



Government of the People's Republic of Bangladesh
Ministry of Local Government, Rural Development & Co-operatives
Local Government Division
Local Government Engineering Department (LGED)

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Construction of Primary School cum Flood Shelter with Solar PV Nano Grid, Street Light, Lightning Protection & Connecting Roads, Bridge/Culvert, Furniture and Tree Plantation at Rajbari District



Environmental and Social and Management Report

Package Name: LGED/RIVER/RAJ/21-22/NW-17

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Table of Contents

ABBREVIATIONS.....	v
EXECUTIVE SUMMARY	vi
1 INTRODUCTION	1
1.1 Sub-project Background	1
1.2 Objective of the Project.....	2
1.3 Scope of the Project	2
1.4 Objectives of the Report.....	2
1.5 Institutional Arrangements.....	3
1.5.1 Implementing Agency for the Project	3
1.5.2 Project Implementation Unit.....	3
1.5.3 Design and Supervision Consultant.....	3
1.5.4 Grievance Redress Mechanism (GRM)	4
1.6 Scope and Methodology of the Report.....	4
1.6.1 Desktop Work.....	4
1.6.2 Field Investigation and Data Collection.....	4
1.6.3 Data Analysis and Report Writing.....	5
2 PROJECT Location and Description	5
2.1 Project location	5
2.2 Envisaged Subproject Activities and Implementation Process	7
2.3 Environmental / Social Category of the project	9
3 Baseline Analysis of the Environmental and Socioeconomic Condition	9
3.1 Physical Environment	9
3.1.1 Geology, Topography, and Soils.....	9
3.1.2 Climate and Meteorology.....	11
3.1.3 Hydrology (Surface water, Ground water and Rain water)	11
3.1.4 Flooding, Water Logging and Drainage	12
3.1.5 Air Quality and Dust.....	14
3.1.6 Noise Level	14
3.1.7 Solid Waste Management	15
3.2 Biotic Environment as Floral and Faunal Existences.....	15
3.3 Socio-economic and Socio-cultural Environment.....	16
3.3.1 Land Use, Status of Housing and Built-up Infrastructure	16
3.3.2 Beneficiary Population	17
3.3.3 Tribal Communities.....	17
3.3.4 Land Acquisition	18
3.3.5 Land Readiness Status in Rajbari District	18
3.3.6 Principal Livelihoods and Economic Activities	18
3.3.7 Cultural Heritage and Protected Areas	19

3.3.8	Social Conflicts and Development Activities	19
4	ENVIRONMENTAL AND SOCIAL ASSESSMENT	20
4.1	Summary of Environmental and Social Impacts	20
4.2	Overall Mitigation and Management Measures	24
5	Environmental and Social Management Plan (ESMP)	25
5.1	Purpose of the ESMP	25
5.2	Access to Translated Information	25
5.3	Environmental and Social Management Plan	26
5.4	Monitoring of ES Performance	37
5.5	Capacity Development Measures	40
5.6	Cost of Environmental Enhancement Works in BOQ	42
5.7	Environmental and Social Codes of Practice	42
6	PUBLIC Consultation Meeting	43
6.1	Stakeholder Engagement	43
6.2	Methodology	43
6.3	Consultations through FGD’s and KII’s	45
6.4	Consultation Outcomes	45
7	E&S Conclusions and Recommendations	48
7.1	Land Related Due Diligence	48
7.2	Initial Environmental Impacts due to Sub-project	49
7.2.1	Key Findings of the Environmental and Social Assessment	49
7.2.2	Key Environmental Related Recommendations	50
7.3	Initial Social Impacts on Community due to Subproject	51
7.3.1	Construction Phase Related Impacts	51
7.3.2	Engagement of the School Management Committee (SMC)	52
7.3.3	Union Disaster Management Committee (UDMC)	52
8	REFERENCES	53

List of Annexure

ANNEXURE 1: SITE SPECIFIC ENVIRONMENTAL AND SOCIAL FINDINGS UNDER RAJBARI DISTRICT	55
ANNEXURE 2: ASSESSMENT OF ENVIRONMENTAL AND SOCIAL SAFEGUARDS	135
ANNEXURE 3: CHECKLIST OF THE CONSULTATION MEETING	142
ANNEXURE 4: ATTENDANCE OF CONSULTATION MEETING	146
ANNEXURE 5: ENVIRONMENTAL AND SOCIAL CODE OF PRACTICES (ESCOPS)	152
ANNEXURE 6: STANDARD OPERATING PROCEDURE (SOP)	180

List of Tables

Table 2.1: Proposed flood shelters (schools) and their relevant attributes in Rajbari District.....	07
Table 2.2: Facilities considered in the proposed shelters.....	07
Table 4.1: Site-Specific ES Issues and Potential Impacts	22
Table 5.1: ESMP_ Construction Phase and Operation Phase	27
Table 5.2: Site Specific Mitigation Measures with Applicable Sites	35
Table 5.3: Monitoring Framework for achieving overall ES Performance.....	37
Table 5.4: Capacity-Building and Training Measures for ES Compliance and Management.....	40
Table 6.1: Consultation meeting participants' summary for the sub-project.....	44
Table 6.2: Upazila wise participants categories, their number, raise main issues and responses...77	

List of Figures

Figure 2.1: Indicative District map with sub-project locations in Rajbari District.....	06
Figure 2.2: Indicative upazila map of the proposed flood shelters	06
Figure 2.3: Perspective View of Proposed Flood Shelter Option-01.....	08
Figure 2.4: Perspective View of Proposed Flood Shelter Option-02.....	09
Figure 3.1: Rajbari district in Earthquake Zone Map of Bangladesh.....	100
Figure 3.2: Trend of annual average maximum temperature of of Dhaka division	11
Figure 3.3: Annual average rainfall of Dhaka division in Bangladesh	12
Figure 3.4: Rajbari district in Flood Zone Map of Bangladesh.....	13
Figure 6.1: Public Consultation through FGD's and KII due to GRC formation in local level	44

ABBREVIATIONS

BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BMD	Bangladesh Meteorological Department
BNBC	Bangladesh National Building Code
BOQ	Bill of Quantity
DPHE	Department of Public Health Engineering
EA	Environmental & Social
ECR	Environmental Conservation Rules, 1997
E.I.C	Engineer in Charge
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
E&S	Environmental and Social
ESCoP	Environmental and Social Codes of Practices
ESCP	Environmental Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESSR	Environmental and Social Screening Report
ESSs	Environmental and Social Standards
FAO	Food and Agriculture Organization
GoB	Government of Bangladesh
GPS	Government Primary School
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IEFs	Important Environmental Features
KM	Kilometer
KMPH	Kilometer Per Hour
LGED	Local Government Engineering Department
LMP	Labour Management Procedures
LS	Lump Sum
MDSP	Multipurpose Disaster Shelter Project
MM	Millimeter
MoLGRDC	Ministry of Local Government, Rural Development and Cooperatives
NPDM	National Plan for Disaster Management
PD	Project Director
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
RIVER	Resilient Infrastructure for Adaptation and Vulnerability Reduction
RPF	Resettlement Policy Framework
SEP	Stakeholders Engagement Plan
SMC	School Management Committee
UDMC	Union Disaster Management Committee
UNDP	United Nations Development Programme
WB	World Bank

EXECUTIVE SUMMARY

The Government of Bangladesh, through the Local Government Engineering Department (LGED) under Ministry of Local Government, Rural Development and Cooperatives, Bangladesh, is implementing the “Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER)” Project with financial assistance from the World Bank. As part of the project’s disaster resilience strategy, a total of 4 flood and disaster-resilient shelters are proposed for construction across Kalukhali upazila of Rajbari District. These shelters will serve dual purposes: as safe havens during flood events and as educational or community facilities during non-disaster periods.

Rajbari District is characterized by low-lying floodplains and fertile agricultural land influenced by the Padma River system. The area experiences frequent flooding during the monsoon season, affecting livelihoods, transportation, and public health and fall under Seismic Zone II, indicating moderate earthquake vulnerability. The climate is humid and subtropical with distinct monsoon, post-monsoon, and dry periods. The local ecosystem includes floodplain vegetation, aquatic species, and agro-based biodiversity. Socially, the population is predominantly rural with agriculture as the main occupation. Literacy rates are moderate, and communities show strong social cohesion but limited access to disaster-resilient infrastructure.

The proposed subproject comprises (i) construction of climate-resilient flood shelter; and (ii) construction and rehabilitation of connecting roads, including culverts and bridges. The overall anticipated adverse impact due to the subproject intervention is limited and site specific. Considering the environmental impact for construction of flood shelters construction and rehabilitation of connecting roads which is anticipated as insignificant; hence the overall project risk is categorized as Moderate, under the World Bank ESF. However, since none of the project components are listed under Schedule-1 of the Environmental Conservation Rules, 2023, the Department of Environment (DoE) has formally exempted the project from the requirement of obtaining an Environmental Clearance Certificate (ECC).

Environmental and Social Standard-1 (ESS1) of ESF underscores the responsibility of assessing, managing, and monitoring environmental and social risks and impacts of projects/sub-projects through a risk- and outcome-based approach, ensuring sustainability and compliance with the Environmental and Social Standards (ESSs). The environmental and social serves as a key instrument to inform project design, identify mitigation measures, and strengthen decision-making proportionate to the project’s level of risk. In line with these principles, the ES Team of the Design and Supervision (D&S) Consultant of the project conducted an in-depth environmental and social survey and from February 02 - 03, 2026, across all 4 proposed sites in Rajbari District, where school-cum-flood shelters with associated facilities, along with school connecting roads to several of these shelters, are planned for construction.

Site specific environmental and social description and results as well as and its tentative implementing cost (BOQ) are presented in **Annexure 1** and Assessment formats and consultation checklist are attached in **Annexure 2** and **Annexure 3** respectively. Attendance of the consultation meetings are in Annexure 4. All flood shelters are required to have minimum

of 33 decimals of land; copies of land ownership documents of all shelters have been collected and verified. The project has no provision for land acquisition or compensation for land and property, as all planned activities will be implemented on existing or government-owned land. Access roads might need to be constructed or rehabilitated within its existing alignment.

According to Land Readiness Status Report, of the 4 assessed schools, all sites were found to be compliant with the legal and policy frameworks as well as land selection criteria of the project, demonstrating sufficient land availability, clear ownership records, and no risk of involuntary resettlement or displacement. Total 2 schools require demolition of existing old building to make space for the construction while one school from them needed temporary school shed. For all schools where issues were raised about saving playground are addressed through proper consultation with School Management Committees (SMCs) and local community and verifying design alignment in the field.

This Environmental and Social and Management Report (ESAMR) has been prepared in line with the requirements of the World Bank Environmental and Social Framework (ESF) and relevant national environmental regulations to identify, assess, and manage potential environmental and social risks associated with the shelter construction. The process included site visits, stakeholder consultations, environmental and social impact and identification. Key anticipated environmental impacts include vegetation loss, dust and noise generation, traffic congestion, and disposal of construction waste, while social impacts may include temporary disruption to community services, demolition of old structures, loss of trees within school premises, parts of a few water bodies as ditches, ponds, depressions etc. being likely to be filled due to the construction of the flood shelters and minor risk of labor influx-related conflicts.

The ecological impact of the subproject has been assessed as low to moderate, with no ethnic communities residing within the catchment area and no involuntary resettlement or loss of common property resources anticipated. Minor, temporary impacts may occur where school playgrounds are partially affected during construction, limiting children's access for a short period. However, teachers, parents, and community members expressed strong support during consultations, recognizing that the proposed school-cum-flood shelters will provide safer educational facilities and serve as vital refuge centers for people and livestock during flood events. To minimize disruption, School Management Committees (SMCs) will identify and facilitate alternative playgrounds for temporary use.

In 2 schools, demolition of old school buildings is required, which will be implemented by separate contractors under the Directorate of Primary Education (DPE). These works will follow a Standard Operating Procedure (SOP) to mitigate potential noise, dust, and safety hazards, while the main construction-related impacts will remain limited and manageable within the existing premises. The construction contractor will use available school land for storage and work areas and obtain any additional temporary land through formal tenancy agreements. Site-specific Environmental and Social Management Plans (**ESMPs**) with tailored mitigation measures have been prepared for each Upazila to ensure compliance and minimize environmental and social risks.

1 INTRODUCTION

1.1 Sub-project Background

Flood is an integral part of Bangladesh and so is the suffering of the people living in flood-prone areas. Bangladesh is one of the most vulnerable countries to natural disasters including floods where almost every year, mainly during monsoon season, either by upstream river floods and or by heavy rainfall. During floods, people, their essential belongings and livestock in the affected areas need to take shelters for few days to as long as 8 weeks. Sometimes floods take considerable time to recede even 60-70 days as in 1998. But there is great insufficiency of flood resilient shelter including killas, raised public infrastructure for them to take shelter. People often took shelters in high embankment, schools and colleges in high land affecting their normal operation and spreading diseases among them and others. Unlike cyclone shelters, very few designated flood shelters exist in Bangladesh.

In the backdrop of people's plight or sufferings, caused by recurring flood events and lightning, the Government of Bangladesh, with support from the World Bank, is implementing the "Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER)" Project, aimed at enhancing disaster resilience through the construction of Primary School Cum Multipurpose flood shelters and related infrastructure in disaster-prone regions. The project is being implemented by Local Government Engineering Department (LGED) under the Ministry of Local Government, Rural Development and Cooperatives (MoLGRDC), Bangladesh.

If flood resilient shelters are constructed, with living facilities a huge loss of lives and properties will not occur and contagious disease will be lessened to a great extent. It will also facilitate effective relief operation. It is necessary to invest and build more centers where the potential victims can take shelters. This will in turn help any relief activity that would be taken after the disaster (7th Five Year Plan). In recent years, lightning hazard is becoming more deadly than ever before.

Rajbari is a highly flood-prone district located along the Padma River and its tributaries, making it critically vulnerable to seasonal flooding, river erosion, and other climate-induced hazards. The selection of shelter locations has been guided by vulnerability mapping, local needs, and accessibility during emergencies. As part of this initiative, a total of 4 disaster-resilient flood shelters is proposed to be constructed at Kalukhali upazila in Rajbari District. These shelters are designed to serve dual purposes: functioning as educational institutions during normal periods and as life-saving shelters during floods and other natural disasters. Facilities would include, climate resilient features comprising, sustainable water supply system, standby solar electrical system, assured water supply source, rainwater harvesting provisions, installation of lightning protection systems, and adequate health and hygiene systems. Facilities would also include provision for protection of livestock and adequate storage provisions. Associated management, operations and maintenance related issues would be addressed through strengthening the capacity of the associated SMC and UDMC, for effective disaster related adaptation, preparedness and response, among other interventions.

This Environmental and Social and Management Report (ESAMR) aims to assess the potential environmental and social impacts associated with the proposed sub-projects activities as tree cutting, land filling, demolition of old structures, increased dust and noise levels, traffic congestion, and temporary disruption of community services and to recommend suitable mitigation measures aligned with national regulatory frameworks and the World Bank Environmental and Social Framework (ESF). The findings of this will inform project design, implementation planning, and safeguard compliance to ensure that the shelters are constructed and operated in an environmentally sound, socially inclusive, and sustainable manner.

1.2 Objective of the Project

The objective of the project is to reduce the adverse impacts of floods and to provide safe spaces for evacuation and sheltering through the development of resilient infrastructure. The project also seeks to prevent long-term negative impacts of flooding and to enhance community resilience by strengthening local capacity for effective early warning, disaster preparedness, and emergency response.

Specifically, the project aims to: (a) Increase the number of people with reduced flood vulnerability through the establishment of climate-resilient and protective infrastructure; and (b) Enhance the disaster preparedness capacity of both the Government of Bangladesh (GoB) and local communities. In addition, the project contributes to the COVID-19 recovery process by supporting public works that generate local employment opportunities, thereby improving livelihood conditions in rural areas.

The project will finance infrastructure and systems that strengthen the flood resilience of vulnerable rural populations in selected areas by: (i) Raising community land, constructing multi-purpose flood shelters, community facilities, connecting roads, and other flood-resilient infrastructure in flood-prone villages; and (ii) Enhancing community disaster preparedness through improved early warning systems, evacuation planning, awareness and training programs, and strengthened response and recovery capacity.

1.3 Scope of the Project

The scope of the project shall include the construction of multipurpose flood shelters and construction of related access roads, flood embankments, drainage channels (both natural and manmade). The proposed infrastructure shall be climate resilient, including cross-drainage culverts and rural bridges necessary for assured rural accessibility. Raising of selected community land above the high flood level and small-scale community infrastructure to protect land and property shall also be included.

1.4 Objectives of the Report

The general objective of this study is to determine the major environmental and social impacts succeeding from construction and operation of the subproject and to recommend mitigation measures to avoid or reduce adverse environmental and social impacts and to enhance positive impacts. The specific objectives include:

- To assess the existing environmental and social conditions of the subproject site and its influence area;
- To identify and assess impacts resulting from the subproject during its construction phase and operation phase;
- To develop an environmental and social management plan (ESMP) with recommendations for mitigating impacts and enhance positive impacts;
- To summarize environmental and social monitoring requirements.

The report focuses on site-specific characteristics of the proposed shelter locations within Rajbari district, the sensitivity of the surrounding environment, and the socio-economic conditions of the target communities. It is intended to guide project developers, implementing agencies, and other stakeholders in making informed decisions that minimize negative impacts and enhance the positive outcomes of the RIVER project.

1.5 Institutional Arrangements

1.5.1 Implementing Agency for the Project

The Local Government Engineering Department (LGED) will be responsible for implementing the project. LGED will implement the project through a dedicated Dhaka-based Project Implementation Unit (PIU), headed by a Project Director (PD). The PD will be supported by a dedicated Deputy Project Director (DPD), Senior Assistant Engineer, Assistant Engineer as well as the associated technical and safeguard support staff. A majority of the implementation will be based on the district and Upazila levels, where the associated LGED field officials (i.e., Executive Engineer, Sr. Assistant Engineer, Assistant Engineer, Sub assistant Engineer etc.) will act as the focal person(s) responsible for supervision and monitoring of work implementation in their respective districts and Upazilas.

1.5.2 Project Implementation Unit

The PIU would provide support to implement the ES instruments during implementation of the project. The staffing requirements and capacity building program are included in the project design. The PIU will have an Environmental Specialist and a Social Development Specialist. These ES specialists will be stationed for full time at PIU to ensure that World Bank's ESSs and Government requirements are realized throughout the project life cycle.

1.5.3 Design and Supervision Consultant

The PIU will also be supported by a Design & Supervision Consulting (D&SC) firm having specialists with expertise in Environment, Social, DRM, Communication, Gender and Disability. Although LGED is familiar with the Bank's safeguard policy. The project shall support training on ESF to LGED HQ, District Level and field level employees.

1.5.4 Grievance Redress Mechanism (GRM)

The RIVER Project has established a comprehensive Grievance Redress Mechanism (GRM) to address grievances and complaints raised by project-affected or interested persons in relation to project activities. A four-tier Grievance Redress Committee (GRC) structure has been formed—comprising the Local/Upazila Level, District Level, Project Implementation Unit (PIU) Level, and LGED Headquarters Level—with representation from all relevant stakeholder groups to ensure inclusivity and transparency in the grievance resolution process.

The PIU is responsible for ensuring that the grievance redress procedures are effectively implemented and continuously monitored so that all grievances are handled promptly and fairly. The information dissemination mechanism is designed to be simple, transparent, and accessible to all stakeholders.

Furthermore, all project-specific Environmental and Social (ES) documents—including the Environmental and Social Management Framework (ESMF), Resettlement Policy Framework (RPF), Stakeholder Engagement Plan (SEP), Labor Management Procedures (LMP), and Environmental and Social Commitment Plan (ESCP)—have been disclosed to both local and national stakeholders, and are publicly available on the LGED and RIVER Project websites.

1.6 Scope and Methodology of the Report

Environmental and social for the subproject components is required to fulfill the regulatory requirement for constructing resilient flood shelters and connecting roads, as clearly stipulated in the project Environmental and Social Commitment Plan (ESCP). Hence, this environmental and social and management report is prepared, carrying out following activities:

- Desktop Work;
- Field Investigations and Data Collection;
- Data Analysis and Report Writing.

1.6.1 Desktop Work

The desktop study involved:

- Initial meetings with client, stakeholders to discuss the proposed subproject;
- Collection and review of the baseline data, maps, reports and other relevant information;
- Review of the relevant existing legislation, regulation and policies;
- Understand the anticipated technical processes that may affect the environment and social framework.

1.6.2 Field Investigation and Data Collection

Safeguard team of the D&S consultants made a field investigation to the proposed sites. Field investigations involved on-site observation, survey and filling out checklist (primarily), and public consultation meeting for identification of the environmental and social components to be affected and the extent of impacts due to the subproject interventions.

The following key tasks were performed during the field visit:

- Filling up checklist and taking photographs of the significant aspects to assist in describing the baseline environmental and social conditions of the subproject area;
- Public consultation meeting in the subproject participated by relevant local population, teachers, students, elected public representatives, School Management Committee (SMC), officials and beneficiary and affected people within the subproject influence zone;
- Obtaining relevant documents from subproject and local people within the subproject influence zone;
- Verifying information and data collected during the desktop study and collecting new information.

1.6.3 Data Analysis and Report Writing

The data and information collected from all the sources (secondary and primary data, public consultation) were analyzed to describe the existing environmental and social setting of the subproject area, to identify the potential positive and negative impacts of the proposed subproject, as well as to provide preliminary suggestions for mitigation measures. Finally, this environmental and social screening report has been prepared.

2 PROJECT LOCATION AND DESCRIPTION

2.1 Project location

Rajbari District is in the Dhaka Division of Bangladesh having area of 1,118.8 sq km, located in between 23°27' and 23°52' north latitudes and in between 89°18' and 89°45' east longitudes. It is bounded by Pabna and Manikganj districts on the north, Faridpur district on the south, Dhaka and Manikganj districts on the east, and Kushtia and Faridpur districts on the west.

The newly proposed project area covers Kalukhali upazila. The indicative district map with sub-project locations and upazila map of the proposed flood shelters in Rajbari district is illustrated in **Figure 2.1 and Figure 2.2 respectively**.

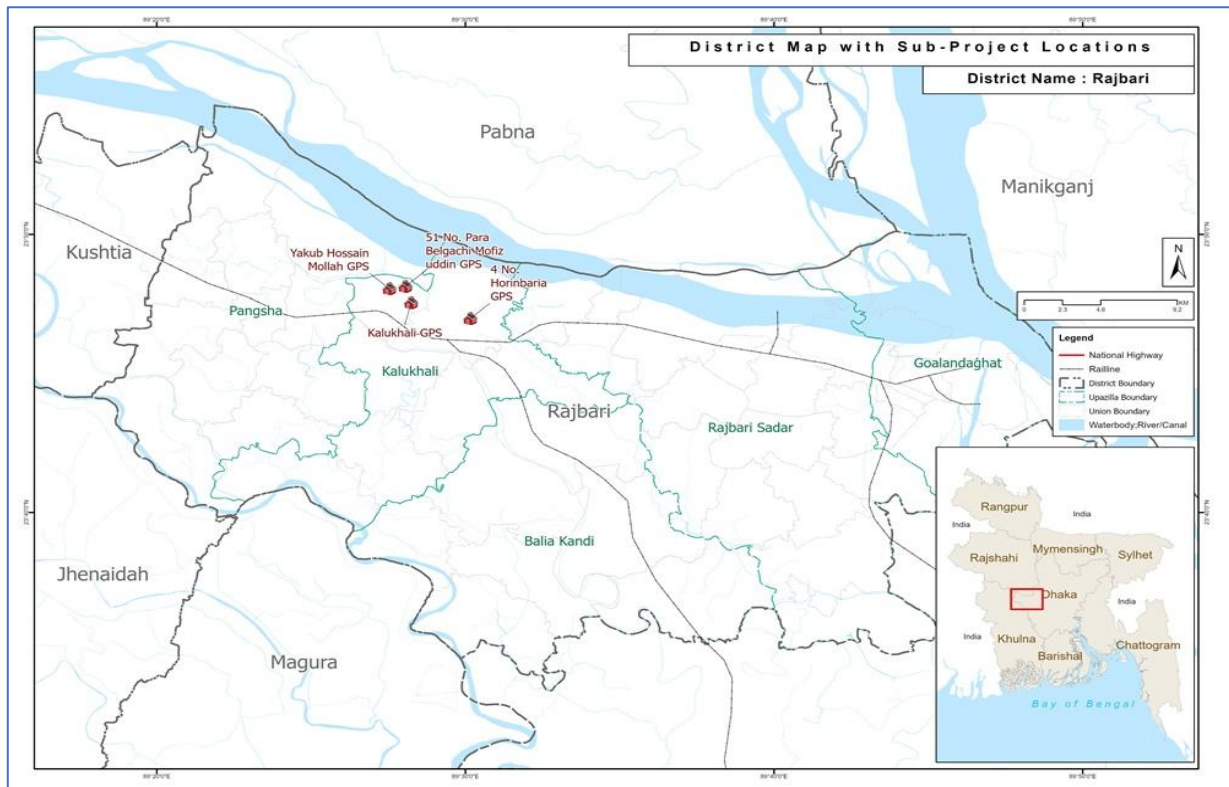


Figure 2.1: Indicative District map with sub-project locations in Rajbari District

In total four schools under the above mentioned Kalukhali upazila of Rajbari district have been identified for the construction of multipurpose flood shelters which have minimum environmental and social impacts through environmental and social.

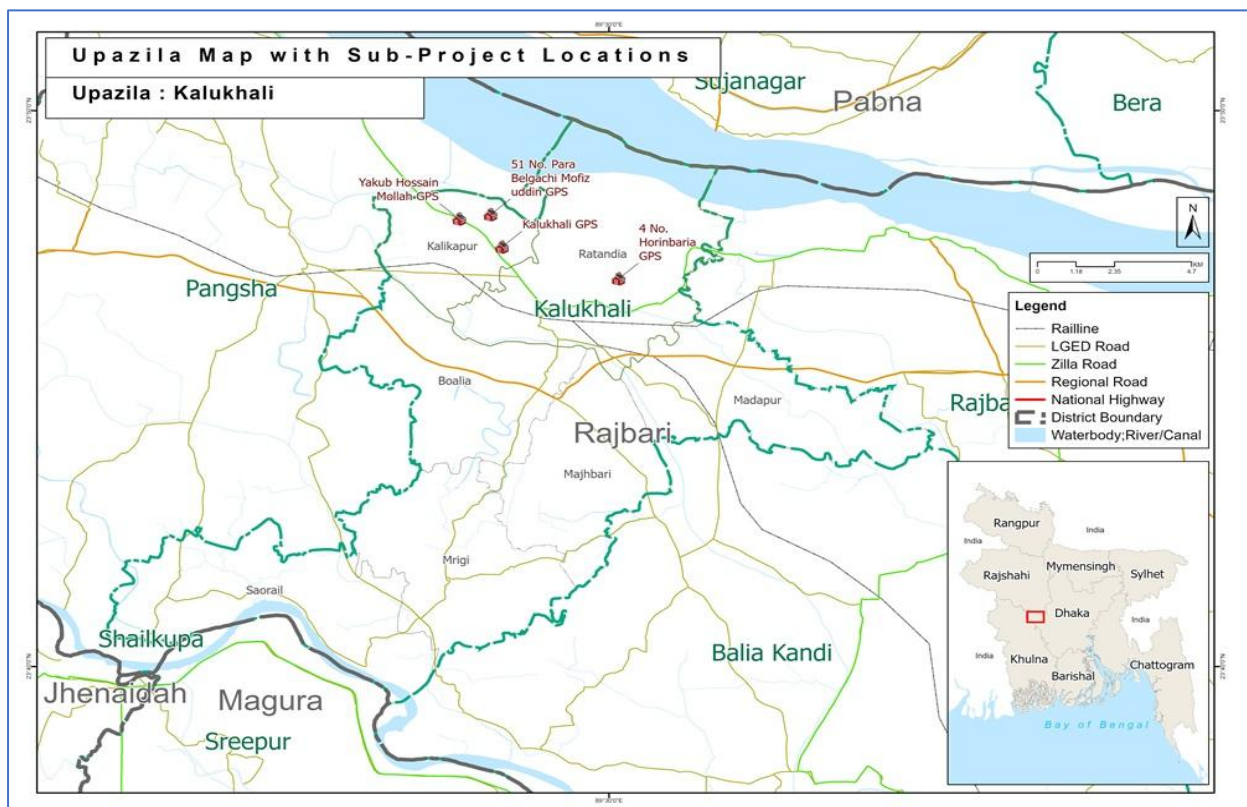


Figure 2.2: Indicative Kalukhali Upazila map of the proposed flood shelters

Kalukhali Upazila

A total of 4 flood shelters are proposed across two (2) unions of Kalukhali Upazila. The distribution is as Ratandia Union – 1 site, Kalikapur Union – 3 sites.

These shelters will serve dual purposes: providing emergency refuge during flood events and functioning as community or educational facilities during normal periods.

Scope of work includes:

- Demolition of old and unsafe structures on the selected sites.
- Site preparation, including leveling and filling of low-lying areas.
- Construction of a multi-storied reinforced concrete shelter building.
- Provision of safe drinking water, sanitation facilities, solar power backup, and emergency access routes.
- Landscaping and planting of flood-resistant vegetation after construction.

The list of the proposed flood shelters (schools) and their relevant attributes are provided in **Table 2.1**.

Table 2.1: Proposed flood shelters (schools) and their relevant attributes in Rajbari District

Sl. No.	Unique Database ID	Upazila	Union	Village	Education ID	Name of Disaster Shelter
1	RAJ-022	Kalukhali	Ratandia	Paschim Haora	91313021302	4 No. Horinbaria GPS
2	RAJ-023		Kaliakapur	Para Belgachi	99313011602	51 No. Para Belgachi Mofiz uddin GPS
3	RAJ-024			Kalikapur	91313020303	Kalukhali GPS
4	RAJ-025			Satota	99313059203	Yakub Hossain Mollah GPS

2.2 Envisaged Subproject Activities and Implementation Process

Two design options have been finalized for the proposed Flood Shelter as Option-01 and Option-02. Option-01 is a four-storied building with a square shape and Option-02 also a four-storied building with a rectangular shape. Facilities considered in the proposed shelters are described in the following table:

Table 2.2: Facilities considered in the proposed shelters

Facilities	Option-1	Option-2
Total Floor Area	1275.30 sq.m	1167.30 sq.m
Sleeping Capacity	650 persons	650 persons
Class room	6 nos.	6 nos.
Total no of students in a shift	324 students	324 students
Head Master's room	1	1

Facilities	Option-1	Option-2
Teacher's room	1	1
Laboratory	1	1
Library	1	1
Electricity	Completely	Completely
Latest Solar panels	3 Kw	3 Kw
Rain water Harvesting system	1	1
Separate toilets for male and female	2 toilet blocks per floor	2 toilet blocks per floor
Toilet for Disable people	2 nos. on the second floor	2 nos. on the second floor
Disable ramp	Ground floor and first floor	Ground floor and first floor
Pregnant women/care room with Separate toilet	1	1
Kitchen	1	1
Provision of store rooms	4 for different floors + one store for kitchen	4 for different floors + one store for kitchen
Provision of access road	Paved connecting road	Paved connecting road
Water supply	Tubewells, submersible pumps and rainwater harvesting systems	Tubewells, submersible pumps and rainwater harvesting systems
Fire Protection	Extinguisher	Extinguisher
Landscaping with Turfing & Tree plantation	Around the sub-project site	Around the sub-project site
First-aid boxes	1 for during construction and 1 for the school	1 for during construction and 1 for the school



Figure 2.3: Perspective View of Proposed Flood Shelter Option-01



Figure 2.4: Perspective View of Proposed Flood Shelter Option-02

2.3 Environmental / Social Category of the project

The overall anticipated adverse impact due to the subproject intervention is limited and site specific. Considering the environmental impact for construction of flood shelters construction and rehabilitation of connecting roads which is anticipated as insignificant; hence the overall project risk is categorized as Moderate, under the World Bank ESF. However, since none of the project components are listed under Schedule-1 of the Environmental Conservation Rules, 2023, the Department of Environment (DoE) has formally exempted the project from the requirement of obtaining an Environmental Clearance Certificate (ECC).

In compliance with the World Bank's Environmental and Social Framework (ESF), the project adheres to the ten Environmental and Social Standards (ESSs), which guide the identification and management of environmental and social risks. Should it be noted that this specific works package does not trigger ESS7 (Indigenous People) and ESS9 (Financial Intermediary) of ESF.

3 BASELINE ANALYSIS OF THE ENVIRONMENTAL AND SOCIOECONOMIC CONDITION

3.1 Physical Environment

3.1.1 Geology, Topography, and Soils

Geology

Rajbari District, located in the central part of Bangladesh under the Dhaka Division, forms part of the extensive alluvial plains of the Ganges (Padma) River system. The district's geological formation is predominantly composed of recent alluvial deposits derived from riverine sedimentation processes. These sediments mainly fine silt, clay, and sand were deposited by the dynamic flow of the Padma and its distributaries, creating a fertile yet geomorphologically active landscape. The area falls within the Madhupur Tract and Ganges Floodplain physiographic unit, characterized by low-lying floodplains interspersed with natural levees and abandoned channels (BGS & DPHE, 2001).

Topography

The topography of Rajbari District is generally flat to gently undulating, with elevations ranging from 5 to 15 meters above mean sea level. The region is crisscrossed by numerous rivers and khals, including the Padma, Kumar, and Garai Rivers, which play a dominant role in shaping the landforms. Seasonal flooding is common, influencing agricultural practices and settlement patterns. The flat terrain provides favorable conditions for infrastructure development, such as flood shelter construction, but also poses challenges in drainage management during monsoon seasons.

Soil Conditions

The soil types in Rajbari are primarily non-calcareous grey floodplain soils, calcareous alluvial soils, and clay loams with high fertility. The surface soils are rich in organic matter, supporting intensive agriculture dominated by paddy and jute cultivation. However, some areas, especially along the Padma riverbank, are susceptible to riverbank erosion, deposition, and seasonal waterlogging. The physical properties of the soil good moisture-holding capacity and moderate permeability—are suitable for construction when proper compaction and drainage are ensured (SRDI, 2018). From a geotechnical perspective, the subsoil conditions typically consist of a top layer of silt or silty clay underlain by medium-dense sand layers, making the foundation generally stable for small to medium-scale structures like flood shelters construction.

According to the Seismic Zoning Map of BNBC 2015, Rajbari District falls under Seismic Zone II, with a Seismic Coefficient value of 0.20g, indicating a low seismic risk. Refer to **Figure 3.1** for the earthquake zone map highlighting Rajbari District.

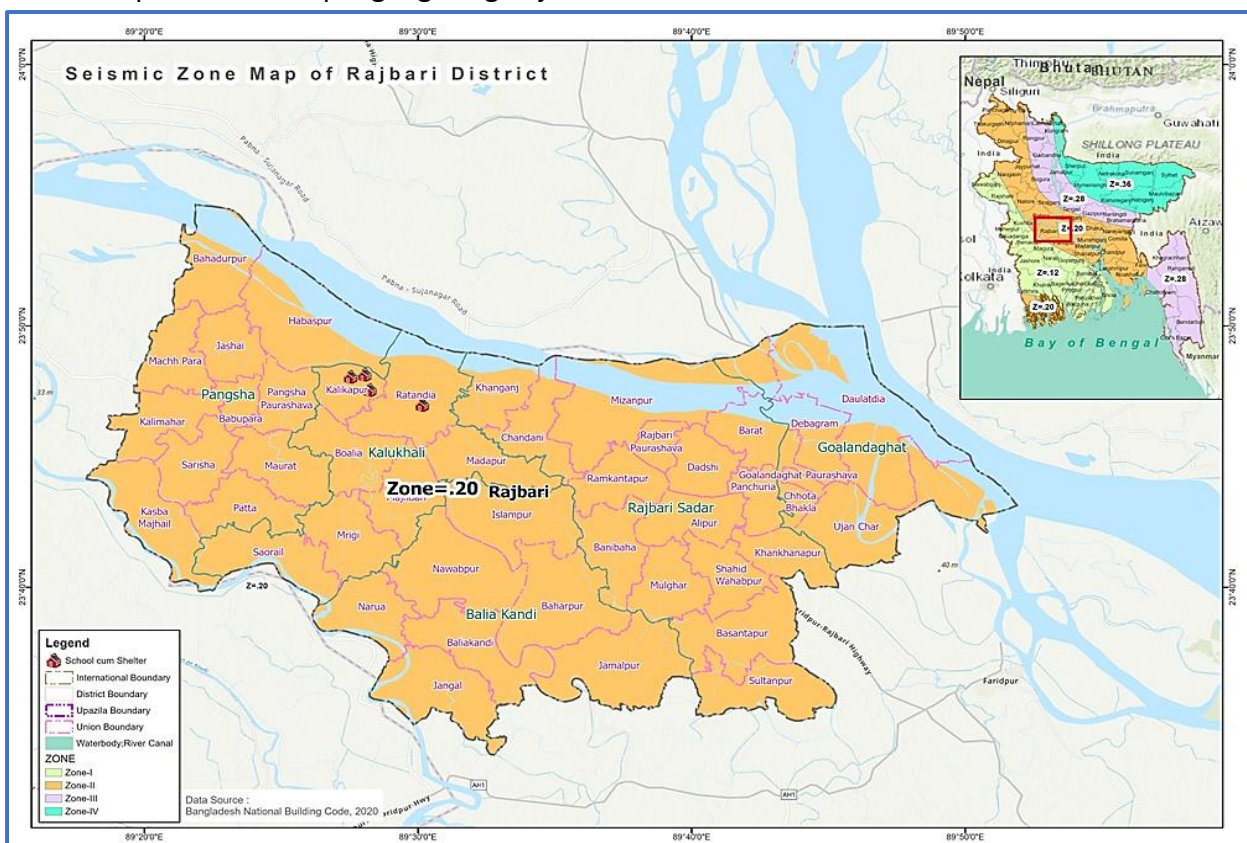


Figure 3.1: Rajbari district in Earthquake Zone Map of Bangladesh (*Data Source: BNBC, 2015)

3.1.2 Climate and Meteorology

Rajbari District lies in the south-central region of Bangladesh and experiences a tropical monsoon climate, characterized by distinct seasonal variations in temperature, rainfall, and humidity. The district's climate is predominantly influenced by the southwest monsoon, which brings heavy rainfall during the wet season, typically from June to October, while the dry season extends from November to April.

The average annual temperature ranges between 18°C and 33°C, with the warmest months usually being April to June, when the maximum temperature often exceeds 35°C. The coolest period occurs between December and January, when minimum temperatures may drop to around 11°C–15°C. The average annual rainfall in Rajbari District is approximately 1,700–1,900 mm, most of which occurs during the monsoon period, accounting for nearly 80% of the yearly total (BMD, 2023).

Humidity levels remain high throughout the year, typically varying between 70% and 90%, especially during the monsoon. The area occasionally experiences pre-monsoon nor'westers (Kalbaishakhi), characterized by short but intense storms accompanied by strong winds and lightning. Although the district is not directly exposed to severe cyclones due to its inland location, it often faces secondary effects such as heavy rainfall, riverine flooding, and waterlogging during extreme weather events. Refer to Figure 3.2 for the trend of annual average maximum temperature of the Dhaka division of Bangladesh.

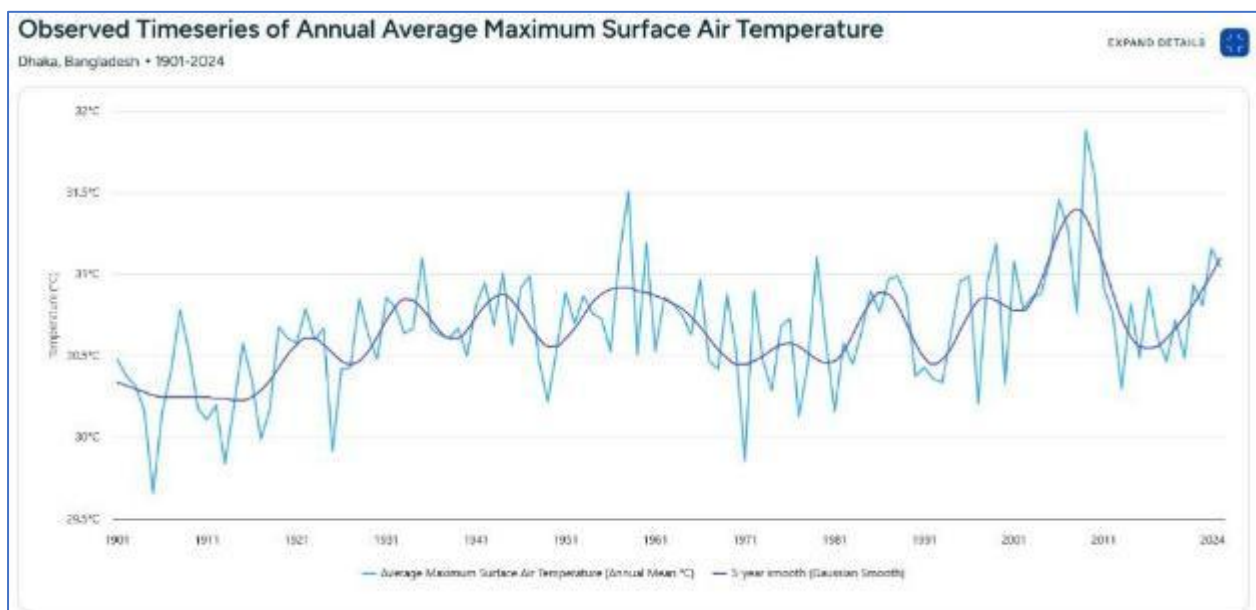


Figure 3.2: Trend of annual average maximum temperature of Dhaka division

3.1.3 Hydrology (Surface water, Ground water and Rain water)

Rajbari District is part of the lower Ganges floodplain and exhibits a complex hydrological network dominated by the Padma River, its distributaries, and numerous seasonal canals, wetlands (beels), and low-lying floodplains. The Padma River flows along the northern and eastern boundaries, significantly influencing the district's surface water regime, sedimentation pattern, and flood behavior. Other important surface water bodies include the Garai River,

Chandrabhaga Khal, and numerous small channels and ponds that serve domestic, irrigation, and aquaculture purposes. During the monsoon (June–October), the area becomes extensively inundated due to heavy rainfall and overflow from the Padma and local tributaries, while water levels fall drastically in the dry season, affecting water availability for agriculture and domestic uses (CEGIS, 2021).

Groundwater in Rajbari is a major source of drinking and irrigation water. Tube wells, both shallow and deep, are commonly used to extract groundwater from unconsolidated alluvial aquifers. The static water level generally ranges between 4–10 meters below ground surface depending on the season and location. However, the area faces localized issues of groundwater depletion and iron and arsenic contamination in some pockets, particularly where shallow aquifers are overexploited. Continuous monitoring and managed extraction are therefore essential for sustainable groundwater use (DPHE, 2022).

Rainfall in Rajbari is influenced by the tropical monsoon climate, characterized by high seasonal variation. The average annual rainfall ranges between 1,800–2,000 mm, with nearly 80% occurring between May and September. Intense monsoonal precipitation, combined with low topography and proximity to the Padma River, contributes to frequent flooding, waterlogging, and erosion during peak rainfall periods. Proper surface drainage and rainwater harvesting can help in enhancing local water security and mitigating flood risks (BMD, 2023). Refer to **Figure 3.3** for the annual average rainfall of Dhaka division of Bangladesh.

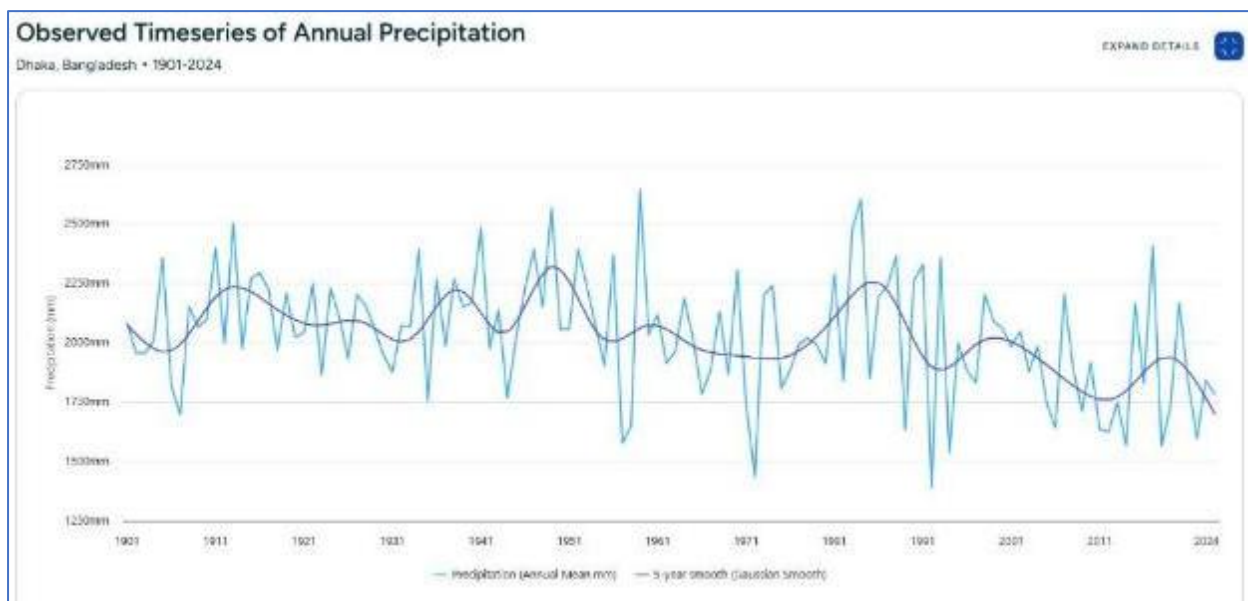


Figure 3.3: Annual average rainfall of Dhaka division in Bangladesh

3.1.4 Flooding, Water Logging and Drainage

Rajbari District is part of the lower Ganges (Padma) floodplain and experiences recurrent flooding and waterlogging due to its geographical and hydrological setting. The district is bounded by the mighty Padma River on the north and east, with an extensive network of distributaries, canals (khals), and low-lying floodplains that play a major role in local drainage dynamics. The main rivers—Padma, Jalangi, Chandana, and Kumar—act as both vital water sources and potential causes of inundation during monsoon peaks (BWDB, 2022).

Flooding in Rajbari typically occurs between June and September, mainly caused by excessive rainfall and upstream discharge from the Padma and its tributaries. Seasonal floods are an annual phenomenon, but in certain years, prolonged or severe flooding disrupts agricultural activities, damages homesteads, and hampers communication networks. Areas in Goalanda, Pangsha, and Rajbari Sadar upazilas are particularly prone to riverine and flash floods due to their proximity to riverbanks and low elevation. Bank erosion along the Padma River also aggravates flood vulnerability by altering drainage paths and causing sediment deposition in adjacent lowlands.

Waterlogging is another major concern, particularly in the southern and western parts of the district, where poor drainage capacity and siltation of natural canals limit water outflow. Unplanned embankments, road construction without adequate culverts, and encroachment of natural drainage channels have worsened the problem in recent years (LGED, 2021). During heavy rainfall events, local drainage congestion can persist for weeks, affecting crop cultivation, sanitation, and local livelihoods.

The district's natural drainage follows a gentle slope toward the Padma River, but sedimentation in khals and beels (wetlands) has reduced their conveyance capacity. Restoration and maintenance of natural waterways, along with climate-resilient flood control and drainage infrastructure, are therefore critical to managing waterlogging and enhancing resilience against recurrent flooding. According to national flood zoning (**Figure 3.4**), Rajbari lies predominantly within the **Moderate to Severe River** flooding zone of Bangladesh.

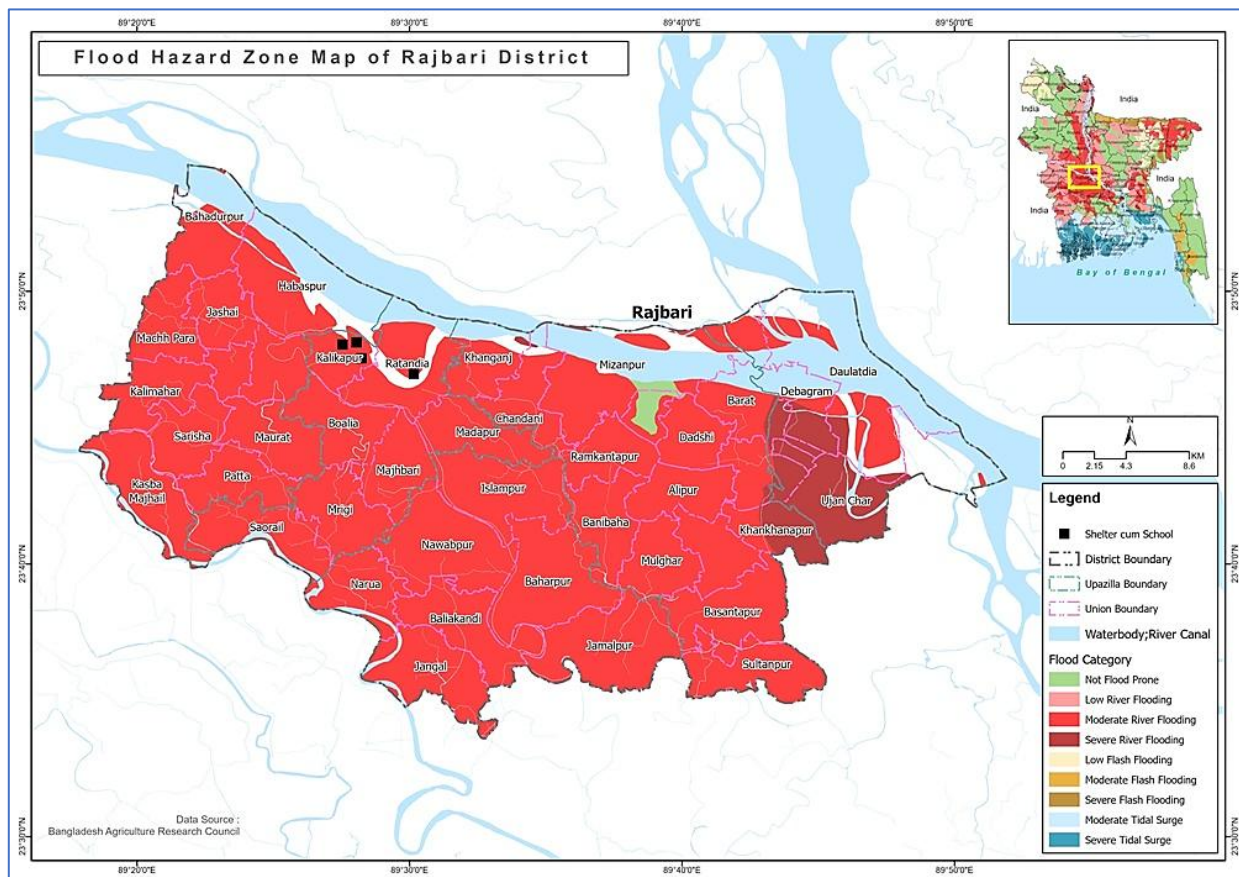


Figure 3.4: Rajbari District in Flood Zone Map of Bangladesh

3.1.5 Air Quality and Dust

Rajbari District generally experiences moderate air quality throughout most of the year, with air pollution levels significantly influenced by seasonal variations, local traffic movement, and construction or agricultural activities. Being a semi-rural area with a mix of agricultural land, small towns, and scattered industrial activities, the ambient air quality in Rajbari is comparatively better than that of major urban centers such as Dhaka or Narayanganj. However, during the dry season (November–April), dust emissions from unpaved roads, earthworks, brick kilns, and construction activities tend to elevate local particulate matter (PM₁₀ and PM_{2.5}) concentrations.

According to the Department of Environment (DoE, 2023) Air Quality Monitoring Report, the nearby monitoring station in Faridpur and surrounding southwestern zones of Bangladesh recorded average PM_{2.5} concentrations ranging between 40–60 µg/m³, which slightly exceeds the Bangladesh National Ambient Air Quality Standard (NAAQS) of 35 µg/m³ for 24-hour averages. The exceedances are typically observed in the winter months due to reduced rainfall and stagnant air conditions that trap pollutants.

In Rajbari, the major sources of air pollution include:

- Vehicular emissions from regional highways such as the Dhaka–Kushtia–Khulna corridor.
- Brick kilns operating seasonally around Kalukhali upazila.
- Dust from rural and semi-urban road networks, especially during dry periods.
- Crop residue burning and soil preparation activities contributing to localized smoke and dust.

During the monsoon season (May–October), air quality typically improves due to heavy rainfall, which suppresses dust and airborne particulates. Overall, the district’s ambient air quality remains within acceptable limits for most of the year, though temporary dust generation during infrastructure development (such as flood shelter construction under the RIVER Project) can cause localized deterioration if not properly managed.

Mitigation measures such as regular water sprinkling, covering of materials during transport, and use of dust suppressants are recommended in the project’s ESMP to maintain safe air quality levels during construction activities.

3.1.6 Noise Level

The overall noise level condition in Rajbari District is generally low to moderate, reflecting its semi-urban and rural characteristics. Most areas of the district are dominated by agricultural land, local markets, small-scale industries, and rural settlements where noise sources are relatively limited. However, increased vehicular movement along regional highways, local bazaars, and construction activities in urban centers such as Rajbari Sadar can contribute to localized noise pollution.

According to the Department of Environment (DoE, 2022), the ambient noise level in similar district towns of Bangladesh ranges between 45–60 dB(A) in residential areas during daytime

and 35–50 dB(A) at night, which is within or slightly above the national standard limits set by the Noise Pollution (Control) Rules, 2006. In commercial zones and roadside areas, daytime noise levels may reach 65–75 dB(A) due to transport congestion and human activities. In the Rajbari context, the measured or expected noise levels in market areas and transport corridors (e.g., Rajbari–Goalanda Road and Rajbari–Pangsha Road) are likely within this range.

Overall, the existing ambient noise environment of Rajbari District remains within acceptable limits for rural and semi-urban settings, with occasional exceedances in traffic or market zones. Continuous monitoring and compliance with DoE standards are recommended to maintain an acceptable noise environment during project implementation.

3.1.7 Solid Waste Management

Solid waste management in Rajbari District is still in a developing stage, with limited organized collection and disposal facilities. The Rajbari Municipality and other urban centers such as Pangsha and Goalanda manage household, commercial, and institutional waste through municipal collection systems. However, coverage remains partial, with rural areas largely dependent on informal or community-based disposal practices.

Most solid waste generated in Rajbari consists of organic matter (nearly 65–70%), followed by plastic, paper, and other non-biodegradable materials. Waste collection in urban areas is carried out mainly through door-to-door collection by municipal workers or private waste collectors using handcarts and trucks. Collected waste is typically transported to open dumping sites at the periphery of towns, where no systematic segregation, composting, or sanitary landfill facilities exist. These open dumps often lead to odor, vector infestation, and leachate contamination of nearby soils and water bodies.

In rural parts of the district, households generally dispose of waste through open burning, backyard composting, or dumping in low-lying areas and roadside drains. Healthcare waste is collected separately from public hospitals but often mixed with municipal waste during transportation due to lack of dedicated treatment and disposal facilities. The Rajbari Pourashava has taken initiatives for waste awareness campaigns and small-scale composting, but the system remains inadequate to meet the growing volume of waste generated by population growth and urbanization.

To improve the situation, solid waste management plans emphasizing waste segregation at source, community-based composting, plastic recycling, and the establishment of controlled landfill sites are essential. Integration with the National 3R (Reduce, Reuse, Recycle) Strategy and alignment with the Local Government (Municipality) Act 2009 can enhance sustainability and environmental compliance.

3.2 Biotic Environment as Floral and Faunal Existences

Rajbari District is characterized by fertile floodplain ecosystems shaped by the Padma and its distributaries. The district's biotic environment comprises diverse floral and faunal species associated with agricultural lands, riverine habitats, homestead forests, wetlands, and roadside vegetation. The flora of Rajbari primarily includes species adapted to floodplain and riparian conditions. Common plant species found in the area include Shegun, Mango, Jackfruit, Neem,

Banyan, Koroi, Akashmoni, Coconut, and various bamboo species. In agricultural zones, seasonal crops such as paddy, jute, pulses, and vegetables dominate the vegetation cover, while aquatic plants like *Eichhornia crassipes* (Water Hyacinth), *Nymphaea nouchali* (Water Lily), and *Hydrilla verticillata* are prevalent in wetlands and beels.

The faunal diversity of Rajbari District is typical of lowland floodplain ecosystems. Common terrestrial fauna includes Mongoose, Jackal, Bengal Fox, House Rat, Flying Fox, and various species of snakes and lizards. Birds are abundant, especially around wetlands, with species such as Garganey, Little Egret, Pond Heron, Woolly-necked Stork, Little Cormorant, and White-throated Kingfisher. During the winter season, a number of migratory birds visit the floodplains and wetlands. Aquatic fauna is diverse, with several indigenous fish species such as Rohu, Catla, Mrigel, Magur, Tengra, and various species of small indigenous fish. Amphibians like Common Toad and Indian Bullfrog are commonly found in agricultural and waterlogged areas.

Although Rajbari does not contain any officially declared ecologically critical areas (ECA) or wildlife sanctuaries, its riverine and wetland habitats play an important ecological role by supporting aquatic biodiversity and providing feeding and breeding grounds for local and migratory fauna. However, increasing anthropogenic activities, agricultural expansion, sand extraction, and pollution from domestic and small-scale industrial sources have led to habitat degradation and reduction of native biodiversity. Sustainable land use planning, awareness creation, and conservation measures in accordance with the World Bank Environmental and Social Standard 6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources) are essential to maintain the ecological balance in the project area.

3.3 Socio-economic and Socio-cultural Environment

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

Rajbari District's land use is predominantly agricultural, with cultivation of paddy, jute, pulses, vegetables, and seasonal crops supported by fertile alluvial soils within the floodplains of the Padma, Gorai, and their tributaries (BBS, 2022). The district is highly susceptible to seasonal flooding and riverbank erosion, particularly in low-lying and river-adjacent upazilas such as Goalanda, Rajbari Sadar, and Kalukhali, where char lands and shifting river courses influence settlement patterns and agricultural intensity. Built-up areas, especially around Rajbari Municipality and upazila growth centers, are gradually expanding, although quantified data on spatial change remains limited. Rural settlements are typically clustered homesteads constructed with semi-permanent materials such as tin or thatch, while urban zones feature brick-built houses, commercial establishments, educational institutions, and government offices. However, many municipal and peri-urban areas face poor drainage, open sewers, waterlogging, and inadequate waste management. Infrastructure development has been significant under various LGED initiatives, including rural road improvement projects and bridge construction; yet progress is hampered by issues such as substandard execution, delayed implementation, and encroachment on government lands, notably railway property. Recurrent flooding, weak embankments, and erosion further undermine rural infrastructure, prompting repeated rehabilitation needs. Future development must prioritize resilient construction on

elevated or protected sites, integration of water, sanitation, electricity, and communication networks, and protection of agricultural land through careful spatial planning. Additionally, strengthening flood control infrastructure, improving urban services, enforcing land regulations, and incorporating remote sensing-based monitoring are critical for sustainable land and infrastructure management in Rajbari.

3.3.2 Beneficiary Population

According to the 2022 Population and Housing Census, Rajbari District has approximately 1,189,818 people living in about 295,216 households, with an average household size of about 3.99 persons. Of these, 215,341 (~18.1%) are children under 10 years of age, indicating a substantial child population likely to require special protection and support during disasters. The elderly population (65 years and over) comprises about 87,120 individuals, representing a vulnerable group in terms of mobility, health and disaster risk. Urbanization in Rajbari is modest: only about 15.11% of the population lives in urban areas, with the vast majority in rural or peri-urban settings where infrastructure tends to be weaker. While official, detailed data for persons with disabilities, low-income households, or other marginalized sub-groups in Rajbari is limited in the public domain, coverage gaps in social protection are known. For example, in 2014 a survey showed that among the 5 upazilas of Rajbari, there were about 15,201 registered physically challenged persons but only about 15% (~2,280) received government allowance support. Additionally, Rajbari has been a focus of government “homeless & landless” rehabilitation efforts, with some upazilas declared “landless and homeless-free” under government housing programs, though a residual number of vulnerable families remain. Therefore, the beneficiary population for flood-resilient shelters in Rajbari District will include especially children (under 10), the elderly (65+), persons with disabilities (many without sufficient support), and low-income or landless households, particularly in rural, flood-prone, and river-erosion affected upazilas. Inclusion of these groups in location, design and access of shelters is essential for equitable disaster resilience.

3.3.3 Tribal Communities

According to the Bangladesh Population and Housing Census 2022, Rajbari District has an ethnic population of 3,324 persons, constituting a very small fraction of its total population of approximately 1,189,818. The overwhelming majority of residents are Bengali Muslims and Hindus, with no significant concentration of Indigenous Peoples such as Santals, Oraons, Chakmas, Mundas, or others in Rajbari. The ethnic minority households are dispersed rather than forming cohesive ethnic settlements, and there is no evidence from census data or district records that any of the proposed project-site areas include recognized Indigenous Peoples’ settlements. Given this, the project’s Environmental and Social Screening has not identified any tribal communities in the project influence zones in Rajbari. Nevertheless, consistent with the World Bank’s Environmental and Social Framework (ESS 7), the project is committed to ensuring inclusive stakeholder engagement, non-discrimination, and that all vulnerable groups—regardless of ethnic identity—are afforded equitable access to benefits and protections, and that no one is inadvertently excluded or adversely impacted.

3.3.4 Land Acquisition

Preliminary design and feasibility investigations for the proposed flood-shelter subprojects in Rajbari indicate that, for many candidate sites, it may be possible to avoid any private land acquisition by locating shelters within existing public-institution premises, such as government schools, where land is already held under public administration. Nonetheless, Rajbari District has known instances of land use conflicts: there are large tracts of government lands (e.g. railway lands) under illegal occupation, which complicates land administration. There is also evidence that land acquisition for other infrastructure (e.g. bridge access roads) has led to delays when private land or adjacent private property is required. Accordingly, while the current design strategy aims to use public land and avoid involuntary resettlement consistent with ESS5, full field verification must confirm that proposed shelter site boundaries contain no private structures, agricultural activities, informal settlements, or encroachments. Consultations with school authorities, Union Parishads, and local communities will be essential to secure confirmation of land status, obtain formal agreements or permissions, and ensure no unintended rights of others are infringed. Where land donation is considered, it should be documented transparently, with stakeholder consent and independent oversight.

3.3.5 Land Readiness Status in Rajbari District

Of the 4 assessed schools, all sites were found to be compliant with the legal and policy frameworks as well as land selection criteria of the project, demonstrating sufficient land availability, clear ownership records, and no risk of involuntary resettlement or displacement. 2 schools require demolition of existing old building while 1 school from them needed temporary school shed. For all schools where issues were raised about saving playground are addressed through proper consultation with SMC and local community and verifying design alignment in the field.

By ensuring the implementation of Environmental and Social Standards (ESS) and responsible land management options, the RIVER project will significantly contribute to enhancing disaster resilience and sustainable development in the flood-prone areas of Rajbari district.

3.3.6 Principal Livelihoods and Economic Activities

Rajbari District's economy remains strongly anchored in agriculture, supplemented by growing contributions from small-scale industry, commerce, and non-farm rural enterprises. According to a World Bank document using 2011 census data, approximately 73 % of the workforce in Rajbari was engaged in agriculture, with 9.97 % in commerce. Small-scale agricultural diversification is evident: the Department of Agricultural Extension (DAE) has recently distributed seeds, fertilizers and inputs to over 21,900 farmers across Rajbari for the Rabi season to support production of wheat, maize, onion, mustard, groundnut, pulses and other cash/horticultural crops. Livestock and related agribusinesses are also important: for example, small scale cattle fattening is profitable in rural Rajbari, with studies showing net incomes per head of cattle and strong interest among small farmers especially near major festivals like Eid-ul-Azha. Poultry is present (e.g. the Rajbari Government Poultry Farm), though many such facilities are under-utilised or require rehabilitation. On the processing side, local

entrepreneurship is exemplified by yogurt (“doi”) factories such as “Halal Sor Doi” in Gobindapur village, which provide income for youth and link dairy farming, milk collection, and value addition. Artisan and small manufacturing sectors contribute too: Rajbari Handicrafts Limited is an exporter of crafts; Rajbari Jute Mills Ltd. produces jute goods for packaging. Furthermore, there is emerging participation of Rajbari farmers in supplying large retailers: e.g., the supermarket chain Shwapno has begun purchasing cauliflower directly from growers in the Baliakandi area, enabling farmers to capture more value in the supply chain. While comprehensive district-level data on income shares, non-farm employment rates, and the informal economy are limited, these patterns show that livelihoods are mixed, with heavy dependence on agriculture but with important and growing opportunities in livestock, food processing, value addition, and commerce. The shelter sub-projects should be designed to avoid disruption to these livelihood sources, particularly agricultural land or livestock grazing areas, ensure access to local producer networks, and explore complementary livelihood support (e.g. value-chain linkages) to strengthen resilience.

3.3.7 Cultural Heritage and Protected Areas

Rajbari District possesses a rich cultural and intangible heritage expressed through riverine culture, music traditions (notably Baul performances in Pangsha), the historic Goalanda Ghat river port, and religious and community practices rooted in its rural landscapes. However, there are no widely recognized archaeological sites or nationally declared protected monuments in Rajbari clearly documented in publicly accessible sources that correspond to the specific locations of proposed flood shelter sub-projects. No Ecologically Critical Areas (ECAs) within Rajbari have been identified in public records in the immediate vicinities of these proposed sites. Field verification and consultations with district cultural authorities, local community representatives, and religious institutions have thus far not revealed any tangible heritage features—such as ancient temples, mosques, ruins, or archaeological remains—situated within the school compounds proposed for the shelters. In line with the World Bank’s Environmental and Social Framework (ESS2), the project will apply standard mitigation procedures to protect both tangible and intangible heritage values. This includes screening during siting, avoiding disturbance of any heritage resources if found, ensuring that design and construction avoid encroachment into or disruption of any cultural or religious structures, and engaging with communities to document and respect local heritage, rituals, artistic traditions, and folklore associated with each locale.

3.3.8 Social Conflicts and Development Activities

The sub-project areas in Rajbari District are characterized by social stability and a cooperative community environment. The local population has demonstrated consistent support for government and non-government development initiatives, including projects focused on infrastructure, education, and disaster resilience. The proposed flood shelter construction is expected to be well-received by local communities, as it directly responds to the urgent need for enhanced disaster preparedness and protection. Site selection has been carried out through consultations with School Management Committees (SMCs) and local stakeholders, ensuring

strong community engagement, local ownership, and minimal social risk. No significant social tensions or disruptions are anticipated during project implementation. To maintain transparency and address any concerns that may arise, an accessible and responsive Grievance Redress Mechanism (GRM) will be established as part of the project's social risk management strategy.

4 ENVIRONMENTAL AND SOCIAL ASSESSMENT

An Environmental and Social Assessment was conducted for the proposed flood shelter subprojects under the “Resilient Infrastructure for Adaption and Vulnerability Reduction (RIVER)” Project in Rajbari district. The assessment was carried out in accordance with the World Bank’s prescribed Assessment Checklist (**Annexure-2: Assessment Checklist of Environmental and Social Safeguards**) as outlined in the Environmental and Social Management Framework (ESMF) of the project. The assessment data and information for the proposed subprojects of Rajbari district have been formulated and are shown in **Annexure-1**.

The safeguard assessment activities took place during February 02-03, 2026, covering all proposed sites across the selected upazilas within the district. The objective of the assessment was to identify potential environmental and social risks and impacts associated with the construction and operation of the flood shelters, and to propose appropriate mitigation and management measures. This report contains site-specific (individual report on each site) environmental and social assessment findings of all the sub-projects under Rajbari District, which are included in **Annexure-1**. The assessment process involved site visits, stakeholder consultations (**Annexure-3** gives the Consultation Meeting Checklist), review of environmental baselines, and of social context including land use, vulnerable groups, and community dynamics. Based on the findings, an overall Environmental and Social Management Plan (ESMP) has been developed for the subproject, outlining specific measures to mitigate adverse impacts during pre-construction, construction, and operational phases.

The ESMP includes provisions for waste management, dust and noise control, community health and safety, labor influx management, and grievance redress mechanisms. In addition, the plan emphasizes community consultations, Grievance Redress Mechanism (GRM), and capacity building for local stakeholders. Regular environmental and social monitoring will be undertaken throughout the subproject lifecycle to ensure compliance with World Bank Environmental and Social Standards (ESSs) and national environmental regulations.

4.1 Summary of Environmental and Social Impacts

The construction of flood shelter sub-projects in Rajbari District involves diverse activities such as site clearing, excavation, material storage, transportation, and structural works, each of which can generate specific environmental and social impacts if not carefully managed. The environmental and social impacts anticipated from the proposed activities are generally minor to moderate in nature and largely site-specific, with no irreversible or long-term adverse effects expected. During the site preparation phase, clearing and dismantling of existing structures may lead to vegetation loss, dust and noise emissions, soil erosion, and temporary disruption to community movement. Earthworks including cutting and filling may alter natural drainage

patterns and increase the risk of sedimentation in nearby water bodies. The project's ecological footprint is significant given its proximity to agricultural fields, homesteads, wetlands, and riverbanks. Improper storage of construction materials such as sand, cement, aggregates, and fuels can also lead to pollution of soil, air, and water, while accidental spillages may contaminate nearby ponds, canals, or agricultural lands. Water resources may also be at risk due to uncontrolled runoff, improper wastewater disposal, or leakage of hazardous substances. Given the flood-prone nature of Rajbari, construction runoff could lead to increased turbidity, sedimentation, and ecological stress in nearby rivers and wetlands.

Air quality degradation and dust generation from excavation, material handling, and movement of construction vehicles are among the most common site-level impacts, often affecting sensitive receptors such as schools, clinics, and residential areas. Noise and vibration from heavy equipment, pile driving, and demolition works can disturb community life, cause stress, and potentially damage weak structures.

In addition, the project poses occupational health and safety (OHS) risks for workers due to physical hazards, heavy machinery operation, and exposure to dust, heat, and noise. Insufficient use of personal protective equipment (PPE) or poor site management may lead to accidents and injuries. Traffic congestion and community safety concerns may arise from increased vehicular movement, particularly on narrow rural roads shared by pedestrians and non-motorized transport. Potential grievances from nearby residents may arise if construction activities are not well-managed.

Overall, while the anticipated impacts are temporary and localized, they require systematic prevention, mitigation, and monitoring to protect both the surrounding environment and the wellbeing of workers and local communities. Apart from the overall impacts presented, some of the site-specific impacts have been revealed as well. For example, Tree removal is required in RAJ-022, RAJ-023, RAJ-025 sites, demolition impact will appear at sites RAJ-023, RAJ-025 while earth filling is required at sites RAJ-023. All these site-specific features and impacts are tabulated hereunder **Table 4.1**.

Table 4.1: Site-Specific ES Issues and Potential Impacts

Sl. No.	Unique Database ID	Upazila	Name of Disaster Shelter	ES Features	Land Issues	Potential Impacts
1	RAJ-022	Kalukhali	4 No. Horinbaria GPS	<ul style="list-style-type: none"> • 06 nos. trees of different species need to be removed. • Rural Settlement and agricultural land adjacent to subproject sites. • Madrasa, mosque and graveyard are located approximately 80m away from the subproject site. 	<ul style="list-style-type: none"> • Available Land 168 Decimal. 	<ul style="list-style-type: none"> • Loss of vegetation and local biodiversity, reduced shading. • Risk of siltation, water pollution and disturbance. • Construction activities (pile driving, concrete works, movement of heavy vehicles) may generate elevated noise and vibration levels, which could temporarily disturb prayer sessions, religious teaching activities, and the overall serenity of the mosque, madrasa, and graveyard.
2	RAJ-023		51 No. Para Belgachi Mofiz uddin GPS	<ul style="list-style-type: none"> • 5 nos. trees of different species need to be removed. • Para Belgachi Temple is within 10m. • On the south side of the sub project site, there is a small pond. 	<ul style="list-style-type: none"> • Available Land: 33 Decimal. • Demolition required, an old pucca building, a tin shed building and two toilets with septic tank. • Temporary school required. 	<ul style="list-style-type: none"> • Loss of vegetation and local biodiversity. • During material transportation traffic congestion may cause prayer interruption to the community. • Untreated and improper disposal of sewage will contaminate soil and water. • Debris from improper demolished waste management creates visual nuisance.

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report for Rajbari District

Sl. No.	Unique Database ID	Upazila	Name of Disaster Shelter	ES Features	Land Issues	Potential Impacts
3	RAJ-024		Kalukhali GPS	<ul style="list-style-type: none"> • A family graveyard is adjacent to the subproject site. 	<ul style="list-style-type: none"> • Available Land: 42 Decimal. 	<ul style="list-style-type: none"> • Unplanned excavation and vibration may cause physical damage to the graveyard.
4	RAJ-025		Yakub Hossain Mollah GPS	<ul style="list-style-type: none"> • Required 2 no. medium to large tree cutting. • Satota Bazar located 50m away from the subproject site. • Agricultural land and rural settlement adjacent to the subproject site. 	<ul style="list-style-type: none"> • Available Land: 30 Decimal. • Demolition of tin shed building and two toilets with septic tank. 	<ul style="list-style-type: none"> • Loss of vegetation cover and local biodiversity. • Increased construction traffic may cause temporary congestion on access roads near the bazar, affecting pedestrian movement. • Workers may face risks from sharp tin edges, falling materials, and structural instability during dismantling, increasing the likelihood of injuries without adequate safety precautions.

4.2 Overall Mitigation and Management Measures

To address the overall as well as site-specific risks, impacts or challenges, a set of integrated environmental and social management measures consistent with the Environmental and Social Management Plan (ESMP), Environmental and Social Codes of Practice (ESCOPs), and relevant Standard Operating Procedures (SOPs) have been planned to follow at all working sites.

During site preparation and earthworks, dust suppression through regular watering, restriction of noisy operations to daytime hours, and controlled clearing of vegetation are prioritized. Fertile topsoil is to be stripped, stored, and reused for site landscaping or greenbelt development, while excavated slopes are stabilized immediately with silt fencing or sediment traps to prevent erosion. To minimize ecological disturbance, pre-construction ecological screening will identify sensitive habitats, and native trees and shrubs will be replanted after construction. Workers will receive orientation on eco-sensitive behavior, including the prohibition of waste dumping, wildlife disturbance, and fuel spillage.

Pollution prevention and material management will be ensured through designated storage areas with impermeable flooring and roofing, proper containment for fuels and chemicals, and housekeeping measures to prevent leaks and dust emissions. Sand and aggregate stockpiles will be covered, and construction vehicles will be maintained in good condition to reduce emissions. Air quality and noise management will include use of covered trucks, regular vehicle maintenance, temporary noise barriers near schools or health centers, and scheduling of pile driving or demolition works during off-peak hours. Noise and vibration levels will be periodically monitored to remain within the permissible limits of the Department of Environment (DoE) and World Bank EHS guidelines. To protect water resources, construction runoff will be routed through sedimentation basins or silt traps before discharge, and hazardous materials will be stored away from drainage channels. Sanitation facilities for workers will be installed to prevent contamination of nearby water bodies.

Occupational Health and Safety (OHS) measures form a central part of the mitigation strategy. Contractors must implement a site-specific Health and Safety Plan, supply appropriate PPE to all workers, conduct regular safety training, maintain first-aid facilities, and ensure availability of drinking water, sanitation, and rest areas. Emergency preparedness and incident reporting systems will be maintained to promote accountability and rapid response to any workplace incidents.

Furthermore, traffic and community safety will be managed through a site-specific Traffic Management Plan (TMP), including route scheduling for heavy vehicles, use of warning signage and flagmen, enforcement of speed limits, and coordination with local authorities and community representatives.

Collectively, these measures will ensure that construction activities for flood shelter development in Rajbari District proceed safely, reduce environmental pollution, protect ecological and community health, and promote compliance with national regulations and

World Bank safeguard standards, thereby contributing to long-term environmental resilience and community wellbeing.

5 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

5.1 Purpose of the ESMP

The purpose of the Environmental and Social Management Plan (ESMP) for the RIVER Project in Rajbari District is to ensure that the flood shelter construction activities are planned, implemented, and monitored in full compliance with the Environmental and Social Framework (ESF) of the World Bank and the relevant environmental and social regulations of Bangladesh. The ESMP is a critical operational tool that identifies, assesses, and addresses potential environmental and social risks and impacts associated with the construction and future operation of 4 disaster-resilient flood shelters located in Kalukhali upazila.

The vulnerability of Rajbari is to seasonal flooding, riverbank erosion, and waterlogging, the ESMP incorporates measures to minimize adverse environmental and social impacts while maximizing community resilience and adaptive capacity. It integrates site-specific mitigation measures, monitoring protocols, institutional responsibilities, capacity-building requirements, and grievance redress mechanisms to ensure sustainability and social inclusion throughout the project lifecycle.

The ESMP particularly ensures that vulnerable groups, including women, children, elderly persons, persons with disabilities, and marginalized households are not disproportionately affected and are able to benefit from the project's outcomes. It promotes equitable access to shelter facilities during emergencies and ensures inclusive use during normal periods, such as for educational or community purposes.

The Project Implementation Unit (PIU) of LGED will be responsible for the overall coordination, supervision, and enforcement of the ESMP. Contractors will be directly accountable for implementing mitigation measures during construction in strict adherence to both national environmental and labor laws and the World Bank Environmental and Social Standards (ESSs).

5.2 Access to Translated Information

To ensure transparency, the Environmental and Social Assessment and Management Report and the ESMP will be disseminated locally within Kalukhali upazila of Rajbari District. Copies the documents will be distributed to:

- Contractors' site office
- School authorities where shelters are being constructed
- Relevant LGED field offices

The final assessment report will be uploaded to the LGED official website and the World Bank website following formal approval, in compliance with ESS10: Stakeholder Engagement and Information Disclosure.

5.3 Environmental and Social Management Plan

The implementation of the school-cum-flood Shelter along with connecting roads (where applicable) construction sub-project requires a comprehensive framework of preventive and management measures to ensure environmental and social sustainability throughout its life cycle. The Environmental and Social Management Plan (ESMP) serves as the overarching tool that identifies site-specific risks, proposes mitigation actions, defines monitoring parameters, and assigns responsibilities to ensure that construction activities, including earthworks, access road improvement, tree removal, and installation of renewable features comply with environmental and social safeguards. Complementing the ESMP, the Environmental and Social Codes of Practice (ESCoPs) provide detailed technical and procedural guidance for the contractor and field supervisors to manage recurring issues such as Waste Management, Water Resource Management, Drainage Management, Air Quality Management, and Construction Camp Management, etc. These ESCoPs standardize good practices across all sites, reducing the likelihood of non-compliance and promoting environmentally sound and socially responsible construction behavior. In parallel, the Standard Operating Procedures (SOPs) for pile driving and building demolition address two high-risk activities that require specific operational control, ensuring noise, vibration, dust, and structural safety risks are minimized, and that occupational and community safety standards are strictly maintained. Together, the ESMP, ESCoPs, and SOPs form an integrated management system that links prevention, mitigation, and monitoring, ensuring that the project achieves its infrastructure objectives while safeguarding human health, local communities, and the surrounding environment.

The activity wise anticipated environmental and social impacts and corresponding mitigation measures and Site-Specific Impacts and mitigation/management measures have been outlined in **Table 5.1** and **Table 5.2**. A detailed monitoring framework for overall ES Performance has been presented in **Table 5.3**. Additionally, Contractor must follow the Standard Operating Procedure delineated in **Annexure-6**.

The ESMP ensures compliance with the World Bank's ten Environmental and Social Standards (ESSs), particularly focusing on ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), ESS2 (Labor and Working Conditions), ESS3 (Resource Efficiency and Pollution Prevention), ESS4 (Community Health and Safety), and ESS10 (Stakeholder Engagement and Information Disclosure). It provides guidelines for managing construction-related impacts such as air and water pollution, noise, occupational health and safety risks, and impacts on local livelihoods and ecosystems.

Moreover, the ESMP emphasizes the importance of stakeholder engagement, grievance redress mechanisms, and the inclusion of vulnerable groups to promote equitable and sustainable outcomes. By integrating environmental and social considerations into every stage of project implementation, the ESMP supports responsible infrastructure development that enhances community resilience while minimizing adverse impacts.

Table 5.1: ESMP_ Construction Phase and Operation Phase

Construction Phase					
Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
1.	Contractor's proposal for site specific temporary works	<ul style="list-style-type: none"> Accurate/ proper implementation of ESMP 	Preparation of Work schedule, construction camp, materials storage area, access road, waste dumping/ disposal area etc.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
2.	Construction and operation of labor shed for the workers (Workforce and labor shed management)	<ul style="list-style-type: none"> Generation of sewage and solid waste may cause environmental pollution in the surrounding area Water, soil, air & dust pollution/ environmental pollution 	(i) Construction of sanitary latrine at the labor shed (consider 15 persons for one toilet, separate toilet for male and female); (ii) Construction of sanitary latrine/ Pit latrine with septic tank/ Ring slab system (iii) Erection of "no litter" sign, provision of waste bins/cans (separate waste bins for organic and inorganic wastes); (iv) Provision of waste bins/ cans, where appropriate, (v) Litter is to be collected daily. (vi) Bins and/or skips should be emptied regularly and waste/ debris should be disposed of at waste disposal areas approved by Environmental Specialist of DSC. (vii) Ensure wastes (solid wastes and other forms of the waste) disposal at designated places. (viii) Camp and working areas are kept clean and tidy at all times. (ix) Camp is to be checked for spills of substances i.e. chemical, oil, paint, etc.	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Construction Phase					
Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<ul style="list-style-type: none"> Health of workers 	(i) Conduct formal and unofficial discussion and training to increase awareness about hygiene practices among the workers; (ii) Ensure availability and access to first-aid equipment and medical supplies for the workers. (iii) Ensure safety gear worn: ear plug, goggles, mask, gloves, helmets, and uniforms etc. (iv) Staff must be trained up for operating equipment (v) Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Possible development of labor camp into permanent settlement 	Contractor to remove labor camp at the completion of contract.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Outside labor force causing negative impact on health and social well-being of local people 	Ensure that contractor employ local work force to provide work opportunity to the local people and conduct formal and unofficial awareness program for the health and social well-being of the local people.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
3.	Civil work contractor will use available school land located near to the school for construction yard	<ul style="list-style-type: none"> Students and nearby inhabitants are temporarily affected while construction is going on 	Construction contractor will follow to take precautions to minimize the disturbances during construction period such as safety guarding, safety signs etc.	Contractor/ SMC	Environmental and Social Development Specialists of PIU, D&SC and SMC
4.	Disturbances due to construction works	<ul style="list-style-type: none"> Students are affected during construction 	Construction contractor will take necessary precautions to minimize the disturbances during construction period as per guideline of ESMP.	Contractor/ SMC	Environmental and Social Development Specialists of PIU, D&SC and SMC

Construction Phase					
Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
5.	Employment opportunities during construction	<ul style="list-style-type: none"> Community will get opportunities for additional income 	Construction contractor will be obliged to give opportunities to local people, maintain gender balance, fair wages and avoid engagement of child labour.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
6.	Construction Materials storage areas	<ul style="list-style-type: none"> Use of surrounding open area, playground, road side etc. for stockpiling of construction materials. Creating dust/ air pollution, Spillage of liquid/hazardous substances i.e. oil, paint, chemicals, bitumen etc. Access of students, children, animals, etc. Not cleaning of construction materials storage areas after completion of construction. 	<ul style="list-style-type: none"> (i) Proper stockpiling/ storage of construction materials at the site as proposed by the contractor & approved by the Environmental Specialist of D&SC. (ii) Proper covering of dust producing materials with polythene sheet, (iii) Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by students, children, animals, etc. (iv) Spills/ hazardous substances should be disposed off at the site as proposed by the contractor & approved by the Environmental Specialist of DSC to avoid soil/ water contamination. (v) Materials storage area must be cleaned after completion of construction. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
7.	General construction work	<ul style="list-style-type: none"> Drainage congestion and flooding 	<ul style="list-style-type: none"> (i) Plinth level of the Shelter should be higher than the highest flood water level. (ii) Ensure provision for adequate drainage of storm water and pumping of congested water if needed; 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Construction Phase					
Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			(iii) Ensure adequate monitoring of drainage effects, especially if construction works are carried out during the monsoon season.		
		<ul style="list-style-type: none"> Air pollution 	<ul style="list-style-type: none"> (i) Check regularly and ensure that all the subproject vehicles and equipment are in good operating condition; (ii) Ensure contractor spray water on dry surfaces/ unpaved to reduce dust generation; (iii) Maintain adequate moisture content of the sand; (iv) Ensure contractor sprinkle water and cover stockpiles of loose materials (e.g., fine aggregates); (v) Inform local people about the subproject activities and potential impact; (vi) Cover loaded truck used for carrying sand with tarpaulin/other suitable material to prevent spreading by air blown. (vii) Provision of Masks for the workers, site staffs, students and teachers & Masks should be available in site during construction period. (viii) Construction works should be scheduled before and after school hour or during holidays. (ix) Avoid use of equipment e.g. stone crushers at site, if possible, which produce significant amount of particulate matter. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Traffic congestion, effect on traffic and pedestrian safety 	<ul style="list-style-type: none"> (i) Prepare and implement Traffic Management Plan (TMP), if required. (ii) Ensure schedule deliveries of materials/ heavy vehicle movement/ equipment during off-peak hours; 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Construction Phase					
Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			(iii) Place traffic sign/cautionary sign to avoid undue traffic congestion if required; (iv) Maintain vehicles and enforce legal load limits, and impose speed limits within settlements (v) Use flagmen, signage, and barriers near schools and markets; (vi) Spray water on access roads to reduce dust (vii) Coordinate with local authorities and inform communities.		
		<ul style="list-style-type: none"> • Noise pollution 	(i) Check and maintenance the equipment properly; (ii) Avoid using of construction equipment such as concrete mixer machine, pile driving equipment (pile rig, winch machine), vibrator machine that produce excessive noise at night; (iii) Avoid prolonged exposure to noise (produced by equipment) by the workers; (iv) Regulate use of horns and avoid un-due use of hydraulic horns by subproject vehicles; (v) Provision of Ear plugs for the workers & site staffs should be available in site during construction period. (vi) Inform local people about the subproject activities and potential impact. (vii) Construction works should be scheduled before and after school hour	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Water & Soil pollution 	(i) Avoid complete closing of the channel that affects reproduction of aquatic species; (ii) Any illegal discharge of wastewater, leaked oil shall be prohibited.	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Construction Phase					
Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<ul style="list-style-type: none"> Accidents 	<ul style="list-style-type: none"> (i) Follow statutory Health and Safety precautionary measures. (ii) Conduct formal and informal discussion for creating awareness about the accident; (iii) Provides PPEs and ensure using of the personal protective equipment by the workers. 	Contractor DSC	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Spills and leaks of oil, toxic chemicals 	<ul style="list-style-type: none"> (i) Proper handling of lubricating oil and fuel so that it does not fall on the soil; (ii) Good housekeeping (iii) Collection and proper disposal of spills; (iv) Refueling and fuel tank should not be placed on the ground directly. (v) Spillage wasters should be disposed in the waste disposal area located at the site proposed by the contractor & approved by the Environmental Specialist of D&SC 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Beneficial impact on employment generation 	<ul style="list-style-type: none"> (i) Employ local people in the subproject activities as much as possible; (ii) Give priority to poor people living within subproject area in subproject works (e.g., excavation and other works, which do not require skilled manpower); 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> General degradation of the environment 	<ul style="list-style-type: none"> (iii) Ensure environmental enhancement measures-tree plantation and cautionary sign will be provided. (iv) An institution and/ or committee should be established through the involvement of local community e.g. local villagers, SMC chairman / members, and School teachers, Chairman / Members of Upazila Parishad in order to monitor 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Construction Phase					
Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			of quality of construction works.		
8.	Excavation/ earthwork	<ul style="list-style-type: none"> Discovery of historical items and cultural remains 	Stop construction works in the chance find area immediately and seek for advice.	Contractor shall inform PIU and D&SC	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Generation of loose and clay soil due to the earth excavation work 	(i) Disposal of soil and construction wastes at the designated place; (ii) Cover exposed dry loose soil with fabric.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Accidents 	(i) Carefully handle of the hydraulic excavator; (ii) Follow statutory Health and Safety precautionary measures.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Air pollution 	Regular maintenance of the equipment;	Contractor	Environmental and Social Development Specialists of PIU and D&SC
9.	Rigorous Monitoring and Report Preparation and Submission		(i) The Contractor shall appoint (i) ES Manager (1 position) (ii) Community Organizer (1 position), and (iii) H&S Officer (1 position), for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. (ii) Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	PIU

Operation Phase					
Ref.	Activity/Issues	Potential Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
1	Issues/ activities during Operation & Maintenance phase	Water, Sanitation, Health & Safety problems of shelter user e.g. local people, children, student & teacher during disaster period.	<ul style="list-style-type: none"> (i) Proper health & safety facilities of local people, children, student & teacher. (ii) Adequate supply of drinking water & dry food. (iii) Septic tank & soak well should be designed in such a way so that no leakage & overflow take place because of their inundation. (iv) Use of mobile/ floating Septic tank during disaster time to avoid water/ land contamination (v) Provision of medical facilities/ equipment/ medicine 	LGED (up to subproject defect liability period in operation phase with help of Emergency Preparedness Committee, SMC and UDMC	LGED (During operation phase) Environmental monitoring team of D&SC (During Construction phase)
2	Operation and Maintenance of the shelter	Community will reap the benefit of the shelter in the long term, only if the sustainability is ensured through adopting good operation and maintenance practices.	<ul style="list-style-type: none"> (i) Training to the SMC on sustainable use of shelter resources and technical and general O&M Procedure for sensitive components to be provided (e.g., solar system, water supply system, lightning arrester, etc.) by the project. (ii) Awareness building and capacity building of the School Management Committee, community and the students on this aspect to be carried out, using a community mobilization person recruited through the construction contractor. 	SMC	Training: LGED Consultancy Firm Handover: SMC, UDMC

Table 5.2: Site Specific Mitigation Measures with Applicable Sites

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring	Applicable Sites
1.	Demolition of vulnerable school building (or parts of it).	<ul style="list-style-type: none"> Students are temporarily affected with their studies. Air and water pollution from dust, debris and hazardous materials, which may cause health and safety issues to the school users, community people and workers. During movement of heavy Construction machineries, equipment can damage the utility services if not previously removed. 	<p>(i) Advise demolition Contractor about Controlled demolition with water suppression, debris containment; salvage reusable materials; safe disposal plan, and following the SOP for Demolition Works (Annex- 6).</p> <p>(ii) Prior to start of demolition, the utility services (electrical cables, telephone line, water supply pipeline, gas supply pipeline and internet line) should be shifted with the consultation of the relevant organizations;</p> <p>(iii) Inform the local community before starting removal or demolishing work;</p> <p>(iv) Carefully remove the utilities that are connected to any structures;</p> <p>(v) Proper Health and safety measures for the workers should be taken throughout the demolition period to avoid any incidents.</p>	Demolition Contractor/ SMC	Environmental and Social Development Specialists of PIU, D&SC and SMC	RAJ-023 and RAJ-025.
2.	Construction of temporary school facilities for the entire construction period.	<ul style="list-style-type: none"> Learning activities can be continued nearly uninterrupted. 	<p>(i) Contractors will arrange voluntary/ temporary land donation or lease, with those who are interested in, for a stipulated period following the written consent, for constructing a temporary school facility as per standard design provided by LGED.</p> <p>(ii) Temporary school shall be removed by the Contractor at the end of all Construction works, with full satisfaction of E-I-C.</p>	Contractor	Environmental and Social Development Specialists D&SC and SMC	RAJ-023

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Screening Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring	Applicable Sites
3.	Tree removal and plantation	<ul style="list-style-type: none"> Felling of trees, clearing of vegetation and ecological disturbances 	Replace each felled tree with at least 3 nos. saplings of native species, and maintain a minimum total of at least 39 trees at all sites combined, to be replanted around the periphery of the proposed site at an interval of not less than 3m, to enhance the ecological condition.	Contractor	Environmental and Social Development Specialists of PIU and D&SC	RAJ-022, RAJ-023, RAJ-025.
4.	Disturbances to prayers and sensitive community-based receptors	<ul style="list-style-type: none"> People gathered for prayer in mosques, or carrying out rituals at temples, or receiving healthcare at Health facilities may face nuisance and serious disturbance due to noise or heavy machinery-based construction works. 	<p>(i) Construction works should be scheduled before and after school hour, prayer/religious ritual time, or during holidays, in consultation with the local inhabitants/stakeholders.</p> <p>(ii) Construction contractor will take further necessary precautions to minimize the disturbances during construction period.</p>	Contractor/ SMC	Environmental and Social Development Specialists of PIU, D&SC and SMC	RAJ-022, RAJ-023, RAJ-025.

5.4 Monitoring of ES Performance

A robust monitoring system is essential to ensure that the preventive, management, and mitigation measures outlined in the ESMP, ESCoPs, and SOPs are effectively implemented during the construction and operational phases of the school-cum-Flood Shelter sub-project. Monitoring enables project authorities to track compliance, evaluate performance, and identify potential environmental and social risks at an early stage.

This monitoring plan defines the parameters to be monitored, frequency and timing, responsible parties, and verification methods for each key environmental and social aspect. It integrates site-level actions by contractors with oversight by the Project Implementation Unit (PIU), Design and Supervision Consultant (D&SC), and where applicable the Directorate of Primary Education (DPE) and the community.

Monitoring will be both proactive (preventive)—through inspections, audits, and consultations—and reactive (corrective)—based on incident reports, grievances, and non-compliance notices. The plan aligns with national environmental standards (DoE, Bangladesh), the World Bank’s Environmental and Social Framework (ESF), and LGED’s internal Environmental and Social Management Guidelines.

Table 5.3: Monitoring Framework for achieving overall ES Performance

Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
1.	Air Quality and Dust Control	Particulate matter, visible dust at site, dust suppression measures	Weekly during excavation, earthwork, demolition	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Visual inspection, portable air meter (if required), photo documentation
2.	Noise and Vibration	Noise level (dB) near sensitive receptors; vibration during pile driving/demolition	Weekly or during pile driving; daily for high-impact works	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Community feedback
3.	Water Quality and Drainage	Turbidity, pH, oil/grease presence in runoff; drainage flow condition	Monthly during rainy season; after major rainfall	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Water sampling, field observation
4.	Soil Erosion and Sedimentation	Silt traps, slope stabilization, drainage cleanliness	Weekly during earthworks and monsoon	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Visual inspection, photographs
5.	Waste Management (Sewage and Solid wastes)	Sanitary Latrines, Segregation, storage, disposal of solid and hazardous waste; reuse of materials	Weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	No. of latrines, waste bins, disposal receipts, site inspection
6.	Demolition	Dust suppression, debris	Daily during	Contractor (Safety	OHS checklist,

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Screening Report for Rajbari District

Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
	Activities	containment, PPE use, safety barrier, debris reuse/disposal	demolition	Officer); SMC/DPE (verification)	photo record, waste log
7.	Pile Driving	Noise/vibration limits, use of vibration damping, safety cordons, PPE compliance	Daily during piling operations	Contractor (Engineer); PIU/D&SC (Verification)	Noise/vibration records, site inspection
8.	Temporary Schooling facilities	School structure with toilets as per design	Before Construction	Contractor (Engineer); PIU/D&SC (Verification)	Visual Inspection; Interview of Students, teachers
9.	Material Sourcing	Quality and source check for sand, brick, aggregate, timber suppliers	Per delivery	Contractor; verified by PIU	Delivery challan, supplier permit
10.	Material Storage and Fencing	Storehouse, Coverage over materials, Spillage protection of hazardous materials, worksite and inner fencing	Before Construction and maintaining all through. Daily checking of spillage.	Contractor (Implementation); PIU/D&SC (verification)	Inspection, Incidents reporting, GRM logbook
11.	Tree Cutting and Compensatory Plantation	Tree removal count, plantation ratio (3:1), species survival rate	Before construction; quarterly during plantation period	Contractor (Implementation); PIU/D&SC (verification)	Tree register, survival verification report
12.	Occupational Health and Safety (OHS)	PPE use, toolbox talks, safety signage, first-aid, accident record	Daily site check; monthly reporting	Contractor (Safety Officer); PIU/D&SC (verification)	Safety checklist, accident log, training record
13.	Community Health and Safety	Access control, fencing, signage, traffic management, GRM complaints	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Visual inspection, TMP, GRM log
14.	Labour and Working Conditions	Wage payment, working hours, absence of child/forced labour, sanitation, accommodation	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Worker interview, payroll record, inspection
15.	Local Labor Engagement	No. of local, female and physically challenged labors engaged	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Labor logbook, Payroll record, inspection
16.	Gender and GBV/SEA Risk	Code of Conduct signed, GBV training conducted,	Quarterly	Contractor; D&SC Gender Consultant	Training records, attendance list,

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Screening Report for Rajbari District

Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
	Management	availability of female grievance channel			GRM log
17	Cultural and Religious Sensitivity	Consultation records with mosque/madrassa committees; work-hour adjustments	As required	Contractor (Implementation); PIU/D&SC (verification)	Meeting minutes, site observation
18	Land Use and Ownership	Land ownership verification, voluntary donation documentation	Before construction	PIU/D&SC Social Specialist	Legal documents, meeting records
19	Stakeholder Engagement and Disclosure	Number of consultations held; disclosure signage posted; feedback addressed	Quarterly	Contractor (Implementation); PIU/D&SC (verification)	Consultation minutes, disclosure photos
20	Grievance Redress Mechanism (GRM)	Number of complaints received/resolved; resolution time	Monthly	Contractor (recording); PIU (review)	GRM register, resolution summary
21	Energy Efficiency (Solar PV, LED Lights)	Functionality of solar systems, maintenance record	Quarterly after installation	Contractor; DPE/PIU during O&M	Inspection report, maintenance log
22	Rainwater Harvesting System	Tank cleanliness, filter maintenance, storage condition	Quarterly during operation	SMC / DPE	Inspection checklist
23	Biodiversity Protection	Protection of nearby beels/canals; no dumping of waste or fill	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Site observation, photographic evidence
24	Emergency Preparedness and Fire Safety	Fire extinguisher, lightning protection, evacuation signage	Monthly	Contractor; PIU	Site inspection, safety drill record
25	Post-Construction Site Restoration	Debris clearance, landscaping, reinstatement of access roads	After construction completion	Contractor; PIU/D&SC verification	Site handover inspection, photos
26	Temporary School Facility	Availability and safety of alternate classrooms during construction	Pre-construction & ongoing	Contractor (Implementation); PIU/D&SC (verification)	Inspection, SMC confirmation
27	Training and Capacity Building	Number of trainings on ES, OHS, GBV, emergency response	Quarterly	PIU/D&SC; Contractor	Attendance, training reports
28	Compliance Reporting	Submission of monthly ESMP implementation reports to PIU/D&SC	Monthly	Contractor (Implementation); PIU (verification)	Report submission record

5.5 Capacity Development Measures

Effective management of Environmental, Social, and Gender issues in construction projects requires proactive capacity building for all actors involved including the Implementing Agency, Contractors, and Supervision Consultants. To ensure compliance with environmental and social standards, all project stakeholders must be adequately trained and informed about their responsibilities, mitigation measures, and reporting mechanisms. Capacity-building programs through formal trainings, on-site guidance, tool-box meetings, and awareness sessions help strengthen institutional capacity, improve coordination, and ensure that sustainability and gender equity principles are integrated into project planning, implementation, and monitoring.

The following table outlines the recommended capacity-building measures, target participants, training frequency, and key topics to be covered under an ESG management framework for building and road construction projects.

Table 5.4: Capacity-Building and Training Measures for ES Compliance and Management

Sl. No.	Key Actor / Target Group	Type of Training / Guidance	Objectives	Main Topics to be Covered	Frequency/ Timing	Responsible Entity
1	LGED / Project Management Unit (PIU)	Orientation on Environmental and Social Safeguards	To strengthen understanding of E&S policies, legal requirements, and roles in project implementation.	- National environmental & labor laws- World Bank E&S Framework- Grievance Redress Mechanism (GRM)- ESMP implementation & monitoring- Gender Issues in Infrastructure Development Project.	At project start and annually	Environmental & Social Specialists (PIU)/ D&S Consultant
2	Supervision Consultants	Training on E&S Supervision and Monitoring	To ensure that consultants effectively monitor contractors' compliance with E&S standards.	- ESMP & site-specific E&S checklists- Waste management & pollution control- Labor & working condition compliance- Occupational Health & Safety (OHS)- Gender-sensitive supervision- Incident reporting & corrective actions.	Before mobilization and quarterly refreshers	PIU with support from E&S Experts

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Sl. No.	Key Actor / Target Group	Type of Training / Guidance	Objectives	Main Topics to be Covered	Frequency/ Timing	Responsible Entity
3	Contractor's Management Staff	Induction and Periodic E&S Management Training	To ensure site managers and engineers integrate E&S compliance in daily site operations.	- Contractor's ESMP & Method Statements- Environmental and Social Codes of Practices (ESCoPs)- OHS plan implementation- Labor rights and grievance mechanism- Community health & safety- Gender-based violence (GBV) and SEA/SH prevention	Prior to construction & bi-annually, if deemed required.	Supervision Consultant / PIU E&S Team
4	Contractor's Workforce (Skilled & Unskilled Workers)	Toolbox Meetings/ Awareness Sessions	To build awareness and behavioral change for safe, responsible, and inclusive site practices.	- Worksite safety protocols (PPE use, accident prevention)- Environmental cleanliness & waste segregation- Respectful workplace behavior & anti-harassment- Gender equality & inclusion- HIV/AIDS and communicable disease awareness	Weekly or bi-weekly at site	Contractor's E&S Officer / OHS Supervisor
5	Community Representatives / Local Stakeholders	Information & Awareness Session	To enhance local understanding of project impacts, grievance redress, and gender inclusion measures.	- Project scope & benefits- Potential impacts & mitigation measures- Community safety measures- GRM process- Gender & inclusion awareness	During pre-construction & as needed	PIU & Contractor's Community Engagement Officer
6	Gender Focal Points (PIU, Contractor, Consultant)	Gender and Social Inclusion (GESI) Training	To promote integration of gender considerations into project implementation.	- Gender Action Plan implementation- GBV/SEA/SH mitigation & referral pathways- Inclusive employment & equal pay- Women's participation in decision-making	At project start & mid-term	PIU Gender Specialist / External Expert

5.6 Cost of Environmental Enhancement Works in BOQ

Considering the environmental impacts and their mitigation measures for this sub-project, several items are included in the BOQ to address these issues. The detailed site-specific estimate, with tentative cost for implementing the ESMP, is given in **Annexure 1**.

As per project ESMF, PIU, project engineer's suggestion and experience from other LGED implemented projects, adequate budget has been proposed for the environmental management for the mitigation and enhancement measures. It may vary depending on the real time situation and requirement of the construction. An allocation for some environmental enhancement works such as tree plantation and Dust Suppression is included in the ESMP budget. Moreover, in order to ensure health safety and sanitary measures of workers by providing labor shed, PPEs, First Aid Box, drinking water facility, temporary but separate latrine for male and female workers as well as waste disposal systems necessary budgetary allocation is provisioned. As the workforce at site need to be sensitized on environmental and social performance issues, motivational training on environmental and social considerations has been taken into account. The budget for labor shed, and site office construction is included in the civil works items. Therefore, it is not included in the environmental budget. It should be noted that the contractor will be paid as per actual work done.

As there is no resettlement issue involved, no resettlement budget is required for land acquisition and related matters. In addition, there are no mentionable social impacts from the Sub-project, as such, no specific mitigation plan budget is required.

5.7 Environmental and Social Codes of Practice

For the School cum Flood Shelter Construction Project under the "Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER)" initiative in Rajbari District, strict adherence to Environmental and Social Codes of Practice (ESCoPs) is essential to ensure sustainable and responsible implementation. These ESCoPs provide a standardized framework to minimize, mitigate, and manage potential environmental and social impacts associated with construction activities. The practices include site-specific measures such as proper waste management, noise and dust control, prevention of surface water contamination, and ensuring worker health and safety through the provision of personal protective equipment (PPE) and sanitation facilities. Social codes emphasize stakeholder engagement, avoiding disruption to local communities, protecting vulnerable groups, and ensuring no child labor or forced labor is used. During construction, care must be taken to avoid damage to existing infrastructure and natural habitats, while post-construction restoration of the site is mandatory.

These codes also promote grievance redress mechanisms and compliance monitoring to uphold transparency and accountability throughout the project lifecycle. Effective implementation of ESCoPs not only ensures regulatory compliance and alignment with World Bank Environmental and Social Framework (ESF) standards but also contributes to the long-term resilience and acceptability of the flood shelter infrastructure in the local context of Rajbari District.

The Contractor shall carry out the subproject related activities as specified in contract agreement. Environmental awareness creation, particularly about the direct construction impacts and for the health, pollution and safety issues will be Contractor's responsibility. Details of the Environmental and Social Code of Practices (ESCoPs) are included in **Annexure 5**.

6 PUBLIC CONSULTATION MEETING

6.1 Stakeholder Engagement

As part of the Environmental and Social Assessment process for the Flood Shelter Construction Project (RIVER) in Rajbari District, a comprehensive series of stakeholder engagement and site-specific consultation meetings were conducted for all proposed shelter sites. These meetings were held from February 02-03, 2026, covering two unions and four villages where the flood shelters are planned. The objective of these consultations was to ensure the active participation of local stakeholders, including Union Parishad representatives, school management committees, teachers, local community members, female representatives, and vulnerable groups, in the project planning and decision-making process. During the meeting's, detailed discussions were held on potential environmental and social impacts, site-specific concerns, benefits of the proposed shelters, and measures for ensuring inclusiveness and minimizing disruption during construction and operational phases.

The feedback received from the stakeholders was constructive and has been duly incorporated into the Environmental and Social Management Plans (ESMPs). These engagements not only enhanced transparency and local ownership but also ensured that the site selection and design of flood shelters are contextually appropriate and socially accepted. Refer to **Annexure 4** for details of the attendance of the meeting.

6.2 Methodology

Site-specific consultation meetings were systematically conducted at all proposed flood shelter locations across Kalukhali Upazila in Rajbari District to ensure inclusive participation and transparent stakeholder engagement in accordance with the Environmental and Social Framework (ESF) prescribed ES Assessment checklist and the project's safeguard requirements. Environmental and Social Assessment Checklist and Consultation checklist are attached in **Annexure 2** and **Annexure 3** respectively. The methodology followed a participatory and inclusive approach to engage with local communities, school management committees (SMCs), Union Parishad representatives, teachers, farmers, women, and other vulnerable groups. Each meeting was organized at or near the shelter site, where project objectives, potential environmental and social impacts, and proposed mitigation measures were explained in simple, local language. Tools such as open discussions, focus group interactions, community mapping, and feedback collection were utilized to facilitate two-way communication. Attention was given to gender inclusion, with separate consultations or dedicated sessions to ensure women's perspectives were adequately captured. All comments, concerns, and suggestions were recorded systematically and later analyzed to inform site-specific Environmental and Social Management Plans (ESMPs).

This consultative process played a critical role in identifying location-specific issues, such as access constraints, local waterlogging, land use sensitivity, or community preferences, and helped enhance project acceptance and ownership at the grassroots level. Refer to **Figure 6.1** for selected photographs of the participatory public consultation held at the sub-project sites and **Table 6.1** refers to Consultation meeting participants' summary for the sub-project.

Table 6.1: Consultation meeting participants' summary for the sub-project

Sl. No.	Unique Database ID	Name of Sub-project Component	Date	No. of Participants		
				Male	Female	Total
1.	RAJ-022	4 No. Horinbaria GPS	03/02/2026	26	14	40
2.	RAJ-023	51 No. Para Belgachi Mofiz uddin GPS	03/02/2026	13	07	20
3.	RAJ-024	67 No. Sholakura GPS	02/02/2026	06	14	20
4.	RAJ-025	46 No. Akshuana GPS	02/02/2026	12	06	18



Figure 6.1: Public Consultation through FGD's and KII in local level

6.3 Consultations through FGD's and KII's

As part of the Environmental and Social Assessment (ESS) process for the proposed flood shelter construction under the RIVER Project in Rajbari District, extensive community consultations were carried out following the participatory approach applied in Rajbari District. These consultations were conducted through Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) across all proposed shelter sites to ensure the active involvement of local stakeholders. The FGDs included representatives from vulnerable groups such as women, landless farmers, school authorities, local elders, and people with disabilities, aiming to understand their perspectives, needs, and concerns regarding the shelter construction and associated interventions. Similarly, KIIs were held with Union Parishad members, school management committee members, teachers, and other relevant local actors to gather insights on land use, community needs, environmental sensitivities, and existing infrastructure conditions.

A Grievance Redress Committee (GRC) has been established at the Upazila level under the leadership of the Upazila Engineer (LGED), with representation from local administration, teachers, women's representatives, and community leaders. The GRC will provide a transparent mechanism for resolving complaints related to land use, construction impacts, and labor issues.

The consultations revealed broad community support for the project, while also highlighting site-specific issues such as drainage congestion, access road conditions, and the need for separate sanitation facilities for girls and women. These findings were instrumental in shaping the design and environmental and social management plans for the proposed shelters in Rajbari District, ensuring that the interventions are inclusive, locally appropriate, and socially accepted.

6.4 Consultation Outcomes

During the stakeholder consultation sessions conducted for all proposed flood shelter sites in Rajbari District under the RIVER project, several key concerns and suggestions were raised by community members, school authorities, and local representatives. All those issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- Participants emphasized the need for elevated plinths to ensure shelters remain flood-free during peak inundation periods.
- Concerns were raised about access roads, particularly their elevation and durability, to ensure year-round access, especially during floods.
- Community members requested separate sanitation facilities for men and women with proper water supply and privacy.
- Local residents demanded that the construction activities avoid disrupting agricultural activities and existing rural roads.
- Participants suggested the inclusion of rainwater harvesting systems and solar lighting to enhance the sustainability of the shelters.

- There were calls for prioritizing local labor and materials during construction to enhance local employment and income opportunities.
- Some concerns were raised about potential noise, dust, and traffic hazards during construction and the need for mitigation.
- Women participants highlighted the need for safe spaces and adequate lighting, especially in the shelter surroundings.
- Participants requested engagement of school management committees (SMCs) in the shelter planning and maintenance process.
- The community urged that grievance mechanisms be established and made accessible for reporting concerns during both construction and operation phases.

The participants were presented with feedback, suggestions, and recommendations listed below:

- ✓ During the stakeholder consultation sessions, participants expressed strong support for the proposed flood shelter construction, highlighting the urgent need for safe refuge during recurrent floods.
- ✓ Several participants recommended that the shelters be constructed on elevated land or raised plinths to ensure functionality even during severe flooding events.
- ✓ Female participants suggested incorporating gender-sensitive features, such as separate sanitation facilities and privacy areas for women and girls.
- ✓ Local farmers raised concerns about the potential loss of agricultural land and requested that shelter sites be selected in areas with minimal impact on cultivable land.
- ✓ There was a general call for ensuring proper drainage and waste disposal systems around the shelter sites to prevent waterlogging and health hazards.
- ✓ Participants suggested engaging local labor and skilled workers during the construction phase to promote employment and community ownership.
- ✓ Some participants proposed including ramps, handrails, and other accessibility features to ensure elderly and differently-abled individuals can access the shelters easily.
- ✓ Local Union Parishad members requested timely updates and involvement in decision-making processes to ensure transparency and coordination.
- ✓ Environmental concerns such as noise, dust, and disruption of natural vegetation were also raised, along with suggestions to minimize these through proper site management and tree plantation around the shelter premises and they also requested to have provision of additional facilities such as Radio, TV, Rain Coat, Torch light, Life jacket, Mike, Flag, Fire extinguisher, Gum boot etc.

However, there are some specific issues raised by the participants in different places, which are summarized in the following table:

Table 6.2: Upazila wise participants categories, their number, raise main issues and responses

Sl. No.	Upazila	Unique Database ID	Key stakeholders	Number of Participants	Main Issues/Concerns Raise	Response and Action Taken
1.	Kalukhali	RAJ-022, RAJ-023, RAJ-024 & RAJ-025	Local communities, UP representative, SMC, teachers, farmers, women, other vulnerable groups etc.	98	Loss of vegetation and local biodiversity, risk of water pollution, noise and dust generation during construction, vibration and vehicle movement disturbing residents, religious and cultural activities, temporary access disruptions, and ensuring traffic management and safety for community members.	Site-specific Environmental and Social Management Plans (ESMPs) will be implemented, including replantation to compensate for vegetation loss, silt and erosion control to prevent water pollution, and regular dust and noise suppression measures. Construction activities will be confined within designated areas with fencing and safety signage to minimize disturbance and risks. Traffic management plans will be enforced to ensure community safety and maintain access.

7 E&S CONCLUSIONS AND RECOMMENDATIONS

7.1 Land Related Due Diligence

In accordance with the World Bank's Environmental and Social Framework (ESF), particularly ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement, a comprehensive land-related due diligence was conducted for the proposed flood shelter construction sites in Rajbari District under the RIVER project. The due diligence aimed to confirm the legal status, ownership, and current use of the identified lands to ensure that the project does not trigger involuntary resettlement or land acquisition. All selected sites are situated within the premises of existing government educational institutions, such as public primary schools where land is owned by the Government of Bangladesh. Official land records (khatian, mouza maps, and land use certificates) were reviewed and verified in coordination with the Upazila Land Office and school management committees. No private land acquisition or physical/economic displacement is required. The selected lands are free from informal settlers, encroachments, or any third-party claims. Community consultations and stakeholder engagement confirmed that the local population supports the project and that the use of school grounds for multipurpose flood shelters is socially acceptable and beneficial. The findings confirm that the project activities comply with the provisions of ESS5 and do not involve any risks related to involuntary resettlement.

During the survey in Kalukhali upazila in Rajbari district, environmental and social safeguard team conducted a thorough of land issues concerning 04 nos. proposed flood shelters sites, ensuring compliance with environmental and social standard 5 (ESS5) and the acquisition and requisition of immovable property act (ARIPA), 2017. As part of evaluation, the team meticulously collected land ownership documents and conducted on-site measurements to verify whether the available land could accommodate the proposed design specifications. Also conducted FGD to ensure no significant social impact arise from the project. No temporary business establishments, common property resources like mosque, temple was not found in none of the school premises. Legal documents for land approval have been checked by effective website as <https://dlrms.land.gov.bd/>. However, after reviewing design of option 1 and option 2, it has been identified these 4 proposed multipurpose flood shelters were found to be compliant with the legal and policy frameworks as well as land selection criteria of the project, demonstrating sufficient land availability, clear ownership records, and no risk of involuntary resettlement or displacement. Two schools require demolition of existing old building while one school from them needed temporary school shed. For all schools where issues were raised about saving playground are addressed through proper consultation with SMC and local community and verifying design alignment in the field.

7.2 Initial Environmental Impacts due to Sub-project

The construction of flood shelters under the RIVER project in Rajbari District is anticipated to cause a range of initial environmental impacts during the pre-construction and construction phases. Site clearing and earthworks are expected to result in temporary disturbance of the existing land surface, including minor vegetation removal and soil exposure, which may increase the risk of soil erosion and sediment runoff into nearby water bodies. Excavation and foundation works could lead to localized dust generation and noise pollution, potentially affecting nearby communities and sensitive receptors. The operation of construction machinery and transportation of materials will contribute to air emissions, including particulate matter and exhaust gases, which could temporarily degrade local air quality. Additionally, improper management of construction waste and debris might result in contamination of soil and water resources if not adequately controlled. Temporary disruption to drainage patterns and surface water flows may occur, potentially affecting local aquatic ecosystems. There is also a possibility of minor disturbances to local biodiversity due to habitat alteration. Furthermore, increased human activity at the site could lead to safety hazards and traffic congestion in adjacent areas.

However, these impacts are expected to be temporary and localized, provided that appropriate mitigation measures and environmental management plans are effectively implemented throughout the project lifecycle to minimize adverse effects on the environment and the local communities.

7.2.1 Key Findings of the Environmental and Social Assessment

The Environmental and Social Assessment conducted for the Flood Shelter Construction Project under the RIVER initiative in Rajbari District revealed several important findings relevant to the project's sustainable implementation. The project sites are generally located within rural or semi-urban areas, often adjacent to educational institutions, agricultural lands, and community spaces.

Environmentally, the proposed activities are expected to cause minor to moderate impacts during the construction phase, such as dust and noise pollution, temporary obstruction of drainage systems, and localized soil disturbance. However, these impacts are manageable with appropriate mitigation measures.

Socially, the assessment confirmed that there is no requirement for land acquisition or involuntary resettlement, as the shelters will be constructed on government or institution-owned land. Community consultations reflected broad public support for the project, recognizing its value in enhancing disaster resilience, especially for vulnerable groups including women, children, and the elderly. Potential risks include temporary disruption to school activities and access issues during construction, which will be addressed through proper planning and stakeholder coordination.

Overall, the project is assessed to have low to moderate environmental and social risks, which can be effectively mitigated through a well-designed Environmental and Social Management Plan (ESMP).

7.2.2 Key Environmental Related Recommendations

Based on the environmental assessment and site observations conducted for the flood shelter construction sites under the RIVER project in Rajbari District, the following key environmental recommendations are proposed to mitigate adverse impacts and ensure compliance with environmental standards throughout the project lifecycle:

- **Site Selection and Land Use:** Ensure flood shelters are located on government-owned or institutionally recognized land to avoid encroachment on agricultural land, wetlands, or ecologically sensitive zones.
- **Topsoil Protection:** Carefully remove, preserve, and reuse topsoil during site clearance to prevent degradation of fertile soil and ensure restoration of vegetation post-construction.
- **Dust and Air Pollution Control:** Implement dust suppression measures such as regular water sprinkling on access roads and construction sites, especially during dry seasons.
- **Noise Pollution Minimization:** Limit construction activities to daytime hours and maintain equipment and vehicles in good condition to reduce noise levels and community disturbance.
- **Surface Water and Drainage Management:** Establish adequate drainage systems to prevent waterlogging and contamination of nearby ponds or irrigation channels, especially during the monsoon.
- **Waste Management:** Segregate, store, and properly dispose of construction waste, including hazardous materials, to avoid pollution of soil and water bodies.
- **Sanitation and Workers' Welfare:** Provide adequate sanitation facilities, safe drinking water, and proper waste disposal systems for construction workers to ensure hygienic working conditions.
- **Biodiversity Protection:** Avoid unnecessary tree cutting and disturbance to local flora and fauna. Replant native trees where removal is unavoidable.
- **Erosion Control:** Use soil retention techniques such as grass turfing, slope stabilization, and boundary fencing to prevent soil erosion around shelter foundations.
- **Community Health and Safety:** Establish fencing and signage around the construction area, and ensure regular communication with the local community to address safety concerns.

These recommendations are essential for maintaining ecological balance, minimizing construction-related hazards, and ensuring the sustainability of flood shelter infrastructure in the flood-prone areas of Rajbari District under the RIVER project.

7.3 Initial Social Impacts on Community due to Subproject

The initial social impacts for the RIVER Project initiative in Rajbari District are anticipated to be moderate and manageable with proper mitigation measures. During the early phases of construction, temporary disturbances may arise, including restricted access to educational institutions (if shelters are co-located with schools), increased noise and dust levels, and the potential disruption of local livelihoods due to movement of labor and machinery. Additionally, the influx of external laborers may create social sensitivities within the host communities, particularly relating to safety, privacy, and cultural norms. There may also be temporary traffic congestion and limited access to community spaces during material transportation and site development.

However, no significant displacement or loss of private assets has been identified at the assessment stage. It is critical that community engagement continues throughout the project to ensure transparency and address grievances proactively. With the adoption of an effective Environmental and Social Management Plan (ESMP) and adherence to the World Bank's Environmental and Social Framework (ESF), the initial social impacts can be mitigated, ensuring the project delivers long-term benefits in disaster resilience and community safety.

7.3.1 Construction Phase Related Impacts

During the construction phase of the RIVER project, several social impacts on the surrounding communities are anticipated. Temporary disruption to local daily life may occur due to increased movement of construction vehicles and equipment, leading to traffic congestion, noise, and dust pollution in and around the project sites. These disturbances may affect educational institutions, religious centers, and marketplaces if located nearby. Access restrictions to community facilities or agricultural lands may also be experienced during material transport or excavation work. Labor influx, though limited, might cause concerns related to social cohesion, privacy, and safety, especially for women and children in the locality.

Furthermore, construction work may lead to potential conflict over land use, particularly if boundaries are not clearly demarcated or if community consultation is inadequate. There is also a risk of temporary loss of livelihood for vendors or informal workers operating near the site. To address these challenges, it is essential to implement a robust communication strategy, engage local stakeholders regularly, enforce a labor code of conduct, and ensure proper grievance redress mechanisms are in place to minimize disruptions and promote social harmony throughout the construction period.

Due to construction of the Sub-project, the poor people will get safe shelter at the time of any natural disaster/cyclone. Moreover, their children will get better schooling facility, and some people will get employment. Communication facilities will be improved. There are no adverse impacts on the community as a result of the Sub-project. However, there are some marginal impacts that may occur temporarily, which need to be addressed. These will be

mitigated/minimized by adopting necessary mitigation measures, as have been set forth herein. The assessment and consultation with stakeholders confirmed that there is no indigenous ethnic community lives in the vicinity of Sub-project sites. Hence, the concerning Small Ethnic Community Development Plan is not triggered.

7.3.2 Engagement of the School Management Committee (SMC)

The active engagement of the School Management Committee (SMC) has been a crucial element in the environmental and social assessment process for the flood shelter construction project under the RIVER initiative in Rajbari District. During the consultation and stages, SMC members were involved in site-specific discussions to identify key environmental and social concerns, ensure the selection of appropriate locations, and promote community ownership. Their insights regarding the functioning of existing school infrastructure, safety concerns during construction, and potential impacts on academic activities were vital in developing practical mitigation strategies.

The SMC has expressed strong support for the proposed shelters, recognizing their dual purpose as educational facilities and emergency flood shelters. Their continued participation is essential for monitoring construction impacts, ensuring effective implementation of the Environmental and Social Management Plan (ESMP), and facilitating communication between the project team and the local community. This inclusive approach will help foster transparency, accountability, and long-term sustainability of the infrastructure. Charge of the infrastructure will be handed over to the MoPME to operate and maintain once construction is completed.

The SMC members need to develop their capacity in terms of maintenance of the flood shelter, strengthening capacity to organize meeting effectively on a regular basis, writing meeting minutes and keeping files, enhancing climate resilience, flood/climate adaptation capacity, early-warning dissemination, preparedness for nature calamity, engaging villagers in tackling disaster preparedness and response challenges. The project, RIVER, can aid the SMC in the form of capacity building, training and other inputs as needed to ensure that they are fully equipped to take over the maintenance works after the buildings are handed over to the MoPME.

7.3.3 Union Disaster Management Committee (UDMC)

A Union Parishad is the lowest tier of the local government system in Bangladesh. In each UP, there are about 14 Standing Committees including Union Disaster Management Committee (UDMC) to take care of various activities including services before, during and post calamities at grassroots level. Unfortunately, these Committees have not been made functional and effective. The project should take steps to make the UDMC functional for ensuring better services for the people in the project locations.

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**ANNEXURE 1:
SITE SPECIFIC ENVIRONMENTAL AND SOCIAL FINDINGS UNDER RAJBARI
DISTRICT**

Site-Specific Environmental and Social Findings with BOQ under Rajbari District.

Name of Subproject: Development of Multipurpose Flood Shelter at **4 No. Horinbaria Government Primary School**

Village: Paschim Haora, Union: 1 No. Ratandia

Upazila: Kalukhali; District: Rajbari

Package No/Database Unique ID: RAJ-022; School Code: 91313021302

SUB-PROJECT DESCRIPTION

The 4 No. Horinbaria Government Primary School is a subproject of “Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project”. It is located in Paschim Haora village under 1 No. Ratandia Union of Kalukhali Upazila of Rajbari District. Major components of the subproject are to construct resilient flood shelters and community structures and strengthen the capacity for disaster preparedness and response. Significant features of this subproject are summarized in **Table 1:**

Table 10: The Significant Features of the Subproject Site

Name of the Subproject	:	4 No. Horinbaria Government Primary School
Educational Institute ID	:	91313021302
Land Owner	:	4 No. Horinbaria Government Primary School
Available Land	:	168 Decimals
Average Capacity of Flood Shelter	:	650
Catchment Population	:	30,000
Catchment Village	:	Kamia, Ganga Nondopur, Madhobpur, Poschim Haora
Major profession of local population	:	Agriculture-(90%), Day Laborer (5%) and Others-(5%)
Brief Description of Subproject Site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	:	Existing GPS building, Playground, local settlements, Agricultural land, Trees, Roads etc.
Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests	:	None
Ethnic Minority	:	None
Connecting Road	:	Madhobpur Bazar road, earthen 12 feet
Land acquisition	:	None

(Source: Field survey and Public Consultation Meeting, February 2026)

LOCATION OF THE SUB-PROJECT

The subproject is located in the North-East part of Kalukhali Upazila in Rajbari District, which is within the Dhaka Division. The location details of the subproject have been summarized in **Table 2**.

Table 2: Location Details of the Subproject Site

District	:	Rajbari
Upazila	:	Kalukhali
Union	:	1 No. Ratandia
Mouza	:	Paschim Haora
Village	:	Paschim Haora
GPS Location	:	23.782900 N; 89.502600 E
Distance of the site from Upazila HQ	:	5km-south
Nearby Major Road:	:	Rajbari-Khustia Road (3km-East)
Nearby River/ Canal:	:	Padma River (4km-North), Chandana river - (1km-South)

(Source: Field survey and Public Consultation Meeting, February 2026)

The catchment area of the subproject predominantly includes the villages of Kamia, Ganga Nondopur, Madhobpur, Paschim Haora which are regularly impacted by recurrent flooding. Paschim Haora village is located in a low-lying flood-prone area and experiences periodic inundation during the monsoon season due to heavy rainfall and increased upstream river discharge. Its vulnerability is heightened by proximity to local khals, canals, and beels that serve as natural drainage pathways but frequently overflow during peak rainfall events. During the monsoon period, intense rainfall combined with poor drainage capacity leads to widespread waterlogging and prolonged stagnation of floodwater across agricultural fields, homesteads, and village infrastructure. The flat topography of Paschim Haora Village and slow natural drainage further extend the duration of inundation, resulting in localized erosion, damage to standing crops, and disruption of normal livelihood activities. Agricultural productivity is significantly affected, as seasonal flooding submerges croplands and damages irrigation facilities, storage structures, and household assets. Although periodic flooding contributes to soil fertility through sediment deposition, its adverse impacts outweigh the benefits due to repeated damage to rural roads, earthen embankments, drainage channels, and other community infrastructure. The flood vulnerability of Paschim Haora Village is further compounded by inadequate drainage networks, poorly maintained embankments, and limited

flood-resilient infrastructure. The absence of permanent flood protection measures and limited access to early warning systems and disaster preparedness mechanisms reduce the community's capacity to effectively cope with recurrent flood events. At present, local residents rely primarily on short-term coping strategies, which are insufficient to ensure long-term resilience. To mitigate flood risks and enhance adaptive capacity, there is a critical need for strengthening local water management systems, improving drainage and rural road infrastructure, constructing durable embankments, and promoting community-based disaster risk reduction and preparedness initiatives. Implementation of these interventions will contribute to reducing flood vulnerability in Paschim Haora Village and enhance overall resilience within Ratandia Union and Kalukhali Upazila against future flooding events.

The flood shelter will be constructed at 4 No. Horinbaria Government Primary School (GPS), which is located at the Paschim Haora village under 1 No. Ratandia Union of Kalukhali Upazila in Rajbari District. There are 4 teachers (Male: 04), and 248 students (Boys: 101; Girls: 147) in the school, operated by the guidance of School Management Committee (SMC) and government officials of Kalukhali Upazila Education Office. The students, teachers and residents of the catchment area come to the proposed site by using the connecting/access road named Madhobpur Bazar Road. The road is an earthen road with 12 feet width and just passing beside the 4 No. Horinbaria Government Primary School at north side.

The population of the catchment area is about 30,000. People in the area are mostly dependent on shallow tubewell water for their daily uses and the average depth of water is 380-400ft below the ground. Elevated iron (Fe) concentrations have been detected in deep tubewells, with affected groundwater occurring at depths ranging from approximately 100 to 200 feet. The 1 No. Ratandia Union map indicating sub-project location has been shown respectively in **Figure 1**. The topographical Map with indicative and tentative location of labor camp, construction materials storage area, and waste disposal area have been shown in **Figure 2** which shall be placed as per direction and satisfaction of LGED and E.I.C.

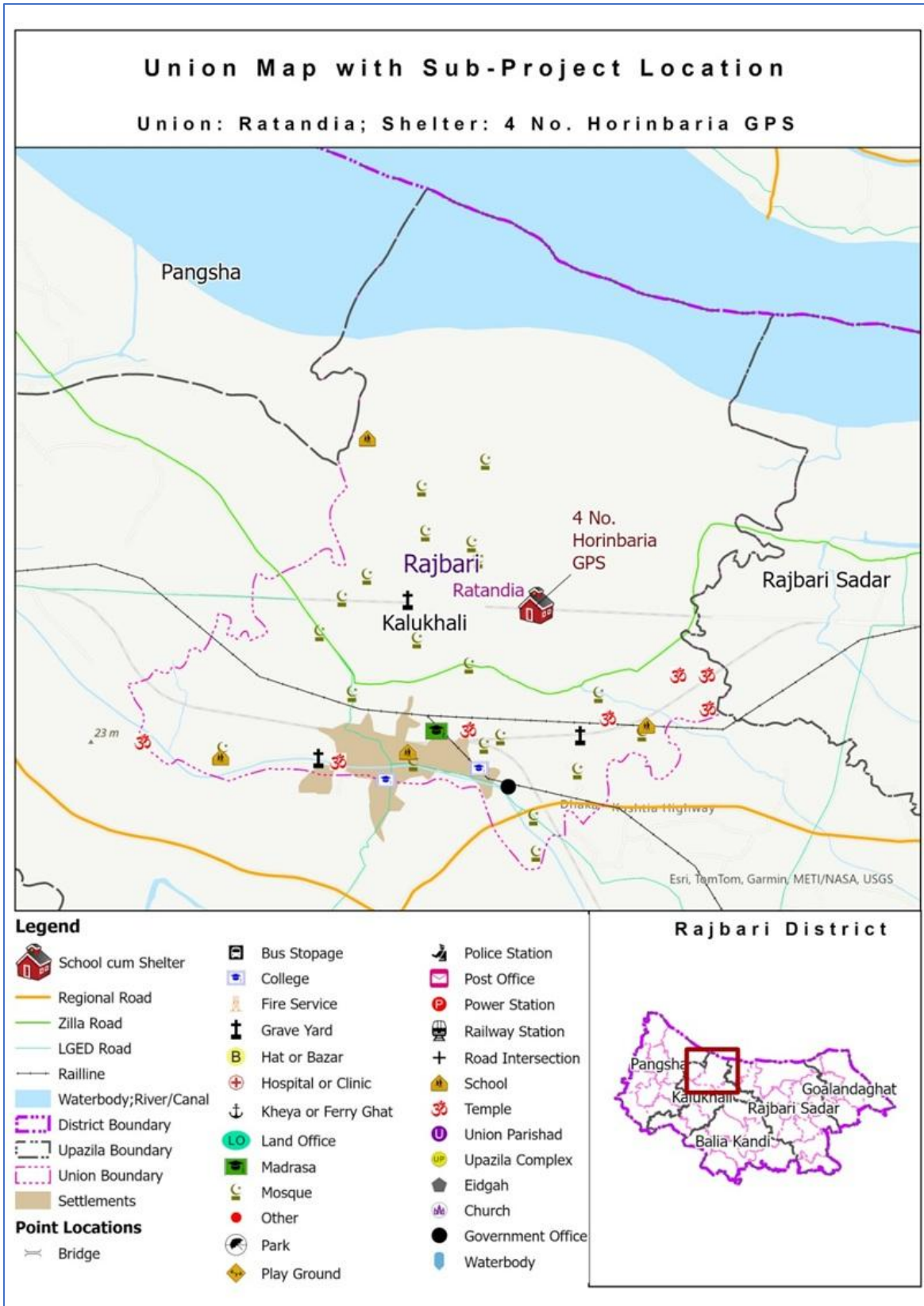


Figure 1: 1 No. Ratandia Union Map Indicating Proposed Subproject

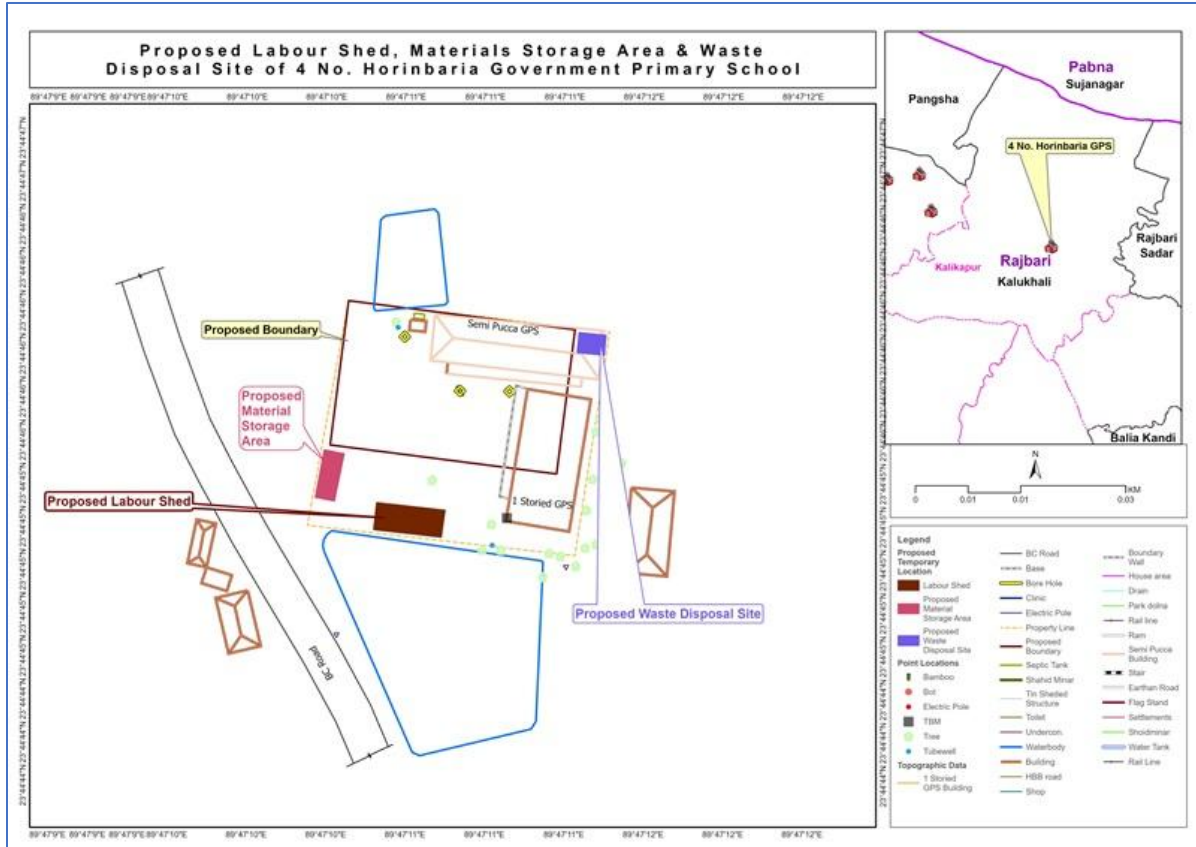


Figure 2: Proposed Labor Camp, Waste Disposal and Materials Storage Area

CURRENT SITUATION, PROPOSED INTERVENTIONS AND NEED FOR THE SUB-PROJECT

The present conditions of the sub-project site, proposed labor camp, construction materials storage area and waste disposal area are visualized in **Figures 3, 4, 5 & 6**.



Figure 3: Current Situation of the Existing Subproject Site



Figure 4: Proposed Labor Camp Area



Figure 5: Proposed Material Storage Area



Figure 6: Proposed Waste Disposal Area

The No. 4 Horinbaria Government Primary School is situated on approximately 168 decimals of land and currently consists of two two-storied pucca buildings that accommodates all academic classrooms and administrative offices. The proposed project entails the construction of a flood shelter within the existing school premises. The proposed construction will not involve the demolition of any existing buildings. As a result, regular academic and administrative activities will continue without interruption throughout the construction period. The existing access road is in poor condition and does not adequately support current operational traffic. Improvements are required to enhance safety, ensure reliable access, and meet operational standards. During the construction phase, temporary facilities—including labor sheds, material storage areas, and a designated waste disposal zone—will be established within the project site. Construction operations will be supported by provisions for worker accommodation, sanitary facilities, electricity supply, and access to safe drinking water. Appropriate safety measures will be implemented to protect students, teachers, staff, and visitors. The active construction area will be securely fenced and clearly segregated from school activities to prevent any direct or indirect exposure to construction-related risks. The school compound contains a substantial number of trees. Rural settlements are located adjacent to the school site. The project site has a recorded history of severe flooding, with major flood events occurring in 1988 and 2020. During these events, floodwater levels reached approximately 3 feet and persisted for nearly 30 days. Such prolonged inundation significantly disrupted school operations and created considerable difficulties for students and staff. **Figure 7** presents photographs of the existing Government Primary School facilities and **Figure 8** illustrate the proposed location for the Sub-project.



Figure 7: Existing School Building



Figure 8: Proposed land for the Sub-project

The important establishments around the subproject site have been summarized in **Table-3**

Table 3: Important Establishments Adjacent to the Subproject Site

Direction	Important Establishments with Approximate Distance
North side	Madhobpur Bazar (480m), Madhobpur Bazar Mosque (500m), Horinbaria Puratan Char Jame Mosque (900m), Surjomukhi KG School (1km)
South side	Heromollah Ghat River View Point (770m), Chandana River (1km), Ganga Nondopur Jame Mosque (1.10km), Rural Settlements & Agricultural Land
East side	Poschim Haora Mosque (800m), Poschim Haora Eidgah (1km), Salepur River View Point (1.20km)
West side	Kamia Madrasa (80m), Kamia Jame Mosque (80m), Kamia Graveyard (85m).

(Source: Field survey and Public Consultation Meeting, February 2026)

The proposed sub-project (construction of new School cum Flood shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The disaster shelter will be constructed within an existing school boundary, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. The project site is located in a well-connected area, with various community, religious and commercial establishments in proximity. The north side of the project area is well served by local commercial, educational, and religious facilities. Madhobpur Bazar is located approximately 480 meters to the north, while Madhobpur Bazar Mosque lies at a distance of about 500 meters. Horinbaria Puratan Char Jame Mosque is situated around 900 meters away, and Surjomukhi KG School is located at a distance of approximately 1.0 kilometer from the site. On the south side, the area is characterized by natural features and rural land use. Heromollah Ghat River View Point is located about 770 meters from the site, while the Chandana River flows at an approximate distance of 1.0 km. Ganga Nondopur Jame Mosque is situated around 1.10 km away. The southern surroundings are predominantly composed of rural settlements and agricultural land. The east side of the site includes several religious and recreational

landmarks. Poschim Haora Mosque is located approximately 800 meters away, and Poschim Haora Eidgah is situated at a distance of about 1.0 km. In addition, the Salepur River View Point lies roughly 1.20 km to the east, contributing to the scenic and environmental context of the area. On the west side, the site is closely bordered by religious and educational institutions. Kamia Madrasa and Kamia Jame Mosque are both located within approximately 80 meters of the site, while the Kamia Graveyard is situated at a distance of about 85 meters. These features indicate a strong presence of community and religious infrastructure in the immediate western vicinity.

No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day in and around the site, proper fencing around the working area, safe storage of materials, etc.

Construction related activities and setting up of labor camps along with associated facilities and their management issues will be accounted for impacts more likely to be generated during the pre, post and construction period. Noise pollution from piling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place. Soil can further be eroded and polluted from chemical spills or improper disposal of waste materials. Noise and vibration effects generated from piling and drilling may also trigger landslides and harmful disturbances to local fauna. Impact on surface and ground water bodies might get acute due mainly to the high abstraction rate and disposal/leakage of pollutants to the surface/ground water bodies. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss. All these impacts can only be prevented or minimized by adopting measures delineated into the ESMP and good practice engineering and site management.

ENVIRONMENTAL AND SOCIAL ASSESSMENT

This section identifies the potential impacts that the various elements of the proposed sub-project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental and Social Assessment (ESA) based on this assessment study for the Sub-project as 4 No. Horinbaria Government Primary School of Kalukhali Upazila under Rajbari District has been conducted to identify and determine which potential project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures. In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 03 February 2026 in the Sub-project area. Environmental and Social Assessment form, as

adopted in **Annexure-2** of the Environmental and Social Management Framework of RIVER, was administered for identifying the impacts and their extents.

PUBLIC CONSULTATION AND PARTICIPATION

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Field visit has been carried out on 03 February 2026 in and around the Sub-project component site. As part of the impact assessment, participatory public consultation was conducted in that area by the field level staffs, and consultants from D&SC. Checklist of the consultation is attached in **Annexure-3**. The consultation meeting was attended by 40 persons (Male-26 and Female-14) and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. Refer to **Figure 9** and **Annexure-4** for selected photographs of the participatory public consultation held at site of the 4 No. Horinbaria Government Primary School and list of attendances in that public consultation meeting, respectively. A questionnaire was kept ready and responses were elicited. During these consultations, the communities were explained about the project, its benefits, associated social and environmental aspects and possible mitigation measures.

The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and uninitiated access to those system and resources. As such, public consultation is a living process as the types of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution processes are more likely to differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.



Figure 9: Public Consultation Meeting in the Proposed Sub-project Site

SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACTS

Tree Cutting: Approximately six (06) trees are likely to be cut down and no water bodies are likely to be filled up due to the construction of the flood shelter. The ecological impact of the subproject is low. There will be temporary negative impacts on physico-chemical environment. Nevertheless, these impacts are manageable if mitigation measures are taken according to ESMP.

Grass turfing: Grass turfs on embankment, slope, building compound & any critical place to enhance the ecological condition and protect the top soil. Tentative area of turf has been estimated as 240 square meters (half of total area), after discussion with architects and engineers. It is likely to be changed depending on the requirement during construction as per site design and as per direction of E.I.C.

Land Ownership: Availability of adequate public land area is as important as community consent to construct the flood shelter and access roads. The feasibility team did not find any conflicts over the school land. The land issue has been discussed in the meeting. Participants unanimously confirmed that the school has its own 168 decimals of land and there is no dispute about this land.

Land Acquisition: The proposed Sub-project, 4 No. Horinbaria Government Primary School, does not have any involuntary resettlement impacts due to the construction of flood shelter and approach roads as the Sub-projects will be constructed in existing Government Primary Schools' premises. The Government Primary School has 168 decimals of land. No land acquisition will be required for the activities to be implemented under the project. Access road needs to construct or rehabilitate within its existing alignment.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Site specific Environmental and Social Management Plan (ESMP) outlines tailored mitigation, monitoring, and management measures to address potential environmental and social impacts arising from school cum flood shelter construction at each sub-project site. It focuses on controlling dust, noise, and waste; protecting nearby agricultural land and water bodies; ensuring occupational health and safety; managing community interactions; and conserving local biodiversity. The ESMP integrates the Environmental and Social Codes of Practice (ESCoPs) are attached in **Annexure-5** and compliance with World Bank ESF and national environmental regulations throughout the construction and operation phases. The Site Specific Environmental and Social Management Plan (ESMP) under this sub-project is providing in **Table 4**:

Table 4: Site Specific ESMP for 4 No. Horinbaria Government Primary School

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
1.	Contractor's proposal for site specific temporary works	<ul style="list-style-type: none"> Accurate/ proper implementation of ESMP 	Preparation of Work schedule, construction camp, materials storage area, access road, waste dumping/ disposal area etc.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
2.	Site Clearing, Fencing, removal and Disposal Activity	<ul style="list-style-type: none"> Improper management and clearing of site may elevate risks of accidents, pollution and nuisance to public and school users. 	<ul style="list-style-type: none"> Clearing of site at the very outset with removal of all obstructions, including structures, materials, trees, etc. in order to keep the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collection at a central disposal area. Providing necessary protection fencing surrounding the total workplace area (including internal fencing made with bamboo for demarcating material storage areas mainly) and environmental and occupational health & safety sign boards, warning signs, etc. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
3.	Construction and operation of labor shed for the workers	<ul style="list-style-type: none"> Generation of sewage and solid waste may cause environmental 	<ul style="list-style-type: none"> Construction of sanitary latrine at the labor shed (consider 15 persons for one toilet, separate toilet for male and female); Construction of sanitary latrine/ Pit latrine with septic 	Contractor	Environmental and Social Development Specialists of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<p>pollution in the surrounding area</p> <ul style="list-style-type: none"> • Water, soil, air & dust pollution/ environmental pollution 	<p>tank/ Ring slab system</p> <ul style="list-style-type: none"> • Erection of “no litter” sign, provision of waste bins/cans (separate waste bins for organic and inorganic wastes); • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas approved by Environmental Specialist of DSC. • Ensure wastes (solid wastes and other forms of the waste) disposal at designated places. • Camp and working areas are kept clean and tidy at all times. • Camp is to be checked for spills of substances i.e. chemical, oil, paint, etc. 		and D&SC
4.	Health, Safety and Wellbeing of Workers	<ul style="list-style-type: none"> • Health and Safety of workers 	<ul style="list-style-type: none"> • Conduct formal and unofficial discussion and training to increase awareness about hygiene practices among the workers; • Ensure availability and access to first-aid equipment and medical supplies for the workers. • Ensure safety gear worn: ear plug, goggles, mask, gloves, helmets, and uniforms etc. • Staff must be trained up for operating equipment • Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
5.	Construction Materials storage areas	<ul style="list-style-type: none"> • Use of surrounding open area, playground, road side etc. for stockpiling of construction materials. • Creating dust/ air 	<ul style="list-style-type: none"> • Proper stockpiling/ storage of construction materials at the site as proposed by the contractor & approved by the Environmental Specialist of D&SC. • Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by students, children, animals, etc. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<ul style="list-style-type: none"> • pollution, • Spillage of liquid/hazardous substances i.e. oil, paint, chemicals, bitumen etc. • Access of students, children, animals, etc. • Not cleaning of construction materials storage areas after completion of construction. 	<ul style="list-style-type: none"> • Spills/ hazardous substances should be disposed off at the site as proposed by the contractor & approved by the Environmental Specialist of DSC to avoid soil/ water contamination. • Materials storage area must be cleaned after completion of construction. 		
6.	General construction work	<ul style="list-style-type: none"> • Drainage congestion and flooding 	<ul style="list-style-type: none"> • Plinth level of the Shelter should be higher than the highest flood water level. • Ensure provision for adequate drainage of storm water and pumping of congested water if needed; • Ensure adequate monitoring of drainage effects, especially if construction works are carried out during the monsoon season. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Air pollution 	<ul style="list-style-type: none"> • Check regularly and ensure that all the subproject vehicles and equipment are in good operating condition; • Ensure contractor spray water on dry surfaces/ unpaved to reduce dust generation; • Maintain adequate moisture content of the sand; • Ensure contractor sprinkle water and cover stockpiles of loose materials (e.g., fine aggregates); • Inform and make regular consultation with the local people about the subproject activities and potential impact; 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			<ul style="list-style-type: none"> • Cover loaded truck used for carrying sand with tarpaulin/other suitable material to prevent spreading by air blown. • Provision of Masks for the workers, site staffs, students and teachers & Masks should be available in site during construction period. • Construction works should be scheduled before and after school hour, prayer/religious ritual time, or during holidays. • Avoid use of equipment e.g. stone crushers at site, if possible, which produce significant amount of particulate matter. 		
		<ul style="list-style-type: none"> • Traffic congestion, effect on traffic and pedestrian safety 	<ul style="list-style-type: none"> • Ensure schedule deliveries of materials/ heavy vehicle movement/ equipment during off-peak hours; • Place traffic sign/cautionary sign to avoid undue traffic congestion if required; • Maintain vehicles and enforce legal load limits, and impose speed limits within settlements • Use flagmen, signage, and barriers near schools and markets; • Spray water on access roads to reduce dust • Coordinate with local authorities and inform communities. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Noise pollution 	<ul style="list-style-type: none"> • Check and maintenance the equipment properly; • Avoid using of construction equipment such as concrete mixer machine, pile driving equipment (pile rig, winch machine), vibrator machine that produce excessive noise at night; • Avoid prolonged exposure to noise (produced by equipment) by the workers; • Regulate use of horns and avoid un-due use of hydraulic horns by subproject vehicles; • Provision of Ear plugs for the workers & site staffs should 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			<p>be available in site during construction period.</p> <ul style="list-style-type: none"> • Inform local people about the subproject activities and potential impact. • Construction works should be scheduled before and after school hour and prayer time. 		
		<ul style="list-style-type: none"> • Felling of trees, clearing of vegetation and ecological disturbances 	<p>Replace each felled tree with at least 3 nos saplings, due to 6 trees felling, 18 trees to be replanted around the periphery of the proposed site at an interval of not less than 3m, to enhance the ecological condition.</p>	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Water & Soil pollution 	<ul style="list-style-type: none"> • Avoid complete closing of the channel that affects reproduction of aquatic species; • Any illegal discharge of wastewater, leaked oil shall be prohibited. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Spills and leaks of oil, toxic chemicals 	<ul style="list-style-type: none"> • Proper handling of lubricating oil and fuel so that it does not fall on the soil; • Good housekeeping • Collection and proper disposal of spills; • Refueling and fuel tank should not be placed on the ground directly. • Spillage wasters should be disposed in the waste disposal area located at the site proposed by the contractor & approved by the Environmental Specialist of D&SC 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
7.	Rigorous Monitoring and Report Preparation and Submission		<ul style="list-style-type: none"> • The Contractor shall appoint (i) ES Manager (ii) Community Organizer and (iii) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU. 	Contractor	PIU

COST OF ENVIRONMENTAL ENHANCEMENT WORKS IN BOQ

Considering the environmental impacts and their mitigation measures for this subproject, several items are included in the BOQ to address these issues. The detailed estimate, with tentative cost for implementing the ESMP, is given in **Table 5**.

Table 5: Environmental Social Management Budget (Bill of Quantity)

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
1.	<p>Site Cleaning, Removal and Disposal Activity:</p> <p>Cleaning and maintaining at all times, keeping the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collecting at a central disposal area, on a daily basis and disposing in a manner approved and satisfaction by the Engineer, especially waste water and sewage from office, residential and mobile camps shall be piped to soak pits or other disposal areas, all used fuels, oils, other plant or vehicle fluids, old tyres, tubes, other solid waste from household, office, workshop, construction materials, etc. to be kept at safe places and any spillages shall be cleaned up by either burning in place or collecting the contaminated soils and burning them at the central disposal area, including removing all waste, debris, rubbish, unused materials, concrete forms and other like material, tools, equipment, machinery and surplus/ unwanted materials buried or cleaned up in a manner acceptable to the Engineer after completion of work etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully</p>	Each	1	19,000	19,000.00
2.	<p>First Aid Box:</p> <p>Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made</p>	Each	2 nos.	6500 Tk. Per box	13,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
	after 100% completion of the contract successfully.				
3.	Providing Safety gear package like hand gloves, eye protection glasses, air plug, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	Set	20 sets	5,000	100,000.00
4.	<u>Temporary Toilet Facilities:</u> Provide at least two nos. portable toilets or constructing temporary semi-pucca toilets with twin pit latrines, one for female worker and other for male worker at worksite and workers accommodation site in a safe location, so that no adverse impact will generate on the surrounding environment, including providing requisite arrangements for water supplying etc. All complete as per drawing, specification, direction and satisfaction of the Engineer-in-Charge. All relevant accessories and arrangements under this item shall be property of the contractor and payment will be made only upon 100% completion of the contract successfully.	No.	2 nos.	20,000	40,000.00
5.	<u>Water Test (Drinking Water samples):</u> "Test (Drinking Water samples) Out of 5 nos. of tube well 1-no of tube well should be Install at the beginning of construction works so that labour and other site staff can get drinking water. In addition, Water samples to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis for different parameters such as pH, arsenic, iron, chloride, hardness and total dissolved solids or electrical conductivity etc. all complete as per direction of EIC (including the cost of actual fees for testing from reputed laboratory and report) as desired by EIC."	LS	3 times	13,800	41,400.00
6.	<u>Drinking Water Facilities:</u> Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge, all relevant goods and equipment under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.	Each	2 nos.	LS @ Tk. 35,000	7,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
7.	<p><u>Waste Disposal Facilities:</u> Providing, installing and maintaining at least 2 (two) nos. waste collection bins one for organic waste and other for inorganic waste of minimum capacity of 30 liters with hinge supported 450mm dia. cover plate for opening, made of durable plastic material at worksite, both bins will be kept in a safe and easily accessible place, so that will easy to use and no adverse impact will generate on the surrounding environment, including continuing the full functioning of waste disposal (buried/incineration) in accordance with the full satisfaction of the project manager throughout the contract period, all complete as per drawing, specification and direction of the Engineer-in-charge. Entire relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.</p>	LS	1 set	20,000 BDT	40,000.00
8.	<p><u>Motivation training:</u> Motivation training of the Upazila Engineer's and Contractor's representatives for safety practice & environmental others facilities.</p>	LS	2	15,000	30,000.00
9.	<p><u>Hazards and Hazardous Materials:</u> Handling Storing and store hazardous materials in accordance with the following requirements: Hazardous materials shall be stored above flood level and at least 20m from any watercourse; Hazardous liquid substances (e.g. petrol, diesel, oils) shall be stored on top of sealed plastic sheets in a secure, flat enclosed area. Bund walls shall be at least 25 cm high.</p>	LS	1	12,000 BDT	12,000.00
10.	<p><u>Dust suppression measures</u> like water sprinkling on aggregates/ unpaved roads in and around the work site (Frequency of measures has been proposed to be increased as sensitive receptors are located around).</p>	LS	1	50,000 BDT	50,000.00
11.	<p><u>Supplying and planting</u> specified healthy coconut (local) saplings of minimum 0.60m height, free from any diseases', collected from different nurseries (collection of saplings from government horticulture is preferable) & carrying the same to the worksite; preparation of pit prior to minimum 10 days of plantation by earthwork in excavation of 450mm x 450mm x 450mm size for plantation, applying 0.015 cum cow dung and 100gm normal salt mixed with exceled earth</p>	Each	18	500.00	9,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
	properly; planting the plants, weltering for will be as per tree plantation guideline.				
12.	Turfing on embankment top and slope, building compound with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of the E-I-C. (payment to be made only when grass is fully grown).	sqm	240	31.65 Tk. Per sqm	7,596.00
13.	<u>Dismantle and removal:</u> Dismantle and removal of the existing waste material taking out the materials from the site. The salvaged materials from the old structure, finally shall be handed over to the school management committee. The contractor should visit the site to visualize the quantity of materials will be salvaged, all complete as per direction of the E.I.C	Each	1	10,000	10,000.00
14.	Construction of Temporary Facilities such as site offices, labor sheds, storage yards, material stockpiles etc.	The cost for construction, maintenance, and removal of these facilities is included in the civil works BOQ under the contractor's responsibility.			
15.	Disturbance to nearby paddy field or water bodies	No separate BOQ item required — measures implemented under Environmental and Social Codes of Practice (ESCoPs).			
Total budget for this sub-project					3,78,996.00

As per project ESMF, PIU, project engineer's suggestion and experience from other LGED projects such as MDSP, EMCRP etc. adequate budget has been proposed for the environmental management for the mitigation and enhancement measures. It may vary depending on the real time situation and requirement of the construction. The subproject activities have temporary and localized negative impact on noise level during construction phase due to movement of the subproject vehicles and equipment. Hence, budget includes analytical monitoring for noise level. For solid waste management adequate waste bins will be installed. The budget for labor shed, and site office construction is included in the civil works items. Therefore, it is not included in the environmental budget. It should be noted that the contractor will be paid as per actual work done.

Name of Subproject: Development of Multipurpose Flood Shelter at **51 No. Para Belgachi Mofiz Uddin Government Primary School**

Village: Para Belgachi, Union: 2 No. Kaliakapur

Upazila: Kalukhali; District: Rajbari

Package No/Database Unique ID: RAJ-023; School Code: 99313011602

SUB-PROJECT DESCRIPTION

The 51 No. Para Belgachi Mofiz Uddin Government Primary School is a subproject of “Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project”. It is located in Para Belgachi village under 2 No. Kaliakapur Union of Kalukhali Upazila of Rajbari District. Major components of the subproject are to construct resilient flood shelters and community structures and strengthen the capacity for disaster preparedness and response. Significant features of this subproject are summarized in **Table 1:**

Table 10: The Significant Features of the Subproject Site

Name of the Subproject	:	51 No. Para Belgachi Mofiz Uddin Government Primary School
Educational Institute ID	:	99313011602
Land Owner	:	51 No. Para Belgachi Mofiz Uddin Government Primary School
Available Land	:	33 Decimals
Average Capacity of Flood Shelter	:	650
Catchment Population	:	20,000
Catchment Village	:	Satota, Goutampur, Narayandia, Math Kalukhali Para, Para Belgachi
Major profession of local population	:	Agriculture-(80%), Day Laborer (5%), Fisherman (3%) and Others-(12%)
Brief Description of Subproject Site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	:	Existing GPS building, Playground, local settlements, Ditch, Pond, Agricultural land, Trees, Roads etc.
Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests	:	None
Ethnic Minority	:	
Connecting Road	:	12 feet wide Para Belgachi GPS Road
Land acquisition	:	None

(Source: Field survey and Public Consultation Meeting, February 2026)

LOCATION OF THE SUB-PROJECT

The subproject is located in the Northern part of Kalukhali Upazila in Rajbari District, which is within the Dhaka Division. The location details of the subproject have been summarized in **Table 2**.

Table 2: Location Details of the Subproject Site

District	:	Rajbari
Upazila	:	Kalukhali
Union	:	2 No. Kaliakapur
Mouza	:	Para Belgachi
Village	:	Para Belgachi
GPS Location	:	23.801909 N; 89.467868 E
Distance of the site from Upazila HQ	:	6km-(South-East)
Nearby Major Road:	:	Rajbari-Khustia Road - 6.5km-(South-East)
Nearby River/ Canal:	:	Padma River (2km-East), Chandana river - (200m-North)

(Source: Field survey and Public Consultation Meeting, February 2026)

The catchment area of the subproject predominantly includes the villages of Satota, Goutampur, Narayandia, Math Kalukhali Para, Para Belgachi which are regularly impacted by recurrent flooding. Para Belgachi Village, located under 2 No. Kalikapur Union of Kalukhali Upazila in Rajbari District, lies within a low-lying flood-prone area that is frequently affected by seasonal flooding, particularly during the monsoon period. The village experiences recurrent inundation due to intense rainfall and increased upstream river discharge, which exceed the capacity of existing natural and man-made drainage systems. Its vulnerability is further aggravated by proximity to local khals, canals, and beels, which function as natural drainage routes but regularly overflow during peak rainfall events. During the monsoon season, heavy rainfall combined with inadequate drainage infrastructure results in extensive waterlogging across agricultural lands, homesteads, and village access roads. The flat topography and slow natural drainage of Para Belgachi Village prolong the duration of floodwater stagnation, causing localized erosion, damage to rural infrastructure, and disruption of daily socio-economic activities. Floodwaters frequently submerge croplands, leading to significant losses in agricultural production, damage to standing crops, irrigation facilities, storage structures, and household assets. Although periodic flooding contributes to soil fertility through sediment deposition, the overall impacts remain predominantly negative due to repeated damage to

earthen roads, embankments, drainage channels, and community facilities. The flood vulnerability of Para Belgachi Village is compounded by poorly maintained embankments, insufficient drainage capacity, and limited flood-resilient infrastructure. Furthermore, the absence of permanent flood protection measures, coupled with limited access to early warning systems and disaster preparedness mechanisms, restricts the community's ability to effectively cope with recurrent flood events. At present, local residents primarily rely on short-term and reactive coping strategies, which are inadequate for ensuring long-term flood resilience. To reduce flood risk and enhance adaptive capacity, there is a critical need for improving drainage systems, strengthening rural road infrastructure, constructing durable embankments, and promoting community-based disaster risk reduction and preparedness initiatives. Implementation of these interventions will significantly reduce flood vulnerability in Para Belgachi Village and contribute to enhanced resilience within Kalikapur Union and Kalukhali Upazila against future flooding events.

The flood shelter will be constructed at 51 No. Para Belgachi Mofiz Uddin Government Primary School (GPS), which is located at the Para Belgachi village under 2 No. Kalikapur Union of Kalukhali Upazila in Rajbari District. There are 6 teachers (Male: 01; Female: 05), and 160 students (Boys: 81; Girls: 79) in the school, operated by the guidance of School Management Committee (SMC) and government officials of Kalukhali Upazila Education Office. The students, teachers and residents of the catchment area come to the proposed site by using the connecting/access road named Para Belgachi GPS Road. The road is 12 feet width and just passing beside the 51 No. Para Belgachi Mofiz Uddin Government Primary School at north side.

The population of the catchment area is about 20,000. People in the area are mostly dependent on shallow tubewell water for their daily uses and the average depth of water is 400ft below the ground. The catchment area of the subproject supports a variety of indigenous and brackish water fish species, including Reba Carp and Goby Fish. These species are important components of the local aquatic ecosystem and are considered to have ecological and, in some cases, conservation significance. The area supports a variety of common local bird species, including Green Pigeon, Magpie-Robin, Sparrow, Weaver and Myna which are frequently observed in the surrounding agricultural and wetland habitats. In addition, the presence of wild animals such as Mongoose and Fox reflects the typical rural ecological conditions and biodiversity of the locality. The 2 No. Kalikapur Union map indicating sub-project location has been shown respectively in **Figure 1**. The topographical Map with indicative and tentative location of labor camp, construction materials storage area, and waste disposal area have been shown in **Figure 2** which shall be placed as per direction and satisfaction of LGED and E.I.C.

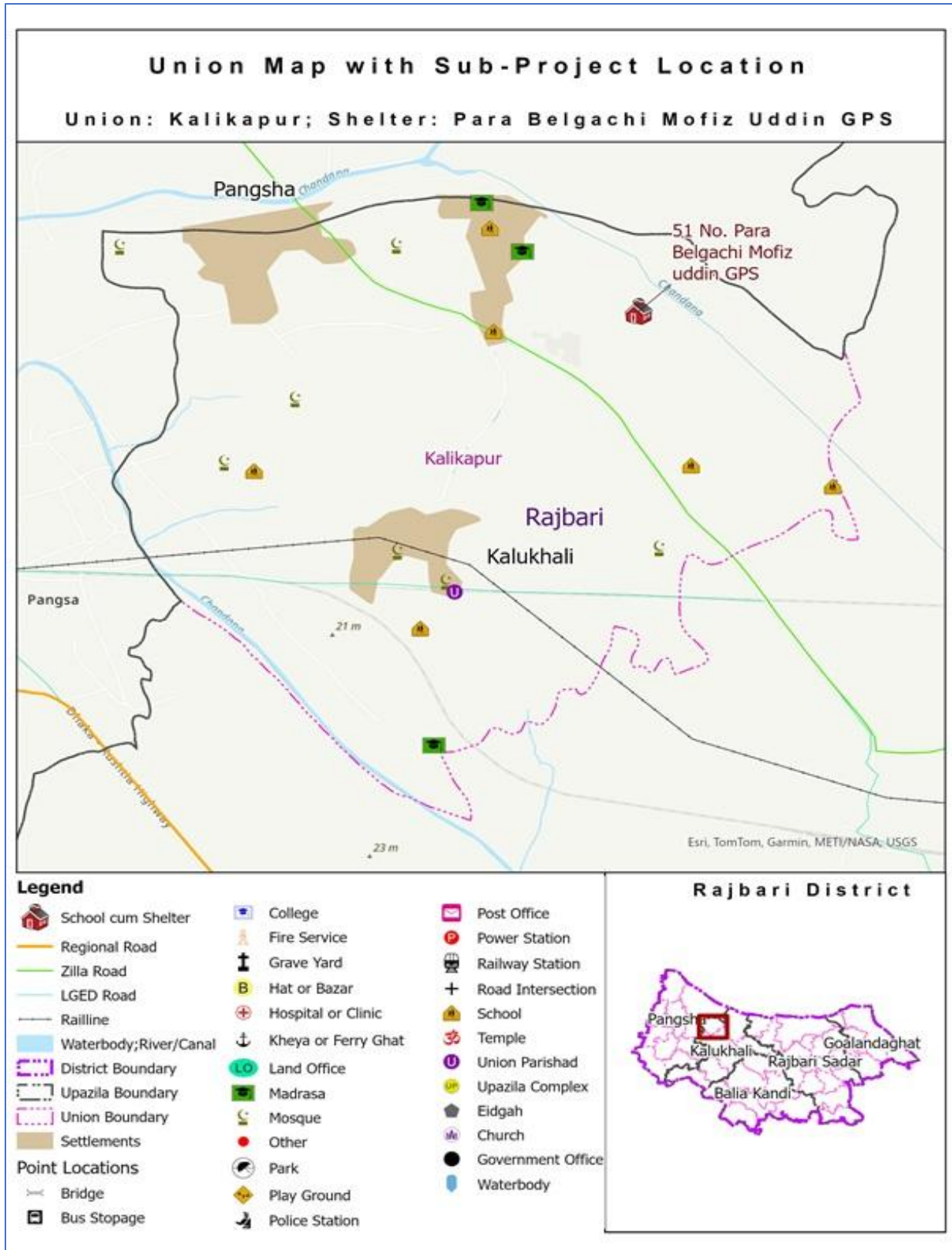


Figure 1: 2 No. Kalikapur Union Map Indicating Proposed Subproject

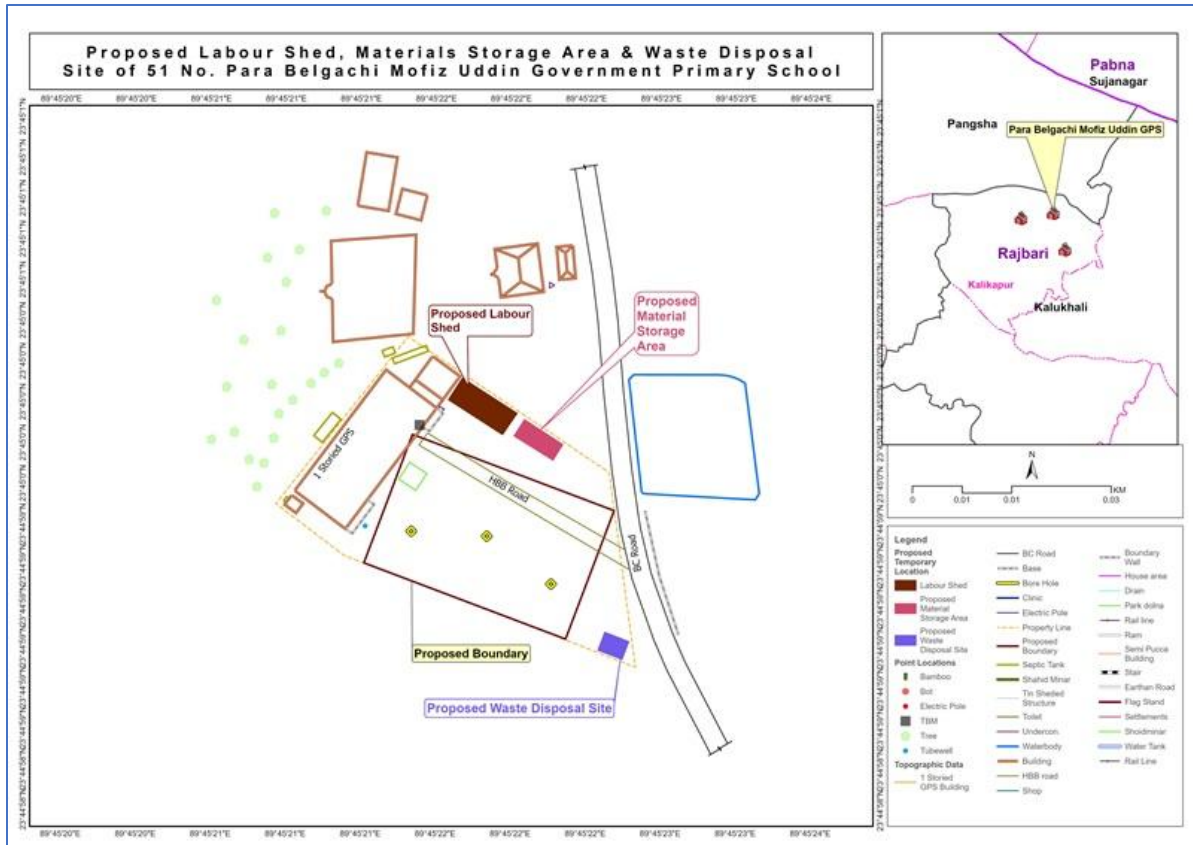


Figure 2: Proposed Labor Camp, Waste Disposal and Materials Storage Area

CURRENT SITUATION, PROPOSED INTERVENTIONS AND NEED FOR THE SUB-PROJECT

The present conditions of the sub-project site, proposed labor camp, construction materials storage area and waste disposal area are visualized in **Figures 3, 4, 5 & 6**.



Figure 3: Current Situation of the Existing Subproject Site



Figure 4: Proposed Labor Camp Area



Figure 5: Proposed Material Storage Area



Figure 6: Proposed Waste Disposal Area

The 51 No. Para Belgachi Mofiz Uddin Government Primary School is situated on approximately 33 decimals of land. At present, the school infrastructure consists of a single-storied pucca building and a tin-shed structure, which together accommodate all classrooms and administrative facilities. The proposed shelter will be constructed within the existing school premises. The project scope includes the complete demolition of selected structures located within the designated construction area. This includes dismantling the existing pucca building, the tin-shed structure, and two toilet facilities. All demolition works will be undertaken in strict accordance with applicable safety regulations and statutory requirements to minimize environmental impacts and reduce disturbance to the surrounding community. To ensure uninterrupted academic activities during the construction period, a temporary school shed will be established within the school campus. In addition, improvement of the connecting access road is required to facilitate safe and efficient movement during construction. Temporary facilities necessary for construction activities will be set up on site, including a labor shed, designated material storage areas, and a waste disposal zone. The project will also provide essential on-site services such as worker accommodation, toilet facilities, electricity supply, and access to safe drinking water. For the safety of students, staff, and visitors, the active construction area will be securely fenced to prevent both direct and indirect exposure to construction-related hazards. A ditch is located along the western boundary of the site and forms part of the existing site features. The site has a documented history of severe flooding, including major flood events in 1988, when floodwater levels reportedly reached approximately 7 feet. These prolonged flooding incidents significantly disrupted school operations and created considerable difficulties for students and staff. Photographs of the existing Government Primary School facilities are presented in **Figure 7**, while **Figure 8** illustrates the demolished tin-shed school structure.



Figure 7: Existing School Building



Figure 8: Tin-Shed School Need to be Demolish

The important establishments around the subproject site have been summarized in **Table-3**

Table 3: Important Establishments Adjacent to the Subproject Site

Direction	Important Establishments with Approximate Distance
North side	Para Belgachi Temple (20m), Para Belgachi Crematorium (300m), Gautompur Hafezia Madrasa and Orphanage (860m), Abu Zafor Mohammad Saken Uddin High School (1.10km), Rural Settlements
South side	Para Belgachi Khayrul Alam Community Clinic (400m), Math Kalukhali Mosque (600m), Kalukhali Government Primary School (1km), Kalukhali Uttar Para Mosque (850m)
East side	Chandana River (200m), Rural Settlements adjacent to school, Para Belgachi Jame Mosque (300m), Para Belgachi Madrasa (300m),
West side	Para Belgachi Poschim Para Mosque (200m), Satota Government Primary School (910m), Sathta Dakhhin Para Jame Mosque (1.10km), Rural Settlements

(Source: Field survey and Public Consultation Meeting, February 2026)

The proposed sub-project (construction of new School cum Flood shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The disaster shelter will be constructed within an existing school boundary, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. The project site is located in a well-connected area, with various community, religious, educational, commercial and natural establishments in proximity. The north side of the project area is bordered by several important religious, educational, and residential facilities. Para Belgachi Temple is located approximately 20 meters to the north, while the Para Belgachi Crematorium lies about 300 meters away. Gautompur Hafezia Madrasa and Orphanage is situated at a distance of around 860 meters, and Abu Zafor Mohammad Saken Uddin High School is located approximately 1.10 kilometers from the site. In addition, rural settlements are present along

the northern boundary. On the south side, the area is surrounded by community health, religious, and educational institutions. The Para Belgachi Khayrul Alam Community Clinic is located about 400 meters to the south, while Math Kalukhali Mosque is situated approximately 600 meters away. Kalukhali Government Primary School lies at a distance of around 1 kilometer, and Kalukhali Uttar Para Mosque is located about 850 meters from the site. The east side of the site includes key natural and religious features. The Chandana River flows at a distance of about 200 meters from the site, and rural settlements are located adjacent to the nearby school, contributing to the residential character of the area. Para Belgachi Jame Mosque and Para Belgachi Madrasa are both located approximately 300 meters to the east. On the west side, the surroundings consist of religious institutions, educational facilities, and rural residential areas. Para Belgachi Poschim Para Mosque is located approximately 200 meters away, while Satota Government Primary School is situated at a distance of around 910 meters. Sathta Dakhhin Para Jame Mosque lies about 1.10 kilometers from the site, and rural settlements are present along the western boundary.

No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day in and around the site, proper fencing around the working area, safe storage of materials, etc.

Construction related activities and setting up of labor camps along with associated facilities and their management issues will be accounted for impacts more likely to be generated during the pre, post and construction period. Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place. Soil can further be eroded and polluted from chemical spills or improper disposal of waste materials. Noise and vibration effects generated from pilling and drilling may also trigger landslides and harmful disturbances to local fauna. Impact on surface and ground water bodies might get acute due mainly to the high abstraction rate and disposal/leakage of pollutants to the surface/ground water bodies. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss. All these impacts can only be prevented or minimized by adopting measures delineated into the ESMP and good practice engineering and site management.

ENVIRONMENTAL AND SOCIAL ASSESSMENT

This section identifies the potential impacts that the various elements of the proposed sub-project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental and Social Assessment (ESA) based on this assessment study for the Sub-project as 51 No. Para Belgachi Mofiz Uddin

Government Primary School of Kalukhali Upazila under Rajbari District has been conducted to identify and determine which potential project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures. In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 03 February 2026 in the Sub-project area. Environmental and Social Assessment form, as adopted in **Annexure-2** of the Environmental and Social Management Framework of RIVER, was administered for identifying the impacts and their extents.

PUBLIC CONSULTATION AND PARTICIPATION

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Field visit has been carried out on 03 February 2026 in and around the Sub-project component site. As part of the impact assessment, participatory public consultation was conducted in that area by the field level staffs, and consultants from D&SC. Checklist of the consultation is attached in **Annexure-3**. The consultation meeting was attended by 20 persons (Male-13 and Female-07) and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. Refer to **Figure 9** and **Annexure-4** for selected photographs of the participatory public consultation held at site of the 51 No. Para Belgachi Mofiz Uddin Government Primary School and list of attendances in that public consultation meeting, respectively. A questionnaire was kept ready and responses were elicited. During these consultations, the communities were explained about the project, its benefits, associated social and environmental aspects and possible mitigation measures.

The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and uninitiated access to those system and resources. As such, public consultation is a living process as the types of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution processes are more likely to differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.



Figure 9: Public Consultation Meeting in the Proposed Sub-project Site

SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACTS

Tree Cutting: Approximately five (05) trees are likely to be cut down during the construction period. The waterbody is a ditch situated on the southern side of the project area. The ditch has an approximate size of 78 feet x 33 feet and maintains a water depth of about 9 to 10 feet. The ditch is utilized for fish farming activities, with carp being the primary species cultivated. The existing and proposed use of the pond is for fishing purposes. Additionally, A ditch is located on the western side of the site. But no water bodies are likely to be filled up due to the construction of the flood shelter. The ecological impact of the subproject is low. There will be temporary negative impacts on physico-chemical environment. Nevertheless, these impacts are manageable if mitigation measures are taken according to ESMP.

Grass turfing: Grass turfs on embankment, slope, building compound & any critical place to enhance the ecological condition and protect the top soil. Tentative area of turf has been estimated as 240 square meters (half of total area), after discussion with architects and engineers. It is likely to be changed depending on the requirement during construction as per site design and as per direction of E.I.C.

Land Ownership: Availability of adequate public land area is as important as community consent to construct the flood shelter and access roads. The feasibility team did not find any conflicts over the school land. The land issue has been discussed in the meeting. Participants unanimously confirmed that the school has its own 33 decimals of land and there is no dispute about this land.

Land Acquisition: The proposed Sub-project, 51 No. Para Belgachi Mofiz Uddin Government Primary School, does not have any involuntary resettlement impacts due to the construction of flood shelter and approach roads as the Sub-projects will be constructed in existing Government Primary Schools' premises. The Government Primary School has 33 decimals of land. No land acquisition will be required for the activities to be implemented under the project. Access road needs to construct or rehabilitate within its existing alignment.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Site specific Environmental and Social Management Plan (ESMP) outlines tailored mitigation, monitoring, and management measures to address potential environmental and social impacts arising from school cum flood shelter construction at each sub-project site. It focuses on controlling dust, noise, and waste; protecting nearby agricultural land and water bodies; ensuring occupational health and safety; managing community interactions; and conserving local biodiversity. The ESMP integrates the Environmental and Social Codes of Practice (ESCoPs) are attached in **Annexure-5** and compliance with World Bank ESF and national environmental regulations throughout the construction and operation phases. The Site Specific Environmental and Social Management Plan (ESMP) under this sub-project is providing in **Table 4**:

Table 4: Site Specific ESMP for 51 No. Para Belgachi Mofiz Uddin Government Primary School

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
1.	Contractor's proposal for site specific temporary works	<ul style="list-style-type: none"> Accurate/ proper implementation of ESMP 	Preparation of Work schedule, construction camp, materials storage area, access road, waste dumping/ disposal area etc.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
2.	Site Clearing, Fencing, removal and Disposal Activity	<ul style="list-style-type: none"> Improper management and clearing of site may elevate risks of accidents, pollution and nuisance to public and school users. 	<ul style="list-style-type: none"> Clearing of site at the very outset with removal of all obstructions, including structures, materials, trees, etc. in order to keep the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collection at a central disposal area. Providing necessary protection fencing surrounding the total workplace area (including internal fencing made with bamboo for demarcating material storage areas mainly) and environmental and occupational health & safety sign boards, warning signs, etc. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
3.	Construction and operation of labor shed for the workers	<ul style="list-style-type: none"> Generation of sewage and solid waste may cause environmental pollution in the 	<ul style="list-style-type: none"> Construction of sanitary latrine at the labor shed (consider 15 persons for one toilet, separate toilet for male and female); Construction of sanitary latrine/ Pit latrine with 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<p>surrounding area</p> <ul style="list-style-type: none"> • Water, soil, air & dust pollution/ environmental pollution 	<p>septic tank/ Ring slab system</p> <ul style="list-style-type: none"> • Erection of “no litter” sign, provision of waste bins/cans (separate waste bins for organic and inorganic wastes); • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas approved by Environmental Specialist of DSC. • Ensure wastes (solid wastes and other forms of the waste) disposal at designated places. • Camp and working areas are kept clean and tidy at all times. • Camp is to be checked for spills of substances i.e. chemical, oil, paint, etc. 		
4.	Health, Safety and Wellbeing of Workers	<ul style="list-style-type: none"> • Health and Safety of workers 	<ul style="list-style-type: none"> • Conduct formal and unofficial discussion and training to increase awareness about hygiene practices among the workers; • Ensure availability and access to first-aid equipment and medical supplies for the workers. • Ensure safety gear worn: ear plug, goggles, mask, gloves, helmets, and uniforms etc. • Staff must be trained up for operating equipment • Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
5.	Construction Materials storage areas	<ul style="list-style-type: none"> • Use of surrounding open area, playground, road side etc. for stockpiling of construction 	<ul style="list-style-type: none"> • Proper stockpiling/ storage of construction materials at the site as proposed by the contractor & approved by the Environmental Specialist of D&SC. • Proper covering of dust producing materials with 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<p>materials.</p> <ul style="list-style-type: none"> • Creating dust/ air pollution, • Spillage of liquid/hazardous substances i.e. oil, paint, chemicals, bitumen etc. • Access of students, children, animals, etc. • Not cleaning of construction materials storage areas after completion of construction. 	<p>polythene sheet,</p> <ul style="list-style-type: none"> • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by students, children, animals, etc. • Spills/ hazardous substances should be disposed off at the site as proposed by the contractor & approved by the Environmental Specialist of DSC to avoid soil/ water contamination. • Materials storage area must be cleaned after completion of construction. 		
6.	Demolition of Old Structures	<ul style="list-style-type: none"> • Demolition works may create Air and water pollution, generate hazardous materials, which are too disturbing and may cause health and safety issues to the school users, community people and workers. • During movement of heavy Construction machineries, 	<ul style="list-style-type: none"> • Advise demolition Contractor about Controlled demolition with water suppression, debris containment; salvage reusable materials; safe disposal plan, and following the SOP for Demolition Works (Annexure-06). • Prior to start demolition, the utility services (electrical cables, telephone line, water supply pipeline, gas supply pipeline and internet line) should be shifted with the consultation of the relevant organizations; • Inform the local community before starting removal or demolishing work; • Carefully remove the utilities that are connected to any structures; • Proper Health and safety measures for the workers should be taken throughout the demolition period 	Demolition Contractor	SMC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		equipment can damage the utility services if not previously removed.	to avoid any incidents.		
7.	Construction of a new temporary school shed and facilities	Students are temporarily affected for demolition of classrooms and lacking of regular schooling.	<ul style="list-style-type: none"> Contractors will arrange voluntary/temporary land donation or lease, with those who are interested in, for a stipulated period following the written consent. Contractor shall construct a temporary school facility as per standard design provided by LGED. Temporary school shall be removed by the Contractor at the end of all Construction works, with full satisfaction of E-I-C. 	Contractor/ SMC	Environmental and Social Development Specialists of PIU, D&SC and SMC
8.	General construction work	• Drainage congestion and flooding	<ul style="list-style-type: none"> Plinth level of the Shelter should be higher than the highest flood water level. Ensure provision for adequate drainage of storm water and pumping of congested water if needed; Ensure adequate monitoring of drainage effects, especially if construction works are carried out during the monsoon season. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		• Air pollution	<ul style="list-style-type: none"> Check regularly and ensure that all the subproject vehicles and equipment are in good operating condition; Ensure contractor spray water on dry surfaces/unpaved to reduce dust generation; Maintain adequate moisture content of the sand; Ensure contractor sprinkle water and cover stockpiles of loose materials (e.g., fine aggregates); 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			<ul style="list-style-type: none"> • Inform and make regular consultation with the local people about the subproject activities and potential impact; • Cover loaded truck used for carrying sand with tarpaulin/other suitable material to prevent spreading by air blown. • Provision of Masks for the workers, site staffs, students and teachers & Masks should be available in site during construction period. • Construction works should be scheduled before and after school hour, prayer/religious ritual time, or during holidays. • Avoid use of equipment e.g. stone crushers at site, if possible, which produce significant amount of particulate matter. 		
		<ul style="list-style-type: none"> • Traffic congestion, effect on traffic and pedestrian safety 	<ul style="list-style-type: none"> • Ensure schedule deliveries of materials/ heavy vehicle movement/ equipment during off-peak hours; • Place traffic sign/cautionary sign to avoid undue traffic congestion if required; • Maintain vehicles and enforce legal load limits, and impose speed limits within settlements • Use flagmen, signage, and barriers near schools and markets; • Spray water on access roads to reduce dust • Coordinate with local authorities and inform communities. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Noise pollution 	<ul style="list-style-type: none"> • Check and maintenance the equipment properly; • Avoid using of construction equipment such as concrete mixer machine, pile driving equipment (pile rig, winch machine), vibrator machine that produce excessive noise at night; 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			<ul style="list-style-type: none"> • Avoid prolonged exposure to noise (produced by equipment) by the workers; • Regulate use of horns and avoid un-due use of hydraulic horns by subproject vehicles; • Provision of Ear plugs for the workers & site staffs should be available in site during construction period. • Inform local people about the subproject activities and potential impact. • Construction works should be scheduled before and after school hour and prayer time. 		
		<ul style="list-style-type: none"> • Felling of trees, clearing of vegetation and ecological disturbances 	Replace each felled tree with at least 3 nos. saplings, due to 5 trees felling, 15 trees to be replanted around the periphery of the proposed site at an interval of not less than 3m, to enhance the ecological condition.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Water & Soil pollution 	<ul style="list-style-type: none"> • Avoid complete closing of the channel that affects reproduction of aquatic species; • Any illegal discharge of wastewater, leaked oil shall be prohibited. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Spills and leaks of oil, toxic chemicals 	<ul style="list-style-type: none"> • Proper handling of lubricating oil and fuel so that it does not fall on the soil; • Good housekeeping • Collection and proper disposal of spills; • Refueling and fuel tank should not be placed on the ground directly. • Spillage wasters should be disposed in the waste disposal area located at the site proposed by the contractor & approved by the Environmental Specialist of D&SC 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
9.	Rigorous Monitoring and		<ul style="list-style-type: none"> • The Contractor shall appoint (i) ES Manager (ii) Community Organizer and (iii) H&S Officer for strict 	Contractor	PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
	Report Preparation and Submission		<p>management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget.</p> <ul style="list-style-type: none"> Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU. 		

COST OF ENVIRONMENTAL ENHANCEMENT WORKS IN BOQ

Considering the environmental impacts and their mitigation measures for this subproject, several items are included in the BOQ to address these issues. The detailed estimate, with tentative cost for implementing the ESMP, is given in **Table 5**.

Table 5: Environmental Social Management Budget (Bill of Quantity)

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
1.	<p><u>Site Cleaning, Removal and Disposal Activity:</u> Cleaning and maintaining at all times, keeping the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collecting at a central disposal area, on a daily basis and disposing in a manner approved and satisfaction by the Engineer, especially waste water and sewage from office, residential and mobile camps shall be piped to soak pits or other disposal areas, all used fuels, oils, other plant or vehicle fluids, old tyres, tubes, other solid waste from household, office, workshop, construction materials, etc. to be kept at safe places and any spillages shall be cleaned up by either burning in place or collecting the contaminated soils and burning them at the central disposal area, including removing all waste, debris, rubbish, unused materials, concrete forms and other like material, tools, equipment, machinery and surplus/ unwanted materials buried or cleaned up in a manner acceptable to the Engineer after completion of work etc. all complete as per requirement and full</p>	Each	1	19,000	19,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
	satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully				
2.	<p><u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.</p>	Each	2 nos.	6500 Tk. Per box	13,000.00
3.	<p><u>Providing Safety gear</u> package like hand gloves, eye protection glasses, air plug, helmets, rubber shoes, light reflecting dress etc. for 20 sets.</p>	Set	20 sets	5,000	100,000.00
4.	<p><u>Temporary Toilet Facilities:</u> Provide at least two nos. portable toilets or constructing temporary semi-pucca toilets with twin pit latrines, one for female worker and other for male worker at worksite and workers accommodation site in a safe location, so that no adverse impact will generate on the surrounding environment, including providing requisite arrangements for water supplying etc. All complete as per drawing, specification, direction and satisfaction of the Engineer-in-Charge. All relevant accessories and arrangements under this item shall be property of the contractor and payment will be made only upon 100% completion of the contract successfully.</p>	No.	2 nos.	20,000	40,000.00
5.	<p><u>Water Test (Drinking Water samples):</u> "Test (Drinking Water samples) Out of 5 nos. of tube well 1-no of tube well should be Install at the beginning of construction works so that labour and other site staff can get drinking water. In addition, Water samples to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis for different parameters such as pH, arsenic, iron, chloride, hardness and total dissolved solids or electrical conductivity etc. all complete as per direction of EIC (including the cost of actual fees for testing from reputed laboratory and report) as desired by EIC."</p>	LS	3 times	13,800	41,400.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
6.	<p><u>Drinking Water Facilities:</u> Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge, all relevant goods and equipment under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.</p>	Each	2 nos.	LS @ Tk. 35,000	7,000.00
7.	<p><u>Waste Disposal Facilities:</u> Providing, installing and maintaining at least 2 (two) nos. waste collection bins one for organic waste and other for inorganic waste of minimum capacity of 30 liters with hinge supported 450mm dia. cover plate for opening, made of durable plastic material at worksite, both bins will be kept in a safe and easily accessible place, so that will easy to use and no adverse impact will generate on the surrounding environment, including continuing the full functioning of waste disposal (buried/incineration) in accordance with the full satisfaction of the project manager throughout the contract period, all complete as per drawing, specification and direction of the Engineer-in-charge. Entire relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.</p>	LS	1 set	20,000 BDT	40,000.00
8.	<p>Construction of temporary school facilities as per standard requirement and design set in the bidding document</p>	LS	Estimate of this construction works is included in the Civil works part of the BOQ		
9.	<p><u>Motivation training:</u> Motivation training of the Upazila Engineer's and Contractor's representatives for safety practice & environmental others facilities.</p>	LS	2	15,000	30,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
10.	<p>Hazards and Hazardous Materials: Handling Storing and store hazardous materials in accordance with the following requirements: Hazardous materials shall be stored above flood level and at least 20m from any watercourse; Hazardous liquid substances (e.g. petrol, diesel, oils) shall be stored on top of sealed plastic sheets in a secure, flat enclosed area. Bund walls shall be at least 25 cm high.</p>	LS	1	12,000 BDT	12,000.00
11.	<p>Dust suppression measures like water sprinkling on aggregates/ unpaved roads in and around the work site (Frequency of measures has been proposed to be increased as sensitive receptors are located around).</p>	LS	1	50,000 BDT	50,000.00
12.	<p>Supplying and planting specified healthy coconut (local) saplings of minimum 0.60m height, free from any diseases', collected from different nurseries (collection of saplings from government horticulture is preferable) & carrying the same to the worksite; preparation of pit prior to minimum 10 days of plantation by earthwork in excavation of 450mm x 450mm x 450mm size for plantation, applying 0.015 cum cow dung and 100gm normal salt mixed with exceled earth properly; planting the plants, weltering for will be as per tree plantation guideline.</p>	Each	15	500.00	7,500.00
13.	<p>Turfing on embankment top and slope, building compound with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of the E-I-C. (payment to be made only when grass is fully grown).</p>	sqm	240	31.65 Tk. Per sqm	7,596.00
14.	<p>Dismantle and removal: Dismantle and removal of the existing waste material taking out the materials from the site. The salvaged materials from the old structure, finally shall be handed over to the school management committee. The contractor should visit the site to visualize the quantity of materials will be salvaged, all complete as per direction of the E.I.C</p>	Each	1	10,000	10,000.00
15.	<p>Construction Work nearby busy access roads may cause temporary disruption to local traffic movement, pedestrian safety issues, and increased accident risks.</p>	This is part of normal site management and does not require a separate BOQ item, measures implemented under Environmental and Social Codes of Practice			

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
					(ESCoPs).
16.	Construction of Temporary Facilities such as site offices, labor sheds, storage yards, material stockpiles etc.				The cost for construction, maintenance, and removal of these facilities is included in the civil works BOQ under the contractor's responsibility.
17.	Disturbance to nearby paddy field or water bodies				No separate BOQ item required — measures implemented under Environmental and Social Codes of Practice (ESCoPs).
Total budget for this sub-project					3,77,496.00

As per project ESMF, PIU, project engineer's suggestion and experience from other LGED projects such as MDSP, EMCRP etc. adequate budget has been proposed for the environmental management for the mitigation and enhancement measures. It may vary depending on the real time situation and requirement of the construction. The subproject activities have temporary and localized negative impact on noise level during construction phase due to movement of the subproject vehicles and equipment. Hence, budget includes analytical monitoring for noise level. For solid waste management adequate waste bins will be installed. The budget for labor shed, and site office construction is included in the civil works items. Therefore, it is not included in the environmental budget. It should be noted that the contractor will be paid as per actual work done.

Name of Subproject: Development of Multipurpose Flood Shelter at ***Kalukhali Government Primary School***

Village: Kalikapur; Union: Kalikapur;

Upazila: Kalukhali; District: Rajbari;

Package No/Database Unique ID: RAJ-024; School Code: 91313020303

SUB-PROJECT DESCRIPTION

The Kalukhali Government Primary School is a subproject of “Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project”. It is located in Kalikapur village under Kalikapur Union of Kalukhali Upazila of Rajbari District. Major components of the subproject are to construct resilient flood shelters and community structures and strengthen the capacity for disaster preparedness and response. Significant features of this subproject are summarized in

Table 1:

Table 10: The Significant Features of the Subproject Site

Name of the Subproject	:	Kalukhali Government Primary School
Educational Institute ID	:	91313020303
Land Owner	:	Kalukhali Government Primary School
Available Land	:	42 Decimals
Average Capacity of Flood Shelter	:	650
Catchment Population	:	15,000
Catchment Village	:	Narayandia, Uttar Kalukhali, Thakurpara, Harinbaria, Ballavpur, Bohorer Kalikhali, Goutampur, Char Afra, Jhaugram.
Major profession of local population	:	Agriculture-(80%), Day Labour (10%), Others-(10%)
Brief Description of Subproject Site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	:	Existing GPS building, Playground, Agricultural land, Graveyard, Trees, Road etc.
Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests	:	None
Ethnic Minority	:	None
Connecting Road	:	Kalukhali – Para Belgachi BC Road (14 feet width)
Land acquisition	:	None

(Source: Field survey and Public Consultation Meeting, February 2026)

LOCATION OF THE SUB-PROJECT

The subproject is located in the Northern part of Kalukhali Upazila in Rajbari District, which is within the Dhaka Division. The location details of the subproject have been summarized in **Table 2**.

Table 2: Location Details of the Subproject Site

District	:	Rajbari
Upazila	:	Kalukhali
Union	:	Kalikapur
Mouza	:	Kalikapur
Village	:	Kalikapur
GPS Location	:	23.792410 N; 89.470660 E
Distance of the site from Upazila HQ	:	7km (South)
Nearby Major Road:	:	Rajbari-Kushtia Highway Road (4.50km–South)
Nearby River/ Canal:	:	Chandana River (760m-East), Padma River (3km-North)

(Source: Field survey and Public Consultation Meeting, February 2026)

The catchment area of the subproject includes Kalikapur Village under Kalikapur Union of Kalukhali Upazila in Rajbari District, along with the surrounding low-lying areas of Uttar Kalukhali, Thakurpara, Harinbaria, Ballavpur, Bohorer Kalikhali, Goutompur, Char Afra, and Jhaugram villages, which are regularly affected by recurrent and seasonal flooding. The catchment area lies within the central floodplain region of Bangladesh and is highly vulnerable to monsoon-induced inundation, significantly affecting the lives and livelihoods of local communities. This flood vulnerability arises primarily from the area's geographical location within a low-elevation deltaic landscape influenced by the Padma River system and its distributaries. Kalukhali Upazila is hydrologically shaped by nearby major rivers such as the Padma and the Gorai, as well as a dense network of khals (canals), beels (natural depressions), and seasonal floodplains. During the monsoon season, intense local rainfall combined with upstream river discharge frequently leads to river overtopping, waterlogging, and prolonged inundation across the catchment area. The flat topography, low elevation, and inadequate natural drainage further intensify both the depth and duration of flooding. Although seasonal flooding can deposit nutrient-rich silt that marginally benefits agricultural soils, the overall impacts remain predominantly adverse. Agriculture, the primary livelihood within the catchment area, experiences repeated crop losses, delayed planting, and land degradation due

to flood events. Flooding also causes recurring damage to rural infrastructure, including homesteads, village roads, culverts, and embankments, thereby increasing economic stress on local households. The flood situation within the catchment area is further exacerbated by insufficient flood control and drainage infrastructure, limited riverbank protection, and inadequate access to timely flood forecasting and early warning systems. As a result, communities have limited capacity to prepare for or respond effectively to flooding. These conditions highlight the urgent need for integrated flood management interventions, climate-resilient infrastructure development, and community-based disaster risk reduction initiatives to reduce long-term flood risks in Kalikapur Village and the surrounding catchment area of Kalukhali Upazila, Rajbari District.

The flood shelter will be constructed at Kalukhali Government Primary School (GPS), which is located at the Kalikapur village under Kalikapur Union of Kalukhali Upazila in Rajbari District. There are 07 teachers (Male: 05; Female: 02), and 281 students (Boys: 131; Girls: 150) in the school, operated by the guidance of School Management Committee (SMC) and government officials of Kalukhali Upazila Education Office. The students, teachers and residents of the catchment area come to the proposed site by using the connecting/access road named Kalukhali–Para Belgachi Connecting Road: The road is a 14-foot-wide BC road and runs along the eastern side of the Kalukhali Government Primary School.

The population of the catchment area is about 15,000. The local population in the project area is predominantly dependent on deep tubewell water for domestic use, with the average groundwater abstraction depth being approximately 400 feet below ground level. The aquatic environment supports a range of indigenous freshwater fish species, including Canda (Indian Glassy Fish), Roya/Royna (Bronze Featherback), Chingri (Freshwater Prawn/Shrimp), Bele (Tank Goby), and Chori (Barb species). These species contribute to nutrient cycling, biological control of aquatic insects, and provide an important source of nutrition and income for local households. The area also supports diverse avifauna. Commonly observed bird species include the Oriental Magpie-Robin (Doel), Spotted Dove (Ghugu), Little Cormorant (Pankouri), Domestic Duck (Has), Egret/Heron species (Bok), and Green Pigeon (Horiyal). These birds play a significant role in maintaining ecological balance through pest control, scavenging, and seed dispersal. In addition, occasional sightings of mammals and reptiles have been reported, including Mongooses (Herpestidae), the Bengal Fox (*Vulpes bengalensis*), and various Snake species (Serpentes). These faunas contribute essential ecosystem services such as insect and rodent control, scavenging, and bio-indication of habitat quality, which collectively support agricultural productivity, public health, and overall ecological resilience. To conserve biodiversity and ensure long-term environmental sustainability, it is recommended that project planning and implementation prioritize sustainable groundwater management, habitat conservation, and environmentally responsible design, construction, and operational practices.

The Kalikapur Union map indicating sub-project location has been shown respectively in **Figure 1**. The topographical Map with indicative and tentative location of labor camp, construction materials storage area, and waste disposal area have been shown in **Figure 2** which shall be placed as per direction and satisfaction of LGED and E.I.C.

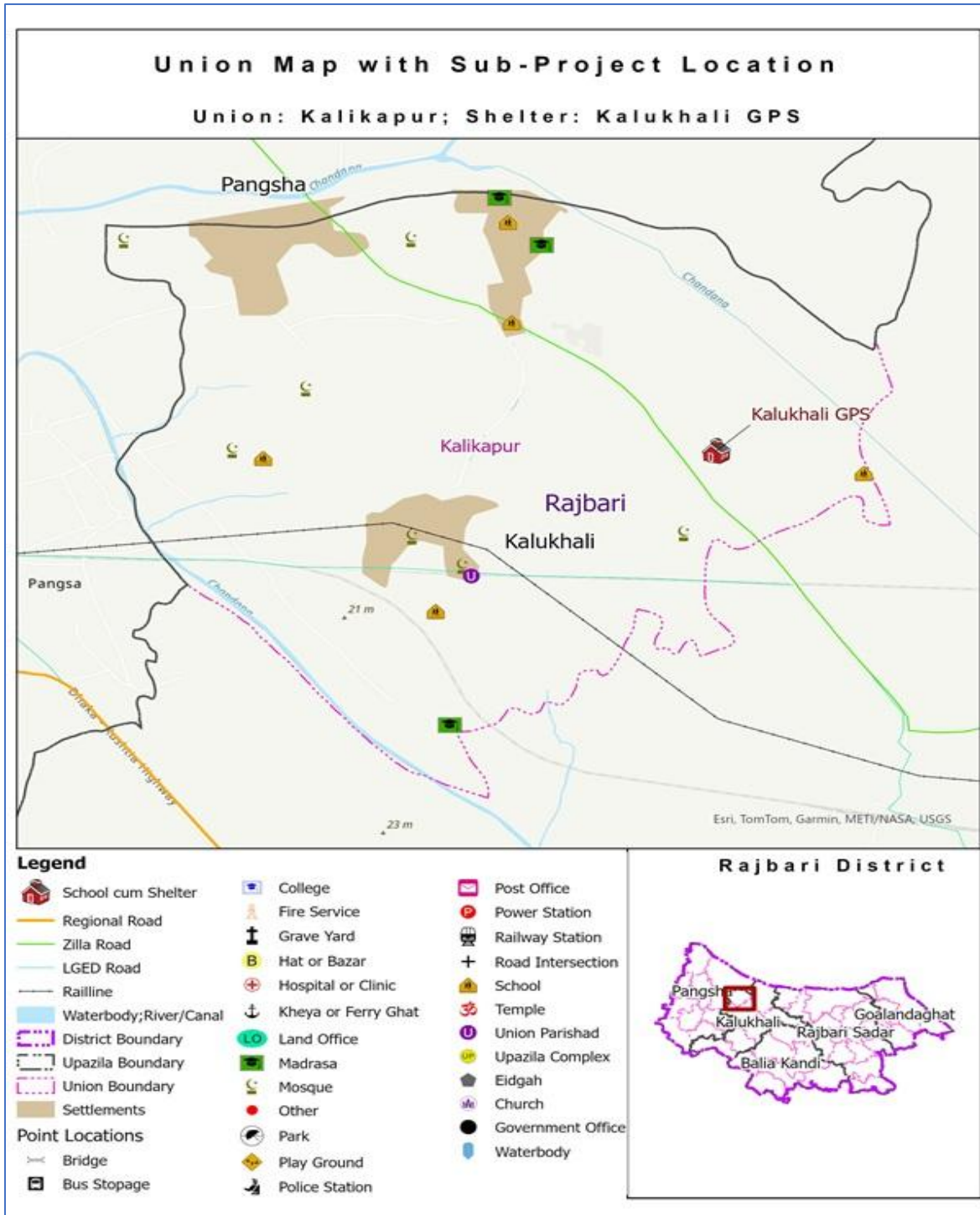


Figure 1: Kalikapur Union Map Indicating Proposed Subproject

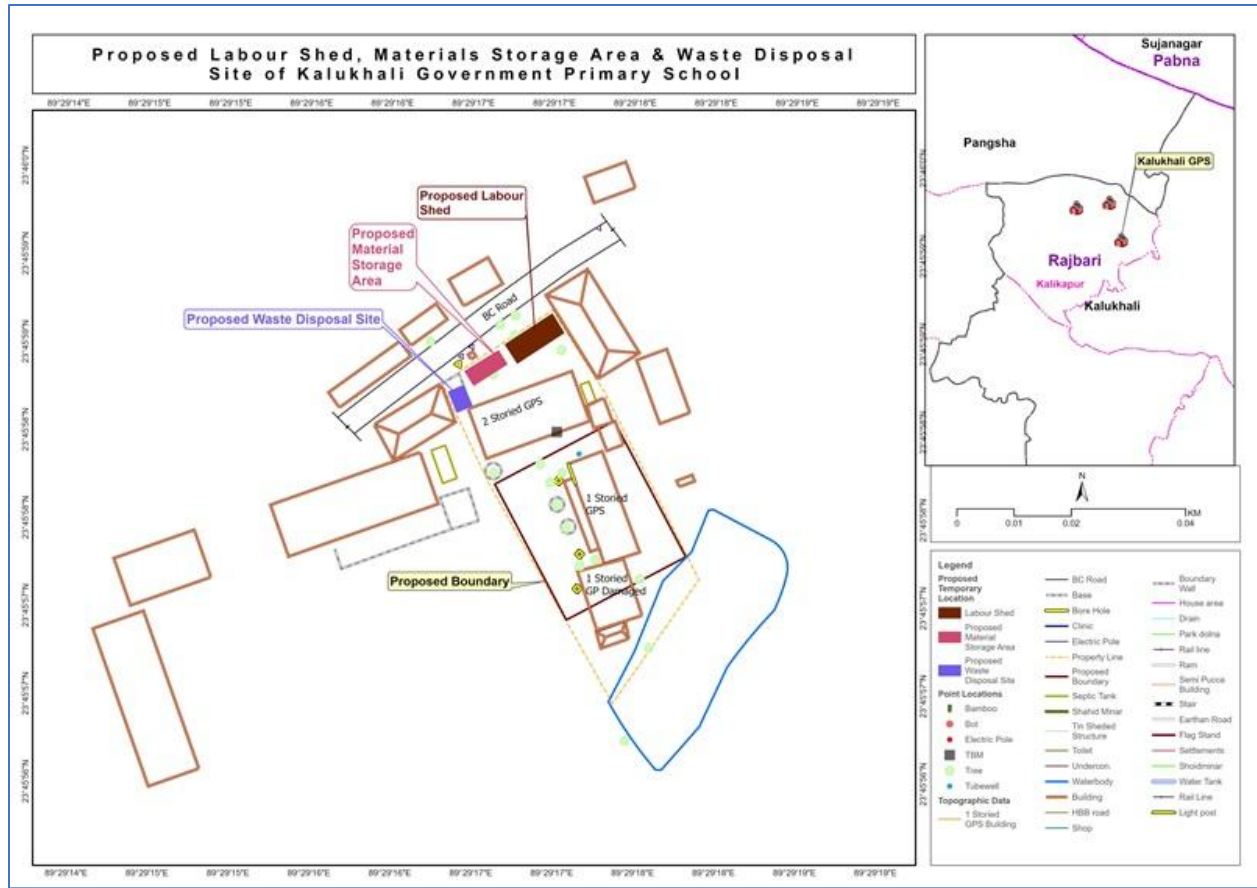


Figure 2: Proposed Labor Camp, Waste Disposal and Materials Storage Area

CURRENT SITUATION, PROPOSED INTERVENTIONS AND NEED FOR THE SUB-PROJECT

The present conditions and proposed labor camp, waste disposal area and construction materials storage area are visualized in **Figures 3, 4 and 5**.



Figure 3: Current Situation of the Existing Subproject Site



Figure 4: Proposed Labor Camp and Materials Storage Area



Figure 5: Proposed Waste Disposal Area for the Subproject Site

Kalukhali Government Primary School occupies a total area of 68 decimals of land, consisting of two separate plots measuring 26 decimals and 42 decimals, respectively. The proposed new Government Primary School (GPS) building will be constructed on the 42-decimal plot. The existing school infrastructure comprises a one-storied pucca building and a one-storied reinforced cement concrete (RCC) building, both of which are currently used for classrooms and administrative offices. The proposed flood shelter will be constructed on vacant land within the school premises. The construction will not require the demolition or removal of any existing structures; therefore, academic activities will continue uninterrupted, and no temporary school sheds will be required. During the construction period, temporary facilities—including a labour shed, material storage area, and a designated waste disposal site—will be established within the school campus. Additional supporting facilities, such as worker accommodation, sanitary toilet facilities, electricity supply, and the provision of safe drinking water, will also be arranged. To ensure the safety of students, teachers, and staff, protective fencing will be installed around the construction zone to clearly demarcate active work areas and prevent potential hazards within the school environment. As part of the project, a connecting road approximately 30 meters in length, located on the southern side of the school, will require improvement. A significant number of trees are present within the school premises, and all applicable regulations, guidelines, and best practices related to tree protection and management will be strictly followed throughout the construction period. The project area has a documented history of severe flooding. Notably, during the major flood event of 1988, floodwater depths reached approximately 15 feet and persisted for 20–30 days, while in 2018, floodwater depths of approximately 7 feet remained for about 30 days. These flood events caused significant disruption to school operations and adversely affected local livelihoods. This historical flooding context underscores the critical need for the proposed flood shelter as an integral component of the school’s redevelopment initiative. **Figure 6** illustrates the current condition of the existing school buildings, and **Figure 7** shows the proposed location of the new flood shelter.



Figure 6: Existing School Building



Figure 7: Proposed Land for Construction

The important establishments around the subproject site have been summarized in **Table-3**

Table 3: Important Establishments Adjacent to the Subproject Site

Direction	Important Establishments with Approximate Distance
North side	Kalukhali Uttarpara Jame Mosque (560m), Chandana River (850m), Khairul Alam Community Clinic (1km)
South side	Kalukhali Central Eidgah+Graveyard+Madrasa (300m), Kalukhali Teli Jhaugram Mim Jame Mosque (560m), Bohorer Kalukhali Obder Rastar Mor Jame Mosque (1km), Ballavpur Khanka Sharif (1.5km)
East side	Thakurpara Kali Temple (300m), Kalukhali Adarsha High School (500m), Harin Bazar Jame Mosque (1km), Chandana River (1km)
West side	Moth Kalukhali Mosque (800m), Family Graveyard -Adjacent to the school. Describe this information with sentences for official report

(Source: Field survey and Public Consultation Meeting, February 2026)

The proposed sub-project (construction of new School cum Flood shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The disaster shelter will be constructed within an existing school boundary, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. The project site is surrounded by several important community, religious, educational, and natural features within close proximity. On the northern side, notable landmarks include Kalukhali Uttarpara Jame Mosque located approximately 560 meters from the site, the Chandana River at a distance of about 850 meters, and the Khairul Alam Community Clinic situated approximately 1 kilometer away. To the south of the site, key features include the Kalukhali Central Eidgah, along with an adjoining graveyard and madrasa, located about 300 meters away. Other nearby religious institutions include Kalukhali Teli Jhaugram Mim Jame Mosque at a distance of approximately 560 meters, Bohorer Kalukhali Obder Rastar Mor Jame Mosque at about 1 kilometer, and Ballavpur Khanka Sharif located approximately 1.5 kilometers from the site. On

the eastern side, the surrounding features include Thakurpara Kali Temple at an approximate distance of 300 meters and Kalukhali Adarsha High School located about 500 meters from the site. Harin Bazar Jame Mosque and the Chandana River are also situated to the east, each at a distance of approximately 1 kilometer. To the west of the project site, Moth Kalukhali Mosque is located at a distance of approximately 800 meters. In addition, a family graveyard is situated immediately adjacent to the western boundary of the school premises.

No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day in and around the site, proper fencing around the working area, safe storage of materials, etc.

Construction related activities and setting up of labor camps along with associated facilities and their management issues will be accounted for impacts more likely to be generated during the pre, post and construction period. Noise pollution from piling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place. Soil can further be eroded and polluted from chemical spills or improper disposal of waste materials. Noise and vibration effects generated from piling and drilling may also trigger landslides and harmful disturbances to local fauna. Impact on surface and ground water bodies might get acute due mainly to the high abstraction rate and disposal/leakage of pollutants to the surface/ground water bodies. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss. All these impacts can only be prevented or minimized by adopting measures delineated into the ESMP and good practice engineering and site management.

ENVIRONMENTAL AND SOCIAL ASSESSMENT

This section identifies the potential impacts that the various elements of the proposed sub-project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental and Social Assessment (ESA) based on this screening study for the Sub-project as Kalukhali Government Primary School of Kalukhali Upazila under Rajbari District has been conducted to identify and determine which potential project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures. In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 02 February 2026 in the Sub-project area. Environmental and Social Screening form, as adopted in **Annexure-2** of the Environmental and Social Management Framework of RIVER, was administered for identifying the impacts and their extents.

PUBLIC CONSULTATION AND PARTICIPATION

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Field visit has been carried out on 02 February 2026 in and around the Sub-project component site. As part of the impact assessment, participatory public consultation was conducted in that area by the field level staffs, and consultants from D&SC. Checklist of the consultation is attached in **Annexure-3**. The consultation meeting was attended by 20 persons (Male -06 and Female -14) and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. Refer to **Figure 8** and **Annexure-4** for selected photographs of the participatory public consultation held at site of the Kalukhali Government Primary School and list of attendees in that public consultation meeting, respectively. A questionnaire was kept ready and responses were elicited. During these consultations, the communities were explained about the project, its benefits, associated social and environmental aspects and possible mitigation measures.

The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and uninitiated access to those system and resources. As such, public consultation is a living process as the types of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution processes. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.



Figure 8: Public Consultation Meeting in the Proposed Sub-project Site

SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACTS

Tree Cutting: No trees are expected to be felled, and no water bodies are anticipated to be filled or encroached upon as a result of the construction of the flood shelter. The ecological impact of the subproject is low. There will be temporary negative impacts on physico-chemical environment. Nevertheless, these impacts are manageable if mitigation measures are taken according to ESMP.

Grass turfing: Grass turfs on embankment, slope, building compound & any critical place to enhance the ecological condition and protect the top soil. Tentative area of turf has been estimated as 240 square meters (half of total area), after discussion with architects and engineers. It is likely to be changed depending on the requirement during construction as per site design and as per direction of E.I.C.

Land Ownership: Availability of adequate public land area is as important as community consent to construct the flood shelter and access roads. The feasibility team did not find any conflicts over the school land. The land issue has been discussed in the meeting. Participants unanimously confirmed that the school has its own 42 decimals of land and there is no dispute about this land.

Land Acquisition: The proposed Sub-project, Kalukhali Government Primary School, does not have any involuntary resettlement impacts due to the construction of flood shelter and approach roads as the Sub-projects will be constructed in existing Government Primary Schools' premises. The Government Primary School has 42 decimals of land. No land acquisition will be required for the activities to be implemented under the project. Access road needs to construct or rehabilitate within its existing alignment.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Site specific Environmental and Social Management Plan (ESMP) outlines tailored mitigation, monitoring, and management measures to address potential environmental and social impacts arising from school cum flood shelter construction at each sub-project site. It focuses on controlling dust, noise, and waste; protecting nearby agricultural land and water bodies; ensuring occupational health and safety; managing community interactions; and conserving local biodiversity. The ESMP integrates the Environmental and Social Codes of Practice (ESCoPs) are attached in **Annexure-5** and compliance with World Bank ESF and national environmental regulations throughout the construction and operation phases. The Site Specific Environmental and Social Management Plan (ESMP) under this sub-project is providing in **Table 4**:

Table 4: Site Specific ESMP for Kalukhali Government Primary School

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
1.	Contractor's proposal for site specific temporary works	<ul style="list-style-type: none"> Accurate/ proper implementation of ESMP 	Preparation of Work schedule, construction camp, materials storage area, access road, waste dumping/ disposal area etc.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
2.	Site Clearing, Fencing, removal and Disposal Activity	<ul style="list-style-type: none"> Improper management and clearing of site may elevate risks of accidents, pollution and nuisance to public and school users. 	<ul style="list-style-type: none"> Clearing of site at the very outset with removal of all obstructions, including structures, materials, trees, etc. in order to keep the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collection at a central disposal area. Providing necessary protection fencing surrounding the total workplace area (including internal fencing made with bamboo for demarcating material storage areas mainly) and environmental and occupational health & safety sign boards, warning signs, etc. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
3.	Construction and operation of labor shed for the workers	<ul style="list-style-type: none"> Generation of sewage and solid waste may cause environmental pollution in the surrounding area 	<ul style="list-style-type: none"> Construction of sanitary latrine at the labor shed (consider 15 persons for one toilet, separate toilet for male and female); Construction of sanitary latrine/ Pit latrine with septic tank/ Ring slab system 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<ul style="list-style-type: none"> Water, soil, air & dust pollution/ environmental pollution 	<ul style="list-style-type: none"> Erection of “no litter” sign, provision of waste bins/cans (separate waste bins for organic and inorganic wastes); Provision of waste bins/ cans, where appropriate, Litter is to be collected daily. Bins and/or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas approved by Environmental Specialist of DSC. Ensure wastes (solid wastes and other forms of the waste) disposal at designated places. Camp and working areas are kept clean and tidy at all times. Camp is to be checked for spills of substances i.e. chemical, oil, paint, etc. 		
4.	Health, Safety and Wellbeing of Workers	<ul style="list-style-type: none"> Health and Safety of workers 	<ul style="list-style-type: none"> Conduct formal and unofficial discussion and training to increase awareness about hygiene practices among the workers; Ensure availability and access to first-aid equipment and medical supplies for the workers. Ensure safety gear worn: ear plug, goggles, mask, gloves, helmets, and uniforms etc. Staff must be trained up for operating equipment Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
5.	Construction Materials storage areas	<ul style="list-style-type: none"> Use of surrounding open area, playground, road side etc. for stockpiling of construction materials. Creating dust/ air 	<ul style="list-style-type: none"> Proper stockpiling/ storage of construction materials at the site as proposed by the contractor & approved by the Environmental Specialist of D&SC. Proper covering of dust producing materials with polythene sheet, 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<p>pollution,</p> <ul style="list-style-type: none"> • Spillage of liquid/hazardous substances i.e. oil, paint, chemicals, bitumen etc. • Access of students, children, animals, etc. • Not cleaning of construction materials storage areas after completion of construction. 	<ul style="list-style-type: none"> • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by students, children, animals, etc. • Spills/ hazardous substances should be disposed off at the site as proposed by the contractor & approved by the Environmental Specialist of DSC to avoid soil/ water contamination. • Materials storage area must be cleaned after completion of construction. 		
6.	General construction work	<ul style="list-style-type: none"> • Drainage congestion and flooding 	<ul style="list-style-type: none"> • Plinth level of the Shelter should be higher than the highest flood water level. • Ensure provision for adequate drainage of storm water and pumping of congested water if needed; • Ensure adequate monitoring of drainage effects, especially if construction works are carried out during the monsoon season. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Air pollution 	<ul style="list-style-type: none"> • Check regularly and ensure that all the subproject vehicles and equipment are in good operating condition; • Ensure contractor spray water on dry surfaces/ unpaved to reduce dust generation; • Maintain adequate moisture content of the sand; • Ensure contractor sprinkle water and cover stockpiles of loose materials (e.g., fine aggregates); • Inform and make regular consultation with the local people about the subproject activities and potential impact; • Cover loaded truck used for carrying sand with tarpaulin/other suitable material to prevent 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			<p>spreading by air blown.</p> <ul style="list-style-type: none"> • Provision of Masks for the workers, site staffs, students and teachers & Masks should be available in site during construction period. • Construction works should be scheduled before and after school hour, prayer/religious ritual time, or during holidays. • Avoid use of equipment e.g. stone crushers at site, if possible, which produce significant amount of particulate matter. 		
		<ul style="list-style-type: none"> • Traffic congestion, effect on traffic and pedestrian safety 	<ul style="list-style-type: none"> • Ensure schedule deliveries of materials/ heavy vehicle movement/ equipment during off-peak hours; • Place traffic sign/cautionary sign to avoid undue traffic congestion if required; • Maintain vehicles and enforce legal load limits, and impose speed limits within settlements • Use flagmen, signage, and barriers near schools and markets; • Spray water on access roads to reduce dust • Coordinate with local authorities and inform communities. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Noise pollution 	<ul style="list-style-type: none"> • Check and maintenance the equipment properly; • Avoid using of construction equipment such as concrete mixer machine, pile driving equipment (pile rig, winch machine), vibrator machine that produce excessive noise at night; • Avoid prolonged exposure to noise (produced by equipment) by the workers; • Regulate use of horns and avoid un-due use of hydraulic horns by subproject vehicles; • Provision of Ear plugs for the workers & site staffs 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			<p>should be available in site during construction period.</p> <ul style="list-style-type: none"> • Inform local people about the subproject activities and potential impact. • Construction works should be scheduled before and after school hour and prayer time. 		
		<ul style="list-style-type: none"> • Water & Soil pollution 	<ul style="list-style-type: none"> • Avoid complete closing of the channel that affects reproduction of aquatic species; • Any illegal discharge of wastewater, leaked oil shall be prohibited. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Spills and leaks of oil, toxic chemicals 	<ul style="list-style-type: none"> • Proper handling of lubricating oil and fuel so that it does not fall on the soil; • Good housekeeping • Collection and proper disposal of spills; • Refueling and fuel tank should not be placed on the ground directly. • Spillage wasters should be disposed in the waste disposal area located at the site proposed by the contractor & approved by the Environmental Specialist of D&SC 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
7.	Rigorous Monitoring and Report Preparation and Submission		<ul style="list-style-type: none"> • The Contractor shall appoint (i) ES Manager (ii) Community Organizer and (iii) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU. 	Contractor	PIU

COST OF ENVIRONMENTAL ENHANCEMENT WORKS IN BOQ

Considering the environmental impacts and their mitigation measures for this subproject, several items are included in the BOQ to address these issues. The detailed estimate, with tentative cost for implementing the ESMP, is given in **Table 5**.

Table 5: Environmental Social Management Budget (Bill of Quantity)

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
1.	<p>Site Cleaning, Removal and Disposal Activity: Cleaning and maintaining at all times, keeping the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collecting at a central disposal area, on a daily basis and disposing in a manner approved and satisfaction by the Engineer, especially waste water and sewage from office, residential and mobile camps shall be piped to soak pits or other disposal areas, all used fuels, oils, other plant or vehicle fluids, old tyres, tubes, other solid waste from household, office, workshop, construction materials, etc. to be kept at safe places and any spillages shall be cleaned up by either burning in place or collecting the contaminated soils and burning them at the central disposal area, including removing all waste, debris, rubbish, unused materials, concrete forms and other like material, tools, equipment, machinery and surplus/ unwanted materials buried or cleaned up in a manner acceptable to the Engineer after completion of work etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully</p>	Each	1	19,000	19,000.00
2.	<p>First Aid Box: Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made</p>	Each	2 nos.	6500 Tk. Per box	13,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
	after 100% completion of the contract successfully.				
3.	Providing Safety gear package like hand gloves, eye protection glasses, air plug, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	Set	20 sets	5,000	100,000.00
4.	<u>Temporary Toilet Facilities:</u> Provide at least two nos. portable toilets or constructing temporary semi-pucca toilets with twin pit latrines, one for female worker and other for male worker at worksite and workers accommodation site in a safe location, so that no adverse impact will generate on the surrounding environment, including providing requisite arrangements for water supplying etc. All complete as per drawing, specification, direction and satisfaction of the Engineer-in-Charge. All relevant accessories and arrangements under this item shall be property of the contractor and payment will be made only upon 100% completion of the contract successfully.	No.	2 nos.	20,000	40,000.00
5.	<u>Water Test (Drinking Water samples):</u> "Test (Drinking Water samples) Out of 5 nos. of tube well 1-no of tube well should be Install at the beginning of construction works so that labour and other site staff can get drinking water. In addition, Water samples to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis for different parameters such as pH, arsenic, iron, chloride, hardness and total dissolved solids or electrical conductivity etc. all complete as per direction of EIC (including the cost of actual fees for testing from reputed laboratory and report) as desired by EIC."	LS	3 times	13,800	41,400.00
6.	<u>Drinking Water Facilities:</u> Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge, all relevant goods and equipment under this item shall be property of the contractor and payment	Each	2 nos.	LS @ Tk. 35,000	7,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
	will be made after 100% completion of the contract successfully.				
7.	<p><u>Waste Disposal Facilities:</u> Providing, installing and maintaining at least 2 (two) nos. waste collection bins one for organic waste and other for inorganic waste of minimum capacity of 30 liters with hinge supported 450mm dia. cover plate for opening, made of durable plastic material at worksite, both bins will be kept in a safe and easily accessible place, so that will easy to use and no adverse impact will generate on the surrounding environment, including continuing the full functioning of waste disposal (buried/incineration) in accordance with the full satisfaction of the project manager throughout the contract period, all complete as per drawing, specification and direction of the Engineer-in-charge. Entire relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.</p>	LS	1 set	20,000 BDT	40,000.00
8.	<p><u>Motivation training:</u> Motivation training of the Upazila Engineer's and Contractor's representatives for safety practice & environmental others facilities.</p>	LS	2	15,000	30,000.00
9.	<p><u>Hazards and Hazardous Materials:</u> Handling Storing and store hazardous materials in accordance with the following requirements: Hazardous materials shall be stored above flood level and at least 20m from any watercourse; Hazardous liquid substances (e.g. petrol, diesel, oils) shall be stored on top of sealed plastic sheets in a secure, flat enclosed area. Bund walls shall be at least 25 cm high.</p>	LS	1	12,000 BDT	12,000.00
10.	<p><u>Dust suppression measures</u> like water sprinkling on aggregates/ unpaved roads in and around the work site (Frequency of measures has been proposed to be increased as sensitive receptors are located around).</p>	LS	1	50,000 BDT	50,000.00
11.	<p><u>Turfing</u> on embankment top and slope, building compound with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of the E-I-C. (payment to be made only when grass is fully grown).</p>	sqm	240	31.65 Tk. Per sqm	7,596.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
12.	<u>Dismantle and removal:</u> Dismantle and removal of the existing waste material taking out the materials from the site. The salvaged materials from the old structure, finally shall be handed over to the school management committee. The contractor should visit the site to visualize the quantity of materials will be salvaged, all complete as per direction of the E.I.C	Each	1	10,000	10,000.00
13.	Construction of Temporary Facilities such as site offices, labor sheds, storage yards, material stockpiles etc.	The cost for construction, maintenance, and removal of these facilities is included in the civil works BOQ under the contractor's responsibility.			
14.	Disturbance to nearby paddy field or water bodies	No separate BOQ item required — measures implemented under Environmental and Social Codes of Practice (ESCoPs).			
Total budget for this sub-project					3,69,996.00

As per project ESMF, PIU, project engineer's suggestion and experience from other LGED projects such as MDSP, EMCRP etc. adequate budget has been proposed for the environmental management for the mitigation and enhancement measures. It may vary depending on the real time situation and requirement of the construction. The subproject activities have temporary and localized negative impact on noise level during construction phase due to movement of the subproject vehicles and equipment. Hence, budget includes analytical monitoring for noise level. For solid waste management adequate waste bins will be installed. The budget for labor shed, and site office construction is included in the civil works items. Therefore, it is not included in the environmental budget. It should be noted that the contractor will be paid as per actual work done.

Name of Subproject: Development of Multipurpose Flood Shelter at **71 No. Yakub Hossain Mollah Government Primary School**

Village: Satota, Union: Kalikapur

Upazila: Kalukhali; District: Rajbari

Package No/Database Unique ID: RAJ-025; School Code: 99313059203

SUB-PROJECT DESCRIPTION

The 71 No. Yakub Hossain Mollah Government Primary School is a subproject of “Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project”. It is located in Satota village under Kalikapur Union of Kalukhali Upazila of Rajbari District. Major components of the subproject are to construct resilient flood shelters and community structures and strengthen the capacity for disaster preparedness and response. Significant features of this subproject are summarized in **Table 1:**

Table 10: The Significant Features of the Subproject Site

Name of the Subproject	:	71 No. Yakub Hossain Mollah Government Primary School
Educational Institute ID	:	99313059203
Land Owner	:	71 No. Yakub Hossain Mollah Government Primary School
Available Land	:	30 Decimals
Average Capacity of Flood Shelter	:	650
Catchment Population	:	15,000
Catchment Village	:	Goutampur, Nolkadra, Satota, Chandpur, MathKalukhali, Jhaugram
Major profession of local population	:	Agriculture-(80%), Day Laborer (10%) and Others-(10%)
Brief Description of Subproject Site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	:	Existing GPS building, Playground, local settlements, Bazar, Agricultural land, Trees, Roads etc.
Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests	:	None
Ethnic Minority	:	None
Connecting Road	:	Satota-Kalikapur UP BC Road
Land acquisition	:	None

(Source: Field survey and Public Consultation Meeting, February 2026)

LOCATION OF THE SUB-PROJECT

The subproject is located in the Northern part of Kalukhali Upazila in Rajbari District, which is within the Dhaka Division. The location details of the subproject have been summarized in **Table 2**.

Table 2: Location Details of the Subproject Site

District	:	Rajbari
Upazila	:	Kalukhali
Union	:	Kalikapur
Mouza	:	Satota
Village	:	Satota
GPS Location	:	23.8008191 N; 89.458963 E
Distance of the site from Upazila HQ	:	8km-East
Nearby Major Road:	:	Rajbari-Khustia Road (9km-East)
Nearby River/ Canal:	:	Chandana River (Padma Tributary) - (1km-North)

(Source: Field survey and Public Consultation Meeting, February 2026)

The catchment area of the subproject predominantly includes the villages of Goutampur, Nolkadra, Satota, Chandpur, Math Kalukhali, Jhaugram which are regularly impacted by recurrent flooding. The village experiences seasonal inundation, particularly during the monsoon period. Satota Village is situated in a low-lying flood-prone zone, where heavy monsoon rainfall combined with upstream river discharge frequently leads to overbank flooding and water stagnation. The village's exposure to flooding is further intensified by its proximity to local khals, canals, and beels, which play a critical role in regional drainage and water retention but often overflow during peak rainfall events. During the monsoon season, intense rainfall and increased river water levels result in widespread waterlogging, localized erosion, and temporary submergence of agricultural lands, homesteads, and village infrastructure. These conditions significantly disrupt agricultural activities and adversely affect the livelihoods of local residents. The flat topography and slow natural drainage capacity of the area prolong standing water, causing extended periods of inundation in Satota and surrounding settlements. Although seasonal flooding contributes to soil fertility through sediment deposition, it simultaneously damages standing crops, irrigation facilities, household assets, and community infrastructure such as rural roads and drainage channels. The flood vulnerability of Satota Village is further compounded by weak rural infrastructure, including earthen roads, insufficient drainage networks, and poorly maintained embankments. The absence of permanent flood-protection structures and limited access to effective early warning and

preparedness mechanisms reduce the community's capacity to cope with recurring flood events. Residents primarily depend on short-term coping measures, which are inadequate for ensuring long-term resilience. To address these challenges, strengthening local water management systems, improving drainage and road infrastructure, constructing durable embankments, and promoting community-based disaster risk reduction and preparedness initiatives are essential. These interventions will help reduce flood vulnerability in Satota Village and enhance the overall resilience of Kalikapur Union and Kalukhali Upazila against future flooding events.

The flood shelter will be constructed at 71 No. Yakub Hossain Mollah Government Primary School (GPS), which is located at the Satota village under Kalikapur Union of Kalukhali Upazila in Rajbari District. There are 4 teachers (Male: 01; Female: 03), and 254 students (Boys: 126; Girls: 128) in the school, operated by the guidance of School Management Committee (SMC) and government officials of Kalukhali Upazila Education Office. The students, teachers and residents of the catchment area come to the proposed site by using the connecting/access road named Satota-Kalikapur UP Road. The road is a BC road and just passing beside the 71 No. Yakub Hossain Mollah Government Primary School at south side.

The population of the catchment area is about 15,000. People in the area are mostly dependent on shallow tubewell water for their daily uses and the average depth of water is 400ft below the ground. Elevated iron (Fe) concentrations have been detected in shallow tubewells, with affected groundwater occurring at depths ranging from approximately 100 to 180 feet. The catchment area of the subproject supports a variety of indigenous and brackish water fish species, including Tank Goby, Ribbonfish, Shrimp and Ray Fish. These species are important components of the local aquatic ecosystem and are considered to have ecological and, in some cases, conservation significance. In addition to aquatic biodiversity, several common local bird species such as Egret, Magpie-robin, Spotted Dove, Green pigeon and Cormorant are commonly observed in the area. The Kalikapur Union map indicating sub-project location has been shown respectively in **Figure 1**. The topographical Map with indicative and tentative location of labor camp, construction materials storage area, and waste disposal area have been shown in **Figure 2** which shall be placed as per direction and satisfaction of LGED and E.I.C.

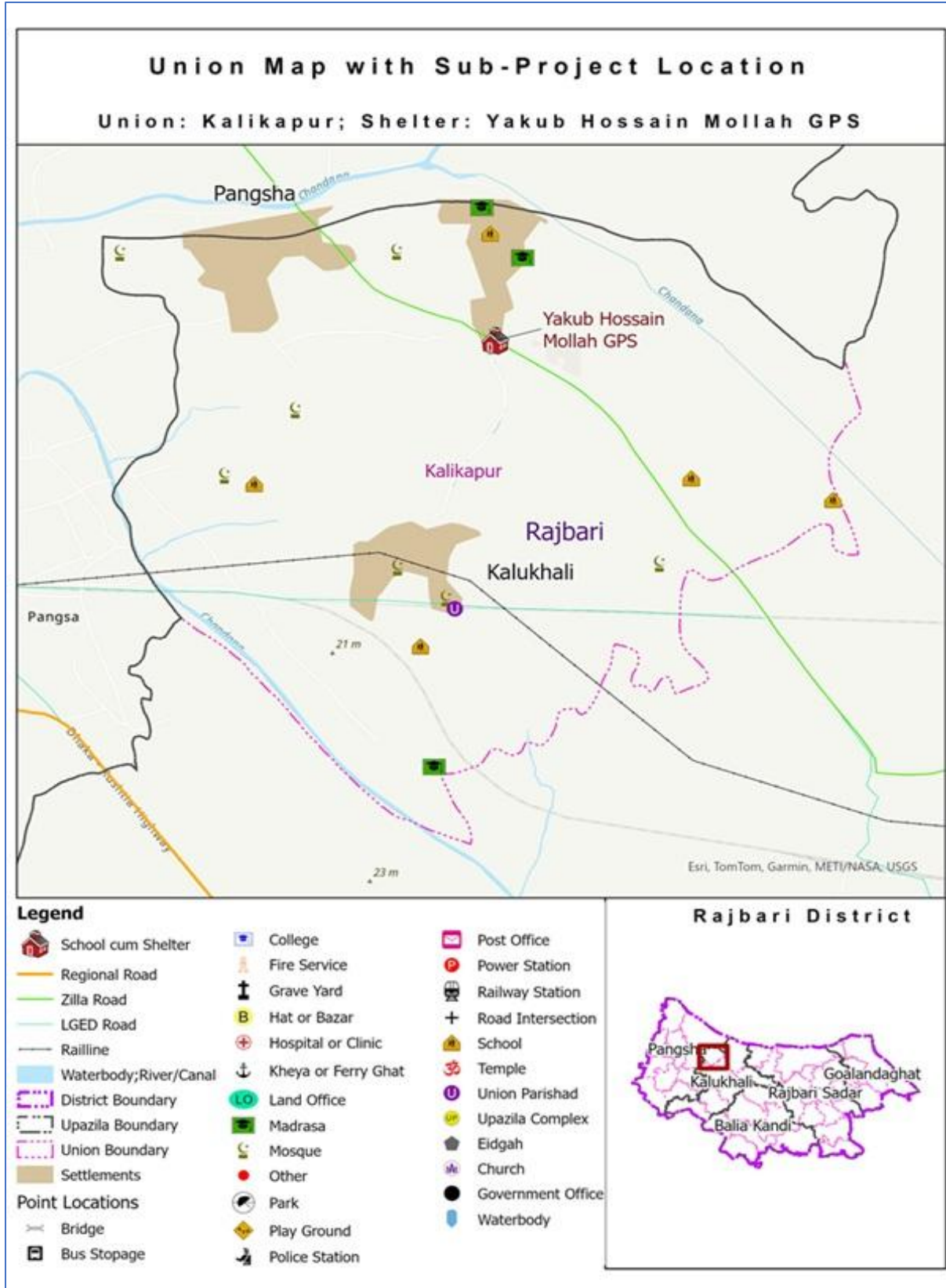


Figure 1: Kalikapur Union Map Indicating Proposed Subproject

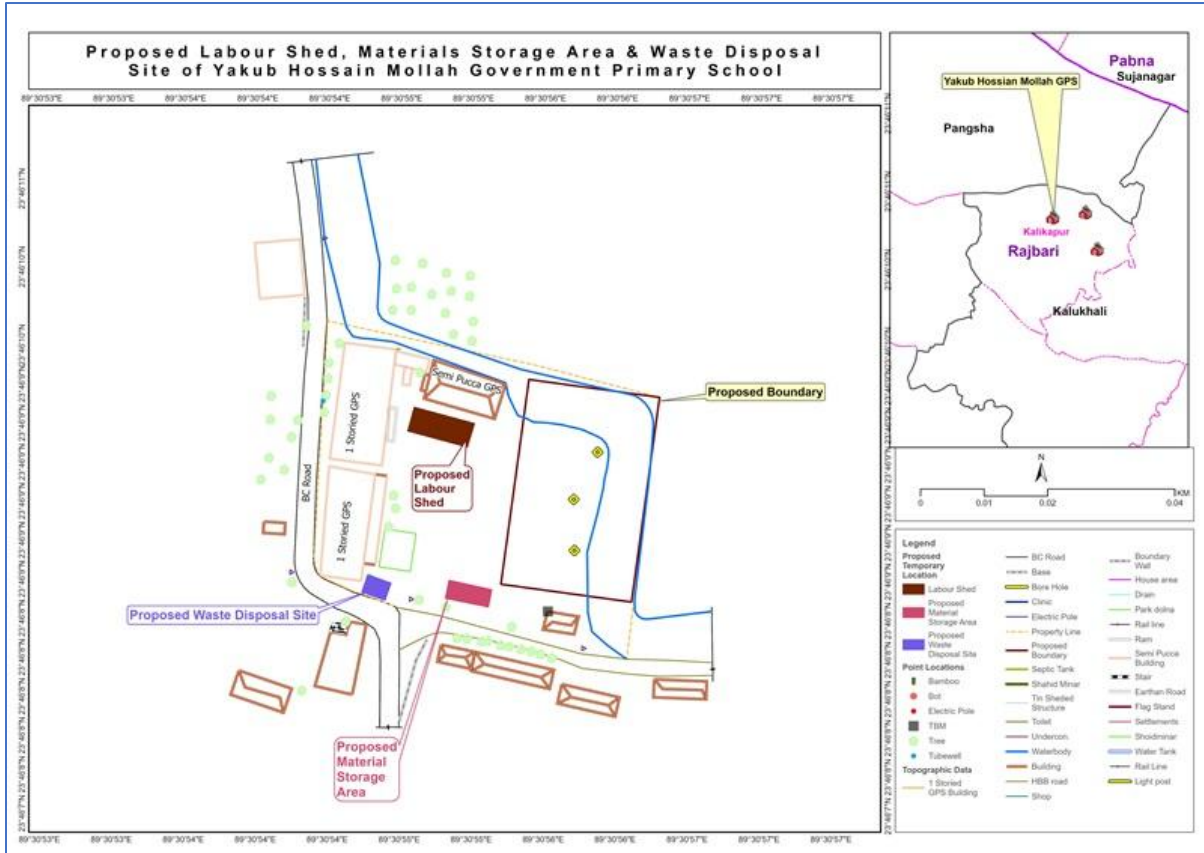


Figure 2: Proposed Labor Camp, Waste Disposal and Materials Storage Area

CURRENT SITUATION, PROPOSED INTERVENTIONS AND NEED FOR THE SUB-PROJECT

The present conditions of the sub-project site, proposed labor camp, construction materials storage area and waste disposal area are visualized in **Figures 3, 4, 5 & 6**.



Figure 3: Current Situation of the Existing Subproject Site



Figure 4: Proposed Labor Camp Area



Figure 5: Proposed Material Storage Area



Figure 6: Proposed Waste Disposal Area

The 71 No. Yakub Hossain Mollah Government Primary School occupies approximately 30 decimals of land and currently comprises a two-storied pucca building that accommodates all existing classrooms and administrative functions. The proposed shelter will be constructed on the eastern side of the school premises. The scope of work includes the complete demolition of selected existing structures within the designated project area. This will involve the removal of one tin-shed structure and two toilet facilities. All demolition activities will be carried out in strict compliance with established safety guidelines and relevant regulatory standards in order to minimize environmental impact and disruption to the surrounding community. During the construction period, temporary facilities such as a labor shed, designated material storage areas, and a waste-disposal zone will be established on site. On-site operations will also be supported by worker accommodation, toilet facilities, electricity supply, and access to safe drinking water. Construction activities have the potential to generate noise, which may disturb students during class hours and affect their concentration and learning environment. Therefore, immediate and appropriate measures are recommended to minimize noise levels and maintain discipline within the school premises. To ensure the safety of students, staff, and visitors, the active construction zone will be securely fenced to prevent direct or indirect exposure to construction-related hazards. The school premises are surrounded by local residential settlements and agricultural land, and the compound contains a significant number of trees. However, two trees will need to be removed to facilitate the planned development activities. A ditch is located approximately 10 meters east of the project site. The site has a documented history of severe flooding, including major flood events in 1988 and 1998, during which floodwater levels reached approximately 5 feet. These prolonged flooding events caused substantial disruption to school operations and posed significant challenges for students and staff. **Figure 7** presents photographs of the existing Government Primary School facilities, while **Figure 8** illustrates the demolished tin-shed structure.



Figure 7: Existing School Building



Figure 8: Tin-Shed School required Demolition

The important establishments around the subproject site have been summarized in **Table-3**

Table 3: Important Establishments Adjacent to the Subproject Site

Direction	Important Establishments with Approximate Distance
North side	Satota Moddhopara Mosque (500m), Satota Bazar (50m), Satota Bazar Graveyard (520m), Chandana River (1km), Goutampur Hafezia Madrasa & Orphanage (600m), Abu Zafor Mohammad Saken Uddin High School (850m)
South side	Agricultural land adjacent to the school
East side	Agricultural Land & Rural Settlement area
West side	Satota Dakkhin Para Mosque (100m), Satota Dakkhin Para Graveyard (750m), Satota Dakkhin Para Eidgah (750m), Nolkanda Jame Mosque (1.10km), Samlabari dakkhinpara Jame Mosque (1.30km)

(Source: Field survey and Public Consultation Meeting, February 2026)

The proposed sub-project (construction of new School cum Flood shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The disaster shelter will be constructed within an existing school boundary, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. The project site is located in a well-connected area, with various community, religious, educational and commercial establishments in proximity. The northern side of the project site is characterized by a mix of religious, commercial and educational features. Notable landmarks include Satota Moddhopara Mosque, located approximately 500 meters away, and Satota Bazar, situated about 50 meters from the site. The Satota Bazar Graveyard lies approximately 520 meters to the north. Other nearby institutions include the Goutampur Hafezia Madrasa and Orphanage, located around 600 meters from the site, and Abu Zafor Mohammad Saken Uddin High School, approximately 850 meters away. The Chandana River is located at a distance of

about 1 kilometer from the project area. To the south of the school premises, the surrounding area consists primarily of agricultural land directly adjacent to the site. This land use reflects the predominantly rural character of the area and is actively used for farming purposes. The eastern side of the project site is bordered by agricultural land interspersed with rural residential settlements. This area supports local livelihoods and represents a typical rural settlement pattern in the region. On the western side, several religious and communal facilities are located within close proximity to the project area. These include the Satota Dakkhin Para Mosque, approximately 100 meters away, as well as the Satota Dakkhin Para Graveyard and Eidgah, both situated at a distance of about 750 meters. Additional nearby religious institutions include Nolkanda Jame Mosque, located approximately 1.10 kilometers from the site, and Samlabari Dakkhinpara Jame Mosque, located around 1.30 kilometers away.

No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day in and around the site, proper fencing around the working area, safe storage of materials, etc.

Construction related activities and setting up of labor camps along with associated facilities and their management issues will be accounted for impacts more likely to be generated during the pre, post and construction period. Noise pollution from piling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place. Soil can further be eroded and polluted from chemical spills or improper disposal of waste materials. Noise and vibration effects generated from piling and drilling may also trigger landslides and harmful disturbances to local fauna. Impact on surface and ground water bodies might get acute due mainly to the high abstraction rate and disposal/leakage of pollutants to the surface/ground water bodies. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss. All these impacts can only be prevented or minimized by adopting measures delineated into the ESMP and good practice engineering and site management.

ENVIRONMENTAL AND SOCIAL ASSESSMENT

This section identifies the potential impacts that the various elements of the proposed sub-project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental and Social Assessment (ESA) based on this assessment study for the Sub-project as 71 No. Yakub Hossain Mollah Government Primary School of Kalukhali Upazila under Rajbari District has been conducted to identify and determine which potential project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 02 February 2026 in the Sub-project area. Environmental and Social Assessment form, as adopted in **Annexure-2** of the Environmental and Social Management Framework of RIVER, was administered for identifying the impacts and their extents.

PUBLIC CONSULTATION AND PARTICIPATION

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Field visit has been carried out on 02 February 2026 in and around the Sub-project component site. As part of the impact assessment, participatory public consultation was conducted in that area by the field level staffs, and consultants from D&SC. Checklist of the consultation is attached in **Annexure-3**. The consultation meeting was attended by 18 persons (Male-12 and Female-06) and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. Refer to **Figure 9** and **Annexure-4** for selected photographs of the participatory public consultation held at site of the 71 No. Yakub Hossain Mollah Government Primary School and list of attendances in that public consultation meeting, respectively. A questionnaire was kept ready and responses were elicited. During these consultations, the communities were explained about the project, its benefits, associated social and environmental aspects and possible mitigation measures.

The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and uninitiated access to those system and resources. As such, public consultation is a living process as the types of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution processes are more likely to differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.



Figure 9: Public Consultation Meeting in the Proposed Sub-project Site

SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACTS

Tree Cutting: Approximately two (02) trees are likely to be cut down during the construction period. A ditch is located approximately 10 meters to the east of the site. The waterbody measures approximately 12 feet in width and 90 feet in length, with an estimated depth ranging from 7 to 8 feet. The ecological impact of the subproject is low. There will be temporary negative impacts on physico-chemical environment. Nevertheless, these impacts are manageable if mitigation measures are taken according to ESMP.

Grass turfing: Grass turfs on embankment, slope, building compound & any critical place to enhance the ecological condition and protect the top soil. Tentative area of turf has been estimated as 240 square meters (half of total area), after discussion with architects and engineers. It is likely to be changed depending on the requirement during construction as per site design and as per direction of E.I.C.

Land Ownership: Availability of adequate public land area is as important as community consent to construct the flood shelter and access roads. The feasibility team did not find any conflicts over the school land. The land issue has been discussed in the meeting. Participants unanimously confirmed that the school has its own 30 decimals of land and there is no dispute about this land.

Land Acquisition: The proposed Sub-project, 71 No. Yakub Hossain Mollah Government Primary School, does not have any involuntary resettlement impacts due to the construction of flood shelter and approach roads as the Sub-projects will be constructed in existing Government Primary Schools' premises. The Government Primary School has 30 decimals of land. No land acquisition will be required for the activities to be implemented under the project. Access road needs to construct or rehabilitate within its existing alignment.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Site specific Environmental and Social Management Plan (ESMP) outlines tailored mitigation, monitoring, and management measures to address potential environmental and social impacts arising from school cum flood shelter construction at each sub-project site. It focuses on controlling dust, noise, and waste; protecting nearby agricultural land and water bodies; ensuring occupational health and safety; managing community interactions; and conserving local biodiversity. The ESMP integrates the Environmental and Social Codes of Practice (ESCoPs) are attached in **Annexure-5** and compliance with World Bank ESF and national environmental regulations throughout the construction and operation phases. The Site Specific Environmental and Social Management Plan (ESMP) under this sub-project is providing in **Table 4**:

Table 4: Site Specific ESMP for 71 No. Yakub Hossain Mollah Government Primary School

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
1.	Contractor's proposal for site specific temporary works	<ul style="list-style-type: none"> Accurate/ proper implementation of ESMP 	Preparation of Work schedule, construction camp, materials storage area, access road, waste dumping/ disposal area etc.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
2.	Site Clearing, Fencing, removal and Disposal Activity	<ul style="list-style-type: none"> Improper management and clearing of site may elevate risks of accidents, pollution and nuisance to public and school users. 	<ul style="list-style-type: none"> Clearing of site at the very outset with removal of all obstructions, including structures, materials, trees, etc. in order to keep the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collection at a central disposal area. Providing necessary protection fencing surrounding the total workplace area (including internal fencing made with bamboo for demarcating material storage areas mainly) and environmental and occupational health & safety sign boards, warning signs, etc. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
3.	Construction and operation of labor shed for the workers	<ul style="list-style-type: none"> Generation of sewage and solid waste may cause environmental pollution in the 	<ul style="list-style-type: none"> Construction of sanitary latrine at the labor shed (consider 15 persons for one toilet, separate toilet for male and female); Construction of sanitary latrine/ Pit latrine with 	Contractor	Environmental and Social Development Specialists of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<p>surrounding area</p> <ul style="list-style-type: none"> • Water, soil, air & dust pollution/ environmental pollution 	<p>septic tank/ Ring slab system</p> <ul style="list-style-type: none"> • Erection of “no litter” sign, provision of waste bins/cans (separate waste bins for organic and inorganic wastes); • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas approved by Environmental Specialist of DSC. • Ensure wastes (solid wastes and other forms of the waste) disposal at designated places. • Camp and working areas are kept clean and tidy at all times. • Camp is to be checked for spills of substances i.e. chemical, oil, paint, etc. 		and D&SC
4.	Health, Safety and Wellbeing of Workers	<ul style="list-style-type: none"> • Health and Safety of workers 	<ul style="list-style-type: none"> • Conduct formal and unofficial discussion and training to increase awareness about hygiene practices among the workers; • Ensure availability and access to first-aid equipment and medical supplies for the workers. • Ensure safety gear worn: ear plug, goggles, mask, gloves, helmets, and uniforms etc. • Staff must be trained up for operating equipment • Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
5.	Construction Materials storage areas	<ul style="list-style-type: none"> • Use of surrounding open area, playground, road side etc. for stockpiling of construction 	<ul style="list-style-type: none"> • Proper stockpiling/ storage of construction materials at the site as proposed by the contractor & approved by the Environmental Specialist of D&SC. • Proper covering of dust producing materials with 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		<p>materials.</p> <ul style="list-style-type: none"> • Creating dust/ air pollution, • Spillage of liquid/hazardous substances i.e. oil, paint, chemicals, bitumen etc. • Access of students, children, animals, etc. • Not cleaning of construction materials storage areas after completion of construction. 	<p>polythene sheet,</p> <ul style="list-style-type: none"> • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by students, children, animals, etc. • Spills/ hazardous substances should be disposed off at the site as proposed by the contractor & approved by the Environmental Specialist of DSC to avoid soil/ water contamination. • Materials storage area must be cleaned after completion of construction. 		
6.	Demolition of Old Structures	<ul style="list-style-type: none"> • Demolition works may create Air and water pollution, generate hazardous materials, which are too disturbing and may cause health and safety issues to the school users, community people and workers. • During movement of heavy Construction machineries, equipment can 	<ul style="list-style-type: none"> • Advise demolition Contractor about Controlled demolition with water suppression, debris containment; salvage reusable materials; safe disposal plan, and following the SOP for Demolition Works (Annexure-06). • Prior to start demolition, the utility services (electrical cables, telephone line, water supply pipeline, gas supply pipeline and internet line) should be shifted with the consultation of the relevant organizations; • Inform the local community before starting removal or demolishing work; • Carefully remove the utilities that are connected to any structures; • Proper Health and safety measures for the workers 	Demolition Contractor	SMC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
		damage the utility services if not previously removed.	should be taken throughout the demolition period to avoid any incidents.		
7.	General construction work	<ul style="list-style-type: none"> • Drainage congestion and flooding 	<ul style="list-style-type: none"> • Plinth level of the Shelter should be higher than the highest flood water level. • Ensure provision for adequate drainage of storm water and pumping of congested water if needed; • Ensure adequate monitoring of drainage effects, especially if construction works are carried out during the monsoon season. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Air pollution 	<ul style="list-style-type: none"> • Check regularly and ensure that all the subproject vehicles and equipment are in good operating condition; • Ensure contractor spray water on dry surfaces/ unpaved to reduce dust generation; • Maintain adequate moisture content of the sand; • Ensure contractor sprinkle water and cover stockpiles of loose materials (e.g., fine aggregates); • Inform and make regular consultation with the local people about the subproject activities and potential impact; • Cover loaded truck used for carrying sand with tarpaulin/other suitable material to prevent spreading by air blown. • Provision of Masks for the workers, site staffs, students and teachers & Masks should be available in site during construction period. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			<ul style="list-style-type: none"> • Construction works should be scheduled before and after school hour, prayer/religious ritual time, or during holidays. • Avoid use of equipment e.g. stone crushers at site, if possible, which produce significant amount of particulate matter. 		
		<ul style="list-style-type: none"> • Traffic congestion, effect on traffic and pedestrian safety 	<ul style="list-style-type: none"> • Ensure schedule deliveries of materials/ heavy vehicle movement/ equipment during off-peak hours; • Place traffic sign/cautionary sign to avoid undue traffic congestion if required; • Maintain vehicles and enforce legal load limits, and impose speed limits within settlements • Use flagmen, signage, and barriers near schools and markets; • Spray water on access roads to reduce dust • Coordinate with local authorities and inform communities. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> • Noise pollution 	<ul style="list-style-type: none"> • Check and maintenance the equipment properly; • Avoid using of construction equipment such as concrete mixer machine, pile driving equipment (pile rig, winch machine), vibrator machine that produce excessive noise at night; • Avoid prolonged exposure to noise (produced by equipment) by the workers; • Regulate use of horns and avoid un-due use of hydraulic horns by subproject vehicles; • Provision of Ear plugs for the workers & site staffs should be available in site during construction period. • Inform local people about the subproject activities and potential impact. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Ref.	Activity / Issues	Potentials Impacts	Proposed Mitigation and Enhancement Measures	Responsible for Implementation	Responsible for Monitoring
			<ul style="list-style-type: none"> Construction works should be scheduled before and after school hour and prayer time. 		
		<ul style="list-style-type: none"> Felling of trees, clearing of vegetation and ecological disturbances 	Replace each felled tree with at least 3 nos. saplings, due to 2 trees felling, 6 trees to be replanted around the periphery of the proposed site at an interval of not less than 3m, to enhance the ecological condition.	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Water & Soil pollution 	<ul style="list-style-type: none"> Avoid complete closing of the channel that affects reproduction of aquatic species; Any illegal discharge of wastewater, leaked oil shall be prohibited. 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
		<ul style="list-style-type: none"> Spills and leaks of oil, toxic chemicals 	<ul style="list-style-type: none"> Proper handling of lubricating oil and fuel so that it does not fall on the soil; Good housekeeping Collection and proper disposal of spills; Refueling and fuel tank should not be placed on the ground directly. Spillage wasters should be disposed in the waste disposal area located at the site proposed by the contractor & approved by the Environmental Specialist of D&SC 	Contractor	Environmental and Social Development Specialists of PIU and D&SC
8.	Rigorous Monitoring and Report Preparation and Submission		<ul style="list-style-type: none"> The Contractor shall appoint (i) ES Manager (ii) Community Organizer and (iii) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU. 	Contractor	PIU

COST OF ENVIRONMENTAL ENHANCEMENT WORKS IN BOQ

Considering the environmental impacts and their mitigation measures for this subproject, several items are included in the BOQ to address these issues. The detailed estimate, with tentative cost for implementing the ESMP, is given in **Table 5**.

Table 5: Environmental Social Management Budget (Bill of Quantity)

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
1.	<p>Site Cleaning, Removal and Disposal Activity: Cleaning and maintaining at all times, keeping the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collecting at a central disposal area, on a daily basis and disposing in a manner approved and satisfaction by the Engineer, especially waste water and sewage from office, residential and mobile camps shall be piped to soak pits or other disposal areas, all used fuels, oils, other plant or vehicle fluids, old tyres, tubes, other solid waste from household, office, workshop, construction materials, etc. to be kept at safe places and any spillages shall be cleaned up by either burning in place or collecting the contaminated soils and burning them at the central disposal area, including removing all waste, debris, rubbish, unused materials, concrete forms and other like material, tools, equipment, machinery and surplus/ unwanted materials buried or cleaned up in a manner acceptable to the Engineer after completion of work etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully</p>	Each	1	19,000	19,000.00
2.	<p>First Aid Box: Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.</p>	Each	2 nos.	6500 Tk. Per box	13,000.00
3.	<p>Providing Safety gear package like hand gloves, eye protection glasses, air plug, helmets, rubber</p>	Set	20 sets	5,000	100,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
	shoes, light reflecting dress etc. for 20 sets.				
4.	<p><u>Temporary Toilet Facilities:</u> Provide at least two nos. portable toilets or constructing temporary semi-pucca toilets with twin pit latrines, one for female worker and other for male worker at worksite and workers accommodation site in a safe location, so that no adverse impact will generate on the surrounding environment, including providing requisite arrangements for water supplying etc. All complete as per drawing, specification, direction and satisfaction of the Engineer-in-Charge. All relevant accessories and arrangements under this item shall be property of the contractor and payment will be made only upon 100% completion of the contract successfully.</p>	No.	2 nos.	20,000	40,000.00
5.	<p><u>Water Test (Drinking Water samples):</u> "Test (Drinking Water samples) Out of 5 nos. of tube well 1-no of tube well should be Install at the beginning of construction works so that labour and other site staff can get drinking water. In addition, Water samples to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis for different parameters such as pH, arsenic, iron, chloride, hardness and total dissolved solids or electrical conductivity etc. all complete as per direction of EIC (including the cost of actual fees for testing from reputed laboratory and report) as desired by EIC."</p>	LS	3 times	13,800	41,400.00
6.	<p><u>Drinking Water Facilities:</u> Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge, all relevant goods and equipment under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.</p>	Each	2 nos.	LS @ Tk. 35,000	7,000.00
7.	<p><u>Waste Disposal Facilities:</u> Providing, installing and maintaining at least 2 (two) nos. waste collection bins one for organic</p>	LS	1 set	20,000 BDT	40,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
	waste and other for inorganic waste of minimum capacity of 30 liters with hinge supported 450mm dia. cover plate for opening, made of durable plastic material at worksite, both bins will be kept in a safe and easily accessible place, so that will easy to use and no adverse impact will generate on the surrounding environment, including continuing the full functioning of waste disposal (buried/incineration) in accordance with the full satisfaction of the project manager throughout the contract period, all complete as per drawing, specification and direction of the Engineer-in-charge. Entire relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.				
8.	<u>Motivation training:</u> Motivation training of the Upazila Engineer's and Contractor's representatives for safety practice & environmental others facilities.	LS	2	15,000	30,000.00
9.	<u>Hazards and Hazardous Materials:</u> Handling Storing and store hazardous materials in accordance with the following requirements: Hazardous materials shall be stored above flood level and at least 20m from any watercourse; Hazardous liquid substances (e.g. petrol, diesel, oils) shall be stored on top of sealed plastic sheets in a secure, flat enclosed area. Bund walls shall be at least 25 cm high.	LS	1	12,000 BDT	12,000.00
10.	<u>Dust suppression measures</u> like water sprinkling on aggregates/ unpaved roads in and around the work site (Frequency of measures has been proposed to be increased as sensitive receptors are located around).	LS	1	50,000 BDT	50,000.00
11.	<u>Supplying and planting</u> specified healthy coconut (local) saplings of minimum 0.60m height, free from any diseases', collected from different nurseries (collection of saplings from government horticulture is preferable) & carrying the same to the worksite; preparation of pit prior to minimum 10 days of plantation by earthwork in excavation of 450mm x 450mm x 450mm size for plantation, applying 0.015 cum cow dung and 100gm normal salt mixed with exceled earth properly; planting the plants, weltering for will be as per tree plantation guideline.	Each	06	500.00	3,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Item No.	Description of the Works	Unit	Quantity	Unit Rate (BDT)	Amount (BDT)
12.	Turfing on embankment top and slope, building compound with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of the E-I-C. (payment to be made only when grass is fully grown).	sqm	240	31.65 Tk. Per sqm	7,596.00
13.	<u>Dismantle and removal:</u> Dismantle and removal of the existing waste material taking out the materials from the site. The salvaged materials from the old structure, finally shall be handed over to the school management committee. The contractor should visit the site to visualize the quantity of materials will be salvaged, all complete as per direction of the E.I.C	Each	1	10,000	10,000.00
14.	Construction of Temporary Facilities such as site offices, labor sheds, storage yards, material stockpiles etc.	The cost for construction, maintenance, and removal of these facilities is included in the civil works BOQ under the contractor's responsibility.			
15.	Disturbance to nearby paddy field or water bodies	No separate BOQ item required — measures implemented under Environmental and Social Codes of Practice (ESCoPs).			
Total budget for this sub-project					3,72,996.00

As per project ESMF, PIU, project engineer's suggestion and experience from other LGED projects such as MDSP, EMCRP etc. adequate budget has been proposed for the environmental management for the mitigation and enhancement measures. It may vary depending on the real time situation and requirement of the construction. The subproject activities have temporary and localized negative impact on noise level during construction phase due to movement of the subproject vehicles and equipment. Hence, budget includes analytical monitoring for noise level. For solid waste management adequate waste bins will be installed. The budget for labor shed, and site office construction is included in the civil works items. Therefore, it is not included in the environmental budget. It should be noted that the contractor will be paid as per actual work done.

**ANNEXURE 2:
ASSESSMENT OF ENVIRONMENTAL AND SOCIAL SAFEGUARDS**

ANNEXURE 2: ASSESSMENT CHECKLIST OF ENVIRONMENTAL AND SOCIAL SAFEGUARDS IN RAJBARI DISTRICT

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department
Government of the People's Republic of Bangladesh

Checklist for Environmental and Social Assessment

1. Subproject Description

Sl. #	Subproject Description	Response
1.	Package Name and Number:	
2.	Name of the Subproject/component:	
3.	Educational Institute ID/ Road ID:	
4.	Estimated total Cost of the sub project/component (in Taka):	
5.	Estimated Operation and Maintenance Period (Subproject life time):	
6.	Division: Dhaka District: Rajbari Upazila: Union:	
7.	Name of the community/ Local area:	
8.	Size of the local population:	
9.	Major profession of local population:	
10.	Distance of the site from Upazila HQ:	
11.	Nearby Major Road:	
12.	Nearby River/ Canal:	
13.	Description of proposed Subproject activities (incl. type of activities, footprint area, natural resources required, etc.):	
14.	Brief description of Subproject site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	
15.	Types of waste to be generated during construction and operation phase:	
16.	Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests:	No

2. Environmental and Social Assessment Form

2.1 Section A: Subproject Overview

1.	Description of Subproject/component interventions:
2.	Subproject Location:
3.	Expected construction period:
4.	Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive social and environmental areas such as archeological/religious/ historical or cultural assets or sites, human settlements, forests, water bodies, etc.): Archeological place: Not present Religious place: Not present Forest: Not present Wetland: Not present

2.2 Section B: Environmental and Social Assessment Checklist

Sl. #	Assessment Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
1.0	Subproject Sitting/Location Is the Subproject area.....							
1.1	Adjacent to/or within any of the social/environmentally sensitive areas?		√					
	• Cultural heritage site		√					
	• Ethnic minority areas		√					
	• Protected Area		√					
	• Wetland		√					
	• Mangrove		√					
	• Estuarine		√					
	• Buffer zone of protected areas		√					
	• Special area for protecting biodiversity		√					
• Bay		√						
1.2	Are there any ponds, khals, beels, haors, baors, rivers, etc. in/around the site?	√		√				No.: Distance: Direction:
	Please specify numbers and name for each.	√		√				Ponds:
		√		√				khals:
		√		√				Beels:
		√		√				Haors:
		√		√				Rivers: Others:
1.3	Any sensitive sites for river erosion? Where & Severity?		√					
2.0	Baseline at Pre-Construction Stage							
2.1	Ancillary Facilities (e.g. status of access road or any other facility required for Subproject to be viable)?	√						
2.2	Air quality status (apparently/ visibly)?							apparently/ visibly good

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Sl. #	Assessment Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
2.3	Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction?	√						Accommodation, Toilet, Electricity, Supply water, drinking water.
2.4	Possible location of labor camps?	√						On site
2.5	Requirement and type of raw materials (e.g. sand, stone, wood, etc.)?	√						
2.6	Identification of access road for transportation?	√						
2.7	Location identification for raw material storage?	√						On site
2.8	Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.)?	√						Solids waste, demolition materials, concrete wastes etc.
2.9	Mention source of drinking water in dry and wet seasons	√						Shallow / √Deep Tube well: If deep tube well, mention depth (feet): If other, specify: Rainwater harvesting available: No Onsite/ off site/ NAV
2.10	Has the Subproject/component site any seismic risk (historically)?		√					
2.11	Identification of possible stakeholders, especially vulnerable groups?		√					
3.0	Potential Socio-environmental impacts. Will the Subproject cause.....							
3.1	Potential influx of workers to the project location? Whether significant for the local community?		√					
3.2	Possible conflict between workers and local people?		√					
3.3	Resource constraint for the local population (due to the additional burden of incoming workers/staff)?		√					
3.4	Possible loss of agricultural land/ crops?		√					
3.5	Involvement of any land acquisition and involuntary resettlement?		√					
3.6	Loss of residential, business or enterprises due to construction of flood shelter, land requisition/acquisition and so on?		√					
3.7	Loss of income sources and means of livelihoods due to construction of flood shelter, land acquisition/ requisition?		√					
3.8	Impacts on any vulnerable (poor, old-aged, female-headed households, ethnic people, etc.)		√					Detail out about the groups and how is

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Sl. #	Assessment Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
	people?							impacted:
3.9	Loss of access to natural resources, communal facilities and services?		√					
3.10	Impacts on social and economic activities due to the change in land use (if any)?		√					
3.11	Cutting trees for construction works of with more than 3" girth diameters?		√					Species name & Number of trees:
3.12	Impact on pond or fish population or aquatic habitats?		√					
3.13	Any surface water pollution? If yes, Source?		√					
3.14	Any Groundwater pollution? If yes, Source?		√					Fe=Iron, As = Arsenic, Mn = Manganese, Hard = Hardness If other, Specify: Contaminant's depth (feet): (Shallow / Deep)
3.15	Possible contamination of surface and ground waters due to improper waste disposal:	√			√			
3.16	The type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):	√		√				Solids waste, demolition materials, concrete wastes etc.
3.17	Impacts on surrounding environment due to sanitation and solid waste disposal: (Briefly mention the sources and extent of impacts)	√			√			Disposal area available? √Yes/No If yes, where & how: √On-site, Off-site
3.18	Impacts from construction camp?		√					Camp area available? √Yes / No If yes, where? √Onsite /off site
3.19	Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?		√					Water logged for (days): Water height (feet):
3.20	Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?		√					
3.21	Flooding problem in the area? Mention frequency & severity	√						Year: Every year Height: 4-6 feet Days: 30-60 days
3.22	Traffic disturbances due to construction material transport and wastes?		√					
3.23	Possibility of Subproject induced air / dust pollution? Mention the sources and impacts.	√		√				Air pollutants will be emitted from the

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Sl. #	Assessment Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
								equipment and Construction vehicles as well as from building construction works. The impact will be very limited.
3.24	Noise pollution from construction, industrial and vehicles?	√			√			Noise and vibration may be generated due to cast-in-situ pile work for building, from the movement of the subproject vehicles, using of concrete mixer machine and vibrator machine etc.
3.25	Risks and vulnerabilities related to occupational health and safety due to hazards during construction and operation phase?	√			√			There is always a possibility of accident in a construction site. Labors cab be exposed in different type of health hazards. To mitigate them, they have to be very alert during work and should wear proper PPE gears to save themselves from unwanted accidents.
3.26	Negative effects on neighborhood or community (Mention types and scale of impacts)?		√					
3.27	Degradation or disturbance of historically, culturally important site (mosque, graveyards, monuments, etc.)?		√					
3.28	Any Impediments to movements of people and livestock during construction period?		√					
3.29	The shelter buildings need to relocate/ Shift to another place? If yes, Mention Relocation place name, distance from site, for how long, is rent needed? Show relocation place in the topographical map.		√					
3.30	Disturbance to the student in taking the lesson in the classroom?		√					
3.31	Direct or indirect hazards to student for walking in the school campus by construction activities?	√		√				Protective fencing required
3.32	Is there any disaster early warning system? If Yes, by Whom?	√						Yes: UDMC, √Miking, TV, TNO, TEO, Red crescent, √Mobile phone SMS, etc.
3.33	Are there any power transmission line on the school premises?		√					

¹ Y= Yes, N=No, H=High, S=Substantial, M=Medium, and L=Low

Checklist on Environmental Issues for Site-specific Assessment/ESIA

1: Important Establishments and boundary village/river around the Subproject site

Sl. #	Direction	Important Establishments	Village/ River
1.	North side		
2.	South side		
3.	East side		
4.	West side		

2: Trees within the school boundary

Sl. #	Name of trees	Particular and No. of Trees				Total	Remarks
		Large	Medium	Small	Sapling		
1.							
2.							

3: Pond/ Water bodies found inside and adjacent to the Subproject area:

Sl. #	Direction	Water body type (pond, river, canal, beel, drain)	Size (ft x ft)	Depth (ft)	Fish Firming (Yes or No)	Name of Firming Fish	Use of pond (Domestic/ Bathing / other)
1.	North						
2.	South						
3.	East						
4.	West						

4. Indigenous, brackish water and endangered fish species exist in catchment area of the Subproject:

Yes or No. If yes, Mention Name:

5. The common local birds found in the catchment area:

6. Wild animals found in the catchment area:

7. Endangered faunal species found in the catchment area:

8. The soils are highly/moderately/not saline at a depth of..... ft in and around the subproject areas throughout the year.

**ANNEXURE 3:
CHECKLIST OF THE CONSULTATION MEETING**

ANNEXURE 3: CHECKLIST OF THE CONSULTATION MEETING

Feasibility Study of Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department
Government of the People's Republic of Bangladesh

(Checklist for Consultation Meeting for Identifying Environmental & Social Impacts)

Data Checklist & Consultation Meeting ID	
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The meeting organizers will give a brief description of the project background, scope, goals, objectives and components in front of the participants. All participants must be informed about the overall project and the type of sub-project / activity. [e.g: Resilient Flood Shelter and Shelter Connecting Road etc.]

Meeting place: **Duration:**

Name of the School/ Shelter:

ID no. (School) **Union:** **Upazilla:**

District:

Total Students: **Number of Students (Male):**

Number of Students (Female) **Teacher (number)**

Participants: School Management Committee, Teacher, Students, Guardians, Local People, Elected Public Representative (Make a list of participants and collect signature including pictures)

1. The catchment area (location, population, occupation, financial status, religion, etc.) of the proposed school / flood shelter should be discussed in a participatory manner.
2. Vulnerable people, Tribal, Hijra (location, number, occupation, financial status, religion, etc.)
3. There should be participatory discussion about local flood situation, flood frequency, last flood, duration of flood and impact of flood on people, livestock and crops, etc.
4. Whether there is a need to establish a flood shelter! If so, describe. What are the benefits of flood shelters in this area?

5. Discuss volunteer service delivery, local workforce management, project collaboration, specialization skills at a local level, etc.
6. Are there any non-title holders within the school boundaries? Will the construction of the shelter cause any harm to them (income, shops, houses, boundary walls / fences etc.) (take pictures).
7. Length (m), width (m) of internal road of proposed school / flood shelter, what is the road made of, what is the current condition of the road? (Take picture)
8. Is the road connecting the proposed school / flood shelter connected to a nearby market / growth center / main road? Connection road name, length (m), whether the road is congested? (Take pictures).
9. Is the connecting road in need of repair? Will there be any damage if the road is repaired (income, shops, houses, boundary walls / fences, religious and cultural heritage sites, traffic jams, vegetation, ponds, canals, rivers etc.)? (Take picture)
10. Be aware of any socio-cultural / religious heritage, environmentally sensitive areas (wetlands, protected areas, special areas for conservation of biodiversity, etc.) from participants in meetings, within and near the proposed school / flood shelter boundary and approximate distance from that area About trees (centennial) / building, public travel/gathering area, river erosion and other issues. LGED Sub Assistant Engineers / District Sociologists can also help you in this regard. (Take picture)
11. Is the existing proposed land under the government, non government or the donation process?
12. Is the land inside or outside of the school boundary? (Take picture)
13. Is there any conflict with the ownership of the land? (If yes, write in detail)
14. Have sufficient legal and valid document of lands? Collect the scan copy of the ownership (Ex. Evidence, ledger, Mouza map, treasury receipt etc).
15. Is land ready for immediate construction work?
16. Do you know project will not acquire any private land and need at least 33.00 decimal of government land (owned by the SMC/MoE)?
17. Will there be any harm to anyone as a result of the construction of the shelter (income, shops, House, wall/fences of boundary (religious and cultural traditional place etc). (take picture)
18. How is the school infrastructure? Is it necessary to demolish any infrastructure to build a shelter? (Take picture)

19. Should the school be relocated to continue the educational activities during the construction of the shelter? If so, the name of the relocation, the distance from the site, the free space available voluntarily at the time of construction or to be rented and what is the annual rent? (Take picture)

20. Will the play ground of the children be damaged during the construction of the shelter? (Totally damaged or partially damaged, If so, how much?). What is the opinion of the guardians, teachers and students regarding the damage of play ground? (Take picture).

21. Should any trees be cut in and around the school or shelter for construction work (which types of tree)? Whether to fill a pond or wetland?

22. Is there any issue regarding air pollution, sound pollution, water pollution and another environmental issue? ((Take picture).

23. Is there any possibility of environmental damage during construction of shelters? What steps can be taken to remove these damages and for traffic congestion, waste removal/management?

24. Whether there may be sexual harassment of local women and girls by the workers / workers in the project area?

Methodology

These meetings will be conducted through the participatory process. Onsite public meetings will take place amid CoVID-19. Take attendance and photographs of the meetings.

Challenges

CoVid-19 pandemic, (possible health protocols for gathering will be observed/followed).

PMU, LGED's Assistance

Introductory letter from the Project director, RIVER Project to XEN, UNO and UE for seeking assistance.

Name of the Moderator:

Name of the Notetaker:

Mobile No.

- 1.
- 2.

**ANNEXURE 4:
ATTENDANCE OF CONSULTATION MEETING**

ANNEXURE 4: ATTENDANCE OF CONSULTATION MEETING



Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department

Public Consultation with Stakeholders

Name of School: 4 No. Harinbaria GPS

Date: 03/02/2026

School ID: 91313021302

Shelter's ID: RAJ-022

Place of Consultation: Classroom

Village: Paschim Harua Ward No.: 03 Union: 1 No. Ratandia Upazila: Kalukhali

District: Rajbari

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
০১	আব্দুল হামিদ	পুরুষ	৩২	শ্রমিক	হরিনবারিয়া	01766-599135	[Signature]
০২	শাহুল হোসেন	পুরুষ	৩২	কৃষক	হরিনবারিয়া		[Signature]
০৩	মোঃ মোস্তাফিজুল হক	পুরুষ	৩৫	কৃষক	হরিনবারিয়া		[Signature]
০৪	মোঃ মতিউর রহমান	পুরুষ	৪০	দোকান	হরিনবারিয়া		[Signature]
০৫	মোঃ মতিউর রহমান	পুরুষ	৪২	কৃষক	হরিনবারিয়া		[Signature]
০৬	মোঃ মতিউর রহমান	পুরুষ	৫২	কৃষক	হরিনবারিয়া		[Signature]
০৭	মোঃ মতিউর রহমান	পুরুষ	৫০	কৃষক	হরিনবারিয়া		[Signature]
০৮	মোঃ মতিউর রহমান	পুরুষ	৩৬	কৃষক	হরিনবারিয়া		[Signature]
০৯	মোঃ মতিউর রহমান	পুরুষ	৫০	কৃষক	হরিনবারিয়া		[Signature]
১০	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১১	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১২	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১৩	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১৪	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১৫	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১৬	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১৭	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১৮	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
১৯	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]
২০	মোঃ মতিউর রহমান	পুরুষ	৫৫	কৃষক	হরিনবারিয়া		[Signature]

01766-599135
03/02/2026
আব্দুল হামিদ
প্রধান শিক্ষক (জরুরী)
০২ বসতিপত্রের সার্বজনীন প্রকল্পের
কলকাতা, হরিনবারিয়া।



Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department

Public Consultation with Stakeholders

Name of School: 4 No. Harinbaria GHS

Date: 03/02/2026

School ID: 91313021302

Shelter's ID: RAJ-022

Place of Consultation: Classroom

Village: Poschim Harua Ward No.: 03 Union: 1 No. Lakandia Upazila: Kalukhali

District: Rajbari

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
১১	শ্রীমতী কামালারাম	মহিলা	৫০	হোমসাই	শ্রীমতী কামালারাম		[Signature]
১২	শ্রীমতী আনিসা খান্না	মহিলা	৪৫	হোমসাই	শ্রীমতী আনিসা খান্না		[Signature]
১৬	শ্রীমতী কল্যাণ কল্যাণ	মহিলা	৬০	হোমসাই	শ্রীমতী কল্যাণ কল্যাণ		[Signature]
১৪	শ্রীমতী হবিবুল হোসেন	মহিলা	৫৫	হোমসাই	শ্রীমতী হবিবুল হোসেন		[Signature]
১৫	শ্রীমতী জে. এ. মিল্লা	মহিলা	৭০	হোমসাই	শ্রীমতী জে. এ. মিল্লা		[Signature]
১৬	শ্রীমতী ওয়েদ কাকী	মহিলা	২০	হোমসাই	শ্রীমতী ওয়েদ কাকী		[Signature]
১৭	শ্রীমতী হুসেদ	মহিলা	৪০	হোমসাই	শ্রীমতী হুসেদ		[Signature]
১৫	শ্রীমতী মাহিনা	মহিলা	৫০	হোমসাই	শ্রীমতী মাহিনা		[Signature]
১৯	শ্রীমতী মাহিনা	মহিলা	৫০	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩০	শ্রীমতী দিল্লি কাকী	মহিলা	৬৫	হোমসাই	শ্রীমতী দিল্লি কাকী		[Signature]
৩১	শ্রীমতী মাহিনা	মহিলা	৩২	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩২	শ্রীমতী মাহিনা	মহিলা	৭০	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩৬	শ্রীমতী মাহিনা	মহিলা	৫০	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩৪	শ্রীমতী মাহিনা	মহিলা	৩২	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩৫	শ্রীমতী মাহিনা	মহিলা	২১	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩৬	শ্রীমতী মাহিনা	মহিলা	২১	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩৭	শ্রীমতী মাহিনা	মহিলা	২১	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩৮	শ্রীমতী মাহিনা	মহিলা	৬৫	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৩৯	শ্রীমতী মাহিনা	মহিলা	৫০	হোমসাই	শ্রীমতী মাহিনা		[Signature]
৪০	শ্রীমতী মাহিনা	মহিলা	৩৩	হোমসাই	শ্রীমতী মাহিনা		[Signature]

৩০/০২/২০২৬
আমিনুল আমিন
প্রকল্প পরিচালক (আঞ্চলিক) ০১৭৬৬-৫৭৫১
১৯৮ বঙ্গবন্ধু সড়ক পরিবহন বিভাগ
রাজশাহী, রাজশাহী।



Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department

Public Consultation with Stakeholders

Name of School: SI No. Papa Belgachi ~~AB~~fig Uddin GRS Date: 03/02/2026

School ID: 99313021 ~~802~~

Shelter's ID: RAJ-623

Place of Consultation: Headmaster's Room

Village: Parabelgachi Ward No.: 07 Union: 2 No. Kalikapur Upazila: Kaukhali

District: Rajbari

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
০১	শীলা রানী কুন্ডু	মহিলা	৫৫	শিক্ষক	পাপাবেলগাচী		শীলা
০২	শ্রীমতী সত্যজিৎ	মহিলা	৫০	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
০৩	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
০৪	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
০৫	শ্রীমতী সত্যজিৎ	মহিলা	৫০	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
০৬	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
০৭	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
০৮	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
০৯	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১০	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১১	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১২	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১৩	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১৪	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১৫	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১৬	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১৭	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১৮	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
১৯	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ
২০	শ্রীমতী সত্যজিৎ	মহিলা	৫৫	কৃষক	পাপাবেলগাচী		শ্রীমতী সত্যজিৎ

শীলা রানী কুন্ডু
প্রধান শিক্ষক (১৪ দাঃ)
১১নং শাকুলেশ্বরী মাধ্যমিক স্কুল অ্যান্ড বিদ্যালয়
কালিকাপুর, কাউখালী।
মোবাইল: ০১৯০৬-৫২২০০০



Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department

Public Consultation with Stakeholders

Name of School: 10 No. Kalukhali GPS

Date: 02/02/2026

School ID: 91313020303

Shelter's ID: RAJ-024

Place of Consultation: Headmaster's Room

Village: Utop Kalukhali Ward No.: 09 Union: 02 No. Kalikapur Upazila: Kalukhali

District: Rajbari

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
০১	ডা. জ. ম. হুমায়ুন আলী খান	পুরুষ	৫০	শিক্ষক	বন্দা পুর		[Signature]
০২	নাজমা হা	মহিলা	৫০	শিক্ষক	মালিয়াট		[Signature]
০৩	আব্দুল হুমায়ুন	পুরুষ	৪৪	শিক্ষক	বহুতল কানুখালী		[Signature]
০৪	নাসির উদ্দিন	পুরুষ	৪৪	শিক্ষক	কানুখালী		[Signature]
০৫	নাসিমা হুমায়ুন	মহিলা	৬৪	শিক্ষক	কালিকাপুর		[Signature]
০৬	রাজিব হুমায়ুন	পুরুষ	৬৪	শিক্ষক	গড়চিম্বা		[Signature]
০৭	দিল্লী হুমায়ুন	পুরুষ	৩৪	শিক্ষক	মালিয়াট		[Signature]
০৮	মুহাম্মদ হুমায়ুন	পুরুষ	৩৭	শিক্ষক	চন্দ্রপাড়া		[Signature]
০৯	নাসিমা	মহিলা	০০	গৃহিণী	উত্তর কানুখালী		[Signature]
১০	শফিউল	মহিলা	২৫	গৃহিণী	মাঠ কানুখালী		[Signature]
১১	আলমা	মহিলা	২৬	গৃহিণী	উত্তর কানুখালী		[Signature]
১২	আমেনা	মহিলা	২২	গৃহিণী	মাঠ কানুখালী		[Signature]
১৩	মাসুমা	মহিলা	২৬	গৃহিণী	তেলিবাড়ী গ্রাম		[Signature]
১৪	মীনা	মহিলা	২২	গৃহিণী	বহুতল কানুখালী		[Signature]
১৫	আবানা	মহিলা	২৬	গৃহিণী	উত্তর কানুখালী		[Signature]
১৬	রুনা	মহিলা	২২	গৃহিণী	উত্তর কানুখালী		[Signature]
১৭	মুসলিমা	মহিলা	২৬	গৃহিণী	দুর্গা কানুখালী		[Signature]
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ডা. জ. ম. হুমায়ুন
প্রধান শিক্ষক
কালিকাপুর মহা উচ্চ বিদ্যালয়
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Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department

Public Consultation with Stakeholders

Name of School: 71 No. Yakub Hossain Molla G.P.S

Date: 02/02/2026

School ID: 99313059203

Shelter's ID: RAJ-025

Place of Consultation: Headmaster's Room

Village: Satokta

Ward No.: 05

Union: 2 No Kalikapur

Upazila: Kalyankali

District: Rajbari

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
০১	কিম্বু হুমায়ুন	পুরুষ	৪৬	বিদ্যালয়	সাতকটা		
০২	কারিম আলম	মহিলা	৩৫	"	"		
০৬	সুমনিমা হাছিন	মহিলা	৩৬	"	"		
০৪	জাহাঙ্গীর হাতিয়া	"	২৬	"	গাজাপুর		
০৫	স্বাঃ মোঃ আলম	পুরুষ	৪৫	ব্যবসায়	সাতকটা		
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০৭	স্বাঃ মোঃ আলম	"	৫০	ব্যবসায়	সাতকটা		
০৮	স্বাঃ মোঃ আলম	"	৫২	ব্যবসায়	সাতকটা		
০৯	স্বাঃ মোঃ আলম	"	৫২	ব্যবসায়	সাতকটা		
১০	স্বাঃ মোঃ আলম	"	৭০	কৃষি	সাতকটা		
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১২	স্বাঃ মোঃ আলম	"	৪৫	কৃষি	সাতকটা		
১৩	স্বাঃ মোঃ আলম	"	২৬	ব্যবসায়	সাতকটা		
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১৫	স্বাঃ মোঃ আলম	"	৭০	কৃষি	সাতকটা		
১৬	স্বাঃ মোঃ আলম	মহিলা	৪৫	কৃষি	সাতকটা		
১৭	স্বাঃ মোঃ আলম	"	৪০	"	সাতকটা		
১৮	স্বাঃ মোঃ আলম	"	৪০	"	সাতকটা		
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**ANNEXURE 5:
ENVIRONMENTAL AND SOCIAL CODE OF PRACTICES (ESCOPS)**

ANNEXURE 5: ENVIRONMENTAL AND SOCIAL CODE OF PRACTICES (ESCoPs)

ESCoP 1: Waste Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
General Waste	Soil and water pollution from the improper management of wastes and excess materials from the construction sites.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food waste etc.) prior to commencing of construction and submit to for approval. • Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact. • Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. • Segregate and reuse or recycle all the wastes, wherever practical. • Prohibit burning of solid waste • Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route • Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. • Provide refuse containers at each worksite. • Request suppliers to minimize packaging where practicable. • Place a high emphasis on good housekeeping practices. • Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
Hazardous Waste	Health hazards and environmental impacts due to improper waste management practices	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Collect chemical wastes in 200 litre drums (or similar sealed container), appropriately labelled for safe transport to an approved chemical waste depot. • Store, transport and handle all chemicals avoiding potential environmental

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>pollution.</p> <ul style="list-style-type: none"> • Store all hazardous wastes appropriately in bunded areas away from water courses. • Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. • Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at approved locations. • Construct concrete or other impermeable flooring to prevent seepage in case of spills.

ESCoP 2: Fuels and Hazardous Substances Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
<p>Fuels and hazardous goods</p>	<p>Materials used in construction have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on-site, and potential spills from these goods may harm the environment or health of construction workers.</p>	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare spill control procedures and submit the plan for approval. • Train the relevant construction personnel in handling of fuels and spill control procedures. • Store dangerous goods in bunded areas on a top of a sealed plastic sheet away from watercourses. • Refueling shall occur only within bunded areas. • Make available MSDS for chemicals and dangerous goods on-site. • Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site approved by DoE. • Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored and personnel trained in the correct use. • Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use. • Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		identify potential problems before they occur. <ul style="list-style-type: none"> • Store hazardous materials above flood plain level. • Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill. • Put containers and drums in permanent storage areas on an impermeable floor that slopes to a safe collection area in the event of a spill or leak. • Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. • Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials. • Return the gas cylinders to the supplier. However, if they are not empty prior to their return, they must be labeled with the name of the material they contained or contain, information on the supplier, cylinder serial number, pressure, their last hydrostatic test date, and any additional identification marking that may be considered necessary.

ESCoP 3: Water Resources Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Hazardous Material and Waste	Water pollution from the storage, handling and disposal of hazardous materials and general construction waste, and accidental spillage.	The Contractor shall <ul style="list-style-type: none"> • Follow the management guidelines proposed in ECOPs 1 and 2. • Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways, storm water systems or underground water tables.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Discharge from Construction sites	<p>During construction both surface and groundwater quality may be deteriorated due to construction activities in the river, sewerages from construction sites and work camps. The construction works will modify groundcover and topography changing the surface water drainage patterns of the area including infiltration and storage of storm water.</p> <p>These changes in hydrological regime lead to increased rate of runoff, increase in sediment and contaminant loading, increased flooding, groundwater contamination, and effect habitat of fish and other aquatic biology.</p>	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials • Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site • Divert runoff from undisturbed areas around the construction site • Stockpile materials away from drainage lines • Prevent all solid and liquid wastes entering waterways by collecting solid waste, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting where possible and transport to an approved waste disposal site or recycling depot • Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved bunded areas on site. Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This shall be done in every exit of each construction vehicle to ensure the local roads are kept clean.
Soil Erosion and siltation	<p>Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.</p>	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion • Ensure that roads used by construction vehicles are swept regularly to remove sediment • Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds)
Construction activities in	<p>Construction works in the water bodies will increase sediment and contaminant loading, and effect habitat of fish and</p>	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Dewater sites by pumping water to a sediment basin prior to release off site – do not pump directly off site

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
water bodies	other aquatic biology.	<ul style="list-style-type: none"> • Monitor the water quality in the runoff from the site or areas affected by dredge plumes, and improve work practices as necessary • Protect water bodies from sediment loads by silt screen or bubble curtains or other barriers • Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways, storm water systems or underground water tables. • Use environment friendly and nontoxic slurry during construction of piles to discharge into the river. • Reduce infiltration of contaminated drainage through storm water management design • Do not discharge cement and water curing used for cement concrete directly into water courses and drainage inlets.
Drinking water	Groundwater at shallow depths is contaminated with arsenic and hence not suitable for drinking purposes.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Pumping of groundwater shall be from deep aquifers of more than 300 m to supply arsenic free water. Safe and sustainable discharges are to be ascertained prior to selection of pumps. • Tube wells will be installed with due regard for the surface environment, protection of groundwater from surface contaminants, and protection of aquifer cross contamination • All tube wells, test holes, monitoring wells that are no longer in use or needed shall be properly decommissioned.
	Depletion and pollution of groundwater resources	<ul style="list-style-type: none"> • Install monitoring wells both upstream and downstream areas near construction yards and construction camps to regularly monitor the water quality and water levels. • Protect groundwater supplies of adjacent lands

ESCoP 4: Drainage Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
<p>Excavation and earth work, and construction yards</p>	<p>Lack of proper drainage for rainwater/liquid waste or wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.</p>	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare a project for prevent/avoid standing waters, which will verify in advance and confirm during implementation • Provide alternative drainage for rainwater if the construction works/earth-fillings cut the established drainage line • Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there • Rehabilitate road drainage structures immediately if damaged by contractors' road transports. • Build new drainage lines as appropriate and required for wastewater from construction yards connecting to the available nearby recipient water bodies. Ensure wastewater quality conforms to the relevant standards provided by DoE, before it being discharged into the recipient water bodies. • Ensure the internal roads/hard surfaces in the construction yards/construction camps that generate has storm water drainage to accommodate high runoff during downpour and that there is no stagnant water in the area at the end of the downpour. • Construct wide drains instead of deep drains to avoid sand deposition in the drains that require frequent cleaning. • Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion. • Protect natural slopes of drainage channels to ensure adequate storm water drains. • Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem. • Reduce infiltration of contaminated drainage through storm water management design.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Ponding of water	Health hazards due to mosquito breeding	<p>The Contractor shall</p> <ul style="list-style-type: none"> Do not allow ponding/storage of water especially near the waste storage areas and construction camps Discard all the storage containers that are capable of storing of water, after use or store them in inverted position.

ESCoP 5: Soil Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Filling of Sites with dredge spoils	Soil contamination will occur from drainage of dredged spoils	<p>The Contractor shall</p> <ul style="list-style-type: none"> Ensure that dredged sand used for land filling shall be free of pollutants. Prior to filling, sand quality shall be tested to confirm whether soil is pollution free. Sediments shall be properly compacted. Top layer shall be the 0.5 m thick clay on the surface and boundary slopes along with grass. Side Slope of Filled Land of 1:2 shall be constructed by suitable soils with proper compaction as per design. Slope surface shall be covered by top soils/ cladding materials (0.5m thick) and grass turfing with suitable grass. Leaching from the sediments shall be contained to seep into the subsoil or shall be discharged into settling lagoons before final disposal. No sediment laden water in the adjacent lands near the construction sites, and/or wastewater of suspended materials excessive of 200mg/l from dredge spoil storage/use area in the adjacent agricultural lands.
Storage of hazardous and toxic chemicals	Spillage of hazardous and toxic chemicals will contaminate the soils	<p>The Contractor shall</p> <ul style="list-style-type: none"> Strictly manage the wastes management plans proposed in ECP1 and storage of materials in ECP2 Construct appropriate spill contaminant facilities for all fuel storage areas Establish and maintain a hazardous materials register detailing the location and

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>quantities of hazardous substances including the storage, use of disposals</p> <ul style="list-style-type: none"> • Train personnel and implement safe work practices for minimizing the risk of spillage • Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site • Remediate the contaminated land using the most appropriate available method to achieve required commercial/industrial guideline validation results.
Construction material stock piles	Erosion from construction material stockpiles may contaminate the soils	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds.

ESCoP 6: Erosion and Sediment Control

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Clearing of construction sites	Cleared areas and slopes are susceptible for erosion of top soils that affects the growth of vegetation which causes ecological imbalance	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Reinstate and protect cleared areas as soon as possible. • Mulch to protect batter slopes before planting • Cover unused area of disturbed or exposed surfaces immediately with mulch/grass turving/tree plantations.
Construction activities and material stockpiles	The impact of soil erosion is (i) Increased run off and sedimentation causing a greater flood hazard to the downstream, (ii) destruction of aquatic environment in nearby lakes, streams, and reservoirs caused by erosion and/or deposition of sediment damaging the spawning	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Locate stockpiles away from drainage lines • Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds • Remove debris from drainage paths and sediment control structures • Cover the loose sediments and water them if required • Divert natural runoff around construction areas prior to any site disturbance

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	grounds of fish, and (iii) destruction of vegetation by burying or gullyng.	<ul style="list-style-type: none"> • Install protective measures on site prior to construction, for example, sediment traps • Control drainage through a site in protected channels or slope drains • Install 'cut off drains' on large cut/fill batter slopes to control water runoff speed and hence erosion • Observe the performance of drainage structures and erosion controls during rain and modify as required.

ESCoP 7: Top Soil Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. • Remove unwanted materials from top soil like grass, roots of trees and similar others. • The stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil. • Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. • Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. • Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the proposed plantation sites • Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the bunding of the soil layers, water penetration and revegetation.
Transport	Vehicular movement outside ROW or temporary access roads will affect the soil fertility of the agricultural lands	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Limit equipment and vehicular movements to within the approved construction zone • Construct temporary access tracks to cross concentrated water flow lines at right

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>angles</p> <ul style="list-style-type: none"> • Plan construction access to make use, if possible, of the final road alignment • Use vehicle-cleaning devices, for example, ramps or wash down areas.

ESCoP 8: Topography and Landscaping

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Flood plains of the existing Project area will be affected by the construction of various project activities. Construction activities especially earthworks will change topography and disturb the natural rainwater/flood water drainage as well as will change the local landscape.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Ensure the topography of the final surface of all raised lands (construction yards, approach roads, access roads, bridge end facilities, etc.) are conducive to enhance natural draining of rainwater/flood water; • Keep the final or finished surface of all the raised lands free from any kind of depression that insists water logging • Undertake mitigation measures for erosion control/prevention by grass-turfing and tree plantation, where there is a possibility of rain-cut that will change the shape of topography. • Cover immediately the uncovered open surface that has no use of construction activities with grass-cover and tree plantation to prevent soil erosion and bring improved landscaping.

ESCoP 9: Sand Extraction

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Sand extraction	Sand extraction can potentially impact the aquatic habitat, water quality, and key aquatic species and their food availability.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • not extract sand from the river bed in long continuous stretches; alternate patches of river bed will be left undisturbed to minimize the potentially negative impacts on the aquatic habitat.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • not collect large quantities of sand from any single location • not excavate deeper than 3 m at any single location. • not carry out sand extraction near chars that have sensitive Habitats • not carry out sand extraction during the night particularly near the chars • obtain approval from before starting sand extraction from any location. • carry out sand extraction from sand bars to the extent possible. • maintain record of all sand extraction (quantities, location shown on map, timing, any sighting of key species) • provide silt fences, sediment barriers or other devices around the extraction areas to prevent migration of sediment rich water in to the river channels. • refuel of barges and boats with a proper care to avoid any spills. • make available spill kits and other absorbent material at refueling points on the barges. • properly collect, treat and dispose the bilge water from of barges, and boats. • regularly service all waterborne plant as per the manufacturer’s guidelines and be inspected daily prior to operation. • carry out survey of the area prior to sand extraction • identify any sensitive receptors/habitats (eg, turtle nesting area, bird colony) at or near the proposed sand extraction locations. • determine ‘no-go’ areas for sand extraction, based upon the above survey, • monitor the activity to ensure that the contractor complies with the conditions described earlier. • survey the area after sand extraction to identify any leftover impacts.

ESCoP 10: Air Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. • Operate the vehicles in a fuel-efficient manner • Cover haul vehicles carrying dusty materials moving outside the construction site Impose speed limits on all vehicle movement at the worksite to reduce dust emissions • Control the movement of construction traffic • Water construction materials prior to loading and transport • Service all vehicles regularly to minimize emissions • Limit the idling time of vehicles not more than 2 minutes.
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the equipment suppliers and contractors/subcontractors • Focus special attention on containing the emissions from generators • Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites • Service all equipment regularly to minimize emissions • Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to the concrete batching and mixing plant to control the particle emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery inside the installations
Construction activities	Dust generation from construction sites, material stockpiles and access roads is a	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Water the material stockpiles, access roads and bare soils on an as required basis to

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	nuisance in the environment and can be a health hazard.	<p>minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g. high winds). Stored materials such as gravel and sand shall be covered and confined to avoid their being wind-drifted</p> <ul style="list-style-type: none"> • Minimize the extent and period of exposure of the bare surfaces • Reschedule earthwork activities or vegetation clearing activities, where practical, if necessary to avoid during periods of high wind and if visible dust is blowing off-site • Restore disturbed areas as soon as practicable by vegetation/grass-turfing • Store the cement in silos and minimize the emissions from silos by equipping them with filters. • Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations • Crushing of rocky and aggregate materials shall be wet-crushed, or performed with particle emission control systems.

ESCoP 11: Noise and Vibration Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Noise quality will be deteriorated due to vehicular traffic	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures • Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc. • Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Appropriately site all noise generating activities to avoid noise pollution to local residents • Use the quietest available plant and equipment

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	the natural environment.	<ul style="list-style-type: none"> • Modify equipment to reduce noise (for example, noise control kits, lining of truck trays or pipelines) • Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment. • Install acoustic enclosures around generators to reduce noise levels. • Fit high efficiency mufflers to appropriate construction equipment • Avoid the unnecessary use of alarms, horns and sirens.
Construction activities	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Notify adjacent landholders prior any typical noise events outside of daylight hours • Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions • Employ best available work practices on-site to minimize occupational noise levels • Install temporary noise control barriers where appropriate • Notify affected people if major noisy activities will be undertaken, e.g. pile driving • Plan activities on site and deliveries to and from site to minimize impact • Monitor and analyze noise and vibration results and adjust construction practices as required. • Avoid undertaking the noisiest activities, where possible, when working at night near the residential areas.

ESCoP 12: Protection of Flora

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Vegetation clearance	Local flora is important to provide shelters for the birds, offer fruits and/or timber/fire wood, protect soil erosion and overall keep the environment very friendly to human living. As such damage to flora has	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Reduce disturbance to surrounding vegetation • Use appropriate type and minimum size of machine to avoid disturbance to adjacent vegetation. • Get approval from supervision consultant for clearance of vegetation. • Make selective and careful pruning of trees where possible to reduce need of tree

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	wide range of adverse environmental impacts.	<p>removal.</p> <ul style="list-style-type: none"> • Control noxious weeds by disposing of at designated dump site or burn on site. • Clear only the vegetation that needs to be cleared in accordance with the plans. These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles, disposal of fill and construction of diversion roads, etc. • Do not burn off cleared vegetation – where feasible, chip or mulch and reuse it for the rehabilitation of affected areas, temporary access tracks or landscaping. Mulch provides a seed source, can limit embankment erosion, retains soil moisture and nutrients, and encourages regrowth and protection from weeds. • Return topsoil and mulched vegetation (in areas of native vegetation) to approximately the same area of the roadside it came from. • Avoid work within the drip-line of trees to prevent damage to the tree roots and compacting the soil. • Minimize the length of time the ground is exposed or excavation left open by clearing and re-vegetate the area at the earliest practically possible. • Ensure excavation works occur progressively and revegetation done at the earliest • Provide adequate knowledge to the workers regarding nature protection and the need of avoid felling trees during construction • Supply appropriate fuel in the work caps to prevent fuel wood collection

ESCoP 13: Protection of Fauna

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities	The location of construction activities can result in the loss of wild life habitat and habitat quality.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Limit the construction works within the designated sites allocated to the contractors • Check the site for animals trapped in, or in danger from site works and use a qualified person to relocate the animal.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	Impact on migratory birds, its habitat and its active nests	The Contractor shall <ul style="list-style-type: none"> • Not be permitted to destruct active nests or eggs of migratory birds • Minimize the tree removal during the bird breeding season. If works must be continued during the bird breeding season, a nest survey will be conducted by a qualified biologist prior to commence of works to identify and located active nests • Minimize the release of oil, oil wastes or any other substances harmful to migratory birds to any waters or any areas frequented by migratory birds.
Vegetation clearance	Clearance of vegetation may impact shelter, feeding and/or breeding and/or physical destruction and severing of habitat areas	The Contractor shall <ul style="list-style-type: none"> • Restrict the tree removal to the minimum required. • Retain tree hollows on site, or relocate hollows, where appropriate • Leave dead trees where possible as habitat for fauna • Fell the hollow bearing trees in a manner which reduces the potential for fauna mortality. Felled trees will be inspected after felling for fauna and if identified and readily accessible will be removed and relocated or rendered assistance if injured. After felling, hollow bearing trees will remain unmoved overnight to allow animals to move of their own volition.
Construction camps	Illegal poaching	The Contractor shall <ul style="list-style-type: none"> • Provide adequate knowledge to the workers regarding protection of flora and fauna, and relevant government regulations and punishments for illegal poaching.

ESCoP 14: Protection of Fisheries

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities in River and Floodplain Water	The main potential impacts to fisheries are hydrocarbon spills and leaks from riverine transport and disposal of wastes into the river and floodplain water	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Ensure the riverine transports, vessels and ships are well maintained and do not have oil leakage to contaminate river water. • Contain oil immediately on river in case of accidental spillage from vessels and ships and in this regard, make an emergency oil spill containment plan to be supported with enough equipment, materials and human resources • Do not dump wastes, be it hazardous or non-hazardous into the nearby water bodies or in the river.
	The main potential impacts to aquatic flora and fauna River are increased suspended solids from earthworks erosion, sanitary discharge from work camps, and hydrocarbon spills	<p>The Contractor shall</p> <ul style="list-style-type: none"> • follow mitigation measures proposed in ESCoP 3 : Water Resources Management and EC4: Drainage Management
Construction activities on the land	Filling of ponds for site preparation will impact the fishes	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Inspect any area of a water body containing fish that is temporarily isolated for the presence of fish, and all fish shall be captured and released unharmed in adjacent fish habitat • Install and maintain fish screens etc. on any water intake with drawing water from any water body that contain fish.

ESCoP 15: Road Transport and Road Traffic Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Increased traffic use of road by construction vehicles will affect the movement of normal road traffics and the safety of the road-users.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare and submit a traffic management plan to the for his approval at least 30 days before commencing work on any project component involved in traffic diversion and management. • Include in the traffic management plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs / lights, and road signs. • Provide signs at strategic locations of the roads complying with the schedules of signs contained in the Bangladesh Traffic Regulations. • Install and maintain a display board at each important road intersection on the roads to be used during construction, which shall clearly show the following information in Bangla: <ul style="list-style-type: none"> ○ Location: Village name ○ Duration of construction period ○ Period of proposed detour / alternative route ○ Suggested detour route map ○ Name and contact address/telephone number of the concerned personnel ○ Name and contact address / telephone number of the Contractor ○ Inconvenience is sincerely regretted.
	Accidents and spillage of fuels and chemicals	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Restrict truck deliveries, where practicable, to day time working hours. • Restrict the transport of oversize loads. • Operate road traffics/transport vehicles, if possible, to nonpeak periods to minimize traffic disruptions. • Enforce on-site speed limit

ESCoP 16: River Transport management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities in River	The presence of construction and dredging barges, pipe lines and other construction activities in the river can cause hindrance and risks to the river traffic.	The Contractor shall <ul style="list-style-type: none"> • Not obstruct other normal riverine transport while doing riverine transport and works • Identify the channel to be followed clearly using • navigation aids such as buoys, beacons, and lighting • Provide proper buoyage, navigation lights and markings for bridge and dredging works to guide the other normal riverine transport • Keep regular and close contacts with Bangladesh Inland Water Transport Authority (BIWTA) regarding their needs during construction of the project • Plan the river transport and transportation of large loads in coordination with BIWTA to avoid traffic congestions. • Provide signage for river traffic conforming to the BIWTA requirements • Position the dredge and pipeline in such a way that no disruption to the channel traffic will occur
	Accidents	The Contractor shall <ul style="list-style-type: none"> • Prepare an emergency plan for dealing with accidents causing accidental sinking of the vessels and ships • Ensure sufficient equipment and staffs available to execute the emergency plans • Provide appropriate lighting to barges and construction vessels.

ESCoP 17: Construction Camp Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
<p>Siting and Location of construction camps</p>	<p>Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.</p>	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Locate the construction camps at areas which are acceptable from environmental, cultural or social point of view. • Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. • Submit to the for approval a detailed layout plan for the development of the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, fuel storage areas (for use in power supply generators), solid waste management and dumping locations, and drainage facilities, prior to the development of the construction camps. • Local authorities responsible for health, religious and security shall be duly informed on the set up of camp facilities so as to maintain effective surveillance over public health, social and security matters
<p>Construction Camp Facilities</p>	<p>Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.</p>	<p>The Contractor shall provide the following facilities in the campsites:</p> <ul style="list-style-type: none"> • Adequate housing for all workers • Safe and reliable water supply. Water supply from deep tube wells of 300 m depth that meets the national standards • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females with total isolation by wall or by location. The minimum number of toilet facilities required is one toilet for every ten persons. • Treatment facilities for sewerage of toilet and domestic wastes • Storm water drainage facilities. Both sides of roads are to be provided with shallow v drains to drain off storm water to a silt retention pond which shall be sized to provide a minimum of 20 minutes retention of storm water flow from the whole site. Channel all discharge from the silt retention pond to natural drainage via a grassed swale at least 20 meters in length with suitable longitudinal gradient.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Paved internal roads. Ensure with grass/vegetation coverage to be made of the use of top soil that there is no dust generation from the loose/exposed sandy surface. Pave the internal roads of at least haring-bond bricks to suppress dusts and to work against possible muddy surface during monsoon. • Provide child crèches for women working construction site. The crèche shall have facilities for dormitory, kitchen, indoor and outdoor play area. Schools shall be attached to these crèches so that children are not deprived of education whose mothers are construction workers • Provide in-house community/common entertainment facilities dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible.
Disposal of waste	Management of wastes is crucial to minimize impacts on the environment	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Ensure proper collection and disposal of solid wastes within the construction camps • Insist waste separation by source; organic wastes in one pot and inorganic wastes in another pot at household level. • Store inorganic wastes in a safe place within the household and clear organic wastes on daily basis to waste collector. Establish waste collection, transportation and disposal systems with the manpower and equipment/vehicles needed. • Dispose organic wastes in a designated safe place on daily basis. At the end of the day cover the organic wastes with a thin layer of sand so that flies, mosquitoes, dogs, cats, rats, are not attracted. One may dig a large hole to put organic wastes in it; take care to protect groundwater from contamination by leachate formed due to decomposition of wastes. Cover the bed of the pit with impervious layer of materials (clayey or thin concrete) to protect groundwater from contamination. • Locate the garbage pit/waste disposal site min 500 m away from the residence so that peoples are not disturbed with the odor likely to be produced from anaerobic decomposition of wastes at the waste dumping places. Encompass the waste dumping place by fencing and tree plantation to prevent children to enter and play with. • Do not establish site specific landfill sites. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Fuel supplies for cooking purposes	Illegal sourcing of fuel wood by construction workers will impact the natural flora and fauna	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide fuel to the construction camps for their domestic purpose, in order to discourage them to use fuel wood or another biomass. • Made available alternative fuels like natural gas or kerosene on ration to the workforce to prevent them using biomass for cooking. • Conduct awareness campaigns to educate workers on preserving the protecting the biodiversity and wildlife of the project area, and relevant government regulations and punishments on wildlife protection.
Health and Hygiene	There will be a potential for diseases to be transmitted including malaria, exacerbated by inadequate health and safety practices. There will be an increased risk of work crews spreading sexually transmitted infections and HIV/AIDS.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide adequate health care facilities within construction sites. • Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. • Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. • Initial health assessment of the laborers coming from outside areas • Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work • Provide HIV awareness project mings, including STI (sexually transmitted infections) and HIV information, education and communication for all workers on regular basis • Complement educational interventions with easy access to condoms at campsites as well as voluntary counseling and testing • Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellent sprays during monsoon. • Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices
Safety	In adequate safety facilities to the construction camps may create	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide appropriate security personnel (police / home guard or private security guards)

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	security problems and fire hazards	and enclosures to prevent unauthorized entry in to the camp area. <ul style="list-style-type: none"> • Maintain register to keep a track on a head count of persons present in the camp at any given time. • Encourage use of flameproof material for the construction of labor housing / site office. Also, ensure that these houses/rooms are of sound construction and capable of withstanding wind storms/cyclones. • Provide appropriate type of firefighting equipment suitable for the construction camps • Display emergency contact numbers clearly and prominently at strategic places in camps. • Communicate the roles and responsibilities of laborers in case of emergency in the monthly meetings with contractors
Site Restoration	Restoration of the construction camps to original condition requires demolition of construction camps.	The Contractor shall <ul style="list-style-type: none"> • Dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates at the completion of the construction work. • Dismantle camps in phases and as the work gets decreased and not wait for the entire work to be completed • Give prior notice to the laborers before demolishing their camps/units • Maintain the noise levels within the national standards during demolition activities • Different contractors shall be hired to demolish different structures to promote recycling or reuse of demolished material. • Reuse the demolition debris to a maximum extent. Dispose remaining debris at the designated waste disposal site. • Handover the construction camps with all built facilities as it is if agreement between both parties (contractor and land-owner) has been made so. • Restore the site to its condition prior to commencement of the works or to an agreed condition with the landowner. • Not make false promises to the laborers for future employment in O&M of the project.

ESCoP 18: Cultural and Religious Issues

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
<p>Construction activities near religious and cultural sites</p>	<p>Disturbance from construction works to the cultural and religious sites, and contractors lack of knowledge on cultural issues cause social disturbances.</p>	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Communicate to the public through community consultation and newspaper announcements regarding the scope and schedule of construction, as well as certain construction activities causing disruptions or access restriction. • Do not block access to cultural and religious sites, wherever possible • Restrict all construction activities within the foot prints of the construction sites. • Stop construction works that produce noise (particularly during prayer time) shall there be any mosque/religious/educational institutions close to the construction sites and users make objections. • Take special care and use appropriate equipment when working next to a cultural/religious institution. • Stop work immediately and notify the site manager if, during construction, an archaeological or burial site is discovered. It is an offence to recommence work in the vicinity of the site until approval to continue is given by the /D&SC/PIU. Provide separate prayer facilities to the construction workers. • Show appropriate behavior with all construction workers especially women and elderly people • Allow the workers to participate in praying during construction time • Resolve cultural issues in consultation with local leaders and supervision consultants • Establish a mechanism that allows local people to raise grievances arising from the construction process. • Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works so as to maintain effective surveillance over public health, social and security matters

ESCoP 19: Worker Health and Safety

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Best practices	Construction works may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. The population in the proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector transmitted diseases etc.), (ii) risk factors resulting from human behavior (e.g. STD, HIV etc.) and (iii) road accidents from construction traffic.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Implement suitable safety standards for all workers and site visitors which shall not be less than those laid down on the international standards (e.g., International Labor Office guideline on ‘Safety and Health in Construction; World Bank Group’s ‘Environmental Health and Safety Guidelines’) and contractor’s own national standards or statutory regulations, in addition to complying with the national standards of the Government of Bangladesh (e.g. ‘The Bangladesh Labor Code, 2006’) • Provide the workers with a safe and healthy work environment, taking into account inherent risks in its particular construction activity and specific classes of hazards in the work areas, • Provide personal protection equipment (PPE) for workers, such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields, and ear protection. Maintain the PPE properly by cleaning dirty ones and replacing them with the damaged ones. • Safety procedures include provision of information, training and protective clothing to workers involved in hazardous operations and proper performance of their job • Appoint an environment, health and safety manager to look after the health and safety of the workers • Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works and establishment of construction camps so as to maintain effective surveillance over public health, social and security matters.
	Child and pregnant labor	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Not hire children of less than 14 years of age and pregnant women or women who delivered a child within 8 preceding weeks, in accordance with the Bangladesh Labor Code, 2006
Accidents	Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of	<ul style="list-style-type: none"> • Provide health care facilities and first aid facilities are readily available. Appropriately equipped first-aid stations shall be easily accessible throughout the place of work • Document and report occupational accidents, diseases, and incidents.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	the victims	<ul style="list-style-type: none"> • Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, so far as reasonably practicable, the causes of hazards. In a manner consistent with good international industry practice. • Identify potential hazards to workers, particularly those that may be life-threatening and provide necessary preventive and protective measures. • Provide awareness to the construction drivers to strictly follow the driving rules • Provide adequate lighting in the construction area and along the roads
Construction Camps	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	<ul style="list-style-type: none"> • The Contractor shall provide the following facilities in the campsites to improve health and hygienic conditions as mentioned in ESCoP 17 Construction Camp Management • Adequate ventilation facilities • Safe and reliable water supply. Water supply from deep tube wells that meets the national standards • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. • Treatment facilities for sewerage of toilet and domestic wastes • Storm water drainage facilities. • Recreational and social facilities • Safe storage facilities for petroleum and other chemicals in accordance with ESCoP 2 • Solid waste collection and disposal system in accordance with ESCoP 1. • Arrangement for trainings • Paved internal roads. • Security fence at least 2 m height. • Sick bay and first aid facilities
Water and sanitation facilities at the construction sites	Lack of Water sanitation facilities at construction sites cause inconvenience to the construction workers and affect their personal hygiene.	<ul style="list-style-type: none"> • The contractor shall provide portable toilets at the construction sites, if about 25 people are working the whole day for a month. Location of portable facilities shall be at least 6 m away from storm drain system and surface waters. These portable toilets shall be cleaned once a day and all the sewerage shall be pumped from the collection tank once a day and shall be brought to the common septic tank for further treatment. • Contractor shall provide bottled drinking water facilities to the construction workers at all the construction sites.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Other ESCoPs	Potential risks on health and hygiene of construction workers and general public	The Contractor shall follow the following ESCoPs to reduce health risks to the construction workers and nearby community <ul style="list-style-type: none"> • ESCoP 2: Fuels and Hazardous Goods Management • ESCoP 4: Drainage Management • ESCoP 10: Air Quality Management • ESCoP 11: Noise and Vibration Management • ESCoP 15: Road Transport and Road Traffic Management • ESCoP 16: River Transport management
Trainings	Lack of awareness and basic knowledge in health care among the construction workforce, make them susceptible to potential diseases.	The Contractor shall <ul style="list-style-type: none"> • Train all construction workers in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of sexually transmitted infections (STI) HIV/AIDS. • Train all construction workers in general health and safety matters, and on the specific hazards of their work Training shall consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. • Commence the malaria, HIV/AIDS and STI education campaign before the start of the construction phase and complement it with by a strong condom marketing, increased access to condoms in the area as well as to voluntary counseling and testing. • Implement malaria, HIV/AIDS and STI education campaign targeting all workers hired, international and national, female and male, skilled, semi- and unskilled occupations, at the time of recruitment and thereafter pursued throughout the construction phase on ongoing and regular basis. This shall be complemented by easy access to condoms at the workplace as well as to voluntary counseling and testing.

**ANNEXURE 6:
STANDARD OPERATING PROCEDURE (SOP)**

1. STANDARD OPERATING PROCEDURE (SOP) FOR DEMOLITION WORKS AT SITE

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to establish safe, efficient, standardized and environmentally responsible methods for carrying out building demolition works at construction sites. The SOP aims to minimize risks to workers, the public, adjacent structures, and the environment while ensuring compliance with applicable laws, standards, and contract requirements.

2.0 SCOPE

Since the demolition works fall under the responsibility of the Directorate of Primary Education (DPE), the Upazila Education Officer, on behalf of the DPE, is tasked with inviting tenders for the demolition works through a third-party contractor. However, the RIVER Project authority, under the supervision of the local LGED and project staff, will maintain additional oversight to ensure that no injuries, fatalities, or other accidents occur at the demolition sites. Accordingly, the project authority will provide guidance and recommendations to the demolition contractor on the following matters:

- Site preparation and safety measures
- Demolition execution
- Waste management and disposal
- Post-demolition site clearance and inspection

3.0 PROCEDURE

3.1 Pre-Demolition Planning & Engineering Survey

1. **Appoint a Competent Person:** A designated, experienced person (e.g., Project Manager or Demolition Specialist) must be appointed to plan, supervise, and direct the demolition.
2. **Engineering Survey:** A detailed survey must be conducted by a **Structural Engineer**. The report shall include:
 - The structure's design and construction method.
 - The condition of the structure, identifying any signs of weakness or damage.
 - The presence of pre-stressed or post-tensioned concrete members.
3. **Hazardous Materials Survey:** A pre-demolition audit must be conducted to identify and manage hazardous materials such as:

- Asbestos Containing Materials (ACM)
- Lead-based paints
- PCBs (in electrical equipment)
- Chemical or biological waste
- Underground/overhead services (gas, water, electricity, telecom)

4. Development of Demolition Plan: A comprehensive Demolition Plan must be developed, including:

- Method Statement (sequential steps for demolition).
- Equipment and machinery to be Used.
- Site-specific Risk.
- Health and Safety Plan.
- Traffic Management Plan.
- Environmental Management Plan (dust, noise, vibration, waste management).
- Emergency Response Plan.

5. Regulatory Approvals: Secure all necessary permits from local authorities before work commences.

3.2 Site Preparation & Establishment of Control Zones

1. Notification: Inform adjacent property owners, occupants, and relevant authorities of the demolition schedule.

2. Site Security: Erect a secure, physical perimeter fence/hoarding around the entire site. Post "DANGER – DEMOLITION IN PROGRESS" signs.

3. Utility Disconnection: Obtain confirmation from all utility providers that all services (gas, water, electricity, and sewer) have been isolated, disconnected, and made safe.

4. Establish Exclusion Zones:

- **Demolition Zone:** The immediate area where demolition takes place. Access is strictly limited to essential personnel.
- **Exclusion Zone:** A larger buffer area where no unauthorized personnel are allowed. This zone must account for the building height and potential debris fall.

- 5. Protection of Adjacent Properties:** Install protective measures such as scaffolding with debris netting, sidewalk sheds (hoardings), or shoring as recommended by the Structural Engineer.

3.3 Pre-Work Clearance & Final Checks

- 1. Strip-Out:** Remove all non-structural elements, fixtures, fittings, and windows not required for structural stability.
- 2. Decontamination:** All identified hazardous materials, if available, must be removed by licensed contractors prior to structural demolition.
- 3. Pre-Work Briefing (Tool-Box Talk):** Conduct a daily safety briefing with all personnel involved, covering the day's tasks, specific hazards, and emergency procedures.
- 4. Equipment Inspection:** All plant, machinery, and equipment (cranes, excavators, hammers, personal fall protection) must be inspected and certified for safe operation.

3.4 Execution of Demolition Works

- 1. Sequential Demolition:** The structure shall be demolished in a reverse sequence to its construction, typically top-down and from the inside out, to maintain stability.
- 2. Controlled Demolition Methods:**
 - **Manual Demolition:** Used for smaller sections, intricate work, or where machinery cannot access. Use appropriate tools (e.g., jackhammers, saws).
 - **Mechanical Demolition:** Using excavators with hydraulic hammers, shears, or crushers. The operator must be competent and protected within an approved cab.
- 3. Dust and Noise Suppression:** Implement continuous control measures such as water spraying (misting), use of dust suppression chemicals, and limiting work hours to comply with local regulations.
- 4. Structural Stability Monitoring:** The Structural Engineer must monitor the structure's stability throughout the process, especially after significant structural members are removed.

3.5 Waste Management & Material Handling

- 1. Segregation:** Segregate demolition waste (e.g., concrete, metal, wood, hazardous waste) into designated bins or stockpiles.
- 2. Recycling/Reuse:** Maximize opportunities for recycling and reuse of materials (e.g., concrete for fill, scrap metal for recycling).
- 3. Safe Handling:** Use correct lifting techniques and equipment for manual handling. For mechanical lifting, ensure slings and chains are in good condition and lifting plans are followed.

3.6 Post-Demolition Activities

- 1. Site Clearance:** All demolition debris must be removed from the site. The site, including foundations, should be graded and leveled as specified.
- 2. Final Inspection:** A joint inspection by the Demolition Contractor and Constuction Project Contractor’s representative including Project Manager, Site Supervisor, and Safety Officer shall be conducted to ensure the site is safe, clean, and all work is completed diligently.

4.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The following minimum PPE is mandatory for all personnel within the demolition zone:

- * Safety Helmet
- * Safety Glasses/Goggles
- * High-Visibility Vest/Clothing
- * Steel-toed Safety Boots
- * Heavy-Duty Gloves
- * Hearing Protection (where necessary)
- * Respiratory Protection (as determined by the risk, e.g., for dust)

5.0 EMERGENCY PROCEDURES

- 1. First Aid:** Ensure first-aid kits are readily available and at least one trained first-aider is present on site at all times.
- 2. Emergency Contacts:** List of emergency numbers (ambulance, fire, hospital) must be prominently displayed.
- 3. Assembly Points:** Designated and clearly marked assembly points must be established outside the exclusion zone.
- 4. Communication:** Ensure reliable communication means (e.g., two-way radios, air horns) are available to raise an alarm.

2. STANDARD OPERATING PROCEDURE (SOP) FOR PILE DRIVING OPERATIONS

1.0 PURPOSE

To establish a standardized, safe, and environmentally compliant methodology for all pile driving activities. This procedure integrates industry best management practices in order to mitigate risks to personnel, the public, equipment, and the environment.

2.0 SCOPE

This SOP applies to all personnel involved in pile driving activities, including Project Managers, Site Engineers, Piling Foremen, Crane & Piling Rig Operators, Signalmen/ Riggers, and all workers within the piling work zone. It covers all pile types and driving methods, including impact (diesel, air, hydraulic, drop), vibratory, and press-in systems.

3.0 RESPONSIBILITIES

- **Project Manager of the Contractor:** Overall responsibility for the working sites, including resource allocation, approval of method statements, and ensuring compliance with this SOP and all permits.
- **Site Engineer / Piling Manager:** Responsible for technical execution, including reviewing the preconstruction survey, setting out, verifying driving criteria and reviewing pile logs.
- **Piling Foreman:** Direct daily supervision of the piling crew. Conducts pre-work briefings, ensures adherence to the Site-Specific Safety Plan, and is the primary point of contact for the crane operator.
- **Competent Person:** Designated individual responsible for daily inspections of equipment, rigging, and site conditions, with the authority to stop work if unsafe conditions are found.
- **Assembly/Disassembly (A/D) Personnel:** A qualified person responsible for developing and supervising the equipment assembly/disassembly plan.
- **Crane/Rig Operator:** Competent to operate the specific equipment. Must understand load charts and refuse unsafe instructions.
- **Signalman/Rigger:** Certified to give clear signals and perform rigging tasks. Responsible for pre-use inspection of all rigging gear.
- **Safety Officer (HSE):** Develops and monitors the Site-Specific Safety Plan, conducts risk s, and ensures overall site safety compliance.

- **All Personnel:** Responsible for following instructions, wearing required PPE, participating in pre-task meetings, and reporting hazards.

4.0 DEFINITIONS

- **Site-Specific Safety Plan (SSSP):** A comprehensive plan based on job hazard analysis, covering all site risks, responsibilities, and emergency procedures.
- **Fall Zone:** The area (including the drop zone) in which it is reasonably foreseeable that a load could fall. A best practice is a distance of 1.5 times the length of the suspended load.
- **Dedicated Pile Driver (DPD):** A machine designed exclusively to function as a pile driver.
- **Controlling Entity:** The project owner or their designated representative (e.g., General Contractor).

5.0 PROCEDURE

5.1 Pre-Operational Planning & Engineering Survey

1. Preconstruction Survey: Contractor's Representative must perform a detailed site visit to assess:

- **Site Access & Utilization:** Establish locations for access, laydown, assembly/ disassembly, material storage, and vehicle traffic.
- **Ground Stability:** Inspect the work area to determine ground bearing capacity. The Pile Driving Contractor must provide ground bearing pressure calculations to the Controlling Entity.
- **Underground & Overhead Utilities:** Contact relevant authorities to locate and mark underground utilities and identify the overhead utilities in and across the driving area; and maintain safe procedure in consultation with the applicable authorities.
- **Hazards & Environment:** Identify confined spaces, adjacent structures, public traffic, hazardous materials, and environmental requirements (noise, vibration, permits).

2. Development of Plans:

- Develop a sub-project-specific statement detailing pile type, driving equipment, sequence, and criteria (depth or blow count) as well as develop a plan including Job Hazard Analysis, traffic control, emergency response, and hazard communication.

5.2 Site Setup & Establishment of Control Zones

1. Site Preparation:

- Prepare a level, compacted, and well-drained working platform capable of supporting equipment under maximum load.
- Implement soil erosion and sediment controls, concrete washout areas, and storm water protection.

2. Establish Exclusion Zones:

- **Fall Zone:** Clearly mark an exclusion zone with a radius of at least 1.5 times the length of the longest suspended load (pile/hammer). Access is strictly prohibited for non-essential personnel.
- **General Exclusion Zone:** A larger perimeter to protect from general site activities, marked with fencing and signage.

3. Utility Clearance: Obtain written confirmation from all utility providers that services have been isolated or relocated. Physically verify locations where possible.

5.3 Equipment Inspection, Assembly & Positioning

1. Pre-Use Inspection:

- **Cranes/DPD:** Perform daily and monthly documented inspections. Check wire ropes, safety devices, and computer controls.
- **Pile Hammers:** Inspect before each shift for loose bolts, cracked components, and cushion condition. Follow manufacturer-specific checklists for Diesel, Air, Hydraulic, and Vibratory hammers, whichever is used.
- **Leads:** Perform a minimum weekly documented inspection of cords, lacing, ladders, and connections.
- **Rigging:** Inspect all slings, shackles, and hooks prior to each use by a competent person. Remove damaged rigging from service.

2. Assembly/Disassembly (A/D):

- An A/D Director must be designated to supervise the A/D process per an approved plan.
- Fixed lead attachments to a crane must be designed by a Registered Professional Engineer (RPE).
- Use extreme caution when raising/lowering leads. Keep the hammer at the base during the process.

3. Rig Positioning: Position the rig on a stable, level platform using outrigger mats/crane pads as necessary. Ensure level is within the manufacturer's specified tolerance.

5.4 Execution of Pile Driving Works

1. **Pre-Work Briefing (Tool-Box Talk):** Conduct a daily briefing with the entire crew covering tasks, hazards, emergency procedures, and hand signals.
2. **Material Handling:**
 - Use proper rigging and qualified personnel. Never stand under a suspended load.
 - Use stanchions and adequate dunnage for materials that could roll (e.g., pipe piles).
 - Stack materials securely (4:1 ratio) and ensure they are not interlocked for easy access.
3. **Pile Installation:**
 - **Positioning:** Guide the pile from the ground whenever possible to avoid climbing leads.
 - **Driving:** The designated signal person is the only one to signal the operator. All non-essential personnel must remain outside the Fall Zone.
 - **Monitoring:** Continuously check pile alignment and driving data (penetration, blow count). Shut down the hammer when removing rigging or alignment gates.
4. **Access & Working at Height:**
 - Prohibit employees from remaining on leads or ladders while piles are being driven.
 - If climbing leads is necessary, use fall protection and ensure the equipment operator has applied all brakes.
 - For sheet pile access, use ladders, aerial lifts, or certified crane-suspended platforms with fall protection. Riding the headache ball is prohibited.
5. **Ancillary Operations:**
 - **Jetting/Predrilling:** Inspect all hoses and equipment. Wear hearing and eye protection. Control water runoff and keep the area clear of mud.
 - **Pile Cut-Off:** Suspend pile driving within twice the length of the longest pile being cut. Use rigging to control cut-off sections.
 - **Welding/Burning:** For galvanized steel, use adequate ventilation and respiratory protection.

5.5 Post-Installation & Close-Out

- **Cut-off Level & Records:** Cut pile heads to the specified grade. Compile all driving records into formal pile logs.
- **Testing:** Arrange for required integrity tests (PIT, PDA) as per the project quality plan.
- **Demobilization:** Demobilize equipment per the A/D plan. Backfill excavations and clear the site of debris.

6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The following minimum PPE is mandatory within the piling work zone:

- Hard Hat
- Safety Glasses / Face Shield (for grinding, welding, jetting)
- Hearing Protection (TWA must not exceed 90 dBA; double protection may be required)
- Safety-Toed Footwear
- High-Visibility Vest/Clothing
- Heavy-Duty Work Gloves (task-specific: leather, rubber, cut-resistant)
- **Additional PPE:** Long pants, well-fitted clothing, secured long hair. Welding hoods, sleeves, and chaps for specific tasks. Fall protection for work at 6' or more.

7.0 EMERGENCY PROCEDURES

1. Emergency Response Plan: Must include

- Location of first-aid supplies and trained personnel (First Aid/CPR).
- Emergency phone numbers and directions to the nearest walk-in clinic and hospital.
- Pre-notification and site visit with local Fire/Rescue.
- Procedures for accident and hazardous spill reporting.

2. Rescue Plan: A specific plan for incidents like rig overturn, electrical contact, or personnel struck by a load must be in place.

3. Communication: Ensure reliable communication (two-way radios) between the operator, signalman, and foreman. Establish "All STOP" emergency signals.



Government of the People's Republic of Bangladesh
Ministry of Local Government, Rural Development & Co-operatives
Local Government Division
Local Government Engineering Department (LGED)

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Environmental and Social Assessment and Management Report

Package Name: LGED/RIVER/RAJ/21-22/NW-17

Environmental and Social Assessment Checklist for Rajbari District

FEBRUARY 2026

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Local Government Engineering Department
Government of the People's Republic of Bangladesh

Checklist for Environmental and Social Assessment

1. Subproject Description

RAJ-022 Date: 03/02/2026

Sl. #	Subproject Description	Response
1.	Package Name and Number:	
2.	Name of the Subproject/component:	4 No. Horinbaria GIPS
3.	Educational Institute ID/ Road ID:	91313021302
4.	Estimated total Cost of the sub project/component (in Taka):	
5.	Estimated Operation and Maintenance Period (Subproject life time):	1 no.
6.	Division: Dhaka District: Rajbari Upazila: Kalukhali Union: Ratanidia	
7.	Name of the community/ Local area:	Paschim Haroa
8.	Size of the local population:	30,000
9.	Major profession of local population:	Agriculture (90%), Daily laborer (5%), others (5%)
10.	Distance of the site from Upazila HQ:	5km → South
11.	Nearby Major Road:	Rajbari - Kushtia → 3km → East
12.	Nearby River/ Canal:	Padma → North → 4km. Padma tributary → South → 4km → East
13.	Description of proposed Subproject activities (incl. type of activities, footprint area, natural resources required, etc.):	
14.	Brief description of Subproject site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	Playground, Rural settlements, Earthen road
15.	Types of waste to be generated during construction and operation phase:	Organic/ Inorganic waste
16.	Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests:	

Catchment Area: Kamia, Gongga -
nondopuri, Madhobpur, Paschim.
Haroa.

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

2. Environmental and Social Screening Form

2.1 Section A: Subproject Overview

1.	Description of Subproject/component interventions:
2.	Subproject Location: 23-782900 / 89-502600
3.	Expected construction period:
4.	Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive social and environmental areas such as archeological/religious/ historical or cultural assets or sites, human settlements, forests, water bodies, etc.): Archeological place: Religious place: > N/A Forest: Wetland:

2.2 Section B: Environmental and Social Screening Checklist

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
1.0	Subproject Sitting/Location Is the Subproject area.....							
1.1	Adjacent to/or within any of the social/environmentally sensitive areas?							
	• Cultural heritage site		✓					
	• Ethnic minority areas		✓					
	• Protected Area		✓					
	• Wetland		✓					
	• Mangrove		✓					
	• Estuarine		✓					
	• Buffer zone of protected areas		✓					
1.2	Are there any ponds, khals, beels, haors, baors, rivers, etc. in/around the site?							No.: Distance: Direction:
	Please specify numbers and name for each.		✓					Ponds:
			✓					khals:
			✓					Beels:
			✓					Haors:
1.3	Any sensitive sites for river erosion? Where & Severity?		✓					Rivers: Others:
2.0	Baseline at Pre-Construction Stage							
2.1	Ancillary Facilities (e.g. status of access road or any other facility required for Subproject to be viable)?	✓				✓		Madhobpur Bazar road → Farther
2.2	Air quality status (apparently/ visibly)?	✓		✓				12 feet apparently/ visibly good
2.3	Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction?	✓				✓		Accommodation, Toilet, Electricity, Supply Water, drinking water.
2.4	Possible location of labor camps?	✓				✓		On-site

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
2.5	Requirement and type of raw materials (e.g. sand, stone, wood, etc.)?	✓		✓				
2.6	Identification of access road for transportation?	✓						Hiron Mellor Ghat -> HBB 7/14 On site
2.7	Location identification for raw material storage?	✓		✓				
2.8	Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.)?			✓				Solids waste, demolition materials, concrete wastes etc.
2.9	Mention source of drinking water in dry and wet seasons	✓			✓			Shallow / ✓Deep Tube well: If deep tube well, mention depth (feet): 380-400 If other, specify: Rainwater harvesting available: No Onsite/ off site/ NAV
2.10	Has the Subproject/component site any seismic risk (historically)?		✓					
2.11	Identification of possible stakeholders, especially vulnerable groups?		✓					
3.0	Potential Socio-environmental impacts. Will the Subproject cause.....							
3.1	Potential influx of workers to the project location? Whether significant for the local community?		✓					
3.2	Possible conflict between workers and local people?		✓					
3.3	Resource constraint for the local population (due to the additional burden of incoming workers/staff)?		✓					
3.4	Possible loss of agricultural land/ crops?		✓					
3.5	Involvement of any land acquisition and involuntary resettlement?		✓					
3.6	Loss of residential, business or enterprises due to construction of flood shelter, land requisition/acquisition and so on?		✓					
3.7	Loss of income sources and means of livelihoods due to construction of flood shelter, land requisition/ requisition?		✓					
3.8	Impacts on any vulnerable (poor, old-aged, female-headed households, ethnic people, etc.) people?		✓					Detail out about the groups and how is impacted:

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
3.9	Loss of access to natural resources, communal facilities and services?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
3.10	Impacts on social and economic activities due to the change in land use (if any)?		<input checked="" type="checkbox"/>					
3.11	Cutting trees for construction works of with more than 3" girth diameters?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Species name & Number of trees: 06 / Melugum
3.12	Impact on pond or fish population or aquatic habitats?		<input checked="" type="checkbox"/>					
3.13	Any surface water pollution? If yes, Source?		<input checked="" type="checkbox"/>					
3.14	Any Groundwater pollution? If yes, Source?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Fe=Iron, As = Arsenic, Mn = Manganese, Hard = Hardness 100 - 200 If other, Specify: Contaminant's depth (feet): (Shallow / Deep) <input checked="" type="checkbox"/>
3.15	Possible contamination of surface and ground waters due to improper waste disposal:		<input checked="" type="checkbox"/>					
3.16	The type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):		<input checked="" type="checkbox"/>					Solids waste, demolition materials, concrete wastes etc.
3.17	Impacts on surrounding environment due to sanitation and solid waste disposal: (Briefly mention the sources and extent of impacts)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Disposal area available? <input checked="" type="checkbox"/> Yes/No If yes, where & how: <input checked="" type="checkbox"/> On-site, <input checked="" type="checkbox"/> Off-site
3.18	Impacts from construction camp?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Camp area available? <input checked="" type="checkbox"/> Yes / No If yes, where? <input checked="" type="checkbox"/> Onsite / <input checked="" type="checkbox"/> off site
3.19	Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?		<input checked="" type="checkbox"/>					Water logged for (days): Water height (feet):
3.20	Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?		<input checked="" type="checkbox"/>					
3.21	Flooding problem in the area? Mention frequency & severity	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Year: 1999 2020 Height: 2.5m / 3 feet Days: 30 day / 20 days
3.22	Traffic disturbances due to construction material transport and wastes?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Barthen
3.23	Possibility of Subproject induced air / dust pollution? Mention the sources and impacts.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
3.24	Noise pollution from construction, industrial and vehicles?	✓		✓				
3.25	Risks and vulnerabilities related to occupational health and safety due to hazards during construction and operation phase?	✓		✓				
3.26	Negative effects on neighborhood or community (Mention types and scale of impacts)?		✓					
3.27	Degradation or disturbance of historically, culturally important site (mosque, graveyards, monuments, etc.)?		✓					
3.28	Any Impediments to movements of people and livestock during construction period?		✓					
3.29	The shelter buildings need to relocate/ Shift to another place? If yes, Mention Relocation place name, distance from site, for how long, is rent needed? Show relocation place in the topographical map.		✓					
3.30	Disturbance to the student in taking the lesson in the classroom?	✓		✓				
3.31	Direct or indirect hazards to student for walking in the school campus by construction activities?	✓		✓				Protective fencing required <i>Yes</i>
3.32	Is there any disaster early warning system? If Yes, by Whom?	✓		✓				Yes: UDMC, VMiking, TV, TNO, TEO, Red crescent, VMobile phone SMS, etc.
3.33	Are there any power transmission line on the school premises?		✓					

¹ Y= Yes, N=No, H=High, S=Substantial, M=Medium, and L=Low

Total land: 168 decimal
 Teacher (4) : Male (4), Female (0),
 Student (248) : Male (101), Female (147),
 Needed Access road improvement
 Ready for site.

Checklist on Environmental Issues for Site-specific Screening/ESIA

1: Important Establishments and boundary village/river around the Subproject site

Sl. No.	Direction	Important Establishments
1.	North side	1. Surjomukhi K.G. School → 1 km. 2. Madhobpur Bazar mosque → 300m 3. Madhobpur Bazar → 480m 4. Horinbaria Puratan char Jame Mosque → 900m.
		Rural settlement Adjacent to school
2.	South side	Rural settlement, Agricultural land, Heromollaghat River view point → 270m Chandana River → 1 km. Ganga Nandapur Jame Mosque → 1.10 km.
3.	East side	1. Paschim haroa mosque → 800m 2. " " eidgah → 1 km. 3. Salepur River view point → 1.20 km
4.	West side	1. Kamia Madrasa → 80m 2. " Mosque → 80m 3. " Graveyard → 25m

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

2: Trees within the school boundary

Sl. #	Name of trees	Particular and No. of Trees				Total	Remarks
		Large	Medium	Small	Sapling		
1.	Banayan		01				
2.	Mango			05			
3.	Mehuguni			06+07		013	
4.							
5.							
6.							

3: Pond/ Water bodies found inside and adjacent to the Subproject area:

Sl. #	Direction	Water body type (pond, river, canal, beel, drain)	Size (ft x ft)	Depth (ft)	Fish Firming (Yes or No)	Name of Firming Fish	Use of pond (Domestic/ Bathing / other)
1.	North						
2.	South						
3.	East						
4.	West						

4. Indigenous, brackish water and endangered fish species exist in catchment area of the Subproject:


Yes or No. If yes, Mention Name:


5. The common local birds found in the catchment area:

6. Wild animals found in the catchment area:

7. Endangered faunal species found in the catchment area:

8. The soils are highly/moderately/not saline at a depth of... N/A ... ft in and around the subproject areas throughout the year.


Engr. AJ Mehedee Hasan
M.Sc. & B.Sc. in Civil Engineering
District Resident Engineer
RIVER Project, LGED Rajbari.


Harogopal Kabiraj
Sr. Environmental Specialist
D & S Consultant
RIVER Project, LGED, HQ.

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Local Government Engineering Department
Government of the People's Republic of Bangladesh

Checklist for Environmental and Social Assessment

1. Subproject Description

RAJ-023

Date: **02/02/2026**

Sl. #	Subproject Description	Response
1.	Package Name and Number:	
2.	Name of the Subproject/component:	51 no. Parabelgachi
3.	Educational Institute ID/ Road ID:	Mosiz Uddin GHS 99313011602
4.	Estimated total Cost of the sub project/component (in Taka):	
5.	Estimated Operation and Maintenance Period (Subproject life time):	
6.	Division: Dhaka District: Rajbari Upazila: Kalukhali Union: 2 no. Kalikapur	
7. ✓	Name of the community/ Local area:	Para Belgachi.
8.	Size of the local population:	20,000
9.	Major profession of local population:	Agriculture (90%), Dairy labor (5%), Fisherman (3%), Others (12%)
10.	Distance of the site from Upazila HQ:	6 km → South East
11.	Nearby Major Road:	Rajbari - Khustia → 6.5 km → South East
12.	Nearby River/ Canal:	Chandana River → North East → 200m / Padma River
13.	Description of proposed Subproject activities (incl. type of activities, footprint area, natural resources required, etc.):	East → 2 km.
14.	Brief description of Subproject site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	Pond, Ditch, Rural Settlement,
15.	Types of waste to be generated during construction and operation phase:	Demolition waste, organic, inorganic waste
16.	Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests:	N/A

Catchment Area: Satota, Gostompur,
Narayandia, Math Kalukhali
Para Belgachi.

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

2. Environmental and Social Screening Form

2.1 Section A: Subproject Overview

1.	Description of Subproject/component interventions:
2.	Subproject Location: <u>23.80214 / 89.46755</u>
3.	Expected construction period: <u>23.801909 / 89.467868</u>
4.	Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive social and environmental areas such as archeological/religious/ historical or cultural assets or sites, human settlements, forests, water bodies, etc.): Archeological place: Religious place: Forest: Wetland:

2.2 Section B: Environmental and Social Screening Checklist

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
1.0	Subproject Sitting/Location							
	Is the Subproject area.....							
1.1	Adjacent to/or within any of the social/environmentally sensitive areas?							Lahore / Korimbar tribal people Population 100
	• Cultural heritage site	✓	✓		✓			
	• Ethnic minority areas	✓	✓					
	• Protected Area	✓	✓					
	• Wetland	✓	✓					
	• Mangrove	✓	✓					
	• Estuarine	✓	✓					
	• Buffer zone of protected areas	✓	✓					
1.2	Are there any ponds, khals, beels, haors, baors, rivers, etc. in/around the site?							No.: 01 Distance: Adj Direction: South Ponds: 01 khals: Beels: Haors: Rivers: Others:
	Please specify numbers and name for each.	✓	✓		✓			
		✓	✓					
		✓	✓					
		✓	✓					
		✓	✓					
		✓	✓					
1.3	Any sensitive sites for river erosion? Where & Severity?		✓					
2.0	Baseline at Pre-Construction Stage							
2.1	Ancillary Facilities (e.g. status of access road or any other facility required for Subproject to be viable)?	✓			✓			Parabelgachi Adjacent Road (12 Feet) → WBM
2.2	Air quality status (apparently/ visibly)?	✓		✓				apparently/ visibly good
2.3	Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction?	✓			✓			Accommodation, Toilet, Electricity, Supply water, drinking water.
2.4	Possible location of labor camps?	✓			✓			Off Site

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
2.5	Requirement and type of raw materials (e.g. sand, stone, wood, etc.)?	✓		✓				
2.6	Identification of access road for transportation?	✓			✓			Same as 2.1
2.7	Location identification for raw material storage?	✓			✓			On site
2.8	Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.)?	✓			✓			Solids waste, demolition materials, concrete wastes etc.
2.9	Mention source of drinking water in dry and wet seasons		✓		✓			Shallow / ✓Deep Tube well: If deep tube well, mention depth (feet): 400 If other, specify: Rainwater harvesting available: No Onsite/ off site/ NAV
2.10	Has the Subproject/component site any seismic risk (historically)?		✓					
2.11	Identification of possible stakeholders, especially vulnerable groups?		✓					
3.0	Potential Socio-environmental impacts. Will the Subproject cause.....							
3.1	Potential influx of workers to the project location? Whether significant for the local community?		✓					
3.2	Possible conflict between workers and local people?		✓					
3.3	Resource constraint for the local population (due to the additional burden of incoming workers/staff)?		✓					
3.4	Possible loss of agricultural land/ crops?		✓					
3.5	Involvement of any land acquisition and involuntary resettlement?		✓					
3.6	Loss of residential, business or enterprises due to construction of flood shelter, land requisition/acquisition and so on?		✓					
3.7	Loss of income sources and means of livelihoods due to construction of flood shelter, land acquisition/ requisition?		✓					
3.8	Impacts on any vulnerable (poor, old-aged, female-headed households, ethnic people, etc.) people?		✓					Detail out about the groups and how is impacted:

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
3.9	Loss of access to natural resources, communal facilities and services?		<input checked="" type="checkbox"/>					
3.10	Impacts on social and economic activities due to the change in land use (if any)?		<input checked="" type="checkbox"/>					
3.11	Cutting trees for construction works of with more than 3" girth diameters?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Species name & Number of trees: 5/Mehugani.
3.12	Impact on pond or fish population or aquatic habitats?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Adjacent Pond
3.13	Any surface water pollution? If yes, Source?		<input checked="" type="checkbox"/>					
3.14	Any Groundwater pollution? If yes, Source?			<input checked="" type="checkbox"/>				Fe=Iron, As = Arsenic, Mn = Manganese, Hard = Hardness If other, Specify: Contaminant's depth (feet): (Shallow / Deep)
3.15	Possible contamination of surface and ground waters due to improper waste disposal:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
3.16	The type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Solids waste, demolition materials, concrete wastes etc.
3.17	Impacts on surrounding environment due to sanitation and solid waste disposal: (Briefly mention the sources and extent of impacts)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Disposal area available? √Yes/No If yes, where & how: √On-site, Off-site
3.18	Impacts from construction camp?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Camp area available? √Yes / No If yes, where? √Onsite /off site
3.19	Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Water logged for (days): Water height (feet):
3.20	Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
3.21	Flooding problem in the area? Mention frequency & severity	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Year: Sep 1988 Height: 7 feet Days:
3.22	Traffic disturbances due to construction material transport and wastes?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
3.23	Possibility of Subproject induced air / dust pollution? Mention the sources and impacts.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
3.24	Noise pollution from construction, industrial and vehicles?	✓		✓				
3.25	Risks and vulnerabilities related to occupational health and safety due to hazards during construction and operation phase?	✓		✓				
3.26	Negative effects on neighborhood or community (Mention types and scale of impacts)?		✓					
3.27	Degradation or disturbance of historically, culturally important site (mosque, graveyards, monuments, etc.)?		✓					
3.28	Any Impediments to movements of people and livestock during construction period?		✓					
3.29	The shelter buildings need to relocate/ Shift to another place? If yes, Mention Relocation place name, distance from site, for how long, is rent needed? Show relocation place in the topographical map.		✓					
3.30	Disturbance to the student in taking the lesson in the classroom?	✓		✓				Outside of school
3.31	Direct or indirect hazards to student for walking in the school campus by construction activities?	✓		✓				Protective fencing required Yes
3.32	Is there any disaster early warning system? If Yes, by Whom?	✓		✓				Yes: UDMC, vMiking, TV, TNO, TEO, Red crescent, vMobile phone SMS, etc.
3.33	Are there any power transmission line on the school premises?		✓					

¹ Y= Yes, N=No, H=High, S=Substantial, M=Medium, and L=Low

Teacher (6): Male (1) Female (5)

Student (160): Boys (81), Girls - 79

Total land: 33 decimal

Temporary School Required (off site)

Needed connecting road improvement

Demolition: two toilet, finished building, old pucca building.

① = 3

Checklist on Environmental Issues for Site-specific Screening/ESIA

1: Important Establishments and boundary village/river around the Subproject site

Sl. No.	Direction	Important Establishments
1.	North side	1. Para belgachi temple → 20m. 2. u u samsan → 300m 3. Gautionpur Hafeza Madrasa and orphanage → 860m Rural settlement 4. Abu Zafar Mohamed Saken High School → 1.10km
2.	South side	1. Para Belgachi, Khairul Alam community clinic → 400m. 2. Math kalukhali mosque → 600m. Rural settlement, U.K. 3. Kalukhali GPS - 1km, Kalukhali, Uttari Para mosque → 850m
3.	East side	1. Para Belgachi Jame Mosque → 300m 2. u u Madrasa → 300m 3. Chandana River → 200m Rural settlement, Adji
4.	West side	1. Para Belgachi Poschim Para Mosque → 300m. 2. Satota GPS - 910m Rural settlement, Adji 3. Sathta Dakkhin Para Mosque - 1.10km

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

2: Trees within the school boundary

Sl. #	Name of trees	Particular and No. of Trees				Total	Remarks
		Large	Medium	Small	Sapling		
1.	Mehuguni		05	01			
2.	Coconut		02				
3.							
4.							
5.							
6.							

3: Pond/ Water bodies found inside and adjacent to the Subproject area:

Sl. #	Direction	Water body type (pond, river, canal, beel, drain)	Size (ft x ft)	Depth (ft)	Fish Firming (Yes or No)	Name of Firming Fish	Use of pond (Domestic/ Bathing / other)
1.	North						
2.	South	Pond	20 x 15	7-8	Yes	Cury	Fishing
3.	East						
4.	West	Ditch					

4. Indigenous, brackish water and endangered fish species exist in catchment area of the Subproject:

Yes or No. If yes, Mention Name:

5. The common local birds found in the catchment area:

6. Wild animals found in the catchment area:

7. Endangered faunal species found in the catchment area:

8. The soils are highly/moderately/not saline at a depth of..... ft in and around the subproject areas throughout the year.

(Signature)
Engr. Al Mehedee Hasan
 M.Sc. & B.Sc. in Civil Engineering
 District Resident Engineer
 RIVER Project, LGED Rajbari.

(Signature)
Harogopal Kabiraj
 Sr Environmental Specialist
 D & S Consultant
 RIVER Project, LGED, HQ.

RAJ-023_ 51 No. Para Belgachi Mofiz uddin GPS

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Local Government Engineering Department
Government of the People's Republic of Bangladesh

Checklist for Environmental and Social Assessment

1. Subproject Description

RAJ-029

Date: 02/02/2026

Sl. #	Subproject Description	Response
1.	Package Name and Number:	
2.	Name of the Subproject/component:	Kalukhali GPS
3.	Educational Institute ID/ Road ID:	91313020303
4.	Estimated total Cost of the sub project/component (in Taka):	
5.	Estimated Operation and Maintenance Period (Subproject life time):	
6.	Division: Dhaka District: Rajbari Upazila: Kalukhali Union: Kalikapur	
7.	Name of the community/ Local area:	Kalukhali
8.	Size of the local population:	15,000
9.	Major profession of local population:	Agriculture (80%), Daily labor (10%), others (10%)
10.	Distance of the site from Upazila HQ:	7km → South.
11.	Nearby Major Road:	Rajbari - Kushtia → 8km → South
12.	Nearby River/ Canal:	Padma River → 4km → East.
13.	Description of proposed Subproject activities (incl. type of activities, footprint area, natural resources required, etc.):	N
14.	Brief description of Subproject site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	Agricultural lands, Road, Grey ward
15.	Types of waste to be generated during construction and operation phase:	Organic, Inorganic waste
16.	Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests:	N/A

Catchment: Narayandia UHare, Kalukhali, Thakwipara, Math Kalukhali,

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

2. Environmental and Social Screening Form

2.1 Section A: Subproject Overview

1.	Description of Subproject/component interventions:
2.	Subproject Location: 23.792410 / 89.470660
3.	Expected construction period:
4.	Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive social and environmental areas such as archeological/religious/ historical or cultural assets or sites, human settlements, forests, water bodies, etc.): Archeological place: Religious place: N/A Forest: Wetland:

2.2 Section B: Environmental and Social Screening Checklist

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
1.0	Subproject Sitting/Location							
	Is the Subproject area.....							
1.1	Adjacent to/or within any of the social/environmentally sensitive areas?							
	• Cultural heritage site		✓					
	• Ethnic minority areas		✓					
	• Protected Area		✓					
	• Wetland		✓					
	• Mangrove		✓					
	• Estuarine		✓					
	• Buffer zone of protected areas		✓					
1.2	Are there any ponds, khals, beels, haors, baors, rivers, etc. in/around the site?							No.: Distance: Direction:
	Please specify numbers and name for each.		✓					Ponds:
			✓					khals:
			✓					Beels:
			✓					Haors: Rivers: Others:
1.3	Any sensitive sites for river erosion? Where & Severity?		✓					
2.0	Baseline at Pre-Construction Stage							
2.1	Ancillary Facilities (e.g. status of access road or any other facility required for Subproject to be viable)?	✓			✓			Kalukhali - Ara Belgachi BC -> (145ca)
2.2	Air quality status (apparently/ visibly)?	✓			✓			apparently/ visibly good
2.3	Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction?	✓			✓			Accommodation, Toilet, Electricity, Supply water, drinking water.
2.4	Possible location of labor camps?	✓		✓				On site

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
2.5	Requirement and type of raw materials (e.g. sand, stone, wood, etc.)?	✓		✓				
2.6	Identification of access road for transportation?	✓		✓				Same as 2.1
2.7	Location identification for raw material storage?	✓		✓				On site
2.8	Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.)?			✓				Solids waste, demolition materials, concrete wastes etc.
2.9	Mention source of drinking water in dry and wet seasons	✓		✓				Shallow / ✓ Deep Tube well: If deep tube well, mention depth (feet): 400 feet If other, specify: Rainwater harvesting available: No Onsite/ off site/ NAV
2.10	Has the Subproject/component site any seismic risk (historically)?			✓				
2.11	Identification of possible stakeholders, especially vulnerable groups?			✓				
3.0	Potential Socio-environmental impacts. Will the Subproject cause.....							
3.1	Potential influx of workers to the project location? Whether significant for the local community?			✓				
3.2	Possible conflict between workers and local people?			✓				
3.3	Resource constraint for the local population (due to the additional burden of incoming workers/staff)?			✓				
3.4	Possible loss of agricultural land/ crops?			✓				
3.5	Involvement of any land acquisition and involuntary resettlement?			✓				
3.6	Loss of residential, business or enterprises due to construction of flood shelter, land requisition/acquisition and so on?			✓				
3.7	Loss of income sources and means of livelihoods due to construction of flood shelter, land acquisition/ requisition?			✓				
3.8	Impacts on any vulnerable (poor, old-aged, female-headed households, ethnic people, etc.) people?			✓				Detail out about the groups and how is impacted:

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
3.9	Loss of access to natural resources, communal facilities and services?	✓		✓				
3.10	Impacts on social and economic activities due to the change in land use (if any)?	✓		✓				
3.11	Cutting trees for construction works of with more than 3" girth diameters?		✓					Species name & Number of trees:
3.12	Impact on pond or fish population or aquatic habitats?	✓	✓					
3.13	Any surface water pollution? If yes, Source?		✓					
3.14	Any Groundwater pollution? If yes, Source?		✓					Fe=Iron, As = Arsenic, Mn = Manganese, Hard = Hardness If other, Specify: Contaminant's depth (feet): (Shallow / Deep)
3.15	Possible contamination of surface and ground waters due to improper waste disposal:		✓					
3.16	The type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):	✓		✓				Solids waste, demolition materials, concrete wastes etc.
3.17	Impacts on surrounding environment due to sanitation and solid waste disposal: (Briefly mention the sources and extent of impacts)	✓		✓				Disposal area available? vYes/No If yes, where & how: vOn-site, Off-site
3.18	Impacts from construction camp?	✓		✓				Camp area available? vYes / No If yes, where? vOnsite /off site
3.19	Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?		✓					Water logged for (days): Water height (feet):
3.20	Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?		✓					
3.21	Flooding problem in the area? Mention frequency & severity	✓			✓			Year: 1986 / 2018 Height: 15 feet / low land (2.6) Days: 20-30 days / 30 days
3.22	Traffic disturbances due to construction material transport and wastes?	✓		✓				
3.23	Possibility of Subproject induced air / dust pollution? Mention the sources and impacts.	✓		✓				

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
3.24	Noise pollution from construction, industrial and vehicles?	✓		✓				
3.25	Risks and vulnerabilities related to occupational health and safety due to hazards during construction and operation phase?	✓		✓				
3.26	Negative effects on neighborhood or community (Mention types and scale of impacts)?	✓		✓				
3.27	Degradation or disturbance of historically, culturally important site (mosque, graveyards, monuments, etc.)?		✓					
3.28	Any Impediments to movements of people and livestock during construction period?		✓					
3.29	The shelter buildings need to relocate/ Shift to another place? If yes, Mention Relocation place name, distance from site, for how long, is rent needed? Show relocation place in the topographical map.		✓					
3.30	Disturbance to the student in taking the lesson in the classroom?		✓					
3.31	Direct or indirect hazards to student for walking in the school campus by construction activities?		✓					Protective fencing required (Yes)
3.32	Is there any disaster early warning system? If Yes, by Whom?	✓		✓				Yes: UDMC, vMiking, TV, TNO, TEO, Red crescent, vMobile phone SMS, etc.
3.33	Are there any power transmission line on the school premises?		✓					

¹ Y= Yes, N=No, H=High, S=Substantial, M=Medium, and L=Low

Total land: 42 decimal.

Teacher (7): Male (5) Female (2)

Student (~~282~~): u (131) u (150)
281

Ready for site (option 2)

Approx. Road connecting → 30m.
School South faced.

Checklist on Environmental Issues for Site-specific Screening/ESIA

1: Important Establishments and boundary village/river around the Subproject site

Sl. No.	Direction	Important Establishments
1.	North side	1. Uttar Kalukhali mosque → 500m. 2. Khairul Alam community clinic → 1km. 3. Mosque → 900m.
2.	South side	1. Kalukhali central eidgah → 250m. 2. " " " graveyard → 260m. 3. " " Madrasa → 300m.
3.	East side	1. Thakurpara kali temple → 300m. 2. Kalukhali High School - 500m. Adorsho
4.	West side	1. Math kalukhali mosque → 800m. 2. Graveyard (Family) → Adjacent to school.

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

2: Trees within the school boundary

Sl. #	Name of trees	Particular and No. of Trees				Total	Remarks
		Large	Medium	Small	Sapling		
1.							
2.							
3.							
4.							
5.							
6.							

3: Pond/ Water bodies found inside and adjacent to the Subproject area:

Sl. #	Direction	Water body type (pond, river, canal, beel, drain)	Size (ft x ft)	Depth (ft)	Fish Farming (Yes or No)	Name of Farming Fish	Use of pond (Domestic/ Bathing / other)
1.	North						
2.	South						
3.	East						
4.	West						

4. Indigenous, brackish water and endangered fish species exist in catchment area of the Subproject:

Yes or No. If yes, Mention Name:

5. The common local birds found in the catchment area:

6. Wild animals found in the catchment area:

7. Endangered faunal species found in the catchment area:

8. The soils are highly/moderately/not saline at a depth of... ft in and around the subproject areas throughout the year.

Engr. Al Mehede Hasan
M.Sc. & B.Sc. in Civil Engineering
District Resident Engineer
RIVER Project, LGED Rajbari.

Harogopal Kabiraj
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D & S Consultant
RIVER Project, LGED, Rajbari.

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Local Government Engineering Department
Government of the People's Republic of Bangladesh

Checklist for Environmental and Social Assessment

1. Subproject Description

RAJ-025 Date: 02/02/2026

Sl. #	Subproject Description	Response
1.	Package Name and Number:	
2.	Name of the Subproject/component:	71 no. Yakub Hossain Mollah
3.	Educational Institute ID/ Road ID:	99313059203 GPS
4.	Estimated total Cost of the sub project/component (in Taka):	
5.	Estimated Operation and Maintenance Period (Subproject life time):	
6.	Division: Dhaka District: Rajbari Upazila: Kalukhali Union: Kaliakapure	
7.	Name of the community/ Local area:	Satota
8.	Size of the local population:	15,000
9.	Major profession of local population:	Agriculture (80%) Daily laborer (10%), Others (10%)
10.	Distance of the site from Upazila HQ:	8km → East
11.	Nearby Major Road:	Rajbari - Kuschia → 9km → East
12.	Nearby River/ Canal:	Chandana River (Padma tribu- → 4km → North
13.	Description of proposed Subproject activities (incl. type of activities, footprint area, natural resources required, etc.):	
14.	Brief description of Subproject site: (e.g. present land use, Important Social and Environmental Features (IEFs) near site, etc.)	Satota Bazar, Agriculture land, Rural settlement
15.	Types of waste to be generated during construction and operation phase:	Demolition waste, organic / Inorganic -
16.	Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including major water bodies/forests:	N/A

Catchment: Botampore, Nalkadna, Satota, Chandpore, Mathkalukhali, Jhaugram,

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

2. Environmental and Social Screening Form

2.1 Section A: Subproject Overview

1.	Description of Subproject/component interventions:
2.	Subproject Location: 23. 8008191 / 89. 458963
3.	Expected construction period:
4.	Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive social and environmental areas such as archeological/religious/ historical or cultural assets or sites, human settlements, forests, water bodies, etc.): Archeological place: Religious place: > N/A Forest: Wetland:

2.2 Section B: Environmental and Social Screening Checklist

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
1.0	Subproject Sitting/Location							
	Is the Subproject area.....							
1.1	Adjacent to/or within any of the social/environmentally sensitive areas?							
	• Cultural heritage site		✓					
	• Ethnic minority areas		✓					
	• Protected Area		✓					
	• Wetland		✓					
	• Mangrove		✓					
	• Estuarine		✓					
	• Buffer zone of protected areas		✓					
1.2	Are there any ponds, khals, beels, haors, baors, rivers, etc. in/around the site?							No.: 01 Distance: 10m Direction: East
	Please specify numbers and name for each.							Ponds: 1/ Dital
			✓					khals:
			✓					Beels:
			✓					Haors:
			✓					Rivers:
1.3	Any sensitive sites for river erosion? Where & Severity?		✓					Others:
2.0	Baseline at Pre-Construction Stage							
2.1	Ancillary Facilities (e.g. status of access road or any other facility required for Subproject to be viable)?							Sato fa - Kaliga of road → BC
2.2	Air quality status (apparently/ visibly)?	✓			✓			apparently/ visibly good
2.3	Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction?	✓		✓				Accommodation, Toilet, Electricity, Supply water, drinking water.
2.4	Possible location of labor camps?	✓		✓				On Site

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
2.5	Requirement and type of raw materials (e.g. sand, stone, wood, etc.)?	✓		✓				
2.6	Identification of access road for transportation?	✓		✓				
2.7	Location identification for raw material storage?	✓		✓				Attunganj gate Bazar - Switch Road (16 Sec.)
2.8	Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.)?		✓					Solids waste, demolition materials, concrete wastes etc.
2.9	Mention source of drinking water in dry and wet seasons	✓		✓				Shallow / √Deep Tube well: If deep tube well, mention depth (feet): 400' If other, specify: Rainwater harvesting available: No Onsite/ off site/ NAV
2.10	Has the Subproject/component site any seismic risk (historically)?		✓					
2.11	Identification of possible stakeholders, especially vulnerable groups?		✓					
3.0	Potential Socio-environmental impacts. Will the Subproject cause.....							
3.1	Potential influx of workers to the project location? Whether significant for the local community?		✓					
3.2	Possible conflict between workers and local people?		✓					
3.3	Resource constraint for the local population (due to the additional burden of incoming workers/staff)?		✓					
3.4	Possible loss of agricultural land/ crops?		✓					
3.5	Involvement of any land acquisition and involuntary resettlement?		✓					
3.6	Loss of residential, business or enterprises due to construction of flood shelter, land requisition/acquisition and so on?		✓					
3.7	Loss of income sources and means of livelihoods due to construction of flood shelter, land acquisition/ requisition?		✓					
3.8	Impacts on any vulnerable (poor, old-aged, female-headed households, ethnic people, etc.) people?		✓					Detail out about the groups and how is impacted:

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District**

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
3.9	Loss of access to natural resources, communal facilities and services?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
3.10	Impacts on social and economic activities due to the change in land use (if any)?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
3.11	Cutting trees for construction works of with more than 3" girth diameters?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Species name & Number of trees: 2, Mango
3.12	Impact on pond or fish population or aquatic habitats?		<input checked="" type="checkbox"/>					
3.13	Any surface water pollution? If yes, Source?		<input checked="" type="checkbox"/>					
3.14	Any Groundwater pollution? If yes, Source?							<input checked="" type="checkbox"/> Fe=Iron, As = Arsenic, Mn = Manganese, Hard = Hardness (100-180) If other, Specify: Contaminant's depth (feet): <input checked="" type="checkbox"/> (Shallow / Deep)
3.15	Possible contamination of surface and ground waters due to improper waste disposal:	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
3.16	The type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):		<input checked="" type="checkbox"/>					Solids waste, demolition materials, concrete wastes etc.
3.17	Impacts on surrounding environment due to sanitation and solid waste disposal: (Briefly mention the sources and extent of impacts)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Disposal area available? <input checked="" type="checkbox"/> Yes/No If yes, where & how: <input checked="" type="checkbox"/> On-site, Off-site
3.18	Impacts from construction camp?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Camp area available? <input checked="" type="checkbox"/> Yes / No If yes, where? <input checked="" type="checkbox"/> Onsite / off site
3.19	Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?		<input checked="" type="checkbox"/>					Water logged for (days): Water height (feet):
3.20	Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?		<input checked="" type="checkbox"/>					
3.21	Flooding problem in the area? Mention frequency & severity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Year: 1988 / 1998 Height: 5 feet / 5 feet
3.22	Traffic disturbances due to construction material transport and wastes?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
3.23	Possibility of Subproject induced air / dust pollution? Mention the sources and impacts.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social and Management Report for Rajbari District

Sl. #	Screening Questions	Y	N	Impact ¹				Justification for the response (please provide answers to each question)
				L	M	S	H	
3.24	Noise pollution from construction, industrial and vehicles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.25	Risks and vulnerabilities related to occupational health and safety due to hazards during construction and operation phase?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.26	Negative effects on neighborhood or community (Mention types and scale of impacts)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.27	Degradation or disturbance of historically, culturally important site (mosque, graveyards, monuments, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.28	Any Impediments to movements of people and livestock during construction period?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Onsite
3.29	The shelter buildings need to relocate/ Shift to another place? If yes, Mention Relocation place name, distance from site, for how long, is rent needed? Show relocation place in the topographical map.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.30	Disturbance to the student in taking the lesson in the classroom?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Noisy Activities
3.31	Direct or indirect hazards to student for walking in the school campus by construction activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Protective fencing required Yes
3.32	Is there any disaster early warning system? If Yes, by Whom?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Yes: UDMC, vMiking, TV, TNO, TEO, Red crescent, vMobile phone SMS, etc.
3.33	Are there any power transmission line on the school premises?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

¹ Y= Yes, N=No, H=High, S=Substantial, M=Medium, and L=Low

Total land: 30 decimal
Demolition of tin shed building.
u of two toilets.

East faced School.

Teacher: (4) Male(1), Female(3)

Student: (254) u (126,) u(128)

Option: 01

2: Trees within the school boundary

Sl. #	Name of trees	Particular and No. of Trees				Total	Remarks
		Large	Medium	Small	Sapling		
1.	Mehuguni		10				
2.	Mungo		02		01		
3.							
4.							
5.							
6.							

3: Pond/ Water bodies found inside and adjacent to the Subproject area:

Sl. #	Direction	Water body type (pond, river, canal, beel, drain)	Size (ft x ft)	Depth (ft)	Fish Firming (Yes or No)	Name of Firming Fish	Use of pond (Domestic/ Bathing / other)
1.	North						
2.	South						
3.	East	Ditch	12x 20	7-8	N/A	NA	N/A
4.	West						

4. Indigenous, brackish water and endangered fish species exist in catchment area of the Subproject:

Yes or No, If yes, Mention Name:

হাঙ্গা, সিংড়ি, ঢোল, হাঙ্গা

5. The common local birds found in the catchment area:

হাঙ্গা, সিংড়ি, ঢোল, হাঙ্গা

6. Wild animals found in the catchment area:

7. Endangered faunal species found in the catchment area:

8. The soils are highly/moderately/not saline at a depth of..... ft in and around the subproject areas throughout the year.

Flood and [embankments] are in the side

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