMU and authorities responsible for roads and traffic. The Plan will be submitted for review and approval before contractor mobilization. The Plan will identify the routes to be used by the contractors, procedures for the safety of the local community particularly pedestrians, and monitoring mechanism to avoid traffic congestion.

Plantation Plan: A plantation plan will be prepared for the trees to be planted on the project construction site, where the ES specialist are recomanded for compensating and enhancing the environment. The Plan will include the species to be planted, the plantation methodology, and plantation layout.

Emergency Preparedness Plan: will be prepared by each contractor after assessing potential risks and hazards that could be encountered during construction. The Plan will be submitted for review and approval before contractor mobilization.

6.5 Labor Management Procedures (ESS2)

A standalone LMP has been prepared to fulfill the requirement of ESS2 and will be disclosed by PIU. Besides the LMP, OHS management plan will be developed and implemented at the project activities.

6.6 Guideline for preparation of Environmental and Social Monitoring Plan

The monitoring plan is the key element of ESMP (Environmental and Social management plan) to be prepared on the basis of impact assessment described in earlier section. The management plan describe the potentially negative impacts of each sub-project activity, mitigation and control measures to address the negative impacts and assigns responsibilities for implementation and monitoring of these measures. The Plans for the RUTDP will be prepared and included in theIEE.

The primary objective of the environmental and social monitoring is to record environmental impacts resulting from the sub-project activities and to ensure implementation of the “mitigation measures” identified earlier in order to reduce adverse impacts and enhance positive impacts from project activities. The monitoring plans for the RUTDP, will be prepared and included in the ESMF.

6.6.1 Monitoring Framework

The objective of the monitoring framework is to ensure that the mitigation measures designed to prevent, reduce and where possible offset any significant adverse on environmental and social impacts throughout the Project lifecycle.

The project will adopt a real time monitoring procedure with support from project IT support unit, whereby a good numbers of real time photographs with comments on implementation status, condition of safeguards management and visible setbacks in different sites will be taken by field level staffs, sent to the server for storage at once and readily accessible from any places in the world by the project authority, consultants as well as world bank. Computer generated monitoring reporting and procedure will be an added advantage from the system.

However, in order to reduce adverse impacts and enhance positive impacts from project activities, LGED with support from the consultant will be responsible to monitor and make sure that the environmental mitigation/enhancement measures (including health and safety measures) outlined in the ESMP for the

particular sub-project are being implemented in accordance to the provisions of the Tender Document. Apart from general monitoring of mitigation/enhancement measures, important environmental parameters to be monitored during the construction phase of the sub-projects including air quality, noise level, water quality, drainage congestion, and traffic problems. However, the requirement and frequency of monitoring would depend on the nature of sub-project and field situation. IEE report for each sub-project will include every details of monitoring activities, including monitoring frequency, responsible persons, monitoring indicators, etc. and a sample monitoring plan for environmental and social management issues are given in Appendix- E. Based on monitoring outcomes, further course of corrective actions is to be set up and implemented.

The PMU and DSM environment and social specialists will carry out ESMF monitoring to ensure that the mitigation plans are being effectively implemented, and will conduct field visits on a regular basis. Table 6.9 shows a synopsis of ESMF monitoring plan:

Table 6.9: *Monitoring responsibilities in phases*

Project Phase	What	When	Who (monitoring authority)	How
Preparation	Training and capacity building	Before preparation of tender documents	PD with Safeguards Specialists at PMU	Reviewing training records
Preparation	Ensure screening of environmental and social issues, and conducting survey for IEE reports	After locations, primary design and alignment are confirmed	PD with Safeguards Specialists at PMU	Review completed screening reports
Preparation and Construction	Consultation meetings with stakeholders	During the subproject screening survey & feasibility; throughout	PD with Safeguards Specialists at PMU	Review of Screening reports and quarterly safeguards reports; and incidents reporting protocol
Construction	Training & capacity building	Monthly	PD with Safeguards Specialists at PMU	Reviewing training records
Construction	Grievance Records	Monthly	PD with Safeguards Specialists at	Review Grievance

Project Phase	What	When	Who (monitoring authority)	How
			PMU	Register
Construction	Environmental & Social mitigation/enhancement measures (i.e., health and safety measures) outlined in the ESMP and incorporated in the bidding documents and the approved contracts	Monthly	PD with Safeguards Specialists at PMU	Review ESMP Monitoring documents/ progress reports
Construction	Environmental & Social mitigation/enhancement measures	Monthly	PD with Safeguards Specialists at PMU	Review ESMP Monitoring documents
Operation & maintenance	Grievance records	Monthly	pourashavas and city corporations , LGED	Review GRM Register
Operation & maintenance	ESMP (including health and safety measures)	Monthly	pourashavas and city corporations, LGED	Review ESMP Monitoring documents

6.6.2 Monitoring environmental parameters during Construction Phase:

During implementation of all sub-projects, the LGED with support from the pourashavas and city corporation will be responsible to monitor and make sure that the environmental mitigation/enhancement measures

(including health and safety measures) outlined in the ESMP for the particular sub-project are being implemented in accordance to the provisions of the Tender Document.

Apart from general monitoring of mitigation/enhancement measures, important environmental and social parameters to be monitored during the construction phase of the sub-projects include air quality, noise level, water quality, drainage congestion, and traffic problems. However, the requirement and frequency of monitoring would depend on the type of sub-project and field situation. For certain sub-projects (e.g., street light, traffic control), monitoring of these parameters is not critical; while monitoring of some of these parameters (e.g., air quality) would be needed only if significant pollution is suspected. Table 6.10 presents an Indicative guidelines for monitoring of specific physical parameters during construction phase of different sub-projects.

Table 6.10: *Guidelines for monitoring of environmental parameters during construction phase*

Sub-project	Monitoring Parameter and Scenario	Monitoring Frequency	Resource Required & Responsibility
Road, Pedestrian,Drain, Bus/ truck terminal, Community center, Kitchen market, Municipal building, Park/public place	If significant air pollution is suspected: ***Air Quality*** Particulate Matter (SPM/ PM10/ PM2.5)	Regular / daily monitoring for dust suppression (visual observation) AQI: Thrice for a year cycle during construction (analytical monitoring)	Contractor under the guidance of pourashavas and city corporations; ES team of DSM/ PMU,LGED
Road, Pedestrian, Drain, Bus/ truck terminal, Community center, Kitchen market, Municipal building, Park/public place	***Regular monitoring:*** Noise level	Once every month, particularly during operation of heavy equipment	Contractor under the guidance of pourashavas and city corporations ; ES team of DSM/ PMU,LGED
Bridge, culvert, Water body restoration/landscaping, waterfront development, waste	Water quality of affected waterbody, pH, BOD5/ COD, Oil and Grease, heavy metal and trace metal **Soil quality:** pH, salinity, alkanity, heavy metal and trace metal	Water: Thrice for a year cycle during construction (analytical monitoring) Soil: Once at a time during construction period (at a location downstream of the work area)	Contractor under the guidance of pourashavas and city corporation ; ES team of DSM/ PMU,LGED

Sub-project	Monitoring Parameter and Scenario	Monitoring Frequency	Resource Required & Responsibility
Road, Pedestrian, Drain, Bus/ truck terminal, Community center, Kitchen/super market, Municipal building, Park/public place	If pollution of an adjacent water body is suspected: *Water quality* (pH, BOD5/COD, Ammonia, Phosphate,Oil and Grease- as need based)	Thrice for a year cycle during construction (analytical monitoring)	Contractor under the guidance of pourashavas and city corporation ; ES team of DSM/ PMU,LGED
All sub-projects	Visual observation of drainage congestion, traffic within around sub-project location	Once a week; when drainage/ traffic congestion suspected	Contractor under the guidance of pourashavas and city corporation ; ES team of DSM/ PMU,LGED

Note: *Actual monitoring time and location should be decided by the PD with Safeguards Specialists at PMU and DSM depending on the location of specific activities.*

6.6.3 Monitoring environmental parameters during Operational Phase

During operational phase, monitoring of environmental parameters would be required for certain sub-projects. Table 6.11 presents guidelines for monitoring of specific environmental parameters during operational phase of selected sub-projects.

Table 6.11: *Guidelines for monitoring of environmental parameters during operational phase*

Sub-project	Monitoring Parameter and Scenario	Monitoring Frequency	Resource Required and Responsibility
Strom drain	Water quality (for storm drain, of the water body receiving drainage water) (pH, BOD5/ COD, Ammonia, Phosphate)	Half-yearly (at a location downstream of the discharge point)	pourashavas and city corporation, with support from LGED
Road, Pedestrian, Drain, Bridge, Culvert, Bus/ truck terminal, Community center, Kitchen market, Municipal building, Park/public place	Qualitative assessment of traffic congestion, accidents	As needed	pourashavas and city corporation, with support from LGED

Note: *Actual monitoring time and location should be decided by the* pourashavas and city corporation *engineer*

6.6.4 Third Party Monitoring

LGED will engage Environmental and Social specialists at PMU and under the DSM to conduct monitoring of the ESMP implementation. The main purpose of the monitoring will be to ensure that all the key entities are effectively and adequately fulfilling their designated role for ESMP implementation and that all the ESMP requirements are being implemented in a timely and effective manner. Also the project will engage Third Party Monitoring (TPM) Consultant to provide technical due diligence.

6.6.5 Performance Indicators

For evaluating the performance of the environmental management and monitoring plan, performance indicators are identified to for efficient and timely implementation of measures/actions proposed in ESMP. The indicators are defined both for implementation phase and for post project period. DSM will be responsible for compiling the information on these indicators and report to LGED.

Separate performance indicators for each environmental issue will be specified in the mitigation plans for the RUTDP,and included in the associated ESMP. To measure the overall environmental performance of the program, an additional list of performance indicators is given below.

- Number of inspections carried out by DSM per month.
- Number of non-compliances observed by DSM
- Availability of environmental specialists in DSM
- Availability of environmental specialists with contractors.
- Timely reporting of documents (as defined in ESMP and monitoring plan).
- Number of trainings imparted to stakeholders/other capacity building initiatives.
- Timely disbursement of compensation/ timely resettlement of program affectees.
- Timely implementation of resettlement schedule.
- Number of grievances received.
- Number of grievances resolved.
- Number of constructions related accidents.

6.7 Adaptive Management during implementation

All ES documents are subject to amendment or changes from time to time during Project implementation, to reflect adaptive management of Project changes and unforeseen circumstances or in response to assessment of Project performance under those documents. In such circumstances, LGED will make necessary changes in documents, obtain concurrence from the world bank and will promptly disclose the updated versions. Apart from documentary adaptation, adaptation in physical construction or to an evolved situation may be required.

6.8 ESMP Implementation Cost

Cost estimates will need to be prepared for all the mitigation and monitoring measures to be proposed in the site specific ESMP in accordance with the ESMF. The cost estimates for some of the mitigation measures to be identified in the ESMP will be part of civil works contract.

The Development Project Proposal (DPP)/Technical Assistance Project Proposal (TAPP) of LGED/MoLGRDC for the proposed program should reflect the ESMP activities with budget for successful environmental management of the program.

Total US$ 7.5 million is estimated for implementation of ESMF which should be embedded in the proposed total project budget from IDA as shown in table 6.12.

Table 6.12: *Indicative Cost Estimates for ESMF implementation of the RUTDP-LGED Sub-projects*

Sl	Description	Indicative Amount million US$
1	Contractor's Budget for development of management plans, staff, training, etc.	0.5
2	Water, soil and air quality monitoring during construction (quarterly for 6 years)	1.0
3	Tree plantation development and maintenance	1.5
4	Baseline Ecological Studies, development of conservation plans and biodiversity monitoring during construction and operation (5 years), training to workers,monitoring of sites	1.0
5	PMUand DSM E&Sstaffs for providing ES support to PMU and PIUs	3.0
6	Capacity building and institutional strengthening	0.5
	TOTAL	**7.5**

CHAPTER 7: STAKEHOLDER, ENGAGEMENT, GRIEVANCE, MECHANISM AND DISCLOSURE

7.1 Introduction

The SEP details the commitment of LGED with regards to engaging the stakeholders of the RUTDP and provides a Grievance Redress Mechanism (GRM) and an action plan for the implementation stage activities in identification, design and execution of civil works. The SEP is a guide to document stakeholder's feedback, reflect those in design and implementation approach, and to receive and address grievances arising out of implementation of the Project to maximize benefits and sustainability.

For RUDTP project, LGED has already prepared stakeholder engagement plan (SEP) covering all the subprojects in 87 pourashavas and city corporations. This project SEP has primarily identified the potential stakeholders, requirements to the engagement with the project, methods of engagement, and also delineated a set of strategy for engagement program, target information to be disclosed with the relevant groups and pathways to review and inclusion of views/perceptions/concerns/suggestions into the various decision making stages of the project. Specific considerations on vulnerable groups from every possible circumstances have been taken into good care of while drafting the project SEP.

The identified stakeholders of the proposed Project include (i) concerned national government agencies such as the LGED, (ii) utility service providers (electricity, telecommunications, gas), (iii) participating urban local bodies (Pourashavas and City Corporations), (iv) users of the subprojects (visitors, customers and tenants), (v) local residents, (vi) local business communities, (vii) women's groups, poor communities, youth and other disadvantaged groups, and (viii) external development partners .

7.1.1 Process for Engaging Stakeholders

The SEP is a live document and will be updated as per ESCP commitment and the updates will include the views of vulnerable and disadvantaged groups after due consultation with them. The initial SEP was developed based on the feasibility study and to be disclosed prior to project approval, as the starting point of an iterative process to develop a more comprehensive stakeholder engagement strategy and plan. The World Bank social and environmental provided guidance to LGED ES team to develop the SEP in consultation with participating pourashavas and city corporations and stakeholders.

The stakeholders of the proposed Project include (i) concerned national government agencies such as the LGED, (ii) utility service providers (electricity, telecommunications, gas), (iii) participating urban local bodies (Pourashavas and City Corporations), (iv) users of the subprojects (visitors, customers and tenants), (v) local residents, (vi) local business communities, (vii) women's groups, poor communities, youth and other disadvantaged groups, and (viii) external development partners .

7.2 Stakeholder Consultations and Outcomes

7.2.1 Objective of the Consultations

The World Bank's Environmental and Social Framework (ESF) underscores the importance of open and transparent engagement between the borrower and project stakeholders as an important pillar of good practice. Effective stakeholder engagement through a robust consultation and disclosure mechanism promotes environmental and social sustainability of the project, enhances its acceptance and makes important contributions to design and aids in smooth implementation of the project. Stakeholder engagement is an inclusive process and is carried out throughout the life cycle of the project. ESS10 refers to Stakeholder Engagement and Information disclosure requirements of the ESF. The following are the objectives of ESS10:

- Establishment of a systematic approach to stakeholder engagement that will enable borrowers to identify and form constructive relationships with the relevant stakeholders, including Project Affected People (PAP).
- To assess the level of stakeholder interest and support for the project and ensure that through this mechanism, the views of the stakeholders are incorporated into the project design.
- Encourage and facilitate methods of effective, meaningful consultation and engagement with PAPs throughout the project cycle on issues that could potentially have an impact on them.
- Ensure that project information related to environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.
- To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow LGED to respond to and mange such grievances.

ESS10 promotes meaningful consultation and communication with all stakeholders, and the process of stakeholder engagement involves the design and implementation of a Stakeholder Engagement Plan (SEP).

List of Stakeholders

CATEGORY	Degree of Influence /Interest (High)	Degree of Influence /Interest (Low)
Private		
Business Community	Influence -Low	Interest-Low
Chamber of Commerce and Industries	Influence -High	Ibterest-Low
Local Authority		
Urban Local Bodies	Influence -High Interest-High	-
Workers and Trade Unions	Influence -High Interest-High	-
Professional Association	Influence -High Interest-High	-
Non-Governmental Organisation	Influence-High	Interest-Low
Community		
The scientific and technological community	Influence -High	Interest-Low
Women, Children and youth	Influence -Low	Interest-High
Indigenous Peoples and their communities	Influence-Low	Interest-High
Contractor	Influence-Low	Interest-High

** A Separate List of Participants of Stakeholders Consultation is attached with SEP

7.2.2 SEP formulation and implementation arrangement

The SEP for this project has been prepared as a standalone document for the project life cycle. Mapping

the project stakeholders is the first and foremost task in the preparation, and similar to the other LGED implementing projects, stakeholders primarily fall into two major groups (i) project affected parties who are affected or likely to be affected by the project activities, and (ii) other interested parties who may have an interest in the project. Communities in the subproject areas who could be directly affected by the project activities, market goers, businessmen, teachers and students, unemployed working class people, and people from different vulnerable groups, such as, elderly, disabled, children, pregnant women, single mothers, informal settlers, among many others fall into the first group, while civil society groups, local suppliers and businessmen, working on labor/GBV/SEA/SH issues in the locality, different government bodies including MoDMR, MoPME, finance and planning ministry, and many others constitute the 2nd group of stakeholders in this project. The level of engagement required for each group of stakeholders is based on their level of interest and impact they may face or exert on the project. The overall coordination and monitoring mechanisms established in the SEP are overseen by project PMU where the safeguards consultants will be taking care of progress of the activities that sketched out in the SEP.

7.2.3 Consultation and Participation

As manuy as 85 consultation meetings were held at pourashavas and city corporation level including community including affected people, local government representatives, farmers, women, ethnic minorities and vulnerable people where 30% female of various capacities participated in those consultation meetings(Meeting minutes of those consultation were furnished in FS report). Local people of various occupational groups were consulted through focus group discussions and officials from relevant government offices at pourashavas and city corporation /Upazila /District level including Agriculture, Fisheries, Forest, Water Development Board, Local Government Engineering Department and Local Administration were consulted as key informants.

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. They also suggested/demanded some mitigation measures for their livelihoods and sustainable development.

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

Issues	Concerns raised by the stakeholders	Mitigation Measures
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.	Following ESMP identified Environmental and Social Issues as per to addressed
Compensation to all Project Affected People(PAPs) & Livelihood restoration Employment opportunity for the local people	Some of the PAPs may not getting the compensation for their lost assets. Compensation payment procedures should be easy and transparent. Local laborers are not getting job opportunities in the pourashavas and city corporation activities. A clear policy should be adopted to deploy local people in the project activities during construction and operation phase.	Following the Resettlement Policy Framework compensation to be provided to the PAPs and initiative to be undertaken for livelihood restoration
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.	

7.2.4 Outcomes of Consultation Meetings

During preparation of ESMF and other safeguards documents, the feasibility study team for this project, has taken stakeholders opinion and those are incorporated with the entitlement matrix.

Suggestions from the consultation meetings will be incorporated into the project design, and the extent of incorporation will depend on the scope of design statement within the proposed activities of the project. As the design of physical components and services is prepared and finalized in a consultative process, stakeholders inputs or suggestions will complement to attain the project objectives.

7.2.5 Stakeholder engagement during the implementation period

Consultation with the potential project affected people and other interested parties, including vulnerable groups, will be conducted at regular intervals (e.g. quarterly) by the different entities under the project implementation framework, as stated in the SEP. The mode of consultation may be public meeting, FGDs for different vulnerable groups (women, female headed households, elderlies, ethnic communities, etc.), communication through mass/social media, distributing brochure/leaflets, posting on notice boards and so on, and the events will be conducted by the PIU team (during visiting a site), LGED officials from local offices, ES consultants and support staff of DSM, contractor/sub-contractors and other skilled/contracted facilitators to inform about the project scope, activities, grievance system, employment opportunities, etc. and learn on the suggestions/comments/ grievances that could be used for sub-project specific rectification measures or further decision making process including design and mitigation activities. Consultation with vulnerable groups will be conducted with great care and sophistication in order to ensure that none of the project activities will cause a least harm to them, and project design and implementation will put maximum emphasis on their needs and amelioration or restoration of their livelihood, within the project scoping boundary. Moreover, contractors will employ at least 75% of labors from the local communities/sources, and to avoid any dispute with the local communities/potential stakeholders and if raised, settle the disputes amicably/ however, contractor's activities relevant to ES issues must be presented in the compliance/progress reporting.

7.2.6 SEP revision and updating

The project may experience different scenario/ circumstances or new stakeholders of significantly important for the project, at some point in project life cycle, when the proposed plan, method or resources may not be found suitable or sufficient for addressing the newly evolved scenario or may found inconsistent or obsolete in terms of effectivity. Considering such unforeseen situation or circumstances, if arises, the SEP needs to be revised and updated incorporating the best available practices or required plans. A periodic revision would be more feasible to get abreast with the contemporary scenario, by the Social Development Specialists in consultation with the Communication Specialist, specifically in context with the project requirement at that point of time and specific phases of development. Any major changes in project related activities or its schedule, or inclusion of any missing stakeholder groups (that may have significant effects in decision-making) shall be reflected properly in the newly revised document. PMU-M&E consultant should also be communicated for their valuable observations/suggestions regarding any required changes in SEP, and the revised version will have concurrence from the World Bank.

7.3 Grievance Redress Mechanism

Considering the overall need for the total project period, pourashavas and city corporations will establish a three-tier Grievance Redress Mechanism (GRM)[15] to address complaints and grievances of

[15] Details of the GRM are discussed in the project Stakeholder Engagement Plan (SEP).

the project affected people throughout the life cycle of the project. A separate mechanism will be established for labor related issues under contractors and sub-contractors. Project-affected-people in the RUTDP 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/unauthorized 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. Both the project level GRM and labor GRM will be responsive to SEA/SH complaints. Mapping of GBV service providers will be carried out in order to identify organizations that can provide care support in the event of an incident.

7.3.1 Grievance Mechanism Structure

A three-tier grievance redress mechanism has been proposed for the affected people and other stakeholders under RUTDP 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 and project level.

The pourashavas and city corporation 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.

7.3.2 Project Level Grievance Redress Mechanism

The pourashavas and city corporation level GRM shall have the following Grievance Redress Committee (GRC) members: -

- Mayor-during Operation
- Assistant Engineer/XEN/Superintendent Engr.
- Elected Representative/Councilor
- A Female Commissioner/Councilor/Member
- A Representative of the PAPs
- Representative of an NGO working in the area on Social Development /Gender/GBV and labor issues

7.4 Information disclosure and consultation

A combination of mixed methods of information disclosure and consultation process has been adopted at this stage of ESMF preparation. The methods to be 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 will be held in the zone of influence. In all occasions the date, time and venue of the consultation will be decided by the stakeholders keeping in view their prior engagement and availability. Group discussion with various occupational groups in the project influence area will be conducted in the public places convenient to them while KIIs were done by visiting the offices/place of the key informants (Details- Referred to Stakeholder Engagement Plan)

Disclosure of project information in project websites of LGED is a common practice for long. However, stakeholders are required to have open access to project appraisal documents including all the E&S safeguards documents, in order to allow them to understand the risks, impacts or potential opportunities from the project and the mechanism of information dissemination should be simple and understandable to all/ Under the recent guidance of World Bank's Environmental and Social Framework, five key materials (to the least) are required to prepare by LGED as part of E&S Safeguards documents at the appraisal level: (i) Environmental and Social Management Framework (ESMF)/ Environmental Impact Assessment (ESIA) Report, (ii) Resettlement Policy Framework (RPF), (iii) Stakeholder Engagement Plan (SEP), (iv) Labor Management Procedure (LMP) and Environmental and Social Commitment Plan (ESCP), which need to be disclosed in full length, both on the World Bank and Project websites. Some other documents related to E&S safeguards are to be prepared and disclosed widely, based on the project scope and circumstances arised, e.g., Small Ethnic Community Development Policy Framework (SECDPF) will be required, if any project component will fall in or pass

through an area where any small ethnic community inhabits or have some livelihood activities.

Two of the important means for information disclosure or dissemination that have been followed until now include briefing materials and organization of community consultation sessions. Besides the full-length copies of the previously said documents to disclose electronically, executive summary or some collected or excerpted portion of those documents need to be disclosed or circulated in the project sites as briefing materials or brochures, preferably in Bengali for an ease understanding by the communities and relevant stakeholders. The briefing materials and brochures should include project information, applicable assistance to be given to the PAPs; grievance mechanism, etc. that can be kept in the offices of pourashavas and city corporation s and project offices. Posters on OHS, GRM, GBV/SEA/SH, etc. are to be displayed at strategically visible locations and leaflets on the same topics can be distributed in the project areas. Consultation meetings should also be organized at regular intervals by the project to acquaint the communities, target group beneficiaries and affected persons of the following:

- Timeline and progress of the project by components;
- Information on beneficiary participation;
- Information of involuntary displacement, compensation and entitlements;
- Information of participation of small ethnic communities;

Progress monitoring reports will also be disclosed on the project website, as stated above. If any discrepancies between the original project status (or any part of it) in the field and the progress reports are found and notified by any means of communication, the circumstances/ status shall be communicated by the respective receiving authority with the ES team at PIU, within 3 days of reporting. Review and relevant revision of progress monitoring reports will be conducted in 2 weeks of reception.

All the revised documents will be posted in the project website, replacing the older versions of the documents, within 2 weeks of receiving concurrence from the World Bank. Website link of every document (or the project website link) will be posted on the notice boards in LGED local offices under the project districts and contractor's site offices as well. Disclosure requirement is shown in table 7.2.

Table 7.2: *Disclosure Requirement of RUTDP Project*

Project Stage	List of documents to be disclosed	Methods	Location/ Time Frame	Target Stakeholders	Project Stage
Preparation	Documentary Disclosure: Project Appraisal Documents including SEP, ESMF, LMP, ESCP, RPF. EMCF	LGED and World Bank websites, pourashavas and city corporation administration website and notice board	As soon as the documents are prepared, and before project appraisal	PAPs and Local Population including VG, marginalized population and tribal community; local administration and local business community, and	LGED/PDProject Feasibility team, Communication
	Activity dependent Information	Sub-Project site office at the pourashavas and city corporatio		Expert in the field of E&S matters, Journalists, NGOS/CBOs, etc.	DSM Specialist, XEN/AE at pourashavas and city corporation
	Dissemination: Project Information relating to activities, impacts and opportunities, access to GRM, etc.	pourashavas and city corporation offices, Social Media including		Community Leaders, SMC members, volunteers, potentially project affected	

Project Stage	List of documents to be disclosed	Methods	Location/ Time Frame	Target Stakeholders	Project Stage
		Facebook, mobile SMS, FGD, KII, meetings etc.		persons (PAPs).	
Implementation	**Documentary Disclosure:** Sub- project Specific ESMP including Gender Action Plan/SEA/SH Prevention and Response Action Plan/ Code of Conducts (CoCs)/Traffic management plan/ Labor Influx Management Plan (LIMP)/ Community Consultation Plan/ RAP and EMCP (when Required)/ GRM leaflets/ All progress and monitoring reports.	Documents at site offices/ pourashavas and city corporation office, disclosed on project websites, Presents in meeting	Immediately after producing (and revising) the documents, Training/motivation/consultation, on meeting once in a month and other activities as required.	Community people, workers, PAPs including VG and SEC, Contractors, commuters, including pedestrians and drivers, homestead owners whose land is planned to be raised, farmers, Fishermen etc., Word Committee, volunteers, relevant stakeholders as identified.	Contractor, Social Development Specialist, coordination with pourashavas and city corporation
	Activity dependent Information Dissemination: Consultation, meetings and regular on-the-job training on the above topics.	Signboard/posters at the subproject sites, Brochures/leaflets, engaging safety workers, community consultation, FGD, KII.			

CHAPTER 8: INSTITUTIONAL FRAMEWORK & CAPACITY BUILDING

8.1 Project Implementation Arrangements

The Local Government Division (LGD) of Ministry of Local Government, Rural Development & Co-operatives (MoLGRD&C) is the sponsoring ministry for oversight of the RUTDP implementation. The Local Government Engineering Department (LGED) under LGD is the implementing agency of RUTDP. LGED has extensive experience in implementing donor – funded projects including by the World Bank Group. The LGED has well trained professionals and can draw on additional expertise not available in-house from the private sector. An institutional assessment of LGED concluded that it has the capacity to implement the RUTDP. Implementation of the project will involve several stakeholders including the LGD, the LGED, selected pourashavas and city corporations, Municipal Support Unit (MSU) and a team of consultants. A Project Management Unit (PMU) will be established in LGED to administer the project while PIU will be established in each of the participating pourashavas and city corporations s comprising regular pourashavas and city corporations staff deputed on a part-time basis. A Project Steering Committee (PSC) chaired by the Secretary of Local Government Division consisting, inter alia, with the Chief Engineer, representative of ERD, Finance, Planning Commission, etc. as member will provide policy guidance and direction. There will be a Project Implementation Committees (PIC) as well, headed by the Chief Engineer to provide necessary assistance or suggestion for implementing project activities. Project is also monitored by the Chief Engineer of LGED and Secretary, Local Government Division level by way of holding monthly progress meeting where project progress and problem will be reviewed and necessary assistance in project implementation and solving problems, and suggestions etc. will be provided.

Design, Supervision and Management (DSM) Consultant, Monitoring and Evaluation (M&E) Consultant, Financial Management Specialist, Social Development Specialist, Environmental Specialist, Gender Specialist and other specialist/Individual Consultants will support the PMU and PIU and pourashavas and city corporations-Level implementation and Town Level Coordinating Committees (TLCC) will be the main local pillars for the implementation of the RUTDP.

The Chief Engineer: The project will be implemented under the overall guidance and supervision of the Chief Engineer, LGED who will exercise all powers and authority as provided by the government directives. He will review the project activities, coordinate project related issues with World Bank, Ministry and Planning Commission, and provide needed directives deemed appropriate. The Additional Chief Engineer (Urban Management), LGED will assist the Chief Engineer in project issues and also provide support and guidance to the project director.

Project Management Unit (PMU): A Project Management Unit (PMU) will be established at LGED HQ. The PMU will be responsible for overall project management and coordination, including supervising the DSM and MSU consultants; providing support for ES compliance through consultant services. It will have a coordinating role in providing hands-on technical support to the Nodal cities and Pourashavas through employing the services of a cadre of dedicated technical staff. This will help with the development of high-quality sub-projects, not only through a quality assurance function but also by promoting cross-fertilization of experiences and knowledge sharing across the participating Nodal cities and Pourashavas. The PMU will evaluate Nodal cities and Pourashavas using a monitoring criterion to determine and allocate the performance-based funds under Subcomponent 1.3. The MSU will provide

capacity building and institutional strengthening activities to the 87 Pourashavas and City Corporations. It will draw on the training materials and pedagogy developed under MGSP and MSP. The PMU will be headed by an appointed Project Director at the level of Superintending Engineer, LGED experienced in implementation of World Bank financed Projects. He will be supported by two Deputy Project Directors (DPD), three Senior Assistant Engineers and other requisite staffs deputed from LGED and outsourced established at the LGED Head Quarter. The PMU responsibilities include: (i) preparation and execution of Partnership Agreements with the selected pourashavas and city corporationss by credit effectiveness; (ii) preparation and execution of Memorandum of Understanding (MoU) between cluster pourashavas and city corporations and adjoining UPs (iii) preparation of the first year's subprojects; (iv) selection and management of consultants to assist pourashavas and city corporations and LGED for subproject preparation, design, supervision, project management and monitoring, performance evaluation, O&M planning, social accountability/grievance redress; (v) oversight of construction supervision and contract management, and supervision of ES management ; (vi) approval of payment certificates issued from pourashavas and city corporations for works contracts and authorizations for payment; (vii) managing the pourashavas and city corporation performance evaluations, and disbursement of the performance-based allocation to eligible pourashavas and city corporations; (viii) review and approval of O&M budgets to pourashavas and city corporations, and monitoring compliance with performance indicators, in consultation with the Bank.

PMU will also be responsible for technical assistance support to the participating cluster pourashavas and city corporations and the selection and management of consultants for: (i) environmental and social management; (ii) preparatory work including training and workshops; (iii) consultants for subproject preparation; (iv) consultancy services for Design, Supervision and Management (DSM); (v) consultancy services for pourashavas and city corporation performance assessment monitoring (PAM); (vi) PMU individual consultants; (vii) consultancy services for operational audit; (vii) consultants for municipal support unit (MSU); (viii) consultancy services for asset inventory; (ix) consultancy services for software operation and maintenance; (x) specialized consultants; (xi) other consultants; (xii) conduct and assist PIU in preparation of Capital Investment Plan (CIP) for identification of sub-projects; (xiii) recruitment of incremental contract staff; (xiv) oversight of MSU municipal training program, country wide capacity building training carry out by MSU including procurement of computer hardware and software for computerization in pourashavas and city corporations; and (xv) procurement of vehicles, supervision vehicles, office equipment, information technology resources, construction equipment, maintenance and engineering equipment, machinery and equipment for pourashavas and city corporations and all goods procurement etc.

Project Implementation Unit (PIU) will be established in each of the participating pourashavas and city corporation that will be responsible for the planning, implementation, and reporting of local investments and technical assistance activities. PIUs will be comprised of regular pourashavas and city corporation staff that are deputized to coordinate project-financed activities at the local level. The ES specialists of DSM will provide necessary support for E&S compliance of all the PIUS. For the 14 nodal cities that will be implementing larger scale investments, the PIUs will include dedicated executive engineers (2), and procurement and FM specialists. The PMU will coordinate closely with the PIUs on project implementation, including supervision and support for the participating pourashavas and city corporations. In coordination with the PMU, the Municipal Support Unit (MSU) of LGED will provide technical support and capacity building to the participating pourashavas and city corporations, like the role it played in MGSP.

Supervision by LGED Divisional/ Regional/ District Offices: The Divisional Additional Chief Engineer and Regional Superintending Engineers of LGED will also supervise the RUTDP works, advice and guide pourashavas and city corporation's and report to PMU/PIU. In case of specific requirements the District Executive Engineers will also assist the pourashavas and city corporations if it is requested for and the pourashava/city corporation will use LGED district laboratory for necessary testing of civil works.

The PMU will be strengthened to implement the proposed Project. Therefore, it will hire an Environment Specialist, a Social Development Specialist, and a gender specialist with the DSM consultant to complement its capacity in dealing with project E&S issues. Screening of sub-projects , preparation of IEE, ESIA, ESMP and monitoring of E&S issues during implementation will be carried out by respective PIU at Pourashavas and City Corporations level following the ESMF and the E&S consultants of the DSM will assist all PIUs in this regard. The E&S Specialists of PMU are responsible for overall coordination, supervision and monitoring of environmental and social issues under the project. They will also review and endorse the screening documents, IEE, ESIA, ESMP, training documents, support in ESMP implementation, finalizing the specifications to be adopted in bidding/ contract documents and provide guidance to the DSM firm in upholding the ESMF and other ES documents. The E&S specialists will provide technical advice to the Project Director in all E&S issues under the project purview, including management of contractual obligations on E&S instruments. LGED will also engage Third Party Monitoring (TPM) Consultant for technical due deligence.

The LGED will hire and use the design, supervision and management (DSM) consultancy services of international /national firm through competitive selection in engineering surveys, designs, environmental and social assessments of subprojects, and preparation of ESMPs, along with RAP (if required) including data collection and construction supervision including quality assurance, preparation of bidding documents and final certification of quantity and quality compliance of works completed by the contractors. As part of the activities of the Environmental and Social Specialists of DSM consultants will conduct the site specific IEEs (where applicable) along with preparation of ESMPs.. The cost of the environmental and social mitigation measures will be estimated and included in the bill of quantities. The contractors will be assigned for implementation of these environmental and social mitigation measures. The E&S team of DSM will be comprised of required number of environmental and social specialists and other required specialists/staffs at different levels. **The** environmental and social Development specialists of E&S team of the DSM will carry out screening, conduct IEE/ESIA and prepare ESMP and where required social Development specialist will prepare RAP before civil works construction. Preparation of bidding documents for the project interventions incorporating special considerations in E&S issues (preparation of E&S specification) will also be undertaken by DSM.

Contractor's role and responsibilities commence at the tender preparation stage and continue until all monitoring responsibilities end, which may extend beyond the construction phase. To facilitate environmental and social management plan (ESMP) implementation, the contractors must be prepared during the tendering and preconstruction phase to cooperate with pourashavas and city corporation, PMU, PIU, DSM and the local population in the mitigation of impacts. Contractors will play a vital role in this project to ensure that environmental and social risks and impacts are minimized effectively. They also play an important role in ensuring adequate health and safety measures are put in place not only for their workers but also for the surrounding communities.

Contractors have a duty to ensure that their activities do not cause significant and irreversible damage to the environment they are working in and have the responsibilities to ensure that social risks and impacts are managed adequately. They will make sure that no social conflict arises due to engagement of labors and engage labors within the local communities as much as possible during construction. All necessary measures, as specified in the Screening Form and ESMP, ESCoPs, should be followed and monitoring measures put in place. Special care needs to be taken during pre-construction and

construction phases when heavy machinery and equipment are used. Also, felling of trees or removal of vegetation need to be carefully managed through consultation with the local communities. Specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc. need to be prepared by the Contractor prior to commencing any physical works. In addition, the Contractors need to ensure that proper induction and training is given to all of their workers. A full-time, on-site E&S Specialist by the contractor will be required for each sub-project site depending on the size and scope of the subproject. Proper signage and fencing need to be used at all times.

Contractors during operation & maintenance as well as decommissioning phases have similar roles and responsibilities of social aspects as described above. However, experience suggests that contractors may have little interest in dealing with environmental and social problems in the absence of performance-related criteria. Therefore, the contractor will be required (with the assistance of the PMU) to update the draft site-specific ESMPs prepared by the DSM during detailed design phase. PMU environment and social specialists and DSM E&S specialists will monitor the E&S related activities including working conditions of the labors on a regular basis and clearances for payments to the contractors will include certification from the DSM as to the effective implementation of the ESMPs and all other mitigation measures specified in the ESMP. The completion of implementation of mitigation measures will therefore be linked to payment schedules. Contractor will employ a full-time E&S Specialist as required considering size and scope of sub-projects.

Contractors, with active support of the PMU,PIUneed to ensure that the Grievance Redress Mechanism is effective so that potential conflicts are avoided and claims by affected people are addressed in a genuine manner. Figure 8.1 shows the institutionl arrangement of the project as discussed above:

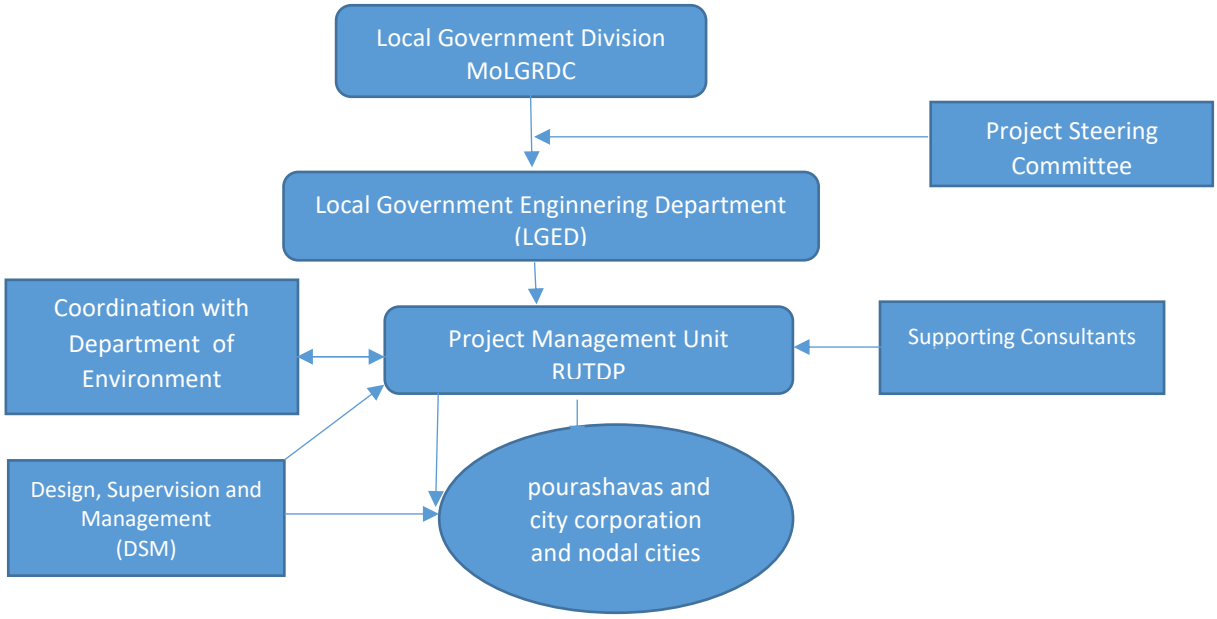


Figure: 8.1 Institutional Arrangements of Project

8.2 Other Relevant Institutions in Implementation Arrangements

The progress in environmental and social due diligence within the project framework goes in parallel with successful running of the project, and therefore couple of other organizations beyond the umbrella

of executing agency constitutes the roles of inevitable stakeholders in implementation arrangements, which may continue throughout the various stages of the proposed project activities. In this relation, the key responsible Government institutions are Department of Environment (DoE), and Ministry of Planning (MoP) and so on. The table below presents a summary of key responsibilities of major government institutions who are involved in different capacities for environmental protection and compliance along with project implementation and progress.

Table 8.1: *Institutional Responsibilities, Environmental Protection and Compliance*

Institution	Responsibilities related to the project implementation and compliance
Planning Commission, and Ministry of Planning and Ministry of Finance	-Project Evaluation Committee (PEC) hosted at Planning Commission evaluates the project DPP and if evaluated positively, the DPP is forward to the ECNEC (Executive Committee of the National Economic Council) under the Chair of Prime Minister for final approval for final approval of the project. -ERD (Economic Relations Division) of Ministry of Finance and IMED (Implementation Monitoring and Evaluation Division) under the Ministry of Planning have a very pivotal role in project approval and progress monitoring and evaluation.
Department of Environment	• With the mandate to Conserve environment and improve environmental standards, control, mitigate and prevent environmental pollution, DoE is the sole regulatory entity of Bangladesh Government to enact environmental legislations and relevant instruments against every physical intervention within the territory of the country. As such, LGED requires to obtain Environmental Clearance Certificate from DoE before any physical intervention is taken place, and this department has the authoritative capacity to deny or void the clearance, make punitive actions, or limit the access to the sites already selected for interventions. -They may conduct inquiries on pollution of the environment and rendering direction, guidance and assistance to LGED or PMU in upholding the EMPs or other requirements delineated in the EMSF/ESIA/special instructions by the DoE while ECC is issued.
pourashavas and city corporation	• pourashavas and city corporations are the key agents for the successful implementation of sub-projects along with attaining the necessary compliance in relation to safeguards implementation, including implementation ESMPs in the field.

8.3 Monitoring Mechanism for ESMP Implementation

Monitoring, as such, is required to ensure that the mitigation and enhancement measures are being properly implemented and at the same time, to determine whether the benefits of these measures are being realized over time. Monitoring responsibilities lie on all the responsible parties or institutions directly involved with or oversee the construction works.

There will be several tiers in monitoring framework to ensure the proper implementation of ESMP. Contractors, throughout the construction or implementation period, must ensure that environmental

and social risks and impacts are minimized effectively while working at sites and adequate health and safety measures are put in place not only for their workers but also for the surrounding communities. Contractors' employed site managers and Environment, Health and Safety Specialist (E&S or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. Contractor, is thus, responsible for self-monitoring on the implementation of all E&S works, due to having legal bindings under the contract document with LGED; and E&S will act on Contractor's behalf to abide by every single E&S clause under the bidding documents. S/he shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some site specific management plans, e.g., drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities. As the Contractor's responsibilities lie in complying all the regulatory or binding issues under the ES documents (including ESMP) within the purview of the contract, a monthly compliance report will be sent to the PMU every month from his/her end, which is to be reviewed and cleared by the E&S Specialists at PMU.

Design, Supervision and Management (DSM) consultant shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, E&S consultants from DSM and the Assigned Engineer will ensure that contractors are adherent with every suggestive measure delineated in ESMP, on top of the best engineering practices at sites including Occupational Health and Safety (OHS). DSM will prepare regular monitoring reports based on the findings of stringent supervision and monitoring on its part.

PMU will have environmental and social specialists who will conduct field visits very frequently (at least twice in a month). Environmental and social specialists of PMU will monitor that all staffs of the contractors and other counterparts who are involved in project implementation receive both initial and ongoing environmental and social safeguard awareness and training sufficient to ensure the best practices in the field. PMU safeguards specialists shall ascertain that contractors cleaning and reclamation works after the decommissioning of sites/ end of construction works are perfectly done and will also suggest for punitive measures against the contractors if any negligence or indifference is found in following the ESMP to the fullest effectiveness. PIU through DSM consultants will conduct E&S monitoring.
The highest tier in the monitoring system is bestowed upon the respective Ministerial Project Steering Committee (PSC) chaired by the Sr. Secretary/Secretary, LGD, MoLGRD&C. The PMU, under the guidance of PSC , will also ensure that Environmental and Social Safeguards training are provided to all Project personnel by MSU in collaboration with DSM and PMU.

8.4 Reporting Requirement

Implementation of ESMF/ESMP in the field will be ensured by the contractors, and DSM under the direct guidance of PMU, PIU will take care of every efforts to get contractors and other Field staffs/workers implementing the same in the field under all PIUs. The PMU environment and social specialists will carry out ESMF monitoring on behalf of PMU to ensure that the mitigation plans are being effectively implemented, and will conduct field visits on a regular basis. However, The DSM will prepare quarterly E&S progress report to be submitted to the PMU and World bank per ESCP. These reports will summarize the followings:

- Findings of the monitoring programs, with emphasis on any breaches of the control standards, action levels or standards of general site management;
- Any emerging issues where information or data collected is substantially different from the baseline data reported in the Environmental and/or Social Assessment;

- Summary of any complaints by external bodies and actions taken / to be taken; and
- Relevant changes or possible changes in legislation, regulations and international practices.

Additional reporting requirements are summarized in the table below.

Table 8.2: *Reporting requirement and responsibilities*

Report/ Documents	Description	Prepared By	Submitted To	Timeline
E&S Reporting	Reports on the Environmental and Social, performance of the project, including implementation of ESCP.	DSM	Project Director	Quarterly within 2 weeks of a calendar quarter
Compliance Reporting	Compliance monitoring report on ES management on each sub-project sites, including with staff/ workers management, SEH/SH management, grievance response, traffic management, OHS and CHS management, safety and security breach and training provided to consultants/ staff/ workers.	Environmental Health & Safety Specialists (of Contractor)	Project Director, through Contractors	Monthly (by 10th of every following month)
Training Records	Register of all trainings and capacity building activities conducted under the project	Safeguards consultants at PMU	Project Director	Within 3 weeks of Any training/capacity building activities
Environmental and Social Screening, Survey and Reporting Status of work packages	Status on environmental and Social Screening and survey of work packages for design phase	ES Specialist at DSM, with support from Safeguards consultants from PMU	Project Director	Monthly
Stakeholder Meetings/ Consultations	Objective, number and mode of consultations as SEP compliance report	Safeguards Consultants from DSM	Project Director	Monthly during the design period and quarterly during the construction period.
GRM Records	Register of Grievance Received	GRC or Safeguard	Project Director	Monthly
Incidents/Accidents reporting	Prompt notification of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers including accidents that could result in fatalities, injuries, and incidents of Gender Based Violence/ Sexual Exploitation and Abuse/ Sexual	Safeguards Consultants from DSM; with the help of field level staffs of pourashavas and city	Project Director	Initially notify within 24 hours of learning of the incident or accident. A detailed report will be provided within 96 hours including classification of

Report/ Documents	Description	Prepared By	Submitted To	Timeline
	harassment (GBV/SEA/SH), concerns of COVID-19 infections, serious mismanagement in handling waste, security breach, etc.	corporations		incident.
Specific Management Plans/ Instruments	If the project requires to prepare any specific assessment/management plans/ instruments, under any circumstances, those will be provided.	E&S at PMU, and DSM Safeguards specialists	Project Director	As Necessary

8.5 Institutional and Project Capacity Development

8.5.1 Capacity Assessment of LGED

LGED has experience of implementing a good number of projects funded by the World Bank, ADB, JICA, and other donors. As per the organogram of LGED, circulated in December 2020, a Section or Division for Environment and Gender is functional under the Human Resource Unit of LGED. Headed by an Environmental Engineer, equivalent to an Executive Engineer (Senior Level), another Executive Engineer for Environmental and Gender and an Assistant Engineer (Environment and Gender) are now running the section. They are officially responsible for ensuring environmental consideration along with gender mainstreaming in all of the project activities of the LGED. The LGED has a dedicated ES unit headed by a senior official dealing with ES issues and providing technical support to projects. This unit will also provide technical support to this project. Besides, establishment of permanent ES unit of LGED is under process, which once established enhance LGED's capacity in dealing ES issues.

Within the purview of LGED works across the country, the majority of the development works are being implemented under different projects, either government or donor funded. Being one of the largest government organizations working across every corner of the country, primarily under development projects, the institutional capacity both in governance and project management capacity has improved a lot in the last several decades. LGED has its own organizational safeguards documents, training materials, organizational library facilities, quality control and environmental laboratories. It also has a huge pool of Engineers, consultants, management officials, and so on, though within the project structure. On the contrary, the optimum development in staffing structure in Environmental and Social Safeguards is not at expected level, and the organizational instruments are not well updated for combating new challenges in the ES issues; and these are the fields where LGED needs to look upon in a fresh way.

8.5.2 Requirement of additional experts

Qualified consultants will be recruited by the RUTDP-PMU, DSM firm and Contractors to provide technical assistance, training and capacity building in environmental and social issues.

E&S Consultants at PMU will review environmental and Social related all reports submitted by the DSM and prepare summary of report for each package and will publish in the LGED website. The PMU consultants will also monitor ES issues during pre-construction, implementation and at the end of the subproject. They will submit report monthly to the PD.

Environmental and Social consultant of DSM: E&S consultants from DSM will ensure that contractors are adherent with every suggestive measure delineated in ESMP, on top of the best engineering practices at sites including Occupational Health and Safety (OHS). The DSM consultants will assist all PIUs in mananging E&S issues. They will prepare regular monitoring reports based on the findings of stringent supervision and monitoring on its part.

Contractor's Environmental and Social (E&S**) Specialists:** The construction contractors should assign a dedicated, adequate qualified and experienced E&S specialist at the construction site depending on the size and scope of sub-projects.. The E&S specialis will be responsible for implementing various aspects of the ESMP particularly the mitigation measures to ensure that the environmental and social impacts as well as the health and safety issues of the construction works remain within acceptable limits. S/he will also be responsible for implementing SEP, LMP, RPF, SEA/SH mitigation plan and ESCP, and conducting environmental and social safeguards training for the construction crew. The E&S Supervisor needs to be a graduate preferably in environmental science/engineering with at least 3 years' experience in environmental management and health and safety.

8.5.3 Training Requirement

Rudimentary/advanced training on environmental and social management and monitoring would be useful for the engineers of the LGED in successfully implementing environmental and social management. It is also necessary to provide the basic training for key personnel on regulatory requirements, environmental impacts, and environmental assessment and management in home or abroad. They can participate in field-based training including the environmental and social impact assessment, screening, scoping, mitigation and monitoring of existing construction, rehabilitation and maintenance projects under the LGED. Capacity building training on E&S aspects will be arranged by Municipal Support Unit (MSU) in collaboration with PMU. Besides, contractors to train their key ES staffs on ES management & monitoring. Center for Excellence (CoE) of BUET could be the best suited training institute for providing few key training courses. Table 8.3 provides a list of training to be provided at different levels.

The training program for LGED Staff shall be based on their expanded functions and new and additional safeguards areas covered by the World Bank ESF. Hence, a general introduction to the new World Bank ESF should be a priority, followed by Labor and Working Conditions, Community Health and Safety and Stakeholder Engagement.

Table 8.3: *Capacity Development Support (Training)*

Training to be provided	Targeted Groups	Responsibility	Timeline of Trainings
World Bank's Environmental & Social Framework: Training on ESF and the 10 ESSs including preparation of ESMF, E&S Screening, IEE, and ESMP	Selected LGED staff, pourashavas and city corporation's concern representatives, PMU, Contractors	MSU in collaboration with PMU	Prior to the start of the Project activities. (To be repeated as needed)
Occupational Health and Safety - Personal protection equipment - Workplace risk management - Prevention of accidents at work sites - Health and safety rules - Solid and liquid waste management	Selected LGED (PMU) staff, pourashavas and city corporation concern representatives, DSM field level	MSU in collaboration with PMU	Prior to the start of the construction activities. (To be repeated as needed)

Training to be provided	Targeted Groups	Responsibility	Timeline of Trainings
- Hazardous waste management e.g., fueling of vehicles - Preparedness and response to emergency situations - Awareness campaign on HIV/AIDS	consultants, contractor's representatives		
Stakeholder Engagement Stakeholder identification and mapping, SEP Implementation Plan, Strategy and measures of Stakeholder Engagement, Grievance Mechanism and Reporting, Stakeholder Engagement Reporting.	Project Officials, pourashavas and city corporation assigned officials for social development, DSM field level consultants, Contractors.	MSU in collaboration with PMU	Prior to the start of the project activities, and to be repeated once in a year for the first 2 years.
Labour and Working Conditions Terms and conditions of employment according to national working laws and regulations Contractor and sub-contractor codes of conduct Worker's organizations Child labour and minimum age employment rules	pourashavas and city corporation's concerned officials, Contractors Health Safety Officer, Labour Sardars (Leaders)	MSU in collaboration with PMU	Prior to the start of the construction activities. (To be repeated as needed)
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	pourashavas and city corporation concerned officials, Local Government Officials, DSM field level consultants, Civil Society, Local respected persons, and Contractors	MSU in collaboration with PMU	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, 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, Refueling procedure Spillage of soil management	pourashavas and city corporation concerned officials, DSM field level consultants and Contractors	MSU in collaboration with PMU	Prior to Project effectiveness and thereafter every three months Each session for 1 day

Training to be provided	Targeted Groups	Responsibility	Timeline of Trainings
GBV Risk Module Raising awareness and measures to prevent and mitigate GBV risks The topics, activities and targeted groups will be developed in the SEA/SH mitigation Plan including GBV-specific GRM SEA/SH training and sensitization will be conducted for PIU, contractors and laborers.	Project Officials, pourashavas and city corporation assigned officials for Social development, DSM field level consultants, Contractors, Labour Sardars (Leaders), Local NGOs	MSU in collaboration with PMU	Prior to Project effectiveness and thereafter every six months Each session for 2 days
Ancillary trainings on i) Preparation of RAP and SECDP (if required) ii) GBV/SEA/SH risk in the project and its implementation, need to understand and sign Code of Conduct iii) Environmental and Social compliance monitoring iv) Efficient use of resources and prevention of pollution v) CHS issues vi) Emergency procedure and response including emergency reporting, Root Cause Analysis (RCA) and Safeguard Corrective Action Plan (SCAP)	Selected LGED (PMU) staff, pourashavas and city corporation concern representatives, contractor's representatives	MSU in collaboration with PMU	Training of PMU staff and consultants within 6 months of effectiveness; and prior to the start of the construction activities for others and to be repeated as required.

8.5.4 Capacity Building Plan

Capacity building for environmental and social safeguard management will need to be carried out at all tiers of the project. At the construction site, DSM in coordination with MSU will take the lead in implementing the capacity building plan, though the contractors will also be responsible for conducting training for their own staff and workers.

Training shall be imparted, on a regular interval, to the Project and LGED officials and Staff on Safeguard Issues. There are some other areas where target inventions are to be made in order to strengthen the capacity of both LGED as an institution and the project as well. Action plan for capacity development is shown in table 8.4.

Table 8.4: *Action Plan for Project Capacity Development*

	Suggested interventions	Rationale
1. Project Staffing	Individual Consultants at PMU within 2 months from signing of legal agreement in the Positions of: (i) Environmental Specialist (ii)Social Development Specialist Environmental, Health, and Safety Specialists (EHSS) to be recruited by the contractors within 1 month of the contract award.	As part of the strengthening of the capacity of the project PMU and PIU, certain numbers of individual consultants have to be employed to fill the gaps or adjust the monitoring and supervision capacity of the PIU at full swing with super strength.
2. Training/ Workshops	Stated in Training section	
3. Technical & Instrumental Interventions	Consulting services for Awareness building on (i) Adaptation Measures in the event of flood as a disaster, (ii) Sheltering to Flood Shelters and its management, (iii) Community based activities in the event of disasters.	Flood shelters and other community infrastructures to be developed/ implemented under this project require a community-based mobilization and awareness campaign as to the interventions, user's protocol and other adaptive (and cooperative) activities. To achieve the expected result, an awareness campaign and community mobilization can be adopted through engaging the students at the selected schools.

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