



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

Host and FDMN Enhancement of Lives through
Infrastructure Improvement Project (HELP)



ENVIRONMENTAL AND SOCIAL SCREENING REPORT

Of the Sub-project:

Construction of 40.00m Long RCC Arch Bridge on Zaruliachari on Miskum
Bridge - Mokter Bari Road at Ch. 600m, Ramu Upazila
District: Cox's Bazar, Road ID: 422664029
Under the Package No. **HELP-COX/BR-1**

Funded by:



Government of the People's Republic of Bangladesh & World Bank

October 2025

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ACRONYMS

BOQ	Bill of Quantities
BPDB	Bangladesh Power Development Board
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
DPHE	Department of Public Health Engineering
EA	Environmental Assessment
EC	Electrical Conductivity
E-I-C	Engineer-in-Charge
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESF	Environmental and Social Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
HELP	Host and FDMN Enhancement of Lives through Infrastructure Improvement Project
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
MPSC	Multi-purpose Community and Service Center
MoLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
MoRTB	Ministry of Road Transport and Bridges
MoPEMR	Ministry of Power, Energy and Mineral Resources
NDRCC	National Disaster Response Coordination Center
OHS	Occupational Health and Safety
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
RCC	Reinforced Cement Concrete
RHD	Roads and Highways Department
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project Background

Since 2017, Bangladesh has been hosting nearly one million Displaced Rohingya Population (DRP) who fled violence in Myanmar. Most of this population resides in 33 densely populated camps in Ukhiya and Teknaf upazilas of Cox's Bazar district. At the same time, approximately 30,000 have been voluntarily relocated to Bhasan Char, an isolated island in Noakhali District. This unprecedented humanitarian influx has placed immense pressure on the host communities, infrastructure, essential services, and the surrounding environment in a region already characterized by socio-economic vulnerabilities.

The FDMNs now outnumber host populations in affected areas by a ratio of approximately 2:1, contributing to crowding in local markets, overburdening social service systems, escalating environmental degradation, and heightening risks during disasters. In response to these complex challenges, the Government of Bangladesh (GoB), with support from the World Bank, has initiated the Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP). The project aims to improve access to basic services and enhance disaster and climate resilience of DRP (Displaced Rohingya Population) and host communities. HELP builds on lessons learned from the ongoing Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) and its additional financing, which have been supporting emergency response, resilient infrastructure, and institutional strengthening in Cox's Bazar since 2019.

HELP proposes a multi-sectoral development approach focusing on critical needs such as water supply, sanitation, renewable energy, shelter upgrades, solid and fecal waste management, and the improvement of road connectivity. The project also emphasizes disaster risk reduction, climate-resilient infrastructure, and institutional capacity building. It targets the high-priority gaps identified through annual needs assessments and field consultations, with particular attention to vulnerable groups including female-headed households, persons with disabilities, and those residing in disaster-prone areas.

The project scope encompasses a range of integrated infrastructure interventions aimed at improving resilience, accessibility, and service delivery for both the DRP and host communities. Key activities include the construction of new multi-purpose disaster shelters to provide enhanced protection during natural calamities, as well as the improvement and repair of existing shelters to ensure they meet disaster-resilience standards. The project also involves the development of road communication infrastructure, including the construction and rehabilitation of roads, bridges, and culverts to improve connectivity and access to essential services. In addition, various community-level facilities will be developed or upgraded, such as internal roads, drainage systems, hat-bazar (local markets), footpaths, firefighting systems, lightning protection devices, and solar-powered street lighting contributing to safer and more inclusive living environments.

The project is jointly implemented by four government agencies LGED, DPHE, RHD, and BPDB under the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C), the Ministry of Road Transport and Bridges (MoRTB), and the Ministry of Power, Energy and Mineral Resources (MoPEMR). The project comprises four components, covering resilient water and sanitation services, climate-resilient infrastructure and energy, institutional capacity strengthening, and emergency

response. Under Component 2, LGED is undertaking key infrastructure development including rural roads and bridges to ensure improved connectivity and disaster preparedness.

The objective of the Project is to improve access to basic services and enhance disaster and climate resilience of the the FDMN and host communities through:

- Supporting improved access to basic services, climate-resilient infrastructure, and disaster and emergency response services;
- Improving Road interventions for easy access to essential services;
- Reducing vulnerability to accidental fire;
- strengthening disaster preparedness and response through construction of multipurpose disaster shelters, provision of key equipment, and disaster risk management trainings at the community level;
- Improving Renewable and sustainable energy infrastructure in camps and for host community;
- Strengthening the GoB's capacity to provide essential services and address the needs of the host communities and the DRP, including risks to disasters and climate change;
- Reducing poverty in the project area

This Environmental and Social Screening Report has been prepared to assess potential environmental and social risks and impacts associated with the proposed interventions for constructing a bridge at Ramu Upazila of Cox's Bazar District under HELP. It provides a preliminary evaluation of the biophysical and socio-economic settings of the project areas and identifies key issues that require special consideration or mitigation. The report serves as a guiding tool for environmentally and socially sound project implementation in compliance with national regulations and the World Bank Environmental and Social Framework (ESF).

1.2 Rationale of Site Selection for bridge under the project

LGED is responsible for development and management of local infrastructure including rural roads, bridges, culverts, waterways, markets, river jetties and others in order to contributing to socioeconomic development of the rural community and overall reducing poverty in the country. It is also developing, maintaining and managing transport, trading and small-scale water resources infrastructure at the local level with ensuring LGI and community participation and taking care of environmental and social issues. In 2013, Government of Bangladesh (GoB) has adopted a Rural Roads and Bridges Maintenance Policy with an objective to develop a sustainable rural transport system through appropriate maintenance management to provide safe operation of vehicles and to ensure necessary funding for their maintenance, establishing a comprehensive and reliable inventory of roads, bridges and culverts across the country.

The onsite investigation reveals that a dilapidated bamboo bridge does exist on the same point where a new bridge has been proposed. The existing bridge on a local canal has turned into a shabby structure posing risks for moving vehicles and people, thus affecting the lives and livelihoods of local communities. In fact, Cultivation, fishing and agriculture- all three dominant livelihood options for the local people in the areas require climate resilient and sustained infrastructure for transportation of goods or products to local, regional or national trading centers as well as to processing hubs and so on. People living in and across the areas also need to have access to nearby educational, health,

employment and other services, which for this proposed bridge would act as a lifeline for the entire community.

As the project is intended to strengthen the Government of Bangladesh systems in order to improve access to basic services and climate-resilient infrastructure of the host communities, constructing a bridge at the proposed point would resuscitate the communication, trade and service delivery system between Kocchopia union and other parts of the Ramu Upazila, which has been at risk now with the use of the dilapidated existing bridge structure.

The approach of this project also includes undertaking design, construction, rehabilitation or expansion of rural bridges in phases based on site-specific requirement and availability and allocation of resources. Accordingly, the proposed site for **Construction of 40m Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge-Mokters Bari Road** is required to be implemented in order to remove the existing barrier (e.g., presence of Khal/river on this point) to the local communication system and service delivery through this specific place, and expedite the socioeconomic activities in/around the place.

Project activities will largely be on existing available lands, preferably of government-owned.

1.3 Background of the Work Package

HELP (Host and FDMN Enhancement of Lives through Infrastructure Improvement Project) is a World Bank-supported project that aims to assist the Government of Bangladesh in responding to the continued humanitarian and development challenges posed by the presence of the Forcibly Displaced Myanmar Nationals (FDMNs) and their impact on host communities. The project seeks to improve access to basic services, and enhance disaster and climate resilience in both Cox's Bazar and Noakhali district.

While much of the displaced population resides in the Ukhiya and Teknaf upazilas, the broader Cox's Bazar district including other upazilas also experiences strain from increased movement, demand for resource and services, and the need for resilient infrastructure. The host communities across the district face challenges such as inadequate road connectivity, limited access to essential services, scarcity of basic resources, and vulnerability to natural disasters including floods and cyclones. In response, HELP focuses on inclusive development interventions that benefit both displaced and host populations.

Under this specific work package of the HELP project, **four (4) bridges** are planned to be constructed across **four different upazilas of Cox's Bazar district. They are Cox's Bazar Sadar, Ramu, Pekua, and Maheshkhali.** These bridges aim to strengthen the rural road communication network by improving access to essential services such as health, education, markets, and disaster shelters. The improved infrastructure is expected to support both the mobility of the host communities and the efficiency of service delivery, especially in remote or underserved areas of the district. This report focuses specifically on the Construction of a 40-meter RCC Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge - Mokters Bari Road ID: 4226640229 in Ramu Upazila. The proposed RCC Arch bridge at Zarulia Chari will replace the existing bamboo bridge, which currently serves as a temporary crossing point but is unsafe, structurally weak, and unable to support the growing transportation needs of the

community. Once constructed, the new bridge is expected to greatly improve rural connectivity, enhance mobility for local people and facilitate the smooth movement of agricultural products and other goods to nearby markets and service centers. This intervention will also contribute to building resilience for the surrounding communities by ensuring year-round access, even during monsoon seasons when the bamboo bridge often becomes unusable.

The catchment area of this sub-project is primarily inhabited by host community, particularly from the villages of Jaillachori, Shimtoli, Dakbanga, and Ponir Chor under Kocchopia Union in Ramu Upazila. While the wider Cox's Bazar district continues to experience socio-economic pressures from the displacement crisis, the site for this bridge was identified through field-level surveys, community consultations and discussions with local stakeholders. The location has been prioritized due to its critical role in improving local accessibility, supporting agricultural livelihoods, strengthening disaster preparedness and reducing the vulnerabilities of remote rural households.

The objective of this Environmental and Social Screening Report is to evaluate the environmental and social settings of the proposed bridge construction site under this work package, identify potential impacts both positive and adverse and recommend appropriate mitigation, enhancement, and management measures. This screening ensures that all interventions align with national regulatory requirements and the World Bank's Environmental and Social Framework (ESF), while promoting environmentally sustainable and socially inclusive development.

1.4 Fundamentals of Work Package Components

It is crucial to acknowledge the proposed infrastructure component under Work Package- HELP-COX/BR-1 to conduct an effective screening and verification process aligned with the World Bank's Environmental and Social Framework (ESF) as well as the project's Environmental and Social Management Framework (ESMF). Accordingly, detailed information of the proposed sub-project under this package has been outlined in Table 1.4.1, with a location-specific overview map of Ramu Upazila presented in Figure 1.4.1.

The proposed sub-project will follow standardized construction features and safety protocols, including but not limited to:

1. Construction of a Semi-Pucca Field Office, fully equipped with essential office furniture, computers with printing equipment, sanitary and electrical facilities, water supply arrangements and necessary tools and equipment for engineering supervision. The site office will ensure heat resistance, damp-proofing, and proper ventilation as directed by the Engineer-in-Charge (E-I-C).
2. Installation of Temporary Diversion Bridge (2m wide bamboo structure) as directed by the Engineer-in-Charge (E-I-C) to maintain uninterrupted movement for local communities during construction activities, ensuring minimal disruption to daily life.
3. Full Construction of Bridge Structures including foundation, substructure, and superstructure as per the approved design and technical drawings, along with all related fittings and fixtures.
4. Provision and Installation of Safety Features, such as painted vertical end faces of posts, wheel guards, railing systems, parapet walls, bilingual nameplates (in Bengali and English), guideposts, traffic signage, and kilometer markers.
5. Backfilling Behind Abutments and Retaining Structures with selected granular material, followed by proper compaction using approved machinery like plate compactors.
6. Construction of Approach Roads on both ends of the bridge, ensuring connectivity in compliance with LGED specifications and site conditions.

7. Placement of RCC Guideposts (1.70m long), positioned as per standard drawings and safety regulations.
8. Health, Safety, and Environmental Safeguards, including maintaining first-aid boxes at site and office, displaying safety notices, deploying environmental and social safeguard personnel for continuous monitoring, implementing dust suppression through water sprinkling, erecting health and safety signage, and organizing two rounds of safety and ESHS training for Upazila Engineers and Contractors before and after commencement of works.

Table 1.4.1: Basic Featured Information of component [Sources of data: Field survey, 2025, LGED]

Sl no .	Component's name	Upazila	Union	Distance from Upazila HQ	Primary Catchment area	Name of the river / canal	Proposed length (m)	Carriageway Width (m)	Estimated Footprint (Sq m)	GPS coordinate	Construction Period
1	Construction of RCC Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge - Mokters Bari road ID:4226640229	Ramu	Kocchopia	8 km	Catchment villages are Jaillachori , Shimtoli, Dakbangga, Ponirchor	Jaruli achori khal	40	7.3	292	21.43691667, 92.15644444	2 years

The bridge was initially planned to be 40 m in length, the total footprint area for the bridge is 292 sq.m.

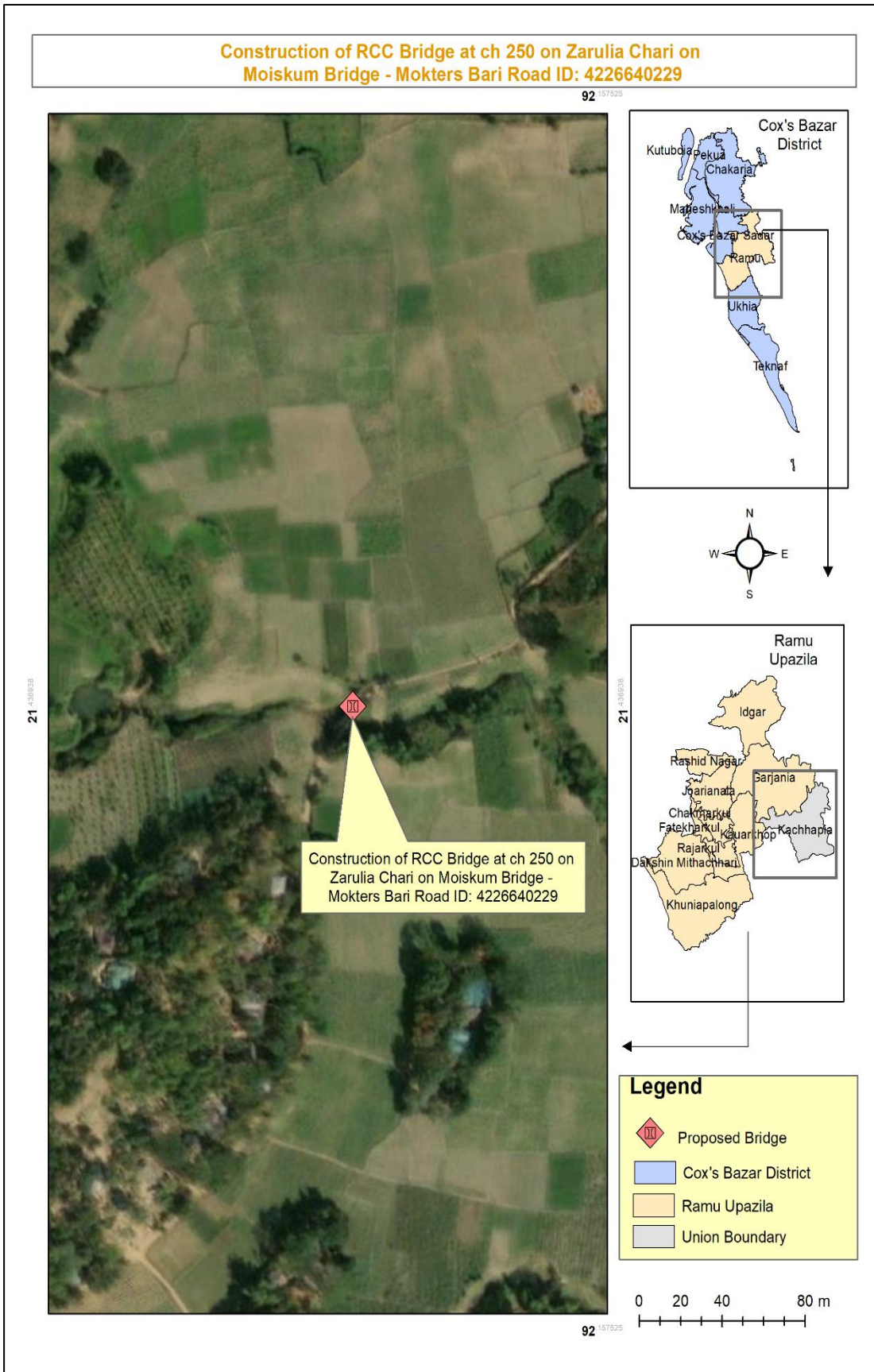


Figure 1.4.1: Map illustrating bridge location in the proposed Upazila

2. PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology and Approach

Public participation and community consultation have been taken up as an integral part of environmental and social assessment process of the project. As part of the impact assessment, participatory public consultation was conducted in areas of concern for proposed bridges by the field level staffs and consultants from PIU. The consultation meeting was attended by different social groups representing local inhabitants of different age groups, social class and occupations. Among the participants, some will have major active roles before, during and even after the construction works. 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. In order to serve our screening process, relevant items placed towards the audience to discuss and troubleshoot confusing or worrying matters regarding the proposed interventions under the package work. Impacts in regards to environment, socio-economic matters during pre-construction, construction and post construction phases and the provision for project Grievance Redress Mechanism along with its applicability have been put forth. Possible mitigation measures and relevant needs have turned out during these sessions as well. Moreover, their comprehension as a stakeholder has been up lifted in light of project guidelines.



However, 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-projects' 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.

2.2 Issues and Recommendations raised by the Participants in regards to component interventions

After facilitating the consultation sessions with a warm and informed manner at Enam's shop at Shibatoli village of the package area, the participants and stakeholders drifted delightfully with the sessions and pointed out many issues and suggestions, which have been taken into account for further inclusion in design, estimation and formulation of ESMP. During the period of consultation, environmental and social issues and their relevant impacts for the infrastructure development work such as bridge improvement or maintenance were discussed. The advantages and possible nuisance that may emerge during the sub-project activities were also revealed. The participants expected that none of the interventions would worsen their living conditions, social cohesion surrounding environment and they requested for adopting all measures to reduce/avoid both environmental and social risks during the implementation phase. Participants were also informed of the structure and redressing procedure under project Grievance Redress Mechanism (GRM).

Table 2.2.1: Consultation Meetings Summary

Meeting No.	Date	Venue	Main Participant Groups	No. of Participants	Remarks (If any)
1.	18 th March 2025	Enam's shop at Shibatoli village & Upazila Engineer and project personnel at Ramu Upazila Office	Host Community & Upazila Engineer and project personnel	27	The existing route is the only access pathway for the residents of Kocchopia village. The existing bamboo bridge is unsafe, temporary, and difficult to use during rainy season. Community expressed urgent need for a safe and permanent bridge structure.

Note: Here, Meeting number column corresponds with Serial Number column in Table 2.2.2

Some key issues discussed during the consultation are summarized in the table (Table 2.2.2 below, reflecting participants' inputs relevant to the specific components of the proposed intervention. The consultation meeting summary, attendance sheet and photographs from the meeting held at Enam's shop at Shibatoli village are provided in Table 2.2.1, Annexure-01, and Annexure-02, respectively.

Table 2.2.2: Issues and Recommendations raised by the Participants

Component's name under HELP-COX/BR-1	Issues raised and discussed	Recommendations and Comments
Construction of 40m RCC Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge-Mokters Bari Road ID:4226640229	<ul style="list-style-type: none"> •They are very much concerned with absence of reliable path over the Jarulia chori Khal. •The existing bamboo bridge is a critical infrastructure asset that significantly supports the local population's livelihood and economic well-being. It is particularly vital for local cultivators and community people, as it facilitates and governs nearly all of their economic activities. •Lack of accessibility in case of emergency exits. •They cannot carry the dead on this (existing) weak structure in times of grief • Existing bamboo bridge is unsafe, temporary, and difficult to use during rainy season. •The bridge site is surrounding hills positioned approximately 400 meters to the east, 500 meters to the north and 230 meters to the west. •The existing route is the only access pathway for the residents of Kocchopia village. 	<ul style="list-style-type: none"> • Representatives participating in the discussions assured the local people that the dilapidated bamboo bridge will be replaced by a longer and stronger bridge structure, which will strongly support local life and livelihoods and increase connectivity and accessibility to various services and amenities. The bridge has been planned to increase its length so that non-motorized vehicles can easily use the structure due to the smooth slope, and accessibility under the structure remains Uninterrupted. •The bridge design should consider highest water level thereby ensuring it is not submerging or affected by mass water flow during rainy seasons. The bridge should use corrosion-resistant materials and protective coatings suitable for saline environments. •The participants have expressed their greater interest for this intervention and believe this will surely bring security and prosperity for the entire catchment dwellers. •Construction site safety should be ensured to avoid any mishaps or accidents during the working periods. •They considered small lumbering and suggested tree plantation initiatives. •local community will be given preference in engaging to construction works; however, technical labors will be welcome outside the local area. Priority for jobs should also consider women.

Component's name under HELP-COX/BR-1	Issues raised and discussed	Recommendations and Comments
	<ul style="list-style-type: none"> • The bridge is located over Jarulia chori Khal which is found dry in most seasons but during monsoon the water rises above 5ft to 6ft than average. This is when the bridge is found partially swamped by the water flow. • Possible dust and noise pollution during the construction works. • Safety of children and adults at the sites during construction works. Involving local people as a priority in implementation works as far as possible. • Local community wishes to have a better drainage system along with the Bridge to allow waters from high grounds to find an uninterrupted pathway, not causing weak establishment to wash away. Moreover, from a conservation standpoint, it will protect the topsoil for future growth. • The construction work will include dismantling the current bamboo bridge in order to make space for the new RCC Arch Bridge. 	<ul style="list-style-type: none"> • Alternate pathway should be facilitated during the construction near or around existing structure. • Since the bridge is on running canal (Jarulia chori Khal), the intervention will invite water pollution on moderate level. However, preventive actions and measures should be taken to keep the surface water quality from degrading more than it is. • Participants, made certain that they will provide surveillance over raw materials and material storage area. • They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. • The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • A proper drainage system will be embedded with the bridge as well as the bridge approach. Dismantling of bridge will be undertaken with optimum caution and care in order to avoid any potential risk to the people and resources. • They also requested to involve the local community to develop awareness on proper waste disposal to prevent blockage of water channels and culverts.

3. ENVIRONMENTAL AND SOCIAL SURVEY AND SCREENING

3.1. Objective of the Survey and Screening

The primary purpose of the survey and screening is to identify potential risks and impacts associated with the sub-project, assess their significance, and propose appropriate mitigation and management measures to ensure compliance with the ESF along with the project ES compliance documents. The screening process also considers the cumulative and residual impacts of the intervention within the context of the local physical, biological, and socio-economic environment.

To achieve a comprehensive understanding of the environmental and social baseline and the possible implications of the proposed works, detailed field investigations were carried out in and across the sub-project sites within the Project Influence Area (PIA). The screening process included direct observation, stakeholder consultations and the use of the Environmental and Social Screening Format (ESSF), aligned with the Environmental and Social Management Framework (ESMF) developed for the HELP project.

Screening results, impact identification, and mitigation guidance have been summarized and compiled in **Appendix-1**, with site-specific details and supporting documentation. This integrated approach

ensures early identification of risks and supports the development of appropriate mitigation and enhancement measures for sustainable project implementation.

The subsequent sections outline the survey findings including important features and establishment within the PIA, along with potential environmental and social impacts that may arise due to the proposed sub-project interventions within a half-kilometer radial distance around the project site. This Environmental and Social Screening has been conducted in accordance with the requirements of the World Bank's Environmental and Social Framework (ESF), particularly focusing on the relevant Environmental and Social Standards (ESSs).

3.2 Important features/establishments around the PIA

The proposed bridge sub-project has undergone a thorough review to identify environmental and social resources and baseline conditions, as well as potential environmental and socio-economic risks that may arise during construction and future operation. To accurately assess these concerns, a Project Influence Area (PIA) with a 0.5-kilometer radius around the bridge site was considered during the screening process. Each issue was evaluated on a case-by-case basis, without generalization, ensuring site-specific factors were properly addressed. Sensitive environmental and social findings, if any, were carefully noted, and appropriate mitigation or minimization measures were recommended to manage these risks throughout the project lifecycle. In addition, opportunities to enhance environmental and social conditions and to incorporate monitoring initiatives have been outlined and integrated into the Environmental and Social Management Plan (ESMP) and its corresponding budget. The contractor's role in addressing identified impacts has been clearly defined, and all assessments and proposed interventions were conducted in full compliance with the Environmental and Social Management Framework (ESMF) of the HELP project.

Initial screening process is conducted through direct involvement of PIU in the influence area of the proposed component, which allows to raise significant questions and ideas towards participants. In combination of both field walk-through and inputs of audience, a register of existing features is formed. The following table describes the important features under Project Influence Area. Additional spatial understanding is supported through a hand-sketched map provided in Appendix-01.

Table 3.2.1: Important features under Project Influence Area

Sl. No.	Component's name under W-08	Direction	Important features/ establishment (approx. distance from the proposed site)
1.	Construction of RCC Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge-Mokters Bari Road ID:4226640229	North	Bakkhali River (487m), Hill (580m), Agricultural land (50m)
		South	Mohammedia Darul Ulum Madrasa (570m), Graveyard (580m), Household (70m), Agricultural land (50m)
		East	Bakkhali River (340m), Dakvanga GPS (990m), Hill (100m)
		West	Bakkhali River (255m), Hill (450m)

Based on the satellite image (Figure: 3.2.1) and field verification, it is evident that the canal (locally referred to as khal) where the proposed 40m bridge site is located at chainage 600 on Zarulia Chari along the Moiskum Bridge-Mokters Bari Road is not a navigation route. The bridge will be constructed

over a small canal that flows eastward through agricultural land. This canal does not function as a continuous watercourse during the dry season and is therefore unsuitable for navigation. Although the canal is connected to the Bakkhali River on the west side of the project area, the section where the bridge is planned does not provide any route for boats or other water vehicles. The surrounding land is mainly used for farming, and the canal serves the purpose of carrying rainwater and excess water during the monsoon season. Local communities do not use this water body for transportation. Therefore, it is clear that the canal at the proposed bridge site is not a navigation route, and construction of the bridge will not have any impact on navigation activities.

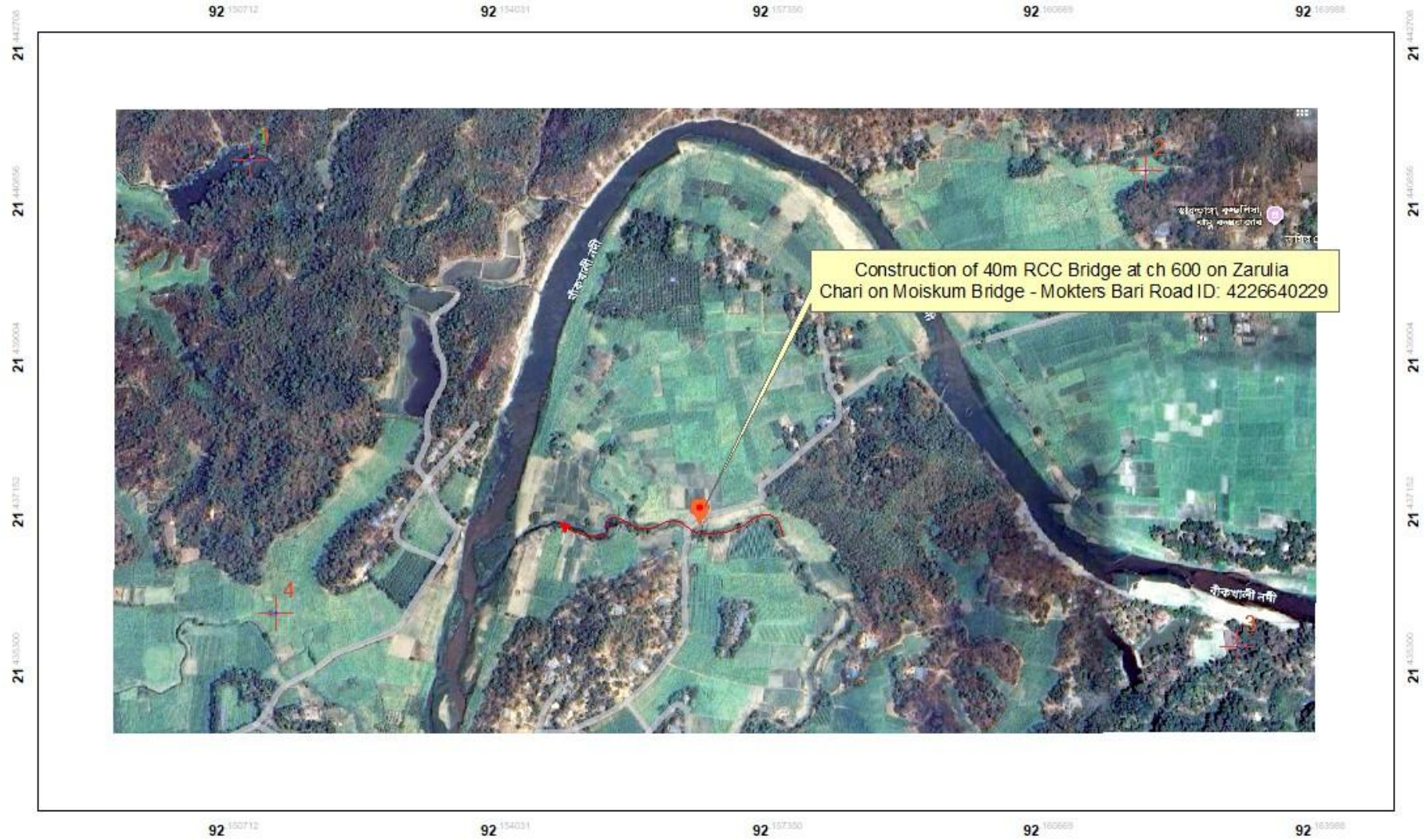


Figure 3.2.1: Non-Navigational Canal and Proposed Bridge Location

3.3 Major Findings

The Environmental and Social Screening has revealed an integrated overview of site-specific environmental and social conditions of the proposed sub-project. These findings offer valuable insight into the interaction between the sub-project components and their surrounding biophysical and socio-economic settings. While many sub-projects are found to be aligned with the characteristics of their respective locations, the nature, magnitude, and extent of impacts vary based on topography, ecological sensitivity, surrounding land use, and community dependency.

The analysis confirms that while some impacts such as temporary disruptions during construction, generation of noise and dust and minor vegetation clearance are commonly anticipated, several site specific concerns were identified for the proposed 40-meter RCC Arch Bridge at chainage 600 on the Moiskum Bridge-Moktar Bari Road. These include the site's location over the Jarulia Chari canal, which connects to the Bakkhali River. The area is also surrounded by hilly features. The bridge will play a critical role in ensuring reliable year-round connectivity for surrounding villages such as Jaillachori, Shimtoli, Dakbangga and Ponir Chari. Furthermore, social vulnerabilities were noted, including community mobility during the monsoon, pedestrian and commuter safety during construction and temporary challenges for locals and students in accessing essential services.

The screening has also identified both direct and indirect risks that may arise if not appropriately mitigated. Findings indicate that with suitable mitigation measures as proposed in the ESMF and site-specific Environmental and Social Management Plans (ESMPs) most risks are manageable under ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), and relevant associated standards such as ESS4 (Community Health and Safety), ESS2 (Labor and Working Conditions), and ESS10 (Stakeholder Engagement and Information Disclosure).

A summary of the significant environmental and social issues identified during the screening process, along with associated potential impacts, is presented in **Table 3.2.1**. These findings provide critical input for developing context-specific mitigation strategies and highlight areas requiring enhanced monitoring and community engagement during project implementation. None of the activities fall in the E&S exclusion list attached to the project ESMF.

Table 3.3.1: Concerning environmental and social issues relating to each proposed subproject and influence area

	Key Environmental & Social Findings	Anticipated Impacts / Concerns
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	The proposed site is not located within any significant environmentally sensitive area, except for the Jarulia Chari canal which is a tributary connected to the Bakkhali River that flows directly beneath the proposed bridge alignment. The canal is relatively narrow and shallow, and it is not used as a waterway for boat or vehicle navigation, serving mainly as a seasonal drainage channel.	Will not cause any severe negative effects to the area's environmental settings, nor to important ecological features.
	The proposed sub-project targets the replacement of an existing bamboo bridge over the Jarulia Chari canal, which currently serves as a temporary crossing but has become unsafe and unreliable due to its fragile condition and long-term use by the local community.	The proposed RCC Arch bridge will replace the existing bamboo bridge at the same location. As the bamboo structure is temporary in nature, no major demolition work will be required. However, the removal of bamboo materials may still generate small amounts of organic waste. If not properly managed, this could cause minor disturbance to the surrounding area, including localized water pollution in the Jarulia Chari canal and minor air pollution from dust during site clearance and construction activities.
	Environmental and social screening conducted; moderate risks identified.	Manageable with appropriate mitigation measures.
	Heavy vehicular movement and future construction activities may cause air, noise, and water pollution.	Construction activities may lead to localized dust, air pollution, and runoff contamination; these impacts are short-term, site specific and can be effectively managed through water sprinkling, dust control, noise barriers and proper site drainage.
	No fish farming activities or notable vegetation were observed near the proposed site of the bridge. However, the surrounding area is characterized by agricultural lands and scattered homesteads, which play an important role in supporting the local community. These agricultural zones, located within close	Will not cause any severe negative effects to the environmental settings of the area nor important environmental features. Air and noise pollution may occur during the construction period due to construction activities and the transportation of materials. In some cases, accidents may happen due to unauthorized entry into the

	proximity to the bridge site, should be protected against potential construction-related impacts such as runoff, waste disposal or pollution to ensure that community livelihoods remain unaffected.	construction site. These impacts are short-term, site-specific, and within a small scale and manageable by mitigation measures.
	Construction activities and the establishment of labor camps, along with associated facilities and services, may lead to adverse environmental and social impacts if not properly managed.	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 (in labor camp), will more likely to take place. Strain on local resources such as water, sanitation and electricity. Health and hygiene risk due to overcrowding or poor camp management. Social tension with nearby communities may arise if laborers' behavior or camp facilities are not adequately supervised.
	Earth excavation work will be involved during the piling.	Consequently, air, noise and dust pollution will be occurred within a small-scale during the construction period only.
	Chemical spills or improper disposal of construction waste materials due to lack of workers' training and misconduct of contractor's safety initiatives. Kitchen and labor camp waste may be generated during construction period.	Soil and water can be further eroded and polluted.
	Vibration effects generated from piling, drilling, or other construction works	May trigger harmful disturbances to local faunal species.
	A functional Grievance Redress Mechanism (GRM) must be in place to ensure community feedback, transparency, and accountability in managing environmental and social risks during project implementation.	Lack of an effective GRM may lead to unresolved community complaints, misinformation, reduced stakeholder trust, and potential conflict or resistance during project implementation. However, the project's three-level GRM structure comprising Local, Project, and Ministry-level committees offers a systematic approach to resolve such issues in a timely, transparent, and inclusive manner.
ESS2:	Local workers may be hired; labor influx is not anticipated. No child or forced labor permitted.	Low risk of labor-community tension or burden on local infrastructure; reduced potential for social conflict.
	OHS risks during pile-driving and construction works.	Injury risk for laborers.

Labor and Working Conditions	Safe working conditions, personal protective equipment (PPE), and sanitation facilities must be ensured at site.	Risk of injury or health hazards if workers lack PPE or safety supervision. Potential spread of illness if hygiene and sanitation facilities are inadequate.
	There is a risk of accidents during the construction phase of the proposed bridge, particularly during activities such as excavation, piling, and handling of heavy machinery. To minimize these risks, workers must receive proper safety training, and strict compliance with labor codes and occupational health and safety (OHS) standards should be ensured throughout the construction period.	Risk of falls, tool-related injuries, or exposure to noise and dust without safety training. Possibility of non-compliance with national labor standards or World Bank EHS guidelines.
	Labor camps must comply with EHS guidelines. Inadequate ventilation, poor lighting and overcrowded conditions can disrupt normal living standards, increase the risk of disease transmission and negatively impact workers' health and well-being.	Risk of poor living conditions, waste mismanagement, health and hygiene issues, or community tension if camps are not properly managed.
ESS3: Resource Efficiency and Pollution Prevention and Management	Dust from earthwork, vehicle movement, and material handling during the construction period may cause air pollution.	Site specific, short-term, can be controlled by regular sprinkling and covered transport
	Construction works will involve chemical usages (Cementitious Chemicals as Ordinary Portland Cement, Fly Ash, Slag Cement, and Lubricants & Fuels as Diesel, engine oil, hydraulic oil) and preparation of on-site add-ons to the bridge that will generate scraps and residues. Use of concrete, cement and machinery used oil/grease during construction may lead to runoff polluting nearby agricultural lands and canals.	Moderate scale of water pollution may be caused during construction period due to concrete and cement usage. The runoff from work site may enter the present canal, agricultural lands and reduce the water quality which will be acute, if chemical gets mixed with water. Risk is manageable with drainage controls and silt traps.
	Noise from piling and construction machinery.	Potential hearing risks and stress for laborers and local residents exposed to prolonged noise. Limited to working hours and local area, can be reduced by timing and barriers.
	For the proposed bridge, construction waste including debris generated from dismantling the old bamboo bridge, along with transportation materials and waste from labor camps must be managed in line with a designated waste management plan. Proper segregation, collection, and disposal practices will be	Soil and water contamination from unmanaged waste near agricultural field and the Jarulial chari canal. Health hazards for workers and nearby communities due to uncollected solid waste. Waste can be stored and disposed at designated landfill with contractor oversight.

	essential to prevent environmental contamination and protect nearby agricultural lands and the Jarulia Chari canal.	
ESS4: Community Health and Safety	The construction zones must be barricaded; signage and awareness campaigns to minimize risks to pedestrians and vehicles. Participants recommended dedicated pedestrian walkways and strong railings to enhance community safety.	Increased risk of accidents and injuries to pedestrians, especially children and elderly, due to unprotected construction zones. Obstruction or confusion for local traffic and pedestrians in the absence of proper signage and temporary pathways. Community dissatisfaction if safety measures are not visibly in place. Unsafe movement near deep excavation or elevated bridge structures during construction. Proper use of signage and barricades may ensure the construction site's safety.
	Use of heavy machinery during construction may result in significant dust and noise emissions. Runoff containing oil, grease, or cement slurry may enter nearby agricultural land and khal, potentially affecting community health and livelihoods.	Air pollution from dust and emissions can affect nearby residents. Noise pollution may disturb local communities. Water pollution due to runoff of oil, grease, or cement slurry may contaminate adjacent agricultural land and khal (canals), harming aquatic life and reducing water usability. These impacts are short-term, site-specific and within a small area and manageable by mitigation measure.
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	No land acquisition required; construction is within the existing right of way.	Temporary access disruptions during construction can be mitigated by providing alternative access during construction. Vehicles. A Memorandum of Understanding (MoU) should be signed with the landowner in cases where private or community land is temporarily required for storing construction materials or setting up labor camps.
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	The 40-meter RCC Arch bridge at ch 600 on Zarulia Chari along the Moiskum Bridge–Mokters Bari road is not located within any critical natural habitat. The surrounding area within 500 meters consists mainly of agricultural land, situated about 50 meters to both the north and south and a few scattered households approximately 70 meters to the south. The Bakkhali River flows nearby, with distances ranging from 255 to 487 meters on the west, east, and north sides. Hilly terrain is present beyond 100 meters to the east and extends up to 580 meters in other directions. Social features such as a madrasa and a graveyard are	Some features are located near the proposed sites, where dust and noise pollution may cause impacts. These impacts are expected to be negative but short-term, site-specific, and reversible with appropriate mitigation measures. Other features are situated at relatively greater distances, where significant disturbance is not anticipated. To minimize any potential impacts, strict construction site management practices should be enforced, including limiting work to daytime hours, applying water-sprinkling at least twice daily around the site, installing proper fencing around the working area, and ensuring safe storage of construction materials.

	located further south at around 570–580 meters. Overall, the bridge is surrounded by typical rural landscapes without any ecologically sensitive or protected areas nearby.	
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	No Indigenous or Small Ethnic Communities found in project influence area.	Not applicable.
ESS8: Cultural Heritage	No known cultural or archaeological sites identified within project site.	Not applicable.
ESS9: Financial Intermediaries	Not applicable as project does not involve financial intermediaries.	Not applicable.
ESS10: Stakeholder Engagement and Information Disclosure	Consultations were conducted with local host community members and relevant stakeholders at all four proposed bridge locations. On 18 March 2025, a meeting was held with 27 participants at Enam's shop at Shibatoli village near the proposed site, where participants emphasized the urgent need for a new bridge to address transport difficulties and safety risks due to the deteriorated condition of the existing structure.	Participants anticipated support for the project and emphasized the importance of safety features and pollution control. The feedback collected underscores the need for continued stakeholder engagement during implementation, including maintaining a functional grievance redress mechanism (GRM), accessible communication channels and a transparent complaint registry to ensure inclusive and responsive project delivery.

The navigability of canals and community safety remain critical considerations during both the construction and operational phases of the bridge subproject. As per good environmental and social practice, and consistent with World Bank Environmental and Social Standards (ESS4 and ESS6), no construction or structural intervention over waterways should impede the free and safe passage of local water transport. During construction, temporary arrangements must be ensured so that local communities can continue crossing canals from alternative access points without disruption.

Safety during the operation phase is equally important. Measures such as the installation of reflective guideposts, visible signage, and proper lighting for vehicles and pedestrians approaching the bridge are essential and must be integrated into the construction phase planning. These elements significantly enhance commuter and pedestrian safety and should be reflected in the engineering design and budget estimations.

Furthermore, to minimize environmental degradation and offset potential negative impacts, a comprehensive set of site-specific mitigation measures will be adopted in addition to standard construction practices. These will follow the Environmental and Social Management Plan (ESMP) and the relevant national codes of practice, ensuring compliance with the requirements outlined in the Environmental and Social Management Framework (ESMF).

3.4 Climate Change Impact

3.4.1 General Consideration

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geo-morphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank¹ has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, the vigorous monsoons make the area prone to landslides, and there is always the lurking threat of cyclones and thunderstorm across the area.

Together with the above-mentioned hazardous situation, availability of potable water from shallow tube wells that pump water up from about 120 feet has already reached to a critical level. Averting the problem requires new tube wells to be plumbing deeper into the poorly mapped aquifer but going deeper than 300-500 feet in some places may cause salt water to contaminate freshwater resources, which could be disastrous for both refugees and residents.

3.4.2 Site Specific Consideration

The sub-project area is not adjacent to the sea. The cyclone has higher impact in the area and intensity of precipitation has been seen to have increased in the past few years. Salinity and the occurrence of cyclonic storm surge were not reported in the vicinity of the subproject. Temperature was reported to be increased, and Thunderstorm is found to have highest impact in the area. Thunderstorm has been observed creating more damage than before, but no casualty was reported. Flash flood in or around the site is not observed; but the area experiences water logging issues during the monsoon, which for several structures have been suggested to include in the design.

Site specific climate change impacts are often not so easy to measure or deduce plausibly while the site is confined to a narrow strip of roadways only, and associated mitigation or offsetting measures are really hard to plot on the same tiny impact areas, though an overall set of measures are often considered in practical aspect.

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

The anticipated environmental and social impacts of the proposed sub-project are primarily construction-related and considered to be temporary, site-specific, and manageable. These impacts can be effectively addressed through the adoption of good engineering practices, good housekeeping, better *in-situ* construction materials management, standard environmental controls, and adherence

¹ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

to World Bank Environmental and Social Standards (ESS1–ESS10), especially those related to health, safety protocols, and pollution prevention.

Contractors must adhere to implement the Environmental and Social Management Plan (ESMP) as part of their contractual obligations. This includes regular implementation of dust control measures, such as water spraying at least twice daily, proper solid waste management, noise control and site demarcation to ensure minimal disturbance to surrounding communities and environment of the sub-project sites. Given the site's proximity to the Bakkhali River, located between 255 and 487 meters on the north, east, and west sides and the presence of agricultural land and households within 50 to 70 meters to the north and south, extra caution must be exercised to prevent runoff of construction materials, cement slurry, oil, or debris from entering these environmentally and socially sensitive areas. Further construction related activities that may result in adverse impacts on the surrounding environment of the sub-project must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance.

In addition, all site workers, engineers, and Contractor's staffs must receive training on occupational health and safety (OHS), good practice construction works, code of conduct, efficient labor camp management, labor management procedure, emergency response, and environmental best practices and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects of this proposed construction work are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

The sub-project-specific mitigation and monitoring measures have been outlined in the respective ESMP in Appendix-2, which guides pre-construction, construction, and post-construction phases. With proper implementation of these measures, the proposed infrastructure intervention is expected to deliver long-term social and economic benefits to the host communities, with minimal residual environmental impact.

4.2 Cost of Environmental and social Enhancement Works in BOQ

In consideration to the aforementioned environmental impacts and their mitigation measures for the proposed construction activities, a set of items are included in the BOQ for every sub-project. The estimated cost to implement the ESMP is shown in Appendix-3.

5. CONTRACTOR AND LABOR MANAGEMENT

Most of the workers for this subproject will come from the local community, who share a common socio-economic, cultural, religious, and demographic background. Based on consultations with local stakeholders, it is anticipated that only a small portion of skilled labor may need to be hired from outside the project area, depending on availability. Therefore, the likelihood of internal conflicts among workers is expected to be minimal. It is estimated that approximately 20 laborers will be engaged during the construction phase, comprising 4 skilled (25%) and 16 unskilled (75%) workers, generating around 10,800 active working man-days (as detailed in Table- 5.1).

Although female participation in rural construction work is traditionally low, higher involvement of women is expected in this sub-project. Nonetheless, if female participation remains limited, the contractor must still conduct mandatory GBV (Gender-Based Violence) awareness training for all

workers prior to the commencement of construction to mitigate risks of harassment, discrimination, or hostile behavior at the worksite.

The contractor's area will include the working zone surrounding the construction site, materials stacking and storage area, labor shed, and office space ideally located within or adjacent to the proposed Sub project location premises/boundaries for better coordination and monitoring. Contractor will be strictly instructed to maintain cleanliness at the worksite by ensuring waste, debris and dust are regularly cleared and that all bulk construction materials such as sand, stone chips, and steel are stored properly and covered with plastic sheets to prevent environmental degradation.

Experiences from ongoing LGED projects in Cox's Bazar indicate a shortage of skilled labor, which has contributed to delays in some cases. In this sub-project, LGED anticipates that general and non-technical labor will be sufficiently available locally, with only specific technical expertise needing to be sourced from outside if required. It is expected that the scale of labor influx will remain manageable and will not pose significant risks of social tension or GBV during the construction period.

Table 5.1: Subproject-wise number of labor and total active working days

SI no	Package Number	Name of Subproject	Total Space of proposed Construction (Square meters)	Tentative per day labor (No)	Days	Total active working days
01	HELP-COX/BR-1	Construction of 40m RCC Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge - Mokters Bari Road ID: 4226640229	292	20	540	10,800
Grand Total =				20	540	10,800

6. GRIEVANCE REDRESS MECHANISM (GRM)

In accordance with the Environmental and Social Management Framework (ESMF) of the HELP project, a robust and accessible Grievance Redress Mechanism (GRM) has been established to address project-related grievances from host communities, workers and other stakeholders. A structured and inclusive Grievance Mechanism (GM) has been established to ensure timely and effective resolution of complaints arising from project activities in the host communities. Since LGED is the Implementing Agency (IA), the grievance redress structure has been designed to operate across three levels local (Upazila), Project Implementation Unit (PIU) and Project Steering Committee (PSC) to address concerns efficiently and equitably.

Local Level GRC

At the local level, a Grievance Redress Committee (GRC) is formed in each Upazila where LGED has subproject activities. The GRC is chaired by the Upazila Engineer from LGED (or a nominated official by the Project Director if required), serving as the Convener. The Environmental Specialist and/or Social Specialist from the PIU, depending on the nature of the complaint, act as the Member-Secretary and remain common across all local GRCs under LGED. The committee also includes an Environmental and/or Social Specialist from the Supervision Firm appointed by LGED, a representative from the respective Union Parishad (preferably female if the complainant is female), and a community

representative such as a teacher, NGO staff member, or a local individual nominated by the complainant. Specialists for these roles are expected to be hired within 3 to 6 months of project effectiveness. All grievances at the local level must be heard and resolved within 10 working days of receipt. Complaints related to LGED activities will be received at the office of the respective Upazila Engineer.

PIU-level GRC

If a complaint cannot be resolved at the local level, it is escalated to the PIU-level GRC. This committee is chaired by the Project Director of LGED and includes the Social and Environmental Specialists from the PIU as Member-Secretaries. It also includes a local government representative either the same individual from the local level hearing or another as appropriate (must be female if the complainant is female) and a community representative, preferably the same individual who participated at the local level. The PIU-level GRC is responsible for reviewing unresolved grievances and delivering a decision within 15 working days. In addition, the Social or Environmental Specialist at the PIU, with assistance from the local GRC's Member-Secretary, will conduct regular visits to subproject sites to engage with communities and affected persons, and to document any new concerns, suggestions, or complaints in the GRM register.

PSC-level GRC

For grievances that remain unresolved at the PIU level, the matter is further referred to the PSC-level GRC, which represents the final tier of grievance resolution. This committee is led by a representative of the Secretary from the relevant ministry, serving as the Convener, with the Project Director of LGED acting as the Member-Secretary. The PSC-level GRC is required to make a final decision on such grievances within a maximum of four weeks. Any resolution reached at any level of the grievance process that is agreed upon by the aggrieved party is considered binding on LGED and will be implemented accordingly.

This multi-tiered GM structure under LGED ensures that all grievances from host community members are addressed in a fair, inclusive, and transparent manner. It fosters accountability and trust in project implementation while upholding the World Bank's Environmental and Social Standard 10 (ESS10) on stakeholder engagement and information disclosure.

7. INSTITUTIONAL ARRANGEMENT

LGED, through the Project Implementation Unit (PIU), will have overall responsibility for environmental and social risk management through implementation of ESMP and compliance with the World Bank's Environmental and Social Framework (ESF). The PIU's ES team comprising of a Sr. Environmental Consultant, a Sr. Social Development Consultant, and a Gender Specialist will oversee ESMP implementation including functional operation of Grievance Redress system, review monitoring reports from the D&S Consultant, and coordinate reporting to the World Bank. The Design and Supervision Consultant (D&SC) will provide day-to-day site supervision, verify contractor's compliance with ESMP requirements along with taking prime actions in the progress of grievance redressal and advise corrective actions wherever required. The Contractor will be responsible for on-site implementation of all mitigation measures, including occupational health and safety (OHS), waste management, environmental protection and grievance management. Coordination among PIU of

LGED, D&SC, and the Contractor will be ensured through regular supervision, reporting, and redressal mechanisms.

Table 7.1: Institutional Roles and Responsibilities Table (Recommended for ESMP)

Institution / Entity	Key Roles and Responsibilities
LGED Project Implementation Unit (PIU)	<ul style="list-style-type: none"> • Oversee environmental and social risk management framework and activities • Review and approve site-specific ESMPs • Monitor implementation through field inspections • Manage and supervise GRM at the project level • Approve E&S documents and corrective actions • Report ESMP performance to the World Bank
PIU Environmental & Social Specialists	<ul style="list-style-type: none"> • Technical supervision of ESMP implementation • Review contractor’s E&S compliance plans and related records. • Conduct site visits and compliance audits • Provide guidance on ESS compliance and required corrective actions • Leads capacity-building and training sessions for consultants and contractors. • Review and approve periodic monitoring reports and submit to the Project Director for sending them to the WB.
Design & Supervision Consultant (D&SC)	<ul style="list-style-type: none"> • Provides full-time, site-level supervision of ESMP implementation. • Verifies that mitigation measures are integrated into physical construction activities. • Verify contractor compliance with mitigation measures • Maintains detailed monitoring checklists, incident logs, and photographic records.
Construction Contractor	<ul style="list-style-type: none"> • Support PIU in Compliance reporting. • Executes all mitigation measures defined in the approved ESMP. • Prepare site-specific plans (OHS, waste, traffic, labor camp, etc.) and implement the same. • Ensure PPE use, safety training, and daily toolbox meetings • Appoints a designated EHS Supervisor to manage site-level compliance and reporting.
Grievance Redress Committees (3-tier GRM)	<ul style="list-style-type: none"> • Receives, registers, and investigates grievances from workers and the community. • Ensures a transparent, culturally appropriate, and timely resolution process. • Coordinate with PIU and local administration

8. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

Monitoring is a critical component under the Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP) to ensure that environmental and social mitigation and enhancement measures outlined in the Environmental and Social Management Plan (ESMP) are effectively implemented and that their intended benefits are realized over time. The Environmental and Social Management Framework (ESMF) of the HELP Project provides a detailed monitoring mechanism, assigning responsibilities to all relevant parties directly involved in or overseeing the construction and implementation of sub-projects.

Several tiers of monitoring responsibilities have been established under the HELP Project. At the implementation level, contractors are required to ensure that environmental and social risks are effectively minimized throughout the construction period. This includes implementing adequate Occupational Health and Safety (OHS) measures for both workers and surrounding host communities. Contractors must assign site managers and safeguard supervisors (or equivalent personnel) to supervise daily implementation of the ESMP. These personnel are responsible for ensuring environmental protection both on and off-site and for preventing damage or nuisance to individuals, public and private property, and surrounding features or institutions. Pollution, noise, and other detrimental effects arising from construction operations must be strictly controlled. In addition to implementing the ESMP, contractors are also responsible for preparing and executing specific management plans, such as drainage management, traffic management and emergency preparedness and response, where required. Proper implementation of these plans, along with timely site decommissioning and restoration, must be ensured. The detailed Environmental and Social Monitoring Plan, including monitoring parameters, indicators, responsible institutions, and frequency of monitoring during pre-construction, construction, and operation phases, is presented in Appendix-4.

The first tier of supervision is led by the Design and Supervision Consultant (D&SC) firm. Once the contractors are mobilized, safeguard consultants from the D&SC and the Resident Engineer are tasked with ensuring contractor compliance with the ESMP and with the application of good engineering practices at the site. This includes strict enforcement of OHS measures. The D&SC is responsible for preparing regular monitoring reports based on field-level supervision and findings.

At the second tier, the Project Implementation Unit (PIU) will play a key role in overall monitoring. The PIU will have dedicated environmental and social safeguard specialists who will conduct frequent field visits to assess ESMP implementation. These specialists, in coordination with the Executive Engineer's Office in Cox's Bazar district and Upazila Engineers' Office in the respective upazila, will ensure strong site-level oversight. The PIU safeguard team will also ensure that all contractor staff and other relevant personnel receive adequate initial and ongoing training on environmental and social safeguards. Moreover, the PIU will verify proper site cleaning and reclamation upon completion of construction and recommend necessary corrective or punitive measures if any non-compliance is observed.

At the highest tier, the Ministerial Project Steering Committee (PSC), chaired by the Senior Secretary/Secretary of the Local Government Division (LGD), Ministry of LGRD&C, will provide strategic oversight of monitoring activities. In collaboration with the PIU, the PSC will ensure that environmental and social safeguard training is provided to all relevant project staff and that implementation at the field level aligns with national policies and the World Bank's Environmental and Social Framework (ESF). This structured multi-tiered monitoring approach under HELP will help ensure that the construction of the RCC Arch bridge at Ramu Upazila is environmentally and socially responsible, and aligned with sustainable development objectives.

9. CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are fully implemented, there will be no significant negative environmental or social impacts related to the selection, design, construction, and operation of the proposed sub-project. In fact, the recommended mitigation and enhancement measures will lead to significant benefits, improving both the environmental quality and the social well-being of the local communities. The project will contribute to enhanced infrastructure, improved livelihoods and better access to essential services, ultimately

benefiting both the host communities and the displaced populations. Major improvements in quality of life, communication and socio-economic influences will be ensured once the scheme is in operation.

Overall, the screening study can be summarized as follows:

- The communities will receive large benefits in terms of quality of life, particularly with better reach of services and goods.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for those who live in the vicinity of the construction site and will provide them a short-term economic gain.
- A comprehensive Environmental and social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from these Subproject activities.
- Detail cost estimation for incorporating ESMP has been shown in Appendix-3. This budget can change due to change of market prices and if the project implementation period extends.

Implementation of this Sub-project will have large positive impacts to the communities in terms of improved infrastructural transportation & communication facilities, which would eventually develop the socio-economic condition of the catchment areas. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Annexure-01: Attendance of consultation meetings for sub-project

Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP)
Local Government Engineering Department (LGED)
Public Consultation Participants List
Focus Group Discussion

সময় : 3:00PM তারিখ : 18/03/25
উপ-প্রকল্প/কমপোনেন্ট এর নাম :
মাতৃ বিনিময় স্থান : কিষ্কিন্দী জনস্বাস্থ্য কেন্দ্র
ইউনিয়ন : কটুপিলা ওয়ার্ড নং : ৬ ডাকঘর : রাঙ্গু উপজেলা : রাঙ্গু জেলা : কক্সবাজার
সাব প্রকল্প নং : HELP/cox/BR-1

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
০১.	কিষ্কিন্দী উদ্দীন	২০	পুরুষ	কিষ্কিন্দী	
০২.	আব্দুল হক	৭০	৥	কিষ্কিন্দী	
০৩.	নুরুল আলম	৩৫	৥	কিষ্কিন্দী	
০৪.	কিষ্কিন্দী	২৫	৥	কিষ্কিন্দী	
০৫.	আব্দুল হক	৫৫	পুরুষ	কিষ্কিন্দী	
০৬.	জয়নাল	৩৫	পুরুষ	কিষ্কিন্দী	
০৭.	মোস্তাফিজ	২২	পুরুষ	কিষ্কিন্দী	
০৮.	আব্দুল	২০	পুরুষ	কিষ্কিন্দী	
০৯.	জিয়াবুল হক	২৫	৥	৥	
১০.	হুমায়ুন	৪৫	৥	৥	
১১.	জামাল হোসেন	৫০	৥	৥	
১২.	জিয়াবুল হক	২০	পুরুষ	কিষ্কিন্দী	
১৩.	কানিনুজ্জামান	২৫	৥	৥	
১৪.	মনসুর	৩৫	৥	৥	
১৫.	আমিত	১৫	৥	৥	
১৬.	জাকির আলম	৩০	৥	৥	
১৭.	মুস্তাফিজ	৫০	৥	৥	
১৮.	নুরুল আলম	৬০	৥	৥	

Annexure-02: Sub-project location pictures



Figure: Present condition of the proposed location for 40m RCC Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge - Mokters Bari Road ID: 4226640229 (Package no: HELP-COX/BR-1) (Ramu Upazila)

Appendix-1: Environmental and Social Screening Form for examining sub-project

Environmental & Social Screening Form

Work Package Description Form:

Name of component: Construction of RCC Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge-Mokters Bari Road ID:4226640229 (Proposed Length- 40m)

Package no: HELP-COX/BR-1

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): As per LGED rate schedule

Estimated construction period duration: 18-24 months

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar

Sub-District: Ramu

Union: Kocchopia

Name of Community/Local Area: Enam's shop at Shibatoli village

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

One RCC Arch Bridge will be constructed replacing an existing bamboo bridge. There are some activities for RCC Arch bridge construction such as Earth cutting and filling for foundation, Back filling and approach road construction, Brick soling work, CC work, RCC work, Rod cutting, bending and binding and Shuttering work.

Estimated footprint / land area for this sub-project is 292 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.):

The proposed bridge will be constructed over the Jarulia Chori Khal along the Moiskum Bridge-Moktar Bari Road, within **Kocchopia Union** under **Ramu Upazila** of Cox's Bazar District. This proposed bridge will replace the existing temporary bamboo bridge, which is currently used by the local community for crossing. The bridge will span in an **east-west orientation**, connecting **Shibatoli village** on the eastern side and **Moheskum village** on the western side.

The approach roads on both ends are earthen and in poor condition, especially during the rainy season when they become difficult to use. The bridge will serve as a vital connection for several surrounding villages, including Jaillachori, Shimtoli, Dakbanga, and Ponir Chori. These communities depend on this route for access to essential services such as markets, healthcare, and schools.

The area is located in a semi-rural, hilly environment. Important surrounding environmental features include the Bakkhali River, which flows approximately 487 meters to the north, 340 meters to the east, and 255 meters to the west of the site. Agricultural land is located about 50 meters to the north, and a small hill lies 100 meters to the east, with another hill located roughly 450 meters to the west. Residential households are found within 70 meters to the south of the proposed site. The site is also situated around 8 kilometers from the Ramu Upazila headquarters. No other important environmental feature is found within the proposed sub-project location.

The proposed Sub-project of RCC Arch Bridge is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to demolition of an old bamboo bridge and later construction of a new bridge on the same place. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of plastic. Human wastes might be generated in labor camps.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

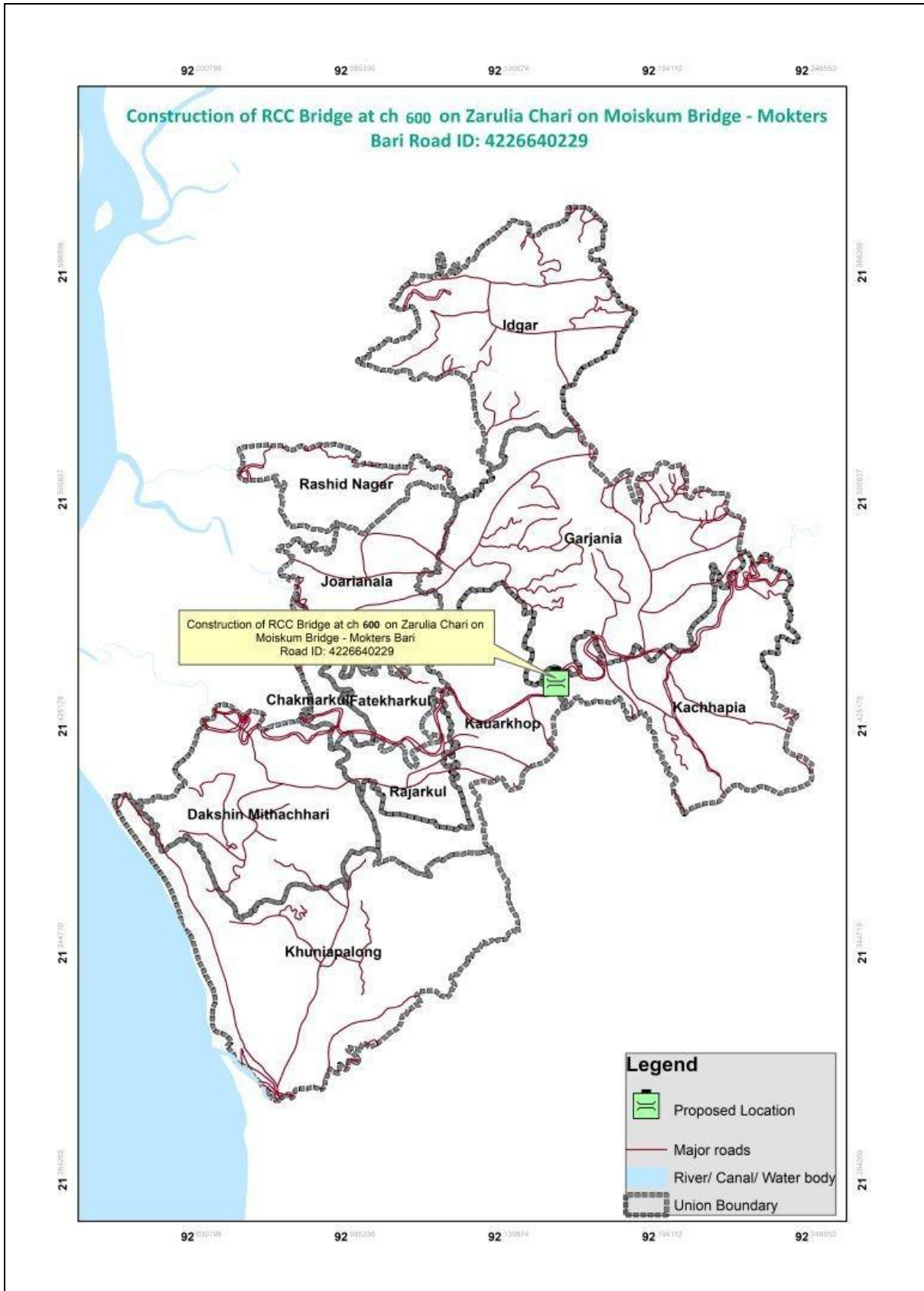
Description of sub-project/component interventions:

Following activities for RCC Arch bridge construction are:

- Earth cutting and filling for foundation
- Back filling and approach road construction
- Brick soling work
- CC work
- RCC work
- Rod cutting, bending and binding
- Shuttering work
- For bridge safety,
- Color painting on rallying
- Traffic safety guide post for approach
- Safety measures will be taken within the construction Others,
- Any bridge side is not on private land
- Alternative diversion will be provided for traffic movement and not disturbing of water flow or flora and fauna
- Mainly on very small canals and dispersed land will necessary for water drainage
- For livelihood,
- No private land will be used
- No shifting of any structure will be needed

Sub-project Location:

The proposed bridge will be constructed over the Jarulia Chori Khal along the Moiskum Bridge–Moktar Bari road (road ID:4226640229), within **Kocchopia Union** under **Ramu Upazila** of Cox’s Bazar District. Geographically, the eastern end of the bridge falls within Shibatoli village, while the western end is situated in **Moheskum village**. **The catchment villages are** Jaillachori, Shimtoli, Dakbangga, and Ponir Chori. The GPS coordinate is 21.43691667, 92.15644444. The distance from the Upazila headquarter is about 8 km.



Land ownership
Government Land

Expected construction period: 18-24 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas and historical or cultural assets): Please also explain any analysis on alternative location was conducted:

Project intervention area will be adjusted on the existing old bamboo bridge but influence area should consider nearly half a kilometer radius around the proposed site.

Bakkhali River is located approximately 487 meters to the north, along with a hill at about 580 meters and agricultural land around 50 meters away from the proposed site. Mohammodia Darul Ulum Madrasa is found approximately 570 meters to the south, a graveyard lies 580 meters away, and residential houses are located within 70 meters. To the east, the Bakkhali River is about 340 meters away, a small hill is 100 meters away, and Dakvanga Government Primary School is around 990 meters from the site. To the west, the Bakkhali River lies approximately 255 meters away and a hill is located about 450 meters away. But there is no chance of disturbance during this construction activity.

No structures, trees and livelihood will be affected by this construction activity. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified.

Section B: Environmental Screening

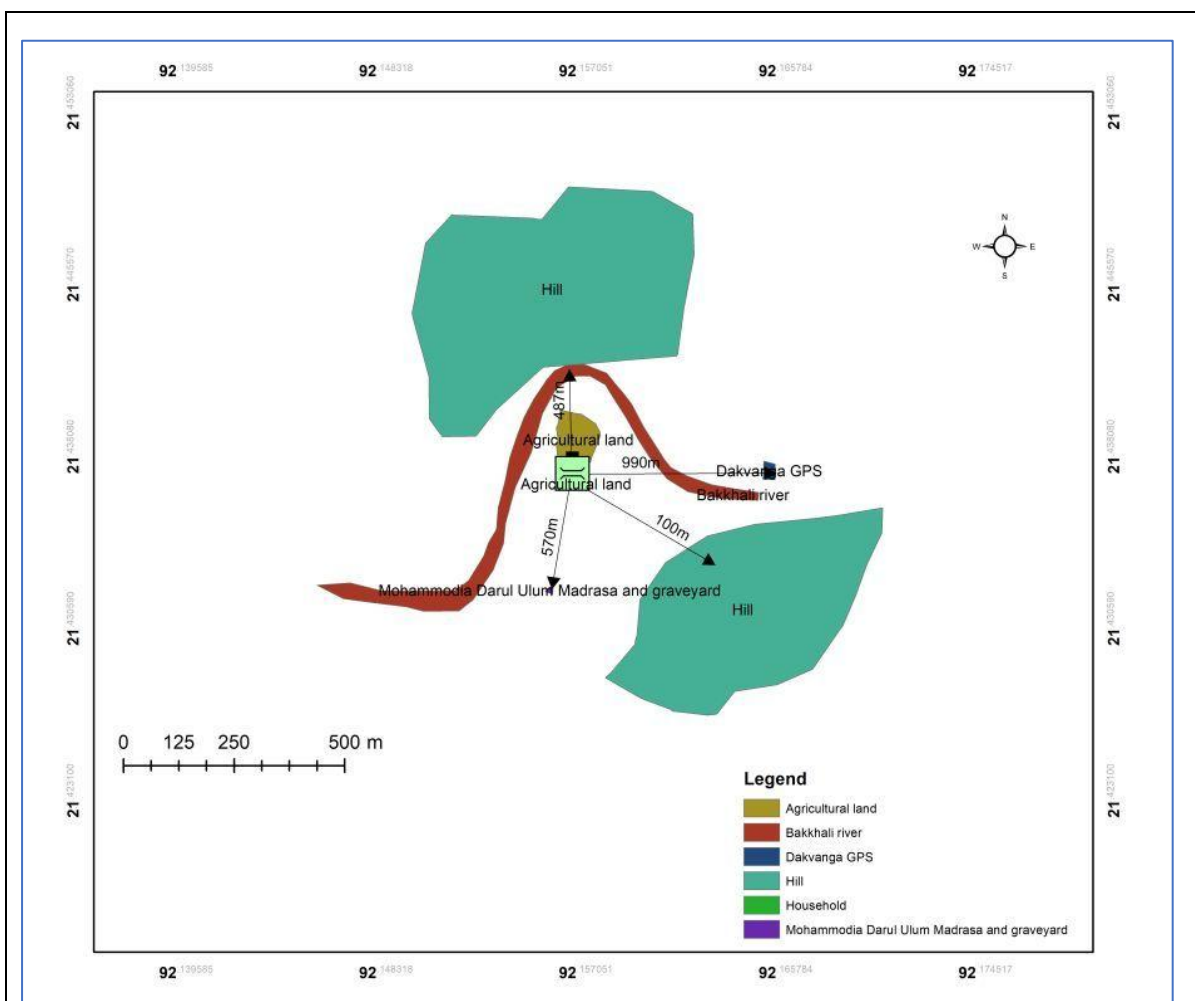
B.1: Environmental feature of sub-project location

Description of cultural properties (if applicable, including distance from site):

The proposed sub-project is located at chainage 600 over the Jarulia Chori Khal along the Moiskum Bridge–Moktar Bari Road. It aims to replace an old bamboo bridge that currently serves as the only means of crossing for the local community. The site is in a semi-rural, hilly region, but is surrounded by agricultural land and nearby households.

To the north, the Bakkhali River is located approximately 487 meters from the site, along with a hill about 580 meters away and agricultural land just 50 meters away. To the south, the Mohammodia Darul Ulum Madrasa is situated about 570 meters away, a graveyard lies 580 meters away, and residential houses are found within 70 meters of the proposed site. To the east, the Bakkhali River is around 340 meters away, a small hill is 100 meters away, and the Dakvanga Government Primary School is located about 990 meters from the site. To the west, the Bakkhali River is approximately 255 meters away and a hill is around 450 meters away. The approach roads on both sides of the bridge are earthen and become difficult to use during the rainy season due to poor condition. A sketch of the surrounding environmental and community features is provided below.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas within the proposed site, except for the agricultural land, which is located 50 meters to the north and residential houses are found within 70 meters to the south of the proposed site. Construction activities may lead to dust and runoff contamination to the agricultural land; These impacts are short-term, site-specific and can be effectively managed through proper water sprinkling and site drainage. The proposed bridge will be replaced with an existing old bamboo structure, crossing over Jarulia chori khal.

Those will not be affected by the construction works, as the activities will be carried out over the existing bamboo bridge and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) potential impacts on remaining forests in/around camps Yes/No

N/A

(2) Other issues: The approach roads on both sides of the bridge are earthen and become difficult to use during the rainy season due to poor condition.

Baseline air quality and noise levels:

Air Quality

Site-specific baseline ambient air quality monitoring was not conducted for this sub-project. However, baseline conditions have been assessed based on secondary information from relevant

environmental studies, Department of Environment (DoE) monitoring data, and previous environmental assessments of rural infrastructure projects implemented in Cox's Bazar District and similar coastal regions of Bangladesh. These sources indicate that ambient air quality in such rural and semi-urban areas is generally moderate to good, primarily due to the absence of major industrial activities and the dominance of local traffic and open land use.

According to the available DoE² monitoring data and previous environmental assessments under LGED and World Bank-supported projects, concentrations of gaseous pollutants such as sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and carbon monoxide (CO) in similar rural settings typically remain within the Bangladesh National Ambient Air Quality Standards (BNAQS). Indicative values from comparable project areas show SO₂ concentrations ranging from 5-20 µg/m³, NO₂ from 15-30 µg/m³, and CO levels generally below 2.0 mg/m³.

Particulate matter (PM₁₀ and PM_{2.5}) levels in respective Upazila are generally moderate, but may increase during the dry season due to dust from unpaved surfaces, movement of vehicles, and local bazar activities. Secondary data from previous LGED road project EIAs³ indicate that PM₁₀ concentrations may range between 90-160 µg/m³ and PM_{2.5} between 40-70 µg/m³ during peak dry periods, with occasional short-term exceedances of national standards. These exceedances are typically localized, temporary, and reversible in nature.

Field observations at the proposed bridge construction site indicate generally good baseline air quality conditions, as the area is predominantly rural with low traffic density. Minor localized emissions are mainly associated with intermittent vehicular movement, small-scale rural activities, and nearby household activities. No significant industrial emission sources or air pollution hotspots were identified within the Project Influence Area. Overall, the baseline air quality in the project area is considered acceptable for a rural setting. Construction activities may temporarily increase dust and vehicular emissions, particularly during earthworks and material transport; however, these impacts are expected to be short-term and manageable through standard mitigation measures such as regular water spraying, covering of materials, and controlled movement of construction vehicles.

Noise Levels

Baseline noise monitoring was not carried out for the proposed road. However, secondary information from LGED environmental reports, DoE noise surveys, and field observations indicate that ambient noise levels in Ramu Upazila and nearby areas are generally low to moderate. Typical daytime noise levels in rural areas of Cox's Bazar range from 45–55 dB(A), while nighttime levels range from 38–45 dB(A)⁴, which are within the limits prescribed under the DoE Noise Pollution (Control) Rules for rural and residential areas.

² Department of Environment (DoE) (2005, amended 2018). Bangladesh National Ambient Air Quality Standards (BNAQS). Ministry of Environment, Forest and Climate Change, Government of Bangladesh, Dhaka.

³ Local Government Engineering Department (LGED) (2019). Environmental Impact Assessment Reports for Rural Road Improvement Projects in Cox's Bazar District. LGED, Dhaka.

⁴ Department of Environment (DoE) (2025). Noise Pollution (Control) Rules, 2025. Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka.

Existing noise sources in the project influence area are limited to light vehicular traffic, local market activities, and occasional agricultural operations. No continuous or high-intensity noise-generating sources were identified near the proposed site. During construction, temporary increases in noise levels may occur due to the operation of construction machinery and vehicles. Such impacts are expected to be localized, intermittent, and time-bound, and can be effectively mitigated through scheduling works during daytime hours, maintaining equipment in good condition, and providing appropriate personal protective equipment (PPE) for workers.

Baseline soil quality:

Site-specific soil quality monitoring was not conducted for the proposed bridge site at the screening stage. However, baseline soil conditions have been assessed using secondary information and field observations along the proposed site. The project area lies within the coastal floodplain of Cox's Bazar District and is characterized by young alluvial soils with silty clay to clay loam textures. These soils are generally fertile but may exhibit moderate salinity, particularly during the dry season due to tidal influence and saline water intrusion⁵. Soil pH in the area typically ranges from 6.5 to 8.0, indicating neutral to slightly alkaline conditions common in coastal deltaic environments.

Electrical Conductivity (EC) of soils in the surrounding area varies seasonally, with moderate salinity (4-8 dS/m) observed in surface soils during the dry period. Salinity tends to decrease during the monsoon season due to rainfall and freshwater influx. Organic matter content is generally low to moderate (1-2%) as a result of frequent sediment deposition, tidal action, and limited biomass retention in cultivated and open areas along the proposed site. Available secondary data suggest that heavy metals such as lead (Pb), cadmium (Cd), chromium (Cr), and arsenic (As) are present at concentrations within permissible limits for rural and agricultural land use, with no indications of industrial contamination⁶. Naturally high iron content, common in alluvial soils, is not considered a constraint for construction activities.

The proposed bridge construction site is located within a rural setting, primarily surrounded by agricultural land and scattered settlements. The bridge footprint is confined to the immediate crossing area, and no active agricultural activities are present within the core construction zone. Field verification did not identify any signs of contaminated land, illegal dumping, or nearby industrial operations. During construction, activities such as excavation for abutments, piling, and material handling may temporarily disturb the topsoil and pose minor risks of localized soil contamination from fuel, lubricants, cement slurry, and construction waste. These potential impacts are expected to be short-term, site-specific, and reversible in nature.

Landslide potential (high/medium/low, with explanation):

N/A (the sub-project will be constructed in a plain land)

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Site-specific baseline surface water quality was not conducted for the proposed site. However, baseline conditions have been assessed using secondary information from the different

⁵ SRDI (2018). Soil Salinity Status of Bangladesh. Soil Resources Development Institute, Ministry of Agriculture.

⁶ Local Government Engineering Department (LGED) (2020). Environmental Impact Assessment Reports for Rural Infrastructure Projects in Cox's Bazar District. LGED, Dhaka.

Department and World Bank–funded projects previously implemented in Ramu and adjacent coastal upazilas of Cox’s Bazar District.

The baseline surface water and groundwater quality in Cox’s Bazar District shows moderate variability influenced by coastal processes, seasonal rainfall, and human activities. Groundwater in the region is generally slightly acidic to neutral, with pH values ranging from about 6.5 to 7.5, which falls within acceptable limits for drinking purposes⁷. However, iron (Fe) concentrations are often elevated and may exceed the Bangladesh drinking water standard (0.3 mg/L), causing aesthetic and operational concerns. Total dissolved solids (TDS) in both surface and groundwater typically range from low to moderate (approximately 300–1000 mg/L), although higher values can occur in coastal areas due to saline intrusion⁸. Surface water bodies, including ponds and canals, are more vulnerable to contamination and frequently show the presence of fecal coliform bacteria, indicating pollution from domestic wastewater, poor sanitation, and runoff, especially in densely populated and tourist areas. Groundwater is comparatively less contaminated microbiologically but may still be at risk in shallow aquifers. Overall, while pH and TDS are generally within acceptable ranges, elevated iron levels and fecal contamination in surface water represent key water quality concerns in the district.

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

No trees are found near the proposed area. The proposed site will be developed in an open space surrounded by salt fields.

Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

The proposed sub-project is located at chainage 600 over the Jarulia Chori Khal along the Moiskum Bridge–Moktar Bari Road. The approach roads on both sides of the bridge are earthen. It is possible to carry the construction materials on this road to the construction site.

Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction:

No tubewell or fresh water sources are present at the proposed location. Some permanent residents are found within 70 meters of the proposed site. To make sustainable management usage of water for construction works, two numbers of tubewells should be installed. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget.

Electricity is not available at the site. Solar light needs to be installed.

Toilet facilities are not available near this location. To be used by the workers/contractor’s staffs during the construction period toilet will need preparation for both male and another for female.

Possible location of labor camps:

On the north side of the selected site, or can be placed near the location of sub-project site.

Requirement and type of raw materials (e.g. sand, stone, wood, etc.):

⁷ DPHE (Department of Public Health Engineering). (2019). Bangladesh Drinking Water Quality Survey 2018–2019. Government of Bangladesh.

World Health Organization (WHO). (2017). Guidelines for Drinking-water Quality (4th ed.). Geneva.

⁸ Bangladesh Bureau of Statistics (BBS). (2021). Statistical Yearbook of Bangladesh.

Some of the raw materials for bridge construction are steel, concrete, stone, asphalt, water, bamboo & wood. Other materials include iron, timber, aluminum, rubber and other joint materials, and electro-mechanical equipment used in construction.

Identification of access road for transportation (Yes/No):

Yes. The proposed sub-project is located at chainage 600 over the Jarulia Chori Khal along the Moiskum Bridge–Moktar Bari Road. It is possible to carry the construction materials on this road to the construction site.

Location identification for raw material storage:

On the north side of the proposed sub-project. Material storage area must be well fenced and materials will be covered with tarpaulins.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Solid waste: An existing bamboo bridge will be demolished and the new RCC Arch bridge will be constructed here. So, construction debris and other solid wastes will be generated both during the demolition and construction periods.

Type: woods-bamboo, copper wires, concrete, iron, plastic, tin, etc.

Quantity: Nearly 10 metric ton of solid waste, including demolition materials will be produced.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Solid waste: Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 7 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp.

Liquid waste: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 6 kg per day, which would be reduced in weight in course of time.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes viii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and ix) clay are the most common type of building material used in construction.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

There is no soil land or major vegetation cover on the right-of-way for the sub-project. No other placement as waste dumps or equipment is targeted in any vegetation cover as well.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

Low: No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the sub-project area. During construction period one or two water reservoir

may be constructed due to construction activities. But all those will be completely demolished and cleared out, once the construction period is over.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

The proposed site is located over the Jarulia Chari Khal, along the Moiskum Bridge–Moktar Bari Road; however, it is not subject to any modification. On the other hand, during construction period, water quality may be disturbed due to dust deposition and concrete and cement usage. The runoff from work site may enter the present canal which will be acute in degree and short in period.

Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

Low: The site is free from any significant aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: N/A

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)

N/A

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.

Likely direct and indirect impacts on economic development in the project areas by the sub-project:

Construction or implementation of a bridge project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions

with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.

Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes) :(High/Medium/Low with description)

No significant modification to the water channel is anticipated. The khal itself functions as a seasonal waterway and is not classified as a wetland or marsh. The new bridge is designed in a way that allows water to flow freely under it, using enough space between the piers and proper height. Since the canal (khal) will not be changed or blocked, the natural water flow will stay the same, even during heavy rains. The new bridge will simply replace the old bamboo one and follow the same path. Surrounding areas are primarily agricultural land and some are residential houses, but not dependent on the khal for drainage, therefore, no such effect can be anticipated

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

There are no protected areas in or around project sites, and no known areas of ecological interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No.

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

During operation period, traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and loose soil being dispersed around during the dry weather, and accidents may occur due to the bad condition of the access road and unsafe driving through it.

High = Likely to cause long-term impacts or over large area (> 1 sq km); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1 sq km); Low = Likely to cause little, short-term damage and over small area (< 0.5 sq km)

Section C: Social Screening

C.1 General Labor Influx Screening

Key Screening questions	Aspects to Consider
Will the project potentially involve an influx of workers to the project location, and will the influx be considered significant for the local community?	<p>✓ How many foreign and local workers will be needed for the remaining period of the project, with what skill set?</p> <p>Answer The project will not require any foreign workers for the remaining construction period. The contractors will hire all skilled and unskilled labor locally. For the bridge construction, the project will need about 10 skilled workers and 20 unskilled workers. Skilled workers, such as masons, carpenters, and steel fixers, will</p>

come from nearby areas based on the technical needs of the bridge construction.

Since the bridge will be constructed within a **host community area**, and local skilled and unskilled labor is willingly available, the project will prioritize hiring from the local community. This approach will not only support local livelihoods but also promote stronger community ownership of the project.

✓ **Can the project hire workers from the local workforce?**

Answer: Yes, the project can hire workers from the local workforce. Both skilled and unskilled laborers will be recruited from nearby communities. The availability of local workers is sufficient to meet the project's labor demands.

✓ **What is the size and skill level of the existing local workforce?**

Answer: Based on consultations with local stakeholders, most of the required workforce both skilled and unskilled is available within the project area. However, if specialized skills are needed for specific technical activities, the contractors may need to hire a limited number of skilled workers from outside the immediate locality. Overall, the local workforce is capable of supporting the construction activities under the project.

✓ **If the skill level of the local workforce does not match the needs of the project, can they be trained within a reasonable timeframe to meet project requirements?**

Answer: Unskilled labor is readily available in the project area. If the skill level of the local workforce does not fully meet project requirements, the contractors can provide on-the-job training to upgrade their skills within a reasonable timeframe. This approach will enable the project to utilize local labor effectively while enhancing their technical capacity for bridge construction activities.

✓ **How will the workers be accommodated? Will they commute or reside on site or outside of the camp? If so, what size of camp will be required?**

Answer: Most of the workforce will be hired from the local community, and they will commute daily from their own homes; therefore, they will not require accommodation at the construction site. However, skilled workers who may be sourced from outside the project area will require temporary accommodation near the site. Contractors will establish **temporary labor sheds** to house these external workers. The size

	<p>of the labor camp will depend on the number of outside skilled workers needed, but it will be designed to comply with Environmental, Health, and Safety (EHS) guidelines to ensure proper living conditions, sanitation, and worker safety.</p>
<p>Is the project located in a rural or remote area?</p>	<p>✓ What is the size of local population in the project area? Answer: The size of the local population in the project area is approximately 12500 people, including both male and female residents. This estimate is based on information collected during community consultation meetings held at the subproject site.</p> <p>✓ What is the size of the host Rohingya community? Answer: N/A</p> <p>✓ Is the project located / being carried out in an area that is not usually frequented by outsiders? Answer: The project is located in an area that is usually frequented by outsiders, including traders, farmers, service holders and daily commuters from nearby villages.</p> <p>✓ What is the frequency and extent of contact between the local community and outsiders? Answer: Daily</p> <p>✓ Are there sensitive environmental conditions that need to be considered? Answer: Yes, there are sensitive environmental conditions that need to be carefully considered during the implementation of the project. In addition to general construction activities, the demolition of the existing old bamboo bridge and the construction new one may also generate significant dust, noise, debris, and vibrations, which could impact nearby households, cultivation land, pedestrians, and other sensitive establishments located within close vicinity to the site. To minimize these impacts, the construction site must be properly fenced to contain dust dispersion and reduce noise pollution, thereby safeguarding local residents and pedestrians. Dust suppression measures, such as water spraying at least twice daily, must be implemented throughout the construction periods. High-noise activities should be considered during less sensitive hours to minimize disturbance to nearby communities. Furthermore, all machinery and equipment should be properly maintained to control noise levels. As the existing structure at the proposed site is a temporary bamboo bridge, no significant demolition activities are required. The removal of the bamboo structure is expected to</p>

	<p>have negligible environmental impact, as it involves lightweight, biodegradable materials that can be easily dismantled without heavy machinery. No contamination risk to surrounding agricultural land or nearby water bodies is anticipated during this process.</p>
<p>Based on the socioeconomic, cultural, religious and demographic qualities of the local community, Rohingya population and the incoming workers, is there a possibility that their presence or interaction with the local community could create adverse impacts?</p>	<p>✓ Is it likely that the incoming workers and the local community come from a shared socio-economic, cultural, religious or demographic background? Answer: Most of the workforce is expected to come from the local host community. A small percentage of skilled workers may be hired from outside the project area if required. The local workforce and the incoming workers generally share a common socio-economic, cultural, religious, and demographic background, which is expected to support smooth integration at the work sites. Since this subproject is located in the host community area and will not involve Rohingya workers, the risk of conflict due to cultural or social differences is considered low. However, contractors must still take precautionary measures, such as awareness training on social behavior, code of conduct enforcement, and community engagement, to prevent misunderstandings and ensure a harmonious working environment.</p> <p>✓ What is the level of existing resources, and will the incoming workers use or create competition for these resources? Answer: The existing local resources, such as water supply, food, basic health services, and transportation facilities, are limited compared to the size of the local population. Although workers will be hired from the local community, a small number of incoming skilled workers from outside may create additional pressure on local resources. This could lead to a temporary increase in the demand for basic commodities and may cause price hikes in local markets during the construction period.</p> <p>✓ What is the expected duration of the incoming workers' presence in the community? Answer: One year but it may be extended.</p> <p>✓ Given the characteristics of the local community, are there any specific adverse impacts that may be anticipated? Answer: Yes, considering the characteristics of the local community, some specific adverse impacts may be anticipated during the construction phase. These include:</p> <ul style="list-style-type: none"> • Temporary price hikes in local markets due to increased demand for goods and services from workers.

	<ul style="list-style-type: none"> • Pressure on water supply and sanitation facilities, particularly if labor camps are not properly managed. • Movement disruption for local vehicles and pedestrians around the construction sites due to road blockages and heavy machinery operation. <p>However, no significant religious or cultural barriers are anticipated, as both the local community and the incoming workforce largely share a similar socio-cultural background.</p>
<p>Consultation with Community People</p>	<p>✓ Has the project authority and contractors conducted any consultation meetings with the community people and Rohingya population?</p> <p>Answer: The project authority has already conducted several consultation meetings with the local community during the environmental and social screening stage. Community opinions, concerns, and suggestions were received with great respect and consideration.</p> <p>After the finalization of the contractor, additional consultation meetings will be organized by the contractor in coordination with the project authority to ensure continued community engagement and address any new concerns during the construction phase.</p> <p>✓ Are local people aware about the labors?</p> <p>Answer: Local community members are well aware of the engagement of local laborers in the project activities. However, they currently have limited knowledge regarding the potential involvement of outside skilled workers.</p> <p>✓ Has the project authority involved the local community with the project?</p> <p>Answer: Yes, the project authority has actively involved the local community throughout the site selection and screening stages. Several formal consultation meetings and informal discussions were conducted at the proposed bridge location and with the local community. Community members shared their views, concerns, and expectations, which were carefully considered.</p>

Involuntary restrictions on land use or on access to legally designated parks and protected areas

Effects	Yes	No	Not Known	Remarks
<p>10. Will people lose access to natural resources, communal facilities and services?</p>		<p>√</p>		<p>People's access to communal facilities and services will not be affected by the project.</p>

11. If land use is changed, will it have an adverse impact on social and economic activities?		√		No scope to change site location.
12. Will access to land and resources owned communally or by the state be restricted?		√		No
Information on Displaced Persons:				
Any estimate of the likely number of persons that will be displaced by the Project? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, approximately how many? N/A				
Are any of them poor, female-heads of households, or vulnerable to poverty risks? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes				
Are any displaced persons from indigenous or ethnic minority groups? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes				
During Screening, project authority will conduct consultation with the primary and secondary stakeholders and provide their observations in the following sections (13 to 18)				
13: Who are the stakeholders of the project? Answer: The stakeholders of the project include a wide range of individuals and institutions connected to the sub-project areas. They are: <ul style="list-style-type: none"> • Local community members • Households and shopkeepers located on both sides of the project roads • Students and guardians from nearby educational institutions • Religious leaders and teachers • Local elected representatives (Union Parishad members, Ward members) • Local administration officials • Implementing agency (LGED) and relevant supporting agencies • Workers and laborers engaged in project construction activities • Community-Based Organizations (CBOs) • Local NGOs • Local traders 				
14: What social and cultural factors affect the ability of stakeholders to participate or benefit from the proposed policy or project? Answer: There are no significant social or cultural factors that would restrict stakeholders' ability to participate in or benefit from the proposed project. The project area maintains a socially cohesive and culturally conducive environment , which supports broad community participation and equal access to project benefits. Stakeholders, including local residents, traders, students, and vulnerable groups, are expected to benefit positively from the improved infrastructure and services. The project's inclusive approach ensures that participation opportunities are available to all community members without discrimination.				
15: Are project objectives consistent with their needs, interests and capacity? Answer: Yes, the project objectives are highly consistent with the needs, interests, and capacities of the stakeholders. Community consultations and FGD during field visits clearly indicated strong local support for the project.				

16: What will be the impact of the project or sub-project on the various stakeholders, especially women and vulnerable groups?

Answer: The construction of the proposed bridges will have a significantly positive impact on various stakeholders, particularly women, children, elderly people and other vulnerable groups. Improved transportation infrastructure will ensure **easier and safer mobility**, allowing women and vulnerable populations to travel more conveniently between villages, markets, schools, and health care facilities.

Access to hospitals and emergency services will become faster, which is crucial for women, elderly, and persons with disabilities. School-going children will also benefit through **safer, uninterrupted access to educational institutions**. Overall, the project will enhance social inclusion, reduce travel time, promote economic opportunities, and contribute to an improved quality of life for all segments of the local population.

17: What social risks might affect project or sub-project success?

Answer: Several social risks could potentially affect the success of the sub-projects if not properly managed. These risks include:

- **Minor conflicts** may arise between local community members and incoming skilled laborers, particularly if there are differences in behaviour or competition over local resources.
- **Temporary price hikes** of essential commodities in local markets (hat-bazar) due to increased demand from workers.
- **Risk of engagement in anti-social activities** by a few incoming workers, which could challenge local social norms and community harmony.
- **Noise and dust pollution** may be generated during construction activities, which may disturb schoolchildren, elderly residents, and other vulnerable groups living close to the project sites.

18: Has the project authority or any other organizations conducted any consultations with the affected community or people? If yes. Please provide a summary.

Answer: Yes, the project authority has conducted several consultation meetings with the potentially affected communities and other stakeholders. During the site selection phase, LGED officials organized discussions with local community members, Union Parishad representatives, local elites, school teachers, and civil society organizations to gather feedback regarding the construction of the proposed bridges.

Additionally, during the environmental and social screening process, the PIU Consultant of LGED conducted community consultations to inform local people about the project objectives, construction activities, potential impacts, and safeguard measures.

The key feedback and observations from the consultations include:

- During the consultation meeting and FGD, Community members strongly supported the construction of the bridges, they would enhance connectivity between economically complementary areas, boosting local trade and labor movement.
- Farmers expressed that the improved communication network would allow them to receive **fair prices** for their commodities and reduce transportation costs.
- Transportation systems would become easier, faster, and more reliable, saving time and reducing daily hardships for local residents.

- The construction of the bridges is expected to **encourage the growth of local businesses and industries**, stimulating the rural economy.
- Land value in the surrounding areas is likely to increase as accessibility improves.
- Improved road connectivity will enable quicker access to upazila and district-level hospitals, ensuring better healthcare facilities for the local population.
- The attendance and enrollment rates of school-going children are expected to rise due to safer and more convenient travel routes.
- The bridges will also strengthen the communication network by acting as vital links within the rural transportation system.

Section D: Environmental and Social Screening Summary of the Work Package

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Sub-project Interventions					
Construction of a RCC Arch Bridge (degradation of air, water and soil quality, and local hydrology)	Under the sub-project intervention, the overall score is low	<ul style="list-style-type: none"> Limiting earthworks and artificial bank reinforcement should be avoided as far as possible; Bridge soffit (The bottom part of the bridge) levels and flood spans should be at least 1 metre above the maximum known flood level to allow floating debris to pass freely through the structure; Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered. The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. Storage of fuel, chemicals, equipment and construction materials so as to minimize the risk of soil contamination or water pollution; Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. 	Contractor, environmental specialist of PIU and D&SC	Visual monitoring result of air quality condition, Results of water test parameters, blockage of water flow with soil, debris or stack materials at site.	Throughout the time during the construction period.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Monitor water quality according to the environmental management plan. • Phasing of construction work to minimize disturbance to wildlife at sensitive times of year, such as during the breeding season or when young are being raised; • Use of techniques to minimize compaction of soil, such as restricting access during wet conditions, and using protective boarding and low-ground pressure machinery. If necessary, soil should be carefully removed and stored for subsequent reinstatement; • Access roads should avoid riparian zones and should be built using appropriate construction materials. 			
Pre-construction Phase					
Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • The proposed sub-project involves the construction of a new RCC Arch bridge at the site of an existing old bamboo bridge over Zarulia Chari. The construction area over this canal needs to be covered so that the water cannot receive debris and dust from the construction work. • Construction camp and material storage area should be located at the site & approved by the Environmental Specialist of D&SC. • The proposed bridge is located on the Moiskum Bridge–Mokters Bari road, where the south side has a Herringbone Bond (HBB) road and the north side has a muddy earthen road, so a labor camp needs to be set up in such a location that the road is not disturbed in any way. 	Contractor, environmental specialist of PIU and D&SC	Water quality test results. Location of stockpiles and labor shed.	Prior to the start of Construction works.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Loss of land / and other physical assets	No adverse impact will be generated.	<ul style="list-style-type: none"> No land acquisition will be required as RCC Arch bridge will be constructed in own existing alignment, which is entirely Government land. No additional land will be required to construct the RCC bridge due to both sides of the canal being government vacant property as well as LGED roads. The local community has been agreed to provide space beside the bridge construction site to keep the construction materials during construction work. There is no physical asset affected by the intervention of the sub-project (bridge). In case of any grievance from a neighboring household, emergency consultation will be conducted to resolve the issue through the project GRC. 	Safeguard team of PIU, PSC and D&SC	Number of Complaints. Check Grievance register. Resolutions against the grievances.	Ensure regular supervision and Monitoring based on compliance.
Loss of livelihood	No impact may be generated.	<ul style="list-style-type: none"> Contractor need to engage local labor as priority (both skilled and unskilled) at their construction work. Due to government limitations Rohingya community is not entitle to work in host community because of restriction to buy daily necessary items. Woman labor should get priority at the time of labor recruitment. During construction work social safeguard compliance shall be maintained properly by the contractor. 	PIU, Contractor, Safeguard team of PIU, PSC and D&SC	Labor wages payroll. Interview with labor. Frequent visit by D&SC and PIU personnel	Monthly basis
Stakeholders Engagement	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> One community-level consultation meeting has already been conducted with the relevant stakeholders. The meeting aimed to gather feedback, ensure local participation and inform the community about the project scope and potential impacts. 	PIU, Contractor, Safeguard team of PIU, PSC and D&SC	List of participants in consultation and GRC. Disclosure records of safeguard documents.	Weekly basis

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Moving forward, additional consultation sessions will be held as needed to ensure inclusive stakeholder engagement throughout the project lifecycle. • All safeguard documents will be disclosed to the stakeholders prior to the commencement of construction works. • All the stakeholders will be made aware of the Grievance Redress Mechanism (GRM) and their active participation will be ensured through representation in the Grievance Redress Committee (GRC). 		Feedback and grievances are recorded and addressed. Level of awareness on GRM among stakeholders.	
<p>Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of crime, children, animals, etc.)</p>	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • The contractor shall submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures. • Proper procedure for stockpiling/ storage of construction materials at the site will be 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 outsiders, children, animals, etc. • Spills/ hazardous substances should be disposed of at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination. 	Contractor, environmental specialist of PIU and D&SC	List of selected sites; Identified sources and storage place of materials.	During Design Stage

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Demolishing of an existing bamboo structure	Under the sub-project intervention, the overall score is Low	<ul style="list-style-type: none"> • Water spraying may be applied if required; however, dust generation is expected to be minimal. • Install temporary fencing/barriers around the dismantling area to ensure safety of local people and road users. • Avoid the use of heavy machinery; prioritize manual dismantling to minimize noise and disturbance. • Do not accumulate or burn dismantled bamboo materials or other waste at the site. • Carry out dismantling activities in stages and provide prior notice to adjacent communities and stakeholders. • Identify appropriate locations for reuse, recycling, or disposal of bamboo materials in consultation with local authorities; maximize reuse where feasible. • Ensure mandatory use of PPE (gloves, masks, helmets, boots) by workers according to the nature of work. • Maintain proper housekeeping to prevent scattered debris and ensure safe movement around the site. • Follow guidance on dismantling and waste management provided in Appendix 2 of the ESMP. 	Contractor, Environmental Specialist of PIU and D&SC	List of selected sites; identified reuse/disposal options for dismantled bamboo materials; PPE compliance; site safety measures in place	During Design and Pre-Construction Stage
Setting up of labor camp (Generation of sewage waste; solid Waste; Water, soil, air & dust pollution/ environmental pollution; health hazard of workers due	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Construction camp should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. 	Contractor, environmental specialist of PIU and D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
to poor quality drinking water)		<ul style="list-style-type: none"> • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate; and 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 and/ or at the site pre-approved by the Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. 			
Accidents	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Provision of standard safety protocol. • Providing training on Environmental health and safety to the labors and associated field staffs is the responsibility of Upazila Engineer & Contractors. • Training should be scheduled twice, once before starting the construction & another in the middle of construction period. • Safety & protection gears, first aid box etc. should be available in the site during construction period. 	Contractor, environmental specialist of PIU and D&SC	Complaints from community; Complaints from the labors and associated field staffs; Regular inspection of materials transport vehicles.	Before and during the construction phase
Construction Phase					
Site Preparation: Soil Erosion; Alteration of natural drainage	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Construction facilities including material are to be placed at least 30- meter distance from bridge construction area in order to minimize impacts on water bodies and natural flow paths. 	Contractor, environmental & Social specialist of PIU and D&SC	<ul style="list-style-type: none"> • Presence and adequacy of retaining structures. 	Monthly, Immediate follow-up after heavy rainfall or erosion events.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> Any disruption of socially sensitive areas with regard to human habitation and areas of cultural significance will be avoided. Retaining wall need to construct that structure retain (holds back) any material (usually earth) and prevents it from sliding or eroding away. Ensured diversion / alternative bamboo made bridge for considering the bi-cycle, and Rickshaw movement, pedestrian and other transportation etc. The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents. 		<ul style="list-style-type: none"> Functionality of the temporary bamboo bridge. Visual evidence of erosion or drainage issues. Community complaints on disruption. 	
Increase in diversion road accidents	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> The contractor will prepare a response plan to accidents, it will ensure the victim to receive quick treatment. The movement of heavy machinery and equipment shall be restricted to diversion or temporary bridge. Proper signage to be displayed at diversion. Road diversions and closures to be informed well in advance to the local community. Local community will be trained on traffic management and awareness 	Construction Contractor, Safeguard team of PIU and D&SC	<ul style="list-style-type: none"> Traffic and Road Conditions. Accident and incident logs. Number and visibility of traffic signage. 	<ul style="list-style-type: none"> Weekly inspections by D&SC Daily monitoring by contractor Monthly review by PIU Safeguard team Immediate review after any accident or complaint.
Quality construction work of the RCC Arch bridge	Under the sub-project intervention,	<ul style="list-style-type: none"> Respected community deserving quality construction works (side by side with the construction engineers and Design and Supervision Consultant) 	Construction Contractor,	<ul style="list-style-type: none"> Community feedback should be acknowledged 	Daily supervision by D&SC. Weekly

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
	the overall score is low.		Environmental & Social Consultant of PIU and D&SC	and addressed regarding construction quality. <ul style="list-style-type: none"> • Material quality test results. • Community feedback should be acknowledged and addressed regarding construction quality. • Ensure timely rectification of any construction defects. 	progress review by PIU.
Safety during construction of the RCC Arch bridge	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • An unauthorized person entry to the proposed site should restrict strictly and ensure proper storage and control of hazardous materials on site. • Child labors are not allowed for any kind of activities • Site shall be secured by fencing and ridge (if needed). • Ensuring that clear safety policies and procedures are in place and strictly enforced is essential, as is regular inspection and maintenance of all workplace equipment. 	Construction Contractor, Environmental & Social Consultant of PIU and D&SC	- Regular inspection and maintenance records of machinery and safety gear. - Register/ Documents on social safety	

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> Awareness building program will be taken on social safety matters through imparting training from the project before commencement. At the same time, compliance should be ensured by the contractors. 		matters Checking stock register of personal protective equipment (PPE)	
Noise Impacts	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Avoid high noise making activities during after daylight. Involve the community in planning the work program so that any particularly noisy or otherwise invasive activities can be scheduled to avoid sensitive times. Avoid using of construction equipment producing excessive noise at night. Ear protection devices for the workers & site staffs should be available in site during construction period. 	Contractor, environmental specialist of PIU and D&SC	Number of complaints from stakeholders, use of silencers in noise-producing equipment and sound barriers, Noise Level following decibel meter (dB)	Weekly
Air Quality Conducting works at dry season and moving large quantity of materials may create dusts and increase in concentration of vehicle related pollutants which will affect people who live and work near the	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Damp down exposed soil and any sand stockpiled on site by spraying with water during dry weather. Use tarpaulins to cover soils, sand and other loose material when transported by trucks. Unpaved surfaces used for haulage of materials within settlements shall be maintained dust-free. Arrangements to control dust through provision of water sprinklers and dust extraction systems shall be provided at all stone crushers (if these establishments are being setup exclusively for the subproject). Limiting speed of construction vehicles in work sites to maximum of 20 km/h. 	Contractor, environmental specialist of PIU and D&SC	Location of stockpiles, Covering of trucks, Records of air quality inspection, Numbers of complaints from sensitive receptors, Heavy equipment and pollution control devices, Maintain records	Monthly

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
sites. The impacts are negative but short-term, site-specific within a relatively small area and reversible by mitigation measures.		<ul style="list-style-type: none"> Regular monitoring of air quality. 			
Biodiversity (There are no protected areas in or around subproject sites, and no known areas of ecological interest.)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Prohibit employees from cutting trees for firewood. If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree cut. Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. Construction works should be limited or be finished before the fish breeding period (springtime esp. Bangla months of Baishakh and Jaishtha/ April and May, when the water warms up and the daylight lengthens), and restoration of sites (with removal of any hindrance or cofferdam, etc.) is imperatively necessary to protect the fish species. 	Contractor, environmental specialist of PIU and D&SC	If tree cutting is required, to be determined during Design stage, Numbers of complaints from sensitive receptors.	Monthly
Workers' health and safety	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Prevent excessive noise; Construction staffs are to make use of the facilities provided for them (e.g., fires for cooking); No fires permitted on site except if needed for the construction works; Staff must be trained to operate equipment. Availability and access to first-aid equipment and medical supplies. 	Contractor, environmental specialist of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkway signage, and metal sheets placed at project location;	Monthly

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> Ensure the presence and use of safety gear at site: Ear protection devices, Goggles, Illuminating jackets, Masks, Gloves, Helmets, Uniforms etc., Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately. 			
Labour Base Camp: Conflicts with the local residents	Low impact may be generated.	<ul style="list-style-type: none"> An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. Awareness building about nutrition, disaster risk resilience or mitigation, adoption of clean energy for cooking; and prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. To be ensured adequate sanitation facilities in the labour camps. Treated water will be made available at site for labour drinking purpose. Adequate accommodation arrangements for labour and code of conduct to be disclosed through consultation and FGD. 	Contractor, environmental & Social specialist of PIU and D&SC	Checking use of resources by labor. Document checking of awareness building activities. Physical Checking. Grievance register. Interview with local community.	Daily site visit
Post-Construction Phase					
Construction clean-up (Damage due to debris, spoils, excess	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Remove all spoils, wreckage, rubbish or temporary structures which are no longer required; All affected structures rehabilitated/compensated; 	Contractor	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp	After the completion of Works

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
construction materials, and after-effect water test)		<ul style="list-style-type: none"> The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up; All imported materials are to be removed and the area shall be re-vegetated as per the specification that forms part of this document; The contractor must arrange the cancellation of all temporary services; 		<p>has been restored to pre project conditions.</p> <p>Water test before handover of the project to check water quality for severe modification (if any).</p>	
Odor& waste disposal	Under the issue, the overall score is low.	<ul style="list-style-type: none"> Use bin covers and/or tarpaulins during transport of wastes. 	Contractor monitored by Consultant and PIU	Complaints from communities	Site inspection daily / weekly basis.
Vegetation	Under the issue the overall score is low.	<ul style="list-style-type: none"> After construction work, all structures need to be removed and the area shall be topsoiled and re-grassed using the guidelines set out in the re-vegetation specification that forms part of the bidding document. 	Contractor monitored by Consultant and PIU	The worksite is restored to its original conditions.	Over the completion of Works
Traffic Accidents	The low impact may be generated during construction even some times	<ul style="list-style-type: none"> Clear diversion/bridge markings and signage. Diversion Road design to ensure traffic speed is not hazardous given slopes of the diversion. Recording and reporting of accident incidents to local police station. Annual reporting of accident figures to PSC. 	PIU, PSC, LGED and Local Governance institution	No. of the accident took place. Marking and signage of road. Record of the Police Station and PSC. Newspaper	Monthly basis

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
	After construction				
The sub-projects are expected to be sustainable	Low	<ul style="list-style-type: none"> The safeguard issues and maintenance of the RCC bridge taken care of by the concerned Union Parishad and Upazila Parishad for sustainability. 	LGED, Union Council and Upazila Parishad	Evidence of routine inspection and maintenance activities; community feedback on bridge condition.	Bi-annually
Traffic movement and economic enhancement		<ul style="list-style-type: none"> LGED expecting that after completion of RCC bridge traffic movement will be increased, diverted traffic will be generated, lives and livelihood of people will be improved of the catchment area. The important places will be well-connected. People will enjoy improved facilities for connecting both side canal local school, college and other educational institution. 	PIU, PSC, LGED and the Local Governance institution	<ul style="list-style-type: none"> Community feedback. Number of connected routes. Increase in traffic volume. Economic activity (shops, transport). 	Quarterly, post-construction assessment

* Overall Impact Score: High = Likely to cause long-term E&S impacts; Medium = Likely to cause temporary impacts; Low = Likely to cause little, short-term impacts

Recommendation for further environmental and social assessment and/or site-specific environmental and social management plan: Yes

**If yes, please specify what assessments/plans would be required.*

Appendix-2: Environmental and Social Management Plan (ESMP)

ESMP for Construction of 40m RCC Arch Bridge at ch 600 on Zarulia Chari on Moiskum Bridge - Mokters Bari Road ID: 4226640229

Package no: HELP-COX/BR-1:

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-construction Stage			
Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is required within this sub-project activity so, there is no mitigation measures according to this impact. The subproject will be constructed on a Government land. 	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Loss of livelihood	<ul style="list-style-type: none"> Under this subproject, there is no scope of negative impact on livelihoods of the people of catchment area. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Stakeholders Engagement	<ul style="list-style-type: none"> All the project stakeholders will be consulted Separate community level consultation meeting with the potentially affected HHs Consultation meeting with Host community about the project objectives and scope of works People living in nearby community and members of LGED Upazila will be involved with the GRM 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Loss of right to access	<ul style="list-style-type: none"> In case of unavoidable circumstances, alternative access will be provided. Proposed bridges will be well demarcated and accessibly paved. 	PIU	Social Development Specialist and Gender Specialist of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Site Preparation: Soil Erosion; Alteration of natural drainage	<ul style="list-style-type: none"> • Construction facilities including materials are to be placed at least 10 m (32 ft) distance from any water body in order to minimize impacts on water bodies and natural flow paths. • Minimize cut & fill operations, the site clearing and grubbing operations should be limited to specific locations only. • The existing slope and natural drainage pattern on the site should not be significantly altered. • The contractor shall ensure that site preparation activities do not lead to disruption of activities of the camp settlers and host community. 	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction stage			
Noise from construction works	<ul style="list-style-type: none"> • Construction activities will be finished at day time within 06:00 PM. Proper measures will be taken to avoid any disturbances. • All Personal Protective Equipment (PPE) shall be available at site before starting any kind of construction works. 	Contractor	Environmental Consultant of PIU, PSC
Dust	<ul style="list-style-type: none"> • Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> • Provision of using water sprinklers to dust control. • Construction materials should be covered properly while carrying in vehicles to the site. • Vehicle movement will be controlled on haul roads/access roads for limiting dust generation. 		
Safety Issues	<ul style="list-style-type: none"> • Unauthorized entry to the site area is completely prohibited and the site will be properly fenced with a single entry, for this purpose. • It will be ensured that proper training and guidance are provided on general and occupational health and safety to Contractors' personnel and labors forces, and records of training sessions are to be kept at site. • All kinds of Child labor will be completely prohibited. 	Contractor	Environmental Consultant of PIU, PSC
Traffic Management	<ul style="list-style-type: none"> • Contractors will discuss with traffic management authorities and take site specific traffic management measures to avoid congestion and any unwanted incidents or accidents. • Road signs and speed ramps are to be placed at strategic locations. 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> • A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. • If ground water is withdrawn, adequate approvals from the appropriate department need to be collected before setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction work starts. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Increase in road accidents	<ul style="list-style-type: none"> • Maintain safety measures during the movement and operation of heavy machineries and equipment. • Vehicular movement is to be controlled near sensitive locations, viz. schools, colleges, hospitals, child friendly centers, etc. identified along designated vehicular transportation routes. • Local community will be trained up about traffic management and awareness. 	Contractor	Environmental Consultant of PIU, PSC
Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> • Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, 	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site.</p> <ul style="list-style-type: none"> • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation. 		
<p>Construction runoff, sediment, cement slurry, and wastewater may enter the adjacent canal during earthworks, piling, and concreting activities, potentially causing temporary deterioration of surface water quality and increased turbidity. Improper management of construction materials and spoil may obstruct natural drainage and affect local water flow. Additionally, tidal influence in the canal during high tide may cause backflow, which could</p>	<ul style="list-style-type: none"> • Install temporary silt traps, sedimentation pits and perimeter earthen bunds around excavation areas and material storage zones. • Earthworks, piling, and concreting activities shall be carefully managed to prevent direct discharge of construction runoff, cement slurry, wastewater, or debris into the canal. • Ensure proper drainage management to prevent direct discharge of cement slurry, oil-contaminated water or construction runoff into 	<p>Contractor (implementation of mitigation measures and monitoring); Design & Supervision Consultant (technical verification and guidance)</p>	<p>PIU (Environmental & Social Specialists); Design & Supervision Consultant</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
<p>interact with construction activities and influence local hydrology as well as the long-term durability of bridge substructures if not adequately addressed.</p>	<p>the canal.</p> <ul style="list-style-type: none"> • Monitor pH and Total Suspended Solids (TSS) of any construction-phase discharge water at regular intervals. • Regular site inspections shall be conducted, particularly during the monsoon season, to ensure effective functioning of erosion and sediment control measures. • Works within or near the canal shall be scheduled, where feasible, during low-flow periods to minimize turbidity and disturbance to natural flow. 		
<p>Temporary disturbance to local biodiversity, including small terrestrial fauna and common bird species present in surrounding rural and agricultural landscapes; potential short-term alteration of aquatic habitat conditions and natural water flow in the canal during construction.</p>	<ul style="list-style-type: none"> • Conduct site-specific assessment of aquatic and ecological conditions prior to construction • Monitor bird activity, particularly during migratory season (November–February) • Avoid or limit piling, demolition, and other high-disturbance activities during peak migratory periods where feasible • Restore disturbed areas after construction • Construction works should be limited or be finished before the fish breeding period (springtime esp. Bangla months of Baishakh and Jaishtha/ April and May, when the water warms up and the daylight lengthens), and restoration of sites (with removal of any hindrance or cofferdam, etc.) is imperatively necessary to 	<p>Contractor</p>	<p>PIU and Supervision Consultant</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	protect the fish species.		
Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: <ul style="list-style-type: none"> • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed of at waste disposal areas and/ or at the site. • The scrap material generated from the erection of structures and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. 	Contractor	Environmental Consultant of PIU, PSC
Health & Safety Risks: <ul style="list-style-type: none"> • The potential for exposure to safety events 	<ul style="list-style-type: none"> • All construction equipment will be properly inspected timely and kept fit for purpose. 	PIU & Contractor	Environmental Consultant as well as

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
<p>such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks.</p> <ul style="list-style-type: none"> Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<ul style="list-style-type: none"> The risk assessment will be prepared time to time for all types of work activities on site. Proper Signpost at any slippery areas will be ensured in construction site. Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. This sub project will have Proper communicative Emergency Response Plan (ERP) with all parties, to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. Provision to first aid box in sub-project areas will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. 		<p>Social Development and Gender Specialists of PIU, PSC</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> • All equipment will be available suitably (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.) in sub-project site, the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all sites, on different locations within the site. • Ensure to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Contractor must ensure that all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used. • Establish emergency response procedures, including fire, accident, and medical 		

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>emergencies.</p> <ul style="list-style-type: none"> • Display emergency contact charts at site offices and work areas. • Maintain OHS incident reporting and accident logbooks. • Conduct regular toolbox meetings and refresher safety training for all workers. 		
Pollution of water bodies	<ul style="list-style-type: none"> • Contractor will ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • oil interceptors or drip trays can be used in vehicle parking areas, and are inspected and cleaned regularly; 	Contractor	Environmental Consultant of PIU/D&SC, PSC
Operation Stage			
Maintenance of assets, properties and equipment	<ul style="list-style-type: none"> • Periodic maintenance of Bridge structure and seasonal conditions has to be carried out. 	LGED	UNO, Upazila Chairman of Upazila Parishad
Decommissioning			
<p>The impacts are similar to those listed in construction stage:</p> <ul style="list-style-type: none"> • Pollution from waste materials • Health & Safety risks to workers and local community/DRPs 	<ul style="list-style-type: none"> • Proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during decommissioning are anticipated to be similar to those identified for the 	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>construction phase.</p> <ul style="list-style-type: none"> • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those compartments seems to be significantly worse. 		

Demolition and Waste Management Plan:

Demolition Plan:

The purpose of this Demolition Plan is to ensure the safe, environmentally sound, and socially responsible removal of the existing dilapidated bamboo bridge structure prior to the construction of the proposed RCC Girder Bridge. The plan aims to prevent environmental pollution, ensure worker and community safety, and minimize disruption to local movement and livelihoods. The scope of demolition works includes the removal of the existing concrete deck slab and girders, dismantling of damaged abutments and substructures as required, extraction and segregation of reinforcement steel, and clearing of debris from the canal and adjacent approach areas. All demolition activities will be confined within the existing bridge footprint and right-of-way.

Phase	Activity	Mitigation / Management Measures
Pre-Demolition Phase	Structural Assessment & Method Statement	<ul style="list-style-type: none"> • Conduct a detailed assessment of the existing bamboo bridge condition, including decking, supports, joints, and connections. • Identify weak, decayed, insect-damaged, or unstable bamboo components and assess overall structural integrity. • Prepare a step-by-step dismantling method statement, prioritizing manual removal. • Define dismantling sequence to avoid sudden collapse or instability. • Identify safe access routes and temporary working platforms for workers. • Ensure community safety measures and restrict movement during dismantling if required.

	Site Preparation	<ul style="list-style-type: none"> • Demarcation and barricading of the dismantling zone using ropes, bamboo fencing, or caution tape. • Install signboards, warning signs, and safety instructions in Bangla. • Provide temporary crossing facilities if needed (e.g., wooden planks/bamboo walkways for pedestrians). • Notify alternate routes for pedestrians and local transport.
	Utility and Service Disconnection	<ul style="list-style-type: none"> • Confirm absence of underground utilities. • Identify and protect/relocate any nearby drainage lines, electricity poles, or telecom cables if present. • Ensure safe clearance from overhead lines during dismantling.
	Worker Safety Orientation	<ul style="list-style-type: none"> • Conduct safety training and toolbox meetings before dismantling. • Provide PPE: helmets, gloves, safety boots, masks, goggles, and life jackets (for work near/over water). • Brief workers on safe manual dismantling techniques and emergency response procedures.
Demolition Phase	Demolition Technique	<ul style="list-style-type: none"> • Adopt manual dismantling methods to minimize noise, vibration, and environmental impact. <p>Steps include:</p> <ul style="list-style-type: none"> • Removal of handrails, side supports, and guard elements manually. • Sequential dismantling of bamboo decking/planks from one end. • Careful removal of beams/stringers and cross members using hand tools. • Gradual dismantling of vertical posts/supports to maintain stability. • Remove binding materials (rope, wire, nails) cautiously to prevent sudden collapse. • Extract embedded bamboo posts/piles; if not feasible, cut/trim below ground or water level. • Stack reusable bamboo separately for reuse or recycling. • Follow a controlled dismantling sequence to ensure worker and community safety.
	Vibration & Noise Control	<ul style="list-style-type: none"> • Use manual dismantling to minimize noise and vibration. • Avoid nighttime dismantling activities.

		<ul style="list-style-type: none"> • Inform nearby households in advance of work schedule. • Use temporary bamboo screens/barriers if needed near sensitive receptors. • Ensure controlled dismantling to avoid sudden impacts or falling materials.
	Water Protection Measures	<ul style="list-style-type: none"> • Install simple silt barriers (bamboo screens, nets, or geotextile) near canal/stream edges. • Place tarpaulin sheets, nets, or bamboo mats under dismantling areas where feasible. • Prevent bamboo pieces and debris from falling into water bodies. • Immediately retrieve any materials that accidentally fall into water. • Prohibit dumping of dismantled materials into the canal. • Store materials away from water bodies.
Environmental Compliance	Dust & Air Quality Control	<ul style="list-style-type: none"> • Dust generation is minimal; apply water spraying only if required. • Use controlled manual dismantling to prevent airborne particles. • Avoid burning of bamboo or waste materials. • Prohibit washing of tools or materials in nearby water bodies.
	Waste Management (Non-Hazardous)	<ul style="list-style-type: none"> • Demolition waste mainly includes bamboo, ropes, nails, and small debris. • Segregate reusable bamboo for reuse (community use, temporary structures, fuelwood if appropriate). • Collect non-reusable waste and dispose at designated/approved locations. • Avoid open dumping and burning. • Maintain clean site conditions throughout.
	Oil, Fuel & Hazardous Materials	<ul style="list-style-type: none"> • Minimal use of fuel/mechanical equipment expected. • If any fuel/lubricants are used, store in designated areas with secondary containment. • Keep spill kits available at site. • Prohibit refueling or maintenance near water bodies. • Dispose of any hazardous waste through authorized handlers.
	Water Quality Protection	<ul style="list-style-type: none"> • Prevent debris, soil, or waste materials from entering the canal/stream. • Avoid discharge of any liquid waste into water bodies.

		<ul style="list-style-type: none"> • Maintain buffer distance for material storage from water edge.
Occupational Health & Safety (OHS)	Worker Health and Safety	<ul style="list-style-type: none"> • Provide PPE (helmets, gloves, masks, boots, life jackets where needed). • Ensure only trained workers carry out dismantling activities. • Conduct regular toolbox meetings and supervision. • Ensure compliance with national labor laws and World Bank ESF standards. • Prohibit child labor.
Traffic and Community Management	Traffic Diversion	<ul style="list-style-type: none"> • Provide temporary pedestrian crossing (bamboo/wooden walkway). • Coordinate with local community and leaders. • Install clear signage indicating alternative routes.
	Community Safety Measures	<ul style="list-style-type: none"> • Inform local residents 3-5 days before dismantling. • Restrict public access near the dismantling zone. • Provide safe alternative access routes. • Install barricades and warning signage.
Demolition Completion & Site Clearance		<ul style="list-style-type: none"> • Remove all dismantled materials and debris from the site. • Level the ground and prepare the site for new bridge construction. • Restore access paths and surrounding areas. • Conduct final environmental cleanup and ensure no residual waste remains.

Waste Management Plan:

The Waste Segregation and Reuse Plan is to ensure environmentally sound management of construction and demolition waste generated during the dismantling of the existing bridge and construction of the proposed RCC bridge. The plan aims to minimize waste generation, promote reuse and recycling, prevent soil and water pollution, and ensure compliance with relevant regulations.

Waste Type	Source of Waste	Potential Impacts / Concerns	Management, Segregation & Reuse Measures	Institutional Responsibility	Supervision & Monitoring
Bamboo materials (poles, planks, ropes, lashings)	Demolition of existing bamboo bridge	Obstruction to water flow or access routes if	Carefully dismantle and segregate reusable bamboo materials; prioritize reuse for temporary works, community use, or site scaffolding; store	Contractor	LGED PIU & D&SC Consultant

Waste Type	Source of Waste	Potential Impacts / Concerns	Management, Segregation & Reuse Measures	Institutional Responsibility	Supervision & Monitoring
		not properly managed; safety hazard	safely away from water bodies; non-reusable bamboo to be disposed of in approved sites or used as biomass where appropriate; no burning allowed		
RCC debris (concrete fragments, broken slabs)	Construction of new RCC bridge and minor demolition works	Dust, soil contamination, blockage of drainage if improperly disposed	Segregate at source; reuse suitable concrete debris as sub-base, backfilling, or approach road material with approval from LGED; transport excess to approved disposal site; avoid dumping in water bodies	Contractor	LGED PIU & D&SC Consultant
Steel reinforcement bars and metal scraps	RCC construction and dismantling of temporary structures	Injury risk, improper disposal, resource loss	Collect and store separately; sell or hand over to authorized scrap dealers/recyclers; ensure safe handling to prevent injuries	Contractor	LGED PIU & D&SC Consultant
Excavated soil and dredged material	Foundation excavation for RCC bridge abutments and piers	Sedimentation of nearby water bodies, land degradation	Reuse excavated soil for embankment, backfilling, and site leveling where suitable; excess soil to be transported to approved disposal locations; prevent runoff into water bodies	Contractor	D&SC Consultant
Packaging materials (cement bags, plastics, timber, polythene)	Construction material handling and storage	Littering, drainage blockage, and environmental pollution	Segregate at source; reuse or recycle where possible; collect and dispose at approved facilities; prohibit open burning	Contractor	LGED PIU & D&SC Consultant
Domestic solid waste	Labor camps and site activities	Health risks, odor, vector breeding	Provide covered bins; ensure daily collection and disposal at approved local waste facilities; maintain hygienic camp conditions	Contractor	PIU, D&SC Consultant & Local Authority

Waste Type	Source of Waste	Potential Impacts / Concerns	Management, Segregation & Reuse Measures	Institutional Responsibility	Supervision & Monitoring
Used oil, grease, lubricants	Machinery operation and maintenance	Soil and water contamination, fire hazard	Store in sealed, labeled containers with secondary containment; minimize usage; hand over to licensed recyclers; prohibit disposal into soil or water	Contractor	LGED PIU & D&SC Consultant
Oil-contaminated materials (rags, filters, containers)	Equipment maintenance	Toxic exposure, environmental pollution	Collect separately in labeled hazardous waste containers; dispose through authorized hazardous waste handlers	Contractor	D&SC Consultant
Mixed non-recyclable waste	General construction activities	Environmental pollution and visual nuisance	Transport to LGED/DoE-approved landfill sites; maintain disposal records; strictly prohibit dumping in open areas or water bodies	Contractor	LGED PIU & D&SC Consultant

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Appendix-3: Cost of Environmental Mitigation and Enhancement Works in BOQ

In consideration to the above-mentioned environmental and social impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
1	Erection and maintenance of semi-permanent site office and removal of the same after completion of work in accordance with the conditions of contract. In addition to the office required for own use, the contractor shall provide and maintain furnished site office for the use of Engineer-incharge and his staff. The site office must have tiles floor, adequate foundation, brick walls, false ceiling of gypsum board and all windows are to be glazed, shuttered and provided with steel grill. Outside and inside wall surface are to be painted on plaster acceptable to the Engineer-incharge. The site office shall be maintained in a secure condition by the contractor until the completion of the contract and shall be provided with electricity, water supply, wash rooms and sewerage facilities. All doors shall be fitted with approved locks and windows shall be provided with screen/blinds. Before construction the contractor shall submit plans and drawings showing proposed details and location for the site office, including foundations, access roads, shades, layout of electrical and water supply and hard standings there for the approval of Engineer-incharge. The Engineer-in-charge may require revision of the plans prior to giving approval for construction. The contractor shall also submit detailed proposed furniture, fittings and other items of equipment and plant to the Engineer-in-charge for approval. These items shall be of the standard quality suitable for site. The office, complete with furnishings, fittings, access roads and hard standings shall be ready for occupation by the Engineer-in-charge within 28 days of the date when the contractor first occupies the site. The contractor shall provide day and night guards and an attendant for the field office. At the	job	1	535843	5,35,843.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	end of the contract all materials, equipment and plant, furniture, fittings recovered from dismantling the office and removing access road will be the property of the contractor. No interim payment shall be certified unless engineer's office with required facilities are constructed and accepted by the Engineer-in-charge. (This is a time related item; proportionate payment for this item shall be made distributing in each bill on the basis of percentage progress of the whole works under contract) Engineer's site office of minimum 38 sqm plinth area with providing necessary facilities including office furniture, 24000 BTU air cooler, umbrella, crookeries, water purifier, PC with monitor, uninterruptible power supply (UPS), laserjet printer (minimum 20 ppm), LED flood light fittings(Halogen) for sight security etc.				
2	Project Profile Signboard: Providing and fixing of typical project profile signboard as per direction of E-I-C, to be placed at a suitable place of the site including submission of proposals for the materials & size of the signboards (recommended size: 1800mm x 1200 mm with 2 nos. 75mm dia. MS post, outer & inner frames of board shall be 50mm x 50mm x 5mm & 25mm x 25mm x 5 mm respectively) and text layout to the engineer for approval which will be positioned as directed by the engineer and removing the same on completeion of the works or as instructed by the E-I-C. Sheeting will be made of encapsulated lens with retro-reflective type and messages/ borders will be screen printed. The text shall mention among others the name of the project, name of the implementing agency, cost of the project, completion time, name of the contractor etc.	sqm	Length-1.8m Width 1.2m Area volume 2.160m ² No. of bridge 1 Total quantity of works 1*2.16m ² = 2.16m ² .	18508.52	39,978.40
3	Supplying and providing of first aid box with necessary materials/medicine (hygienic gown, thermometer, adhesive ressings, antiseptic solutions, andages, cotton balls or swaps, emergency blanket, gloves, hand sanitizer, ice pack, saline etc). All complete as per direction of Engineer-in - charge.	each	2	17836	35,672.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
4	Mobilization and cleaning site before commencing actual physical work and during contract period and demobilization after completion of the works under contract to be accepted by the Engineer-in-charge. This work shall also cover cleaning and clearing, cutting or filling, dressing the project area on and in the ground to an extent that all the events of works of the project can be executed smoothly in a working environment with a particular attention on safety and security in all respects, and to stockpile the end outcome to a place for disposal agreed by the Engineer-in-charge, where, payments are to be based on ground area determined by the Engineer-in-charge and be proportionate to the percentage progress of work under contract as a whole in all respects and approved by the Engineer-in-charge.	sqm	Length 25m width 10m Area 250m ² No of items per bridge 2. Total qty per bridge 250*2= 500m ² .	235.40	1,17,700.00
5	Temporary Toilet: Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	each	2	14172.16	28,344.32
6	Marble Name Plate: Supplying, fitting and fixing 18mm thick marble Name plate including cost of materials, labour, form work, engraving neatly the approved Sample given by the engineer etc. complete as per drawings and direction of the Engineer-in-charge.	sqm	2	9343.42	18,686.84
7	Drinking Water Facilities: 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	Ls	1	20000	20,000.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	contractor and payment will be made after 100% completion of the contract successfully.				
8	Control of Air Pollution (Dust Suppression): Maintaining, carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust which has originated from contractor's activities/ operations at the worksite and site office, including sprinkling water on aggregates/unpaved roads at least three times a day or more depending on the atmospheric conditions, including keeping necessary covering/protection on stockpiled fine aggregates to reduce dust nuisance during natural air blowing, all complete like emission of dust into the atmosphere shall be strictly controlled during manufacture, handling, storage of concrete, road aggregates, and to be used such methods and equipment as are necessary for collection and disposal, or prevention, of dust during these operations means of eliminating atmospheric discharges of dust as per requirement and carrying out air quality test as PM10, PM25, SPM, NOx, Sox as per instruction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	Ls	1	12000	12,000.00
9	Personal Protection Equipment for Workers: Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket for construction workers made of 100% polyester waterproof fabric, fluorescent yellow/orange/green/red/blue or pantone color, (ii) suitable hand protection gloves for construction work of Flexible/ durable/ excellent puncture resistance working gloves with PVC palm and T/C drill back, pasted cuff, palm liner and fit properly and be reasonably comfortable	Ls	1	250000	2,50,000.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	to wear, (iii) appropriate foot protection shoes having impact-resistant toes and heat-resistant soles that will protect the feet against hot working surfaces, (iv) best quality safety helmets of ABS shell, tough, lightweight, durable which will be able to resist penetration by objects, absorb the shock of a blow and water-resistant and slow burning with available four-six-point adjustable suspension for shock-absorbing, slotted sides to accommodate accessories, such as face shields, ear muffs (v) suitable eye protection goggles to protect against specific workplace hazards, fit properly and be reasonably comfortable to wear, provide unrestricted vision and movement, including instructing workers to wear strictly during working time and reviewing periodically, updating, evaluating the effectiveness of PPE and maintaining, replacing worn or damaged PPE etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.				
10	Painting the vertical end faces of posts, wheel guard, railing, rail post, parapet wall, kilometer post, road name plate, guide post, traffic signs, etc. in two coats with best quality synthetic enamel paint of approved make and brand of different shades over a coat of priming, applying one vertical and one horizontal coat for each coat and successive coat is to be applied after drying up of previous coat by brush/roller/spray, including cleaning and washing the surface, rubbing and mending good damages as necessary and necessary scaffolding, etc. all complete in all respect as direction of the Engineer-in-charge. Rate is inclusive of cost of all materials, labour and all incidental charges in this connection. Two coats over a prime coat for new concrete surface.	sqm	230.26	246.38	56,731.45
Subtotal Bill: Environmental Safety and Enhancement Works					11,14,955.61

Appendix-4: Environmental and Social Monitoring Plan (ESMP Implementation and Monitoring Framework)

Environmental and social monitoring for the proposed sub-project has been incorporated into the Environmental and Social Management Framework (ESMF). The detailed Environmental and Social Monitoring Plan, including monitoring parameters, indicators, responsible institutions, the frequency of monitoring during the pre-construction, construction, and operation phases, and the reporting line, is presented here. A mid-term third-party environmental audit may be conducted during implementation to independently assess compliance with the ESMP and World Bank Environmental and Social Standards (ESS1–ESS10).

Monitoring stage	Monitoring Indicator	Method of Verification	Frequency	Responsibility	Reporting Line
1. Monitoring During Pre-Construction Phase	Site-specific ESMP approved before mobilization	Approved ESMP document	Once (Before mobilization)	PIU	PIU → PSC → WB
	Baseline environmental condition (visual record, nearby water condition) documented	Baseline checklist & photos	Once	Contractor (verified by D&SC)	Contractor → D&SC → PIU
	Appointment of EHS Supervisor	Appointment letter	Once	Contractor	Contractor → D&SC
	OHS Plan, Emergency Response Plan (ERP) prepared	Approved plan copies	Once	Contractor	Contractor → D&SC → PIU
	Waste Management Plan prepared	Approved WMP	Once	Contractor	Contractor → D&SC
	Traffic Management Plan prepared	Approved TMP	Once	Contractor	Contractor → D&SC
	ESMP summary disclosed in Bengali at Union Parishad & site	Disclosure photos & record	Once before works	PIU	PIU → WB
2. Monitoring During Construction Phase	A. Environmental Monitoring				
	Indicator	Standard / Target	Monitoring Frequency	Responsibility	Reporting Line
	General ESMP compliance (%)	100% compliance	Weekly	D&SC	D&SC → PIU
	PM10 / Dust control	No visible excessive dust; water	Daily visual; weekly record	Contractor	Contractor → D&SC

		sprinkling ≥ 2 times/day			
Noise Level	Within DoE standard (Daytime ≤ 75 dB(A) for commercial/mixed areas)	Monthly or during piling	Contractor (verified by D&SC)	Contractor \rightarrow D&SC \rightarrow PIU	
pH of discharge water	6.5–8.5	Monthly (if water discharge occurs)	Contractor	Contractor \rightarrow D&SC	
TSS in runoff	Within DoE surface water standard	Monthly (during piling/concreting)	Contractor	Contractor \rightarrow D&SC	
Installation of silt traps & bunds	100% installed where required	Weekly inspection	D&SC	D&SC \rightarrow PIU	
Oil & lubricant storage with secondary containment	100% compliance	Weekly	D&SC	D&SC \rightarrow PIU	
Construction waste segregated & disposed at approved site	Disposal records maintained	Weekly	Contractor	Contractor \rightarrow D&SC	
Obstruction of canal flow	No blockage observed	Weekly	D&SC	D&SC \rightarrow PIU	
Bird disturbance (if observed Nov–Feb)	No active piling during high congregation	Seasonal (Nov–Feb)	D&SC	D&SC \rightarrow PIU	
B. Occupational Health & Safety Monitoring					
	Indicator	Target	Frequency	Responsibility	Reporting Line
Workers provided PPE	100% PPE use	Daily	Contractor	Contractor \rightarrow D&SC	
Toolbox meetings conducted	At least 1/week	Weekly	Contractor	Contractor \rightarrow D&SC	
OHS incident reporting	100% incidents recorded within 24 hrs	As needed	Contractor	Contractor \rightarrow D&SC \rightarrow PIU	
First-aid station functional	Fully equipped	Weekly inspection	D&SC	D&SC \rightarrow PIU	

	Labor camp sanitation & hygiene	Clean, adequate toilets & waste bins	Weekly	D&SC	D&SC → PIU
	No child or forced labor	Zero tolerance	Monthly verification	PIU	PIU → WB
C. Community Health & Safety Monitoring					
	Indicator	Target	Frequency	Responsibility	Reporting Line
	Site barricading & signage installed	100% coverage	Weekly	D&SC	D&SC → PIU
	Safe pedestrian diversion pathway	Functional & safe	Weekly	D&SC	D&SC → PIU
	Traffic management implementation	No major accident	Weekly	D&SC	D&SC → PIU
	Spill incidents affecting canal/agri land	Zero major spill	Continuous	Contractor	Contractor → D&SC
D. Stakeholder & GRM Monitoring					
	Indicator	Target	Frequency	Responsibility	Reporting Line
	GRM register maintained	Updated regularly	Monthly review	PIU	PIU → PSC
	Grievances resolved within timeline	10–15 days (as per tier)	Monthly tracking	PIU	PIU → WB
	Community consultation during construction	At least 1 meeting/quarter	Quarterly	PIU	PIU → WB
3. Post-Construction / Operation Phase Monitoring	Indicator	Target	Frequency	Responsibility	
	Site restoration completed	100% cleared & restored	Once after completion	D&SC	
	Waste cleared from site	No residual debris	Once	D&SC	
	Bridge safety features (railings, guideposts, signage) installed	100% installed	Once before handover	D&SC	
	Canal flow unobstructed	No blockage	Once after completion	PIU	

	Final community feedback	Documented	Once before closure	PIU	
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Reporting Hierarchy: Contractor → D&SC → PIU (LGED) → World Bank

The D&SC will prepare a Monthly report on Environmental and Social Compliance and submit it to the PIU. The PIU will review and transmit the Monthly Environmental and Social Compliance Report to the World Bank as part of the project's regular safeguard reporting obligations.



**Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)**

**Host and FDMN Enhancement of Lives through
Infrastructure Improvement Project (HELP)**



ENVIRONMENTAL AND SOCIAL SCREENING REPORT

Of the Sub-project:

Construction of 57m Long RCC Bridge on Eidgaon GC at Maijpara - Pokkhali (Faraze Para Road) at Ch. 2350m, Sadar Upazila District: Cox's Bazar, Road ID- 422243002

Under the Package No. **HELP-COX/BR-1**

Funded by:



Government of the People's Republic of Bangladesh & World Bank

October 2025

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ACRONYMS

BOQ	Bill of Quantities
BPDB	Bangladesh Power Development Board
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
DPHE	Department of Public Health Engineering
EA	Environmental Assessment
EC	Electrical Conductivity
E-I-C	Engineer-in-Charge
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESF	Environmental and Social Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
HELP	Host and FDMN Enhancement of Lives through Infrastructure Improvement Project
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
MPSC	Multi-purpose Community and Service Center
MoLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
MoRTB	Ministry of Road Transport and Bridges
MoPEMR	Ministry of Power, Energy and Mineral Resources
NDRCC	National Disaster Response Coordination Center
OHS	Occupational Health and Safety
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
RCC	Reinforced Cement Concrete
RHD	Roads and Highways Department
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project Background

Since 2017, Bangladesh has been hosting nearly one million Displaced Rohingya Population (DRP) who fled violence in Myanmar. Most of this population resides in 33 densely populated camps in Ukhiya and Teknaf upazilas of Cox's Bazar district. At the same time, approximately 30,000 have been voluntarily relocated to Bhasan Char, an isolated island in Noakhali District. This unprecedented humanitarian influx has placed immense pressure on the host communities, infrastructure, essential services, and the surrounding environment in a region already characterized by socio-economic vulnerabilities.

The FDMNs now outnumber host populations in affected areas by a ratio of approximately 2:1, contributing to crowding in local markets, overburdening social service systems, escalating environmental degradation, and heightening risks during disasters. In response to these complex challenges, the Government of Bangladesh (GoB), with support from the World Bank, has initiated the Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (**HELP**). The project aims to improve access to basic services and enhance disaster and climate resilience of DRP (Displaced Rohingya Population) and host communities. HELP builds on lessons learned from the ongoing **Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) and its additional financing**, which have been supporting emergency response, resilient infrastructure, and institutional strengthening in Cox's Bazar since 2019.

HELP proposes a multi-sectoral development approach focusing on critical needs such as water supply, sanitation, renewable energy, shelter upgrades, solid and fecal waste management, and the improvement of road connectivity. The project also emphasizes disaster risk reduction, climate-resilient infrastructure, and institutional capacity building. It targets the high-priority gaps identified through annual needs assessments and field consultations, with particular attention to vulnerable groups including female-headed households, persons with disabilities, and those residing in disaster-prone areas.

The project scope encompasses a range of integrated infrastructure interventions aimed at improving resilience, accessibility, and service delivery for both the DRP and host communities. Key activities include the construction of new multi-purpose disaster shelters to provide enhanced protection during natural calamities, as well as the improvement and repair of existing shelters to ensure they meet disaster-resilience standards. The project also involves the development of road communication infrastructure, including the construction and rehabilitation of roads, bridges, and culverts to improve connectivity and access to essential services. In addition, various community-level facilities will be developed or upgraded, such as internal roads, drainage systems, hat-bazar (local markets), footpaths, firefighting systems, lightning protection devices, and solar-powered street lighting contributing to safer and more inclusive living environments.

The project is jointly implemented by four government agencies LGED, DPHE, RHD, and BPDB under the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C), the Ministry of Road Transport and Bridges (MoRTB), and the Ministry of Power, Energy and Mineral Resources (MoPEMR). The project comprises four components, covering resilient water and sanitation services, climate-resilient infrastructure and energy, institutional capacity strengthening, and emergency

response. Under Component 2, LGED is undertaking key infrastructure development including rural roads and bridges to ensure improved connectivity and disaster preparedness.

The objective of the Project is to improve access to basic services and enhance disaster and climate resilience of the the FDMN and host communities through:

- Supporting improved access to basic services, climate-resilient infrastructure, and disaster and emergency response services;
- Improving Road interventions for easy access to essential services;
- Reducing vulnerability to accidental fire;
- Strengthening disaster preparedness and response through construction of multipurpose disaster shelters, provision of key equipment, and disaster risk management trainings at the community level;
- Improving Renewable and sustainable energy infrastructure in camps and for host community;
- Strengthening the GoB's capacity to provide essential services and address the needs of the host communities and the DRP, including risks to disasters and climate change;
- Reducing poverty in the project area

This Environmental and Social Screening Report has been prepared to assess potential environmental and social risks and impacts associated with the proposed interventions for constructing a bridge at Cox's bazar Sadar Upazila of Cox's Bazar District under HELP. It provides a preliminary evaluation of the biophysical and socio-economic settings of the project areas and identifies key issues that require special consideration or mitigation. The report serves as a guiding tool for environmentally and socially sound project implementation in compliance with national regulations and the World Bank Environmental and Social Framework (ESF).

1.2 Rationale of Site Selection for bridge under the project

LGED is responsible for development and management of local infrastructure including rural roads, bridges, culverts, waterways, markets, river jetties and others in order to contributing to socioeconomic development of the rural community and overall reducing poverty in the country. It is also developing, maintaining and managing transport, trading and small-scale water resources infrastructure at the local level with ensuring LGI and community participation and taking care of environmental and social issues. In 2013, Government of Bangladesh (GoB) has adopted a Rural Roads and Bridges Maintenance Policy with an objective to develop a sustainable rural transport system through appropriate maintenance management to provide safe operation of vehicles and to ensure necessary funding for their maintenance establishing a comprehensive and reliable inventory of roads, bridges and culverts across the country.

The onsite investigation reveals that a dilapidated bridge does exist on the same point where a new bridge has been proposed. The existing bridge on a local canal has turned into a shabby structure posing risks for moving vehicles and people, thus affecting the lives and livelihoods of local communities. In fact, local Cultivation, fishing and agriculture- all three dominant livelihood options for the local people in the areas require climate resilient and sustained infrastructure for transportation of goods or products to local, regional or national trading centers as well as to

processing hubs and so on. People living in and across the areas also need to have access to nearby educational, health, employment and other services, which for this proposed bridge would act as a lifeline for the entire community.

As the project is intended to strengthen the Government of Bangladesh systems in order to improve access to basic services and climate-resilient infrastructure of the host communities, constructing a bridge at the proposed point would resuscitate the communication, trade and service delivery system between Pokkhali union and other parts of the Cox's Bazar Sadar Upazila, which has been at risk now with the use of the dilapidated existing bridge structure.

The approach of this project also includes undertaking design, construction, rehabilitation or expansion of rural bridges in phases based on site-specific requirement and availability and allocation of resources. Accordingly, the proposed site for **Construction of 57m Long RCC Bridge at ch 2350 on Eidgoan GC at Maijpara - Pokkhali (Faraze Para road)** is required to be implemented in order to remove the existing barrier (e.g., presence of Khal/river on this point) to the local communication system and service delivery through this specific place, and expedite the socioeconomic activities in/around the place.

Project activities will largely be on existing available lands, preferably of government owned.

1.3 Background of the Work Package

HELP (Host and FDMN Enhancement of Lives through Infrastructure Improvement Project) is a World Bank-supported project that aims to assist the Government of Bangladesh in responding to the continued humanitarian and development challenges posed by the presence of the Forcibly Displaced Myanmar Nationals (FDMNs) and their impact on host communities. The project seeks to improve access to basic services, and enhance disaster and climate resilience in both Cox's Bazar and Noakhali district.

While much of the displaced population resides in the Ukhiya and Teknaf upazilas, the broader Cox's Bazar district including other upazilas also experiences strain from increased movement, demand for resource and services, and the need for resilient infrastructure. The host communities across the district face challenges such as inadequate road connectivity, limited access to essential services, scarcity of basic resources, and vulnerability to natural disasters including floods and cyclones. In response, HELP focuses on inclusive development interventions that benefit both displaced and host populations.

Under this specific work package of the HELP project, **four (4) RCC bridges** are planned to be constructed across **four different upazilas of Cox's Bazar district Cox's Bazar Sadar, Ramu, Pekua, and Maheshkhali**. These bridges aim to strengthen the rural road communication network by improving access to essential services such as health, education, markets, and disaster shelters. The improved infrastructure is expected to support both the mobility of the host communities and the efficiency of service delivery, especially in remote or underserved areas of the district. This report focuses specifically on the construction of a 57m Long RCC Bridge at chainage 2350 on the Eidgoan GC–Maijpara to Pokkhali (Faraze Para Road), Road ID: 422243002, located in Cox's Bazar Sadar Upazila. The proposed bridge will replace an existing structurally weak structure that has deteriorated

due to long-term usage and exposure to seasonal flooding. Once implemented, this sub-project is expected to significantly improve local transport connectivity, facilitate the safe movement of goods and people, and enhance disaster resilience for the surrounding communities.

The catchment area of this sub-project is predominantly inhabited by host community members, particularly from Farazipara village under Jalalabad Union on the eastern side and Miapara village under West Pokkhali Union on the western side. Although the broader Cox's Bazar district continues to face challenges from the ongoing displacement crisis, this bridge site has been prioritized through field-level needs assessments and stakeholder consultations. Its strategic location is vital for strengthening accessibility between the two unions, improving livelihoods, and supporting socio-economic activities, including salt farming and small-scale trade, which are central to the resilience and well-being of the local population.

The objective of this Environmental and Social Screening Report is to evaluate the environmental and social settings of the proposed bridge construction site under this work package, identify potential impacts both positive and adverse and recommend appropriate mitigation, enhancement, and management measures. This screening ensures that all interventions align with national regulatory requirements and the World Bank's Environmental and Social Framework (ESF), while promoting environmentally sustainable and socially inclusive development.

1.4 Fundamentals of Work Package Components

It is crucial to acknowledge the proposed infrastructure component under Work Package- HELP-COX/BR-1 in order to conduct an effective screening and verification process aligned with the World Bank's Environmental and Social Framework (ESF) as well as the project's Environmental and Social Management Framework (ESMF). Accordingly, detailed information of the proposed sub-project under this package has been outlined in Table 1.4.1, with a location-specific overview map of Cox's Bazar Sadar Upazila presented in Figure 1.4.1.

The proposed sub-project will follow standardized construction features and safety protocols, including but not limited to:

1. Construction of a Semi-Pucca Field Office, fully equipped with essential office furniture, computers with printing equipment, sanitary and electrical facilities, water supply arrangements and necessary tools and equipment for engineering supervision. The site office will ensure heat resistance, damp-proofing, and proper ventilation as directed by the Engineer-in-Charge (E-I-C).
2. Installation of Temporary Diversion Bridge (2m wide bamboo structure) as directed by the Engineer-in-Charge (E-I-C) to maintain uninterrupted movement for local communities during construction activities, ensuring minimal disruption to daily life.
3. Full Construction of Bridge Structures including foundation, substructure, and superstructure as per the approved design and technical drawings, along with all related fittings and fixtures.
4. Provision and Installation of Safety Features, such as painted vertical end faces of posts, wheel guards, railing systems, parapet walls, bilingual nameplates (in Bengali and English), guideposts, traffic signage, and kilometer markers.
5. Backfilling Behind Abutments and Retaining Structures with selected granular material, followed by proper compaction using approved machinery like plate compactors.
6. Construction of Approach Roads on both ends of the bridge, ensuring connectivity in compliance with LGED specifications and site conditions.

7. Placement of RCC Guideposts (1.70m long), positioned as per standard drawings and safety regulations.
8. Health, Safety, and Environmental Safeguards, including maintaining first-aid boxes at site and office, displaying safety notices, deploying environmental and social safeguard personnel for continuous monitoring, implementing dust suppression through water sprinkling, erecting health and safety signage, and organizing two rounds of safety and ESHS training for Upazila Engineers and Contractors before and after commencement of works.

Table 1.4.1: Basic Featured Information of component [Sources of data: Field survey, 2025, LGED]

Sl no .	Component's name	Upazila	Union	Distance from Upazila	Location under Project	Name of the river canal	Proposed length (m)	Carriageway Width (m)	Estimated Footprint (Sqm)	GPS coordinate	Construction Period
1	Construction of 57m Long RCC Bridge at ch 2350 on Eidgoan GC at Maijpara - Pokkhali (Faraze Para road) road ID:422243002	Cox's Bazar Sadar	Pokkhali	5 km	Catchment villages are Miapara, Sikandar Para, Shikdar Para, Hindupara, Haiyapara	Eidgoan Chora	57	7.3	416.1	21.554209, 92.036644	2 years

Though the bridge was initially planned to be 57 m in length, the total footprint area for the bridge is 416.10 sq.m.

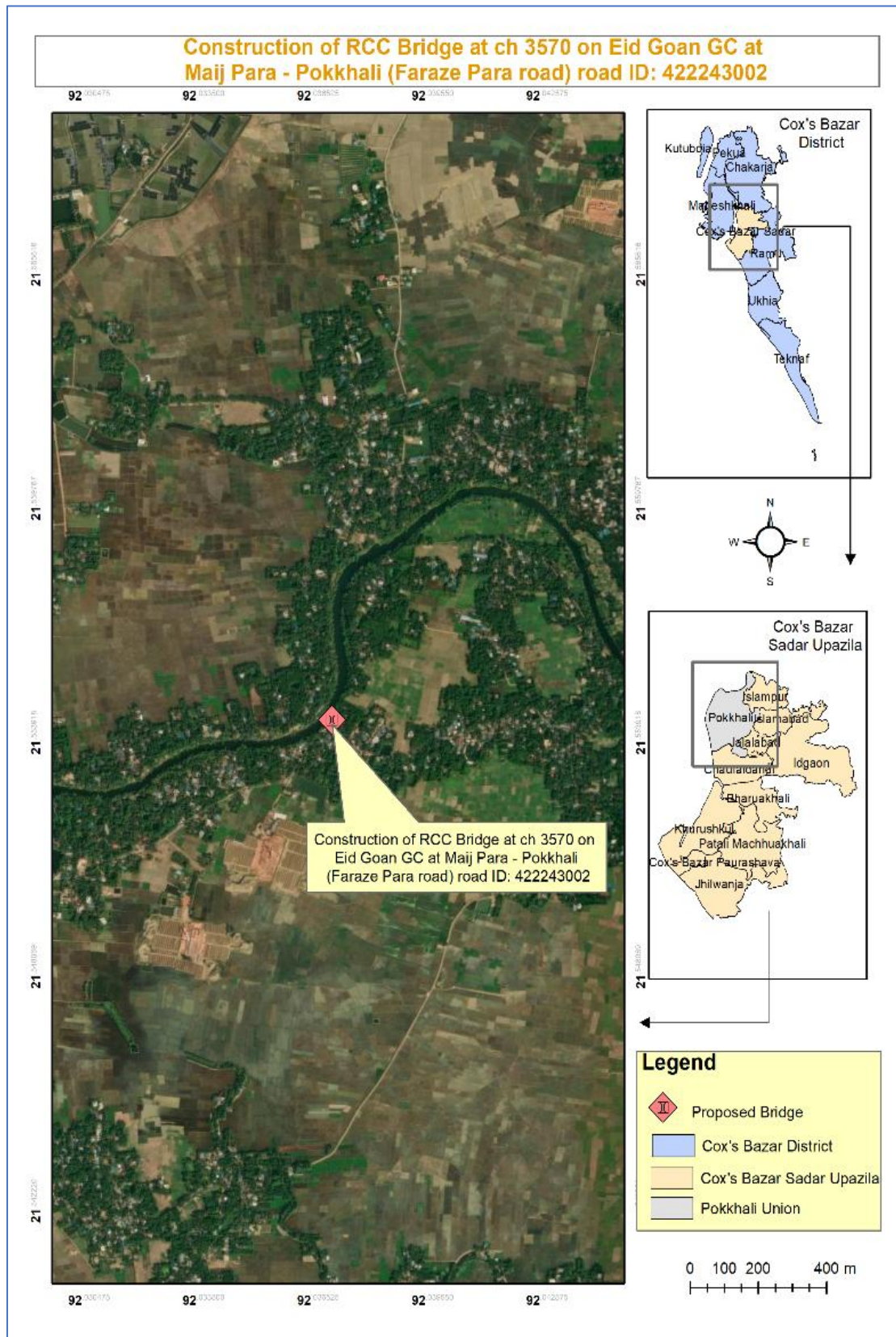


Figure 1.4.1: Map illustrating bridge location in the proposed Upazila

2. PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology and Approach

Public participation and community consultation have been taken up as an integral part of environmental and social assessment process of the project. As part of the impact assessment, participatory public consultation was conducted in areas of concern for proposed bridges by the field level staffs and consultants from PIU. The consultation meeting was attended by different social groups representing local inhabitants of different age groups, social class and occupations. Among the participants, some will have major active roles before, during and even after the construction works. 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. In order to serve our screening process, relevant items placed towards the audience to discuss and troubleshoot confusing or worrying matters regarding the proposed interventions under the package work. Impacts in regards to environment, socio-economic matters during pre-construction, construction and post construction phases and the provision for project Grievance Redress Mechanism along with its applicability have been put forth. Possible mitigation measures and relevant needs have turned out during these sessions as well. Moreover, their comprehension as a stakeholder has been up lifted in light of project guidelines.



However, 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-projects' 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.

2.2 Issues and Recommendations raised by the Participants in regards to component interventions

After facilitating the consultation sessions with a warm and informed manner at Nazim Store, 2 No. Ward, East Pokkhali of the package area, the participants and stakeholders drifted delightfully with the sessions and pointed out many issues and suggestions, which were taken into account for further inclusion in design, estimation and formulation of ESMP. During the period of consultation, environmental and social issues and their relevant impacts for the infrastructure development work such as bridge improvement or maintenance were discussed. The advantages and possible nuisance that may emerge during the sub-project activities were also revealed. The participants expected that none of the interventions would worsen their living conditions, social cohesion surrounding environment and they requested for adopting all measures to reduce/avoid both environmental and

social risks during the implementation phase. Participants were also informed of the structure and redressing procedure under project Grievance Redress Mechanism (GRM).

Table 2.2.1: Consultation Meetings Summary

Meeting No.	Date	Venue	Main Participant Groups	No. of Participants	Remarks (If any)
1.	19 th March 2025	Nazim Store, 2 No. Ward, East Pokkhali	Host Community	36	Majority of the people of this locality are salt cultivation farmers. The east approach road is a BC road, and the west approach road is BFS road.

Note: Here, Meeting number column corresponds with Serial Number column in Table 2.2.2

Some key issues discussed during the consultation are summarized in the table (Table 2.2.2) below, reflecting participants' inputs relevant to the specific components of the proposed intervention. The consultation meeting summary, attendance sheet, and photographs from the meeting held at Nazim Store, 2 No. Ward, East Pokkhali are provided in Table 2.2.1, Annexure-01, and Annexure-02, respectively.

Table 2.2.2: Issues and Recommendations raised by the Participants

Sl. No.	Component's name under HELP-COX/BR-1	Issues raised and discussed	Recommendations and Comments
1.	Construction of 57m Long RCC Bridge at ch 2350 on Eid Goan GC at Maij Para - Pokkhali (Faraze Para road) road ID:422243002	<ul style="list-style-type: none"> The original bridge was severely damaged two years ago due to intense flooding. The central portion of the structure collapsed as a result of strong water current. Local people installed a temporary wooden slab-based crossing, which is now being used only as a narrow pedestrian path. Lack of proper bridge has disrupted daily transportation, school-going children, emergency services and farmers' goods movement. Existing bridge is weak and prone to accidents. The existing RCC bridge is a critical infrastructure asset that significantly supports the local population's livelihood and economic well-being. It is particularly vital for salt cultivators and fishermen, as it facilitates and governs nearly all of their economic activities. 	<ul style="list-style-type: none"> The participants have expressed their greater interest for this intervention and believe this will surely bring security and prosperity for the entire catchment dwellers. Requested to ensure flood-resistant design and deep foundation to avoid future washout. Representatives participating in the discussions assured the local people that the dilapidated RCC bridge will be replaced by a longer and stronger bridge structure, which will strongly support local life and livelihoods and increase connectivity and accessibility to various services and amenities. The bridge has been planned to redesign to increase its length so that non-motorized vehicles can easily use the structure due to the smooth slope, and accessibility under the structure remains Uninterrupted. Enough pathways are expected for vehicle movement. The bridge design should consider highest water level thereby ensuring it is not submerging or affected by mass water flow during rainy seasons. Appropriate diversion should be placed during the construction period as alternative pathway. Construction site safety should be ensured to avoid any mishaps or accidents during work periods.

Component's Sl. name under No. HELP-COX/BR- 1	Issues raised and discussed	Recommendations and Comments
	<ul style="list-style-type: none"> •The bridge is located over a deep canal locally known as Eidgaon chora/ Khal. •Local people installed a temporary wooden slab-based crossing, which is now being used only as a narrow pedestrian path. The current setup is highly risky, especially during monsoon or after dark •Lack of proper bridge has disrupted daily transportation, school-going children, emergency services, and farmers' goods movement. •They cannot carry the dead on this (existing) weak structure in times of grief. •Lack of accessibility in case of emergency exits. •Possible dust and noise pollution during the construction works. •The construction work will include dismantling the current structure to make space for the new RCC Bridge. •Local community wish to have a better drainage system along with the Bridge in order to allow water from high grounds to find a uninterrupted pathway not causing weak establishment to wash away. Moreover, from a conservation standpoint, it will protect the top soil for future growth. •Safety of children and adults at the sites during construction works. Involving local people as a priority in implementation works as far as possible. • Locals have no issue if outsiders come to work as skilled labor 	<ul style="list-style-type: none"> •Alternate pathway should be facilitated during the construction near or around existing structure. •Since the bridge is on running canal (Eidgaon Canal), the intervention will invite water pollution on moderate level. However, preventive actions and measures can be taken to keep the surface water quality from degrading more than it is. Alternate pathway should be facilitated during the construction near or around existing structure. •Priority for jobs should also consider women. •Participants made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. Proper drainage system will be embedded with the bridge as well as the bridge-approach. Dismantling of bridge will be undertaken with optimum caution and care in order to avoid any potential risk to the people and resources. •The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted.

3. ENVIRONMENTAL AND SOCIAL SURVEY AND SCREENING

3.1 Objective of the Survey and Screening

The primary purpose of the survey and screening is to identify potential risks and impacts associated with the sub-project, assess their significance, and propose appropriate mitigation and management measures to ensure compliance with the ESF along with the project ES compliance documents. The screening process also considers the cumulative and residual impacts of the intervention within the context of the local physical, biological, and socio-economic environment.

To achieve a comprehensive understanding of the environmental and social baseline and the possible implications of the proposed works, detailed field investigations were carried out in and across the sub-project sites within the Project Influence Area (PIA). The screening process included direct observation, stakeholder consultations and the use of the Environmental and Social Screening Format (ESSF), aligned with the Environmental and Social Management Framework (ESMF) developed for the HELP project.

Screening results, impact identification, and mitigation guidance have been summarized and compiled in **Appendix-1**, with site-specific details and supporting documentation. This integrated approach ensures early identification of risks and supports the development of appropriate mitigation and enhancement measures for sustainable project implementation.

The subsequent sections outline the survey findings including important features and establishment within the PIA, along with potential environmental and social impacts that may arise due to the proposed sub-project interventions within a half-kilometer radial distance around the project site. This Environmental and Social Screening has been conducted in accordance with the requirements of the World Bank's Environmental and Social Framework (ESF), particularly focusing on the relevant Environmental and Social Standards (ESSs).

3.2 Important features/establishments around the PIA

The proposed bridge sub-project has undergone a thorough review to identify Environmental and Social resources and baseline conditions, potential environmental and socio-economic risks that may arise during construction and future operation. To accurately assess these concerns, a Project Influence Area (PIA) with a 0.5-kilometer radius surrounding the bridge site was considered during the screening process. Each issue was evaluated on a case-by-case basis without generalization, ensuring site-specific factors were properly addressed. Sensitive environmental and social findings, if any, were carefully noted, and appropriate mitigation or minimization measures were recommended to manage these risks throughout the project lifecycle. In addition, opportunities for enhancing both environmental and social conditions, as well as incorporating monitoring initiatives, have been outlined and integrated into the Environmental and Social Management Plan (ESMP) and its corresponding budget. The contractor's role in addressing identified impacts has been clearly defined, and all assessments and proposed interventions were conducted in full compliance with the Environmental and Social Management Framework (ESMF) of the HELP project.

Initial screening process is conducted through direct involvement of PIU in the influence area of the proposed component, which allows to raise significant questions and ideas towards participants. In combination of both field walk-through and inputs of audience, a register of existing features is formed. The following table describes the important features under Project Influence Area. Additional spatial understanding is supported through a hand-sketched map provided in Appendix-01.

Table 3.2.1: Important features under Project Influence Area

Sl. No.	Component's name under W-08	Direction	Important features/ establishment (approx. distance from the proposed site)
1.		North	Miazi para jame mosque (329m), Household (30m)

Sl. No.	Component's name under W-08	Direction	Important features/ establishment (approx. distance from the proposed site)
	Construction of 57m Long RCC Bridge at ch 2350 on Eid Goan GC at Maij Para - Pokkhali (Faraze Para road) road ID:422243002	South	Khamar para central jame mosque (120m), East Farazi Para Jame Mosque (222m). Mohammodia nurani para madrasa and graveyard (228m), Jalalabad Union Parishad (827m), T. K. brick field (382m). Z. M. B. Brick field (676m)
East		East Miazi Para jame mosque (518m), Lorabak Jame mosque (1km), Shop (30m)	
West		An nur Azizia madrasa and Etimkhana (614m), Baharchora GPS (920m), Farazipara Central Jame mosque (796m), Household (30m)	

3.3 Major Findings

The Environmental and Social Screening has revealed an integrated overview of site-specific environmental and social conditions of the proposed sub-project. These findings offer valuable insight into the interaction between the sub-project components and their surrounding biophysical and socio-economic settings. While many sub-projects are found to be aligned with the characteristics of their respective locations, the nature, magnitude, and extent of impacts vary based on topography, ecological sensitivity, surrounding land use, and community dependency.

The analysis confirms that while some impacts such as temporary disruptions during construction, generation of noise and dust, and minor vegetation clearance are commonly anticipated, several site-specific concerns were identified for the proposed 57-meter RCC Bridge at chainage 2350 on the Eidgaon GC at Maijpara–Pokkhali (Faraze Para Road), Road ID: 422243002. These include the proximity of the site to nearby religious and educational institutions, households and shops within 30 to 50 meters and the khal flowing beneath the proposed alignment. The bridge plays a vital role in strengthening connectivity between Jalalabad Union (Farajipara village) and West Pokkhali Union (Miapara village), thereby supporting local mobility, access to markets, and essential services. Furthermore, social vulnerabilities were noted, including the safety of pedestrians during construction, community access requirements, and potential short-term impacts on daily movement and livelihoods.

The screening has also identified both direct and indirect risks that may arise if not appropriately mitigated. Findings indicate that with suitable mitigation measures as proposed in the ESMF and site-specific Environmental and Social Management Plans (ESMPs) most risks are manageable under ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), and relevant associated standards such as ESS4 (Community Health and Safety), ESS2 (Labor and Working Conditions), and ESS10 (Stakeholder Engagement and Information Disclosure).

A summary of the significant environmental and social issues identified during the screening process, along with associated potential impacts, is presented in **Table 3.3.1**. These findings provide critical input for developing context-specific mitigation strategies and highlight areas requiring enhanced monitoring and community engagement during project implementation. None of the activities fall in the E&S exclusion list attached to the project ESMF.

Table 3.2.1: Concerning environmental and social issues relating to each proposed subproject and influence area

	Key Environmental & Social Findings	Anticipated Impacts / Concerns
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	The proposed site is not located within any significant environmentally sensitive area, except for the local khal named Eidgaon khal that flows directly beneath the proposed bridge alignment.	Will not cause any severe negative effects to the area's environmental settings, nor to important ecological features.
	The proposed sub-project targets an existing old concrete bridge over the Eidgaon khal, which has deteriorated over time due to prolonged use.	Replacing a concrete bridge with an identical one at the same location necessitates the removal of the existing bridge, which may result in waste production, harm water quality and minor air pollution due to dust and airborne particles less than PM ₁₀ .
	Environmental and social screening conducted; moderate risks identified.	Manageable with appropriate mitigation measures.
	Heavy vehicular movement and future construction activities may cause air, noise, and water pollution.	Construction and demolition activities may lead to localized dust, air pollution, and runoff contamination; these impacts are short-term, site specific and can be effectively managed through water sprinkling, dust control, noise barriers and proper site drainage.
	No fish farming activities or significant vegetation coverage were found within close proximity to the proposed bridge site. However, several sensitive establishments are located within the surrounding 500m area, including households, mosques, a madrasa with a graveyard and brickfields. These community and livelihood assets are important for the local population and require careful consideration during construction. Extra caution must be taken to ensure that construction runoff, dust, noise, and waste do not negatively impact these nearby social and environmental features.	Will not cause any severe negative effects to the environmental settings of the area nor important environmental features. Air and noise pollution may occur during the construction period due to construction activities and the transportation of materials. In some cases, accidents may happen due to unauthorized entry into the construction site. These impacts are short-term, site-specific, and within a small scale and manageable by mitigation measures.
	Construction activities and the establishment of labor camps, along with associated facilities and services, may lead to adverse environmental and social impacts if not properly managed.	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 (in labor camp), will more likely to take place. Strain on local resources such as water, sanitation and electricity. Health and hygiene risk due to overcrowding or poor camp management. Social tension with nearby communities may arise if laborers' behavior or camp facilities are not adequately supervised.
	Earth excavation work will be involved during the piling.	Consequently, air, noise and dust pollution will be occurred within a small-scale during the construction period only.
	Chemical spills or improper disposal of construction waste materials due to lack of workers' training and misconduct of contractor's safety initiatives. Kitchen and labor camp waste may be generated during construction period.	Soil and water can be further eroded and polluted.
	Vibration effects generated from piling, drilling, or other construction works	May trigger harmful disturbances to local faunal species.

	A functional Grievance Redress Mechanism (GRM) must be in place to ensure community feedback, transparency, and accountability in managing environmental and social risks during project implementation.	Lack of an effective GRM may lead to unresolved community complaints, misinformation, reduced stakeholder trust, and potential conflict or resistance during project implementation. However, the project's three-level GRM structure comprising Local, Project, and Ministry-level committees offers a systematic approach to resolve such issues in a timely, transparent, and inclusive manner.
ESS2: Labor and Working Conditions	Local workers may be hired; labor influx is not anticipated. No child or forced labor permitted.	Low risk of labor-community tension or burden on local infrastructure; reduced potential for social conflict.
	OHS risks during pile-driving and construction works.	Injury risk for laborers.
	Safe working conditions, personal protective equipment (PPE), and sanitation facilities must be ensured at site.	Risk of injury or health hazards if workers lack PPE or safety supervision. Potential spread of illness if hygiene and sanitation facilities are inadequate.
	Risk of accidents during demolition of old structure or pile-driving and construction phase; proper training and labor code compliance are required.	Risk of falls, tool-related injuries, or exposure to noise and dust without safety training. Possibility of non-compliance with national labor standards or World Bank EHS guidelines.
	Labor camps must comply with EHS guidelines. Inadequate ventilation, poor lighting and overcrowded conditions can disrupt normal living standards, increase the risk of disease transmission and negatively impact workers' health and well-being.	Risk of poor living conditions, waste mismanagement, health and hygiene issues, or community tension if camps are not properly managed.
ESS3: Resource Efficiency and Pollution Prevention and Management	Dust from earthwork, vehicle movement, and material handling during the construction period may cause air pollution.	Site specific, short-term, can be controlled by regular sprinkling and covered transport
	Construction activities will require the use of cementitious materials such as Ordinary Portland Cement, Fly Ash, and Slag Cement, along with fuels and lubricants including diesel, engine oil, and hydraulic oil. On-site preparation and installation of bridge components are expected to generate scraps and residues. If not managed properly, runoff from cement slurry, concrete residues, or oil and grease from construction machinery may flow into the Eidgaon canal.	Moderate scale of water pollution may be caused during construction period due to concrete and cement usage. The runoff from work site may enter the present canal, nearby household and shops and reduce the water quality which will be acute, if chemical gets mixed with water. Risk is manageable with drainage controls and silt traps.
	Noise from piling and construction machinery.	Potential hearing risks and stress for laborers and local residents exposed to prolonged noise. Limited to working hours and local area, can be reduced by timing and barriers.
	Construction waste, including debris from dismantling of old bridge and packaging materials, waste from labor camps, must be handled with designated waste management plan.	Soil and water contamination from unmanaged waste nearby household and shops and the Eidgaon canal. Health hazards for workers and nearby communities due to uncollected solid waste. Waste can be stored and disposed at designated landfill with contractor oversight.

<p>ESS4: Community Health and Safety</p>	<p>The construction zones must be barricaded; signage and awareness campaigns to minimize risks to pedestrians and vehicles. Participants recommended dedicated pedestrian walkways and strong railings to enhance community safety.</p>	<p>Increased risk of accidents and injuries to pedestrians, especially children and elderly, due to unprotected construction zones. Obstruction or confusion for local traffic and pedestrians in the absence of proper signage and temporary pathways. Community dissatisfaction if safety measures are not visibly in place. Unsafe movement near deep excavation or elevated bridge structures during construction. Proper use of signage and barricades may ensure the construction site's safety.</p>
	<p>Use of heavy machinery during construction may result in significant dust and noise emissions. Runoff containing oil, grease, or cement slurry may enter nearby household and shops and khal, potentially affecting community health and livelihoods.</p>	<p>Air pollution from dust and emissions can affect nearby residents. Noise pollution may disturb local communities. Water pollution due to runoff of oil, grease, or cement slurry may contaminate nearby household and shops and khal (canals), harming aquatic life and reducing water usability. These impacts are short-term, site-specific and within a small area and manageable by mitigation measure.</p>
<p>ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</p>	<p>No land acquisition required; construction is within the existing right of way.</p>	<p>Temporary access disruptions during construction can be mitigated by providing alternative access during construction. Vehicles. A Memorandum of Understanding (MoU) should be signed with the landowner in cases where private or community land is temporarily required for storing construction materials or setting up labor camps.</p>
<p>ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p>	<p>No critical natural habitats were identified within 500 meters of the proposed site. The area is predominantly semi-urban and agricultural, with settlements, educational and religious institutions, and small shops located within close proximity. The bridge crosses the Eidgaon canal, which is a local water channel but not a designated ecologically sensitive habitat. Within the project influence area, several mosques, a madrasa, a graveyard, brickfields, and scattered households are situated, but no significant wetlands, fish farms, or protected ecological zones were observed.</p>	<p>Some features are located near the proposed sites, where dust and noise pollution may cause impacts. These impacts are expected to be negative but short-term, site-specific, and reversible with appropriate mitigation measures. Other features are situated at relatively greater distances, where significant disturbance is not anticipated. To minimize any potential impacts, strict construction site management practices should be enforced, including limiting work to daytime hours, applying water-sprinkling at least twice daily around the site, installing proper fencing around the working area, and ensuring safe storage of construction materials.</p>
<p>ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</p>	<p>No Indigenous or Small Ethnic Communities found in project influence area.</p>	<p>Not applicable.</p>
<p>ESS8: Cultural Heritage</p>	<p>No known cultural or archaeological sites identified within project site.</p>	<p>Not applicable.</p>

ESS9: Financial Intermediaries	Not applicable as project does not involve financial intermediaries.	Not applicable.
ESS10: Stakeholder Engagement and Information Disclosure	Consultations were conducted with local host community members and relevant stakeholders at all four proposed bridge locations. On 19 March 2025, a meeting was held with 36 participants at Nazim Store, 2 No. Ward, East Pokkhali near the proposed bridge, where participants emphasized the urgent need for a new bridge to address transport difficulties and safety risks due to the deteriorated condition of the existing structure.	Participants anticipated support for the project and emphasized the importance of safety features and pollution control. The feedback collected underscores the need for continued stakeholder engagement during implementation, including maintaining a functional grievance redress mechanism (GRM), accessible communication channels and a transparent complaint registry to ensure inclusive and responsive project delivery.

The navigability of canals and community safety remain critical considerations during both the construction and operational phases of the bridge subproject. As per good environmental and social practice, and consistent with World Bank Environmental and Social Standards (ESS4 and ESS6), no construction or structural intervention over waterways should impede the free and safe passage of local water transport. During construction, temporary arrangements must be ensured so that local communities can continue crossing canals from alternative access points without disruption.

Safety during the operation phase is equally important. Measures such as the installation of reflective guideposts, visible signage, and proper lighting for vehicles and pedestrians approaching the bridge are essential and must be integrated into the construction phase planning. These elements significantly enhance commuter and pedestrian safety and should be reflected in the engineering design and budget estimations.

Furthermore, to minimize environmental degradation and offset potential negative impacts, a comprehensive set of site-specific mitigation measures will be adopted in addition to standard construction practices. These will follow the Environmental and Social Management Plan (ESMP) and the relevant national codes of practice, ensuring compliance with the requirements outlined in the Environmental and Social Management Framework (ESMF).

3.4 Climate Change Impact

3.4.1 General Consideration

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geo-morphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank¹ has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, the vigorous monsoons make the area prone to landslides, and there is always the lurking threat of cyclones and thunderstorm across the area.

Together with the above-mentioned hazardous situation, availability of potable water from shallow tube wells that pump water up from about 120 feet has already reached to a critical level. Averting the problem requires new tube wells to be plumbing deeper into the poorly mapped aquifer but going deeper than 300-500 feet in some places may cause salt water to contaminate freshwater resources, which could be disastrous for both refugees and residents.

3.4.2 Site Specific Consideration

The sub-project area is not adjacent to the sea. The cyclone has higher impact in the area and intensity of precipitation has been seen to have increased in the past few years. Salinity and the occurrence of cyclonic storm surge were not reported in the vicinity of the subproject. Temperature was reported to be increased, and Thunderstorm is found to have highest impact in the area. Thunderstorm has been observed creating more damage than before, but no casualty was reported. Flash flood in or around the site is not observed; but the area experiences water logging issues during the monsoon, which for several structures have been suggested to include in the design.

Site specific climate change impacts are often not so easy to measure or deduce plausibly while the site is confined to a narrow strip of roadways only, and associated mitigation or offsetting measures are really hard to plot on the same tiny impact areas, though an overall set of measures are often considered in practical aspect.

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

The anticipated environmental and social impacts of the proposed sub-project are primarily construction-related and considered to be temporary, site-specific, and manageable. These impacts can be effectively addressed through the adoption of good engineering practices, good housekeeping, better *in-situ* construction materials management, standard environmental controls, and adherence

¹ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

to World Bank Environmental and Social Standards (ESS1–ESS10), especially those related to health, safety protocols, and pollution prevention.

Contractors must adhere to implement the Environmental and Social Management Plan (ESMP) as part of their contractual obligations. This includes regular implementation of dust control measures, such as water spraying at least twice daily, proper solid waste management, noise control and site demarcation to ensure minimal disturbance to surrounding communities and environment of the sub-project sites. Given the site's proximity to households and shops located within 30m on the north, west and east sides extra caution must be exercised to prevent runoff of construction materials, cement slurry, oil, or debris from entering these environmentally and economically sensitive zones. Further construction related activities that may result in adverse impacts in the surrounding environment of the sub-project must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance.

In addition, all site workers, engineers, and Contractor's staffs must receive training on occupational health and safety (OHS), good practice construction works, code of conduct, efficient labor camp management, labor management procedure, emergency response, and environmental best practices and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects of this proposed construction work are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

The sub-project-specific mitigation and monitoring measures have been outlined in the respective ESMP in Appendix-2, which guides pre-construction, construction, and post-construction phases. With proper implementation of these measures, the proposed infrastructure intervention is expected to deliver long-term social and economic benefits to the host communities, with minimal residual environmental impact.

4.2 Cost of Environmental and social Enhancement Works in BOQ

In consideration to the aforementioned environmental impacts and their mitigation measures for the proposed construction activities, a set of items are included in the BOQ for every sub-project. The estimated cost to implement the ESMP is shown in Appendix-3.

5. CONTRACTOR AND LABOR MANAGEMENT

Most of the workers for this subproject will come from the local community, who share a common socio-economic, cultural, religious, and demographic background. Based on consultations with local stakeholders, it is anticipated that only a small portion of skilled labor may need to be hired from outside the project area, depending on availability. Therefore, the likelihood of internal conflicts among workers is expected to be minimal. It is estimated that approximately 20 laborers will be engaged during the construction phase, comprising 4 skilled (25%) and 16 unskilled (75%) workers, generating around 10,800 active working man-days (as detailed in Table- 5.1).

Although female participation in rural construction work is traditionally low, higher involvement of women is expected in this sub-project. Nonetheless, if female participation remains limited, the

contractor must still conduct mandatory GBV (Gender-Based Violence) awareness training for all workers prior to the commencement of construction to mitigate risks of harassment, discrimination, or hostile behavior at the worksite.

The contractor’s area will include the working zone surrounding the construction site, materials stacking and storage area, labor shed, and office space ideally located within or adjacent to the proposed Sub project location premises/boundaries for better coordination and monitoring. Contractor will be strictly instructed to maintain cleanliness at the worksite by ensuring waste, debris and dust are regularly cleared and that all bulk construction materials such as sand, stone chips, and steel are stored properly and covered with plastic sheets to prevent environmental degradation.

Experiences from ongoing LGED projects in Cox’s Bazar indicate a shortage of skilled labor, which has contributed to delays in some cases. In this sub-project, LGED anticipates that general and non-technical labor will be sufficiently available locally, with only specific technical expertise needing to be sourced from outside if required. It is expected that the scale of labor influx will remain manageable and will not pose significant risks of social tension or GBV during the construction period.

Table 5.1: Subproject-wise number of labor and total active working days

Sl no	Package Number	Name of Subproject	Total Space of proposed Construction (Square meters)	Tentative per day labor (No)	Days	Total active working days
01	HELP-COX/BR-1	Construction of 57m Long RCC Bridge on Eidgaon GC at Maijpara - Pokkhali (Faraze Para Road) at Ch. 2350m, Sadar Upazila District: Cox's Bazar, Road ID- 422243002	416.10	20	540	10,800
Grand Total =				20	540	10,800

6. GRIEVANCE REDRESS MECHANISM (GRM)

In accordance with the Environmental and Social Management Framework (ESMF) of the HELP project, a robust and accessible Grievance Redress Mechanism (GRM) has been established to address project-related grievances from host communities, workers and other stakeholders. A structured and inclusive Grievance Mechanism (GM) has been established to ensure timely and effective resolution of complaints arising from project activities in the host communities. Since LGED is the Implementing Agency (IA), the grievance redress structure has been designed to operate across three levels- local (Upazila), Project Implementation Unit (PIU) and Project Steering Committee (PSC) to address concerns efficiently and equitably.

Local Level GRC

At the local level, a Grievance Redress Committee (GRC) is formed in each Upazila where LGED has subproject activities. The GRC is chaired by the Upazila Engineer from LGED (or a nominated official by the Project Director if required), serving as the Convener. The Environmental Specialist and/or

Social Specialist from the PIU, depending on the nature of the complaint, act as the Member-Secretary and remain common across all local GRCs under LGED. The committee also includes an Environmental and/or Social Specialist from the Supervision Firm appointed by LGED, a representative from the respective Union Parishad (preferably female if the complainant is female), and a community representative such as a teacher, NGO staff member, or a local individual nominated by the complainant. Specialists for these roles are expected to be hired within 3 to 6 months of project effectiveness. All grievances at the local level must be heard and resolved within 10 working days of receipt. Complaints related to LGED activities will be received at the office of the respective Upazila Engineer.

PIU-level GRC

If a complaint cannot be resolved at the local level, it is escalated to the PIU-level GRC. This committee is chaired by the Project Director of LGED and includes the Social and Environmental Specialists from the PIU as Member-Secretaries. It also includes a local government representative either the same individual from the local level hearing or another as appropriate (must be female if the complainant is female) and a community representative, preferably the same individual who participated at the local level. The PIU-level GRC is responsible for reviewing unresolved grievances and delivering a decision within 15 working days. In addition, the Social or Environmental Specialist at the PIU, with assistance from the local GRC's Member-Secretary, will conduct regular visits to subproject sites to engage with communities and affected persons, and to document any new concerns, suggestions, or complaints in the GRM register.

PSC-level GRC

For grievances that remain unresolved at the PIU level, the matter is further referred to the PSC-level GRC, which represents the final tier of grievance resolution. This committee is led by a representative of the Secretary from the relevant ministry, serving as the Convener, with the Project Director of LGED acting as the Member-Secretary. The PSC-level GRC is required to make a final decision on such grievances within a maximum of four weeks. Any resolution reached at any level of the grievance process that is agreed upon by the aggrieved party is considered binding on LGED and will be implemented accordingly.

This multi-tiered GM structure under LGED ensures that all grievances from host community members are addressed in a fair, inclusive, and transparent manner. It fosters accountability and trust in project implementation while upholding the World Bank's Environmental and Social Standard 10 (ESS10) on stakeholder engagement and information disclosure.

7. INSTITUTIONAL ARRANGEMENT

LGED, through the Project Implementation Unit (PIU), will have overall responsibility for environmental and social risk management through implementation of ESMP and compliance with the World Bank's Environmental and Social Framework (ESF). The PIU's ES team comprising of a Sr. Environmental Consultant, a Sr. Social Development Consultant, and a Gender Specialist will oversee ESMP implementation including functional operation of Grievance Redress system, review monitoring reports from the D&S Consultant, and coordinate reporting to the World Bank. The Design and Supervision Consultant (D&SC) will provide day-to-day site supervision, verify contractor's compliance with ESMP requirements along with taking prime actions in the progress of grievance redressal and advise corrective actions wherever required. The Contractor will be responsible for on-site implementation of all mitigation measures, including occupational health and safety (OHS), waste

management, environmental protection and grievance management. Coordination among PIU of LGED, D&SC, and the Contractor will be ensured through regular supervision, reporting, and redressal mechanisms.

Institutional Roles and Responsibilities Table (Recommended for ESMP)

Institution / Entity	Key Roles and Responsibilities
LGED Project Implementation Unit (PIU)	<ul style="list-style-type: none"> • Oversee environmental and social risk management framework and activities • Review and approve site-specific ESMPs • Monitor implementation through field inspections • Manage and supervise GRM at the project level • Approve E&S documents and corrective actions • Report ESMP performance to the World Bank
PIU Environmental & Social Specialists	<ul style="list-style-type: none"> • Technical supervision of ESMP implementation • Review contractor’s E&S compliance plans and related records. • Conduct site visits and compliance audits • Provide guidance on ESS compliance and required corrective actions • Leads capacity-building and training sessions for consultants and contractors. • Review and approve periodic monitoring reports and submit to the Project Director for sending them to the WB.
Design & Supervision Consultant (D&SC)	<ul style="list-style-type: none"> • Provides full-time, site-level supervision of ESMP implementation. • Verifies that mitigation measures are integrated into physical construction activities. • Verify contractor compliance with mitigation measures • Maintains detailed monitoring checklists, incident logs, and photographic records. • Support PIU in Compliance reporting.
Construction Contractor	<ul style="list-style-type: none"> • Executes all mitigation measures defined in the approved ESMP. • Prepare site-specific plans (OHS, waste, traffic, labor camp, etc.) and implement the same. • Ensure PPE use, safety training, and daily toolbox meetings • Appoints a designated EHS Supervisor to manage site-level compliance and reporting.
Grievance Redress Committees (3-tier GRM)	<ul style="list-style-type: none"> • Receives, registers, and investigates grievances from workers and the community. • Ensures a transparent, culturally appropriate, and timely resolution process. • Coordinate with PIU and local administration

8. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

Monitoring is a critical component under the Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP) to ensure that environmental and social mitigation and enhancement measures outlined in the Environmental and Social Management Plan (ESMP) are effectively implemented and that their intended benefits are realized over time. The Environmental and Social Management Framework (ESMF) of the HELP Project provides a detailed monitoring mechanism, assigning responsibilities to all relevant parties directly involved in or overseeing the construction and implementation of sub-projects.

Several tiers of monitoring responsibilities have been established under the HELP Project. At the implementation level, contractors are required to ensure that environmental and social risks are effectively minimized throughout the construction period. This includes implementing adequate Occupational Health and Safety (OHS) measures for both workers and surrounding host communities. Contractors must assign site managers and safeguard supervisors (or equivalent personnel) to supervise daily implementation of the ESMP. These personnel are responsible for ensuring environmental protection both on and off-site and for preventing damage or nuisance to individuals, public and private property, and surrounding features or institutions. Pollution, noise, and other detrimental effects arising from construction operations must be strictly controlled. In addition to implementing the ESMP, contractors are also responsible for preparing and executing specific management plans, such as drainage management, traffic management and emergency preparedness and response, where required. Proper implementation of these plans, along with timely site decommissioning and restoration, must be ensured. The detailed Environmental and Social Monitoring Plan, including monitoring parameters, indicators, responsible institutions, and frequency of monitoring during pre-construction, construction, and operation phases, is presented in Appendix-4.

The first tier of supervision is led by the Design and Supervision Consultant (D&SC) firm. Once the contractors are mobilized, safeguard consultants from the D&SC and the Resident Engineer are tasked with ensuring contractor compliance with the ESMP and with the application of good engineering practices at the site. This includes strict enforcement of OHS measures. The D&SC is responsible for preparing regular monitoring reports based on field-level supervision and findings.

At the second tier, the Project Implementation Unit (PIU) will play a key role in overall monitoring. The PIU will have dedicated environmental and social safeguard specialists who will conduct frequent field visits to assess ESMP implementation. These specialists, in coordination with the Executive Engineer's Office in Cox's Bazar district and Upazila Engineers' Office in the respective upazila, will ensure strong site-level oversight. The PIU safeguard team will also ensure that all contractor staff and other relevant personnel receive adequate initial and ongoing training on environmental and social safeguards. Moreover, the PIU will verify proper site cleaning and reclamation upon completion of construction and recommend necessary corrective or punitive measures if any non-compliance is observed.

At the highest tier, the Ministerial Project Steering Committee (PSC), chaired by the Senior Secretary/Secretary of the Local Government Division (LGD), Ministry of LGRD&C, will provide strategic oversight of monitoring activities. In collaboration with the PIU, the PSC will ensure that environmental and social safeguard training is provided to all relevant project staff and that implementation at the field level aligns with national policies and the World Bank's Environmental and Social Framework (ESF). This structured multi-tiered monitoring approach under HELP will help ensure

that the construction of the RCC bridge at Cox's Bazar Sadar Upazila is environmentally and socially responsible and aligned with sustainable development objectives.

9. CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are fully implemented, there will be no significant negative environmental or social impacts related to the selection, design, construction, and operation of the proposed sub-project. In fact, the recommended mitigation and enhancement measures will lead to significant benefits, improving both the environmental quality and the social well-being of the local communities. The project will contribute to enhanced infrastructure, improved livelihoods and better access to essential services, ultimately benefiting both the host communities and the displaced populations. Major improvements in quality of life, communication and socio-economic influences will be ensured once the scheme is in operation.

Overall, the screening study can be summarized as follows:

- The communities will receive large benefits in terms of quality of life, particularly with better reach of services and goods.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for those who live in the vicinity of the construction site and will provide them a short-term economic gain.
- A comprehensive Environmental and social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from these Subproject activities.
- Detail cost estimation for incorporating ESMP has been shown in Appendix-3. This budget can change due to change of market prices and if the project implementation period extends.

Implementation of this Sub-project will have large positive impacts to the communities in terms of improved infrastructural transportation & communication facilities, which would eventually develop the socio-economic condition of the catchment areas. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Annexure-01: Attendance of consultation meetings for sub-project

Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP)
Local Government Engineering Department (LGED)
Public Consultation Participants List
Focus Group Discussion

সময় : ২:১০ PM তারিখ : 19/03/25
 উপ-প্রকল্প/কমপোনেন্ট এর নাম :
 মত বিনিময় স্থান : মুঠ পোকখালি রংওলাও ডা. নাজিম কোর্ট
 ইউনিয়ন : পোকখালি ওয়ার্ড নং : 2 ডাকঘর : Eidgaon উপজেলা : কুয়াকাটা জেলা : কক্সবাজার
 সাব প্রকল্প নং : HELP-COX/BR-1

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও যাকর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	যাকর / টিপসই
01	মোকাদ্দুম রহমান মালুম	৪৫	পুরুষ	মুঠ পোকখালি	মুঠ পোকখালি
02	মাজিদ উদ্দিন	৪৫	♂	♂	নাজিম কোর্ট
03	জোনাথন নবি	৩৫	♂	♂	জোনাথন নবি
04	রশিদ আহমদ কজন	৪৫	♂	♂	Rashed Ahmed
05	হোসেন	৩৫	♂	♂	হোসেন
06	রফিক আহমদ	৪০	♂	♂	রফিক আহমদ
07	সবুখার মাহমুদ	২৫	♂	♂	SARWAR
08	নূরুল আমিন	২৭	♂	♂	N. Alam
09	বাকর আহমদ	৪৫	♂	♂	আবদুল হক
10	আবদুল মানেক	৩০	♂	♂	আবদুল মানেক
11	আবদুল্লাহ	৪০	♂	♂	আবদুল্লাহ
12	মোস্তাফিজ আমিন	২২	♂	♂	আমিন
13	মোঃ জামিল উদ্দিন	৪৫	♂	♂	জামিল
14	মোঃ হামিদ	২৫	♂	♂	মুজিবুর রহমান
15	মুজিবুর রহমান	৫৬	♂	♂	মুজিবুর
16	হিদয়তুল্লাহ	৪২	♂	♂	হিদয়তুল্লাহ
17	মোঃ হেলাল	৪৭	♂	♂	হেলাল
18	আবু শুকুর	৩২	♂	♂	আবু শুকুর

**Host and FDMN Enhancement of Lives through Infrastructure
Improvement Project (HELP)**
Local Government Engineering Department (LGED)
Public Consultation Participants List
Focus Group Discussion

সময় : তারিখ : 19.03.25
উপ-প্রকল্প/কমপোনেন্ট এর নাম : ২:10 PM
মত বিনিময় স্থান : পূর্ব সোকখালি ২ নং ডিঙ্গাড়া বাজির বোর্ড
ইউনিয়ন : সোকখালি ওয়ার্ড নং : ২ ডাকঘর : হুগাও উপজেলা : হুগাও জেলা : কক্সবাজার
সাব প্যাকেজ নং : HELP - COX/BR-1

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
19	মোঃ এমরান	২৪	দ	দ	এমরান
20	মোঃ জামিল	৪৫	দ	দ	জামিল
21	জাম্বা জিব	৫০	দ	দ	জাম্বা জিব
22	আনন্স জিব	৪৯	দ	দ	আনন্স জিব
23	মোঃ মাবিন	৩০	দ	দ	মাবিন
24	আলবি রহমান	২২	দ	দ	আলবি রহমান
25	তাজজিদ	২৬	দ	দ	তাজজিদ
26	মোঃ মিজান	২৩	দ	দ	মিজান
27	মোঃ নিশান	২২	দ	দ	নিশান
28	আবু বক্কর	২৯	দ	দ	আবু বক্কর
29	আজিজুল হক	৪৭	দ	দ	আজিজুল হক
30	আব্দুল হক	২২	দ	দ	আব্দুল হক
31	মহিন উদ্দিন	২২	দ	দ	মহিন
32	রফিক আলি	২৪	দ	দ	রফিক আলি
33	মোঃ রফিক আলি	২৭	দ	দ	মোঃ রফিক আলি
34	মোঃ মাজিদ	২৪	দ	দ	মাজিদ
35	মোঃ মাজিদ	২৫	দ	দ	মাজিদ
36	মোঃ মাজিদ	২৬	দ	দ	মোঃ মাজিদ

Figure: Attendance of consultation meeting for 57m Long RCC Bridge on Eidgaon GC at Maijpara - Pokkhali (Faraze Para Road) at Ch. 2350m, Sadar Upazila District: Cox's Bazar, Road ID- 422243002

Annexure-02: Sub-project location pictures



Figure: Present condition of the proposed location for 57m Long RCC Bridge on Eidgaon GC atMaijpara - Pokkhali (Faraze Para Road) at Ch. 2350m, Sadar Upazila District: Cox's Bazar, Road ID- 422243002

Appendix-1: Environmental and Social Screening Form for examining sub-project

Environmental and Social Screening Form

Work Package Description Form:

Name of component: Construction of 57m Long RCC Bridge on Eidgaon GC at Maijpara - Pokkhali (Faraze Para Road) at Ch. 2350m, Sadar Upazila District: Cox's Bazar, Road ID- 422243002

Package no: HELP-COX/BR-1

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): As per LGED rate schedule

Estimated construction period duration: 18-24 months

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar

Sub-District: Cox's Bazar Sadar

Union: Pokkhali

Name of Community/Local Area: Nazim Store, 2 No. Ward, East Pokkhali

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

One RCC Girder Bridge will be constructed replacing an existing concrete bridge. There are some activities for RCC girder bridge construction such as Earth cutting and filling for foundation, Back filling and approach road construction, Brick soling work, CC work, RCC work, Rod cutting, bending and binding and Shuttering work.

Estimated footprint / land area for this sub-project is 416.10 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.):

The proposed 57 meter RCC bridge is located at chainage 2350 on the Eidgaon GC at Maij Para– Pokkhali (Faraze Para road), Road ID: 422243002. This location is in Cox's Bazar Sadar Upazila, Cox's Bazar District. The proposed bridge will be constructed over Eidgaon chora, which is a navigable and active canal used year-round by small water vessels. The bridge is important because it will connect two unions Jalalabad Union on the east at Farajipara village and Pokkhali Union on the west at Miapara village. The original bridge was severely damaged two years ago due to intense flooding. The central portion of the structure collapsed as a result of strong water current. Local people installed a temporary wooden slab-based crossing, which is now being used only as a narrow pedestrian path. Lack of proper bridge has disrupted daily transportation, school-going children, emergency services, and farmers' goods movement.

The site is around 6 kilometers from the Cox's Bazar–Chattogram Highway and about 5 kilometers from the Eidgaon Upazila office. The bridge will serve multiple catchment villages, including Miapara, Sikandar Para, Haiyapara, Shikdar Para, and Hindupara on the western side, and Farajipara, Miazi Para, Kamar Para, and Baharchora on the eastern side.

The eastern approach road to the bridge is a Bituminous Carpeting (BC) road, while the western approach consists of a Herringbone Bond (HBB) road. The surrounding area is semi-urban and economically dependent on salt cultivation, which is the primary livelihood for most of the local population.

Several important local features have been identified near the project site. A number of shops are located to the northeast and southwest, supporting local commerce. Residential households are also present, particularly to the southeast and northwest, indicating a moderate density of population near the site. This bridge is very important for helping local people move around, go to markets, and get access to services.

The proposed Sub-project of RCC Girder Bridge is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to demolition of an old bridge and later construction of a new bridge on the same place. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of plastic. Human wastes might be generated in labor camps.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Following activities for RCC girder bridge construction are:

- Earth cutting and filling for foundation
- Back filling and approach road construction
- Brick soling work
- CC work
- RCC work
- Rod cutting, bending and binding
- Shuttering work

For bridge safety,

- Color painting on rallying
- Traffic safety guide post for approach
- Safety measures will be taken within the construction

Others,

- Any bridge side is not on private land
- Alternative diversion will be provided for traffic movement and not disturbing of water flow or flora and fauna
- Mainly on very small canals and dispersed land will necessary for water drainage

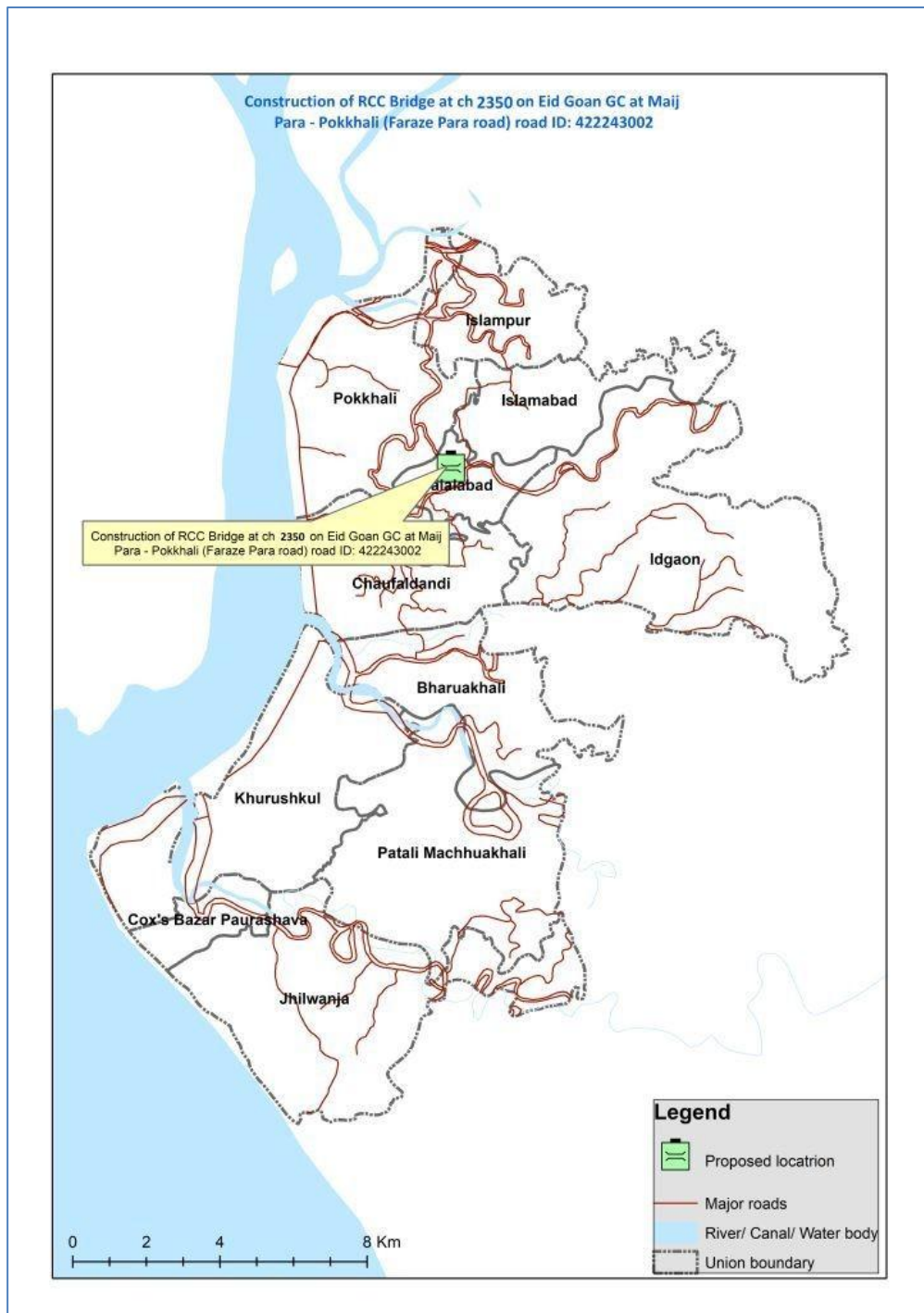
For livelihood,

- No private land will be used
- No shifting of any structure will be needed

Sub-project Location:

The proposed 57-meter RCC bridge will be constructed at chainage 2350 on the Eidgaon GC at Maij Para–Pokkhali (Faraze Para road), under Road ID: 422243002. This site is located in Cox’s Bazar Sadar Upazila of Cox’s Bazar District. The proposed bridge will be constructed over Eidgaon chora,

which is a navigable and active canal used year-round by small water vessels. The bridge is connected between two unions Jalalabad Union to the east at Farajipara village and Pokkhali Union to the west at Miapara village. The site is approximately 6 kilometers from the Cox’s Bazar–Chattogram Highway and about 5 kilometers from the Eidgaon Upazila office. The bridge will serve several surrounding villages. On the western side, these include Miapara, Sikandar Para, Haiyapara, Shikdar Para, and Hindupara. On the eastern side, the catchment villages are Farajipara, Miazi Para, Kamar Para, and Baharchora. The GPS coordinates of the proposed bridge location are 21.554209, 92.036644.



Land ownership
 Government Land

Expected construction period: 12 (Twelve months)

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas and historical or cultural assets): Please also explain any analysis on alternative location was conducted:

Project intervention area will be adjusted on the existing old concrete bridge but influence area should consider nearly half a kilometer radius around the proposed site.

To the north, the subproject site is near Miazi Para Jame Mosque (329m) and residential households (30m). On the south, key features include Khamar Para Central Jame Mosque (120m). To the east, important establishments include Farazi Para Jame Mosque (222m), Mohammodia Nurani Para Madrasa and Graveyard (228m), Jalalabad Union Parishad Office (827m), T. K. Brick Field (382m), and Z. M. B. Brick Field (676m). On the western side, the surroundings include An Nur Azizia Madrasa and Etimkhana (614m), Baharchora Government Primary School (920m), Farazipara Central Jame Mosque (796m), and nearby residences within 30 meters.

But there is no scope to be affected by the construction activities. No structures, trees and livelihood will be affected by this construction activity. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified.

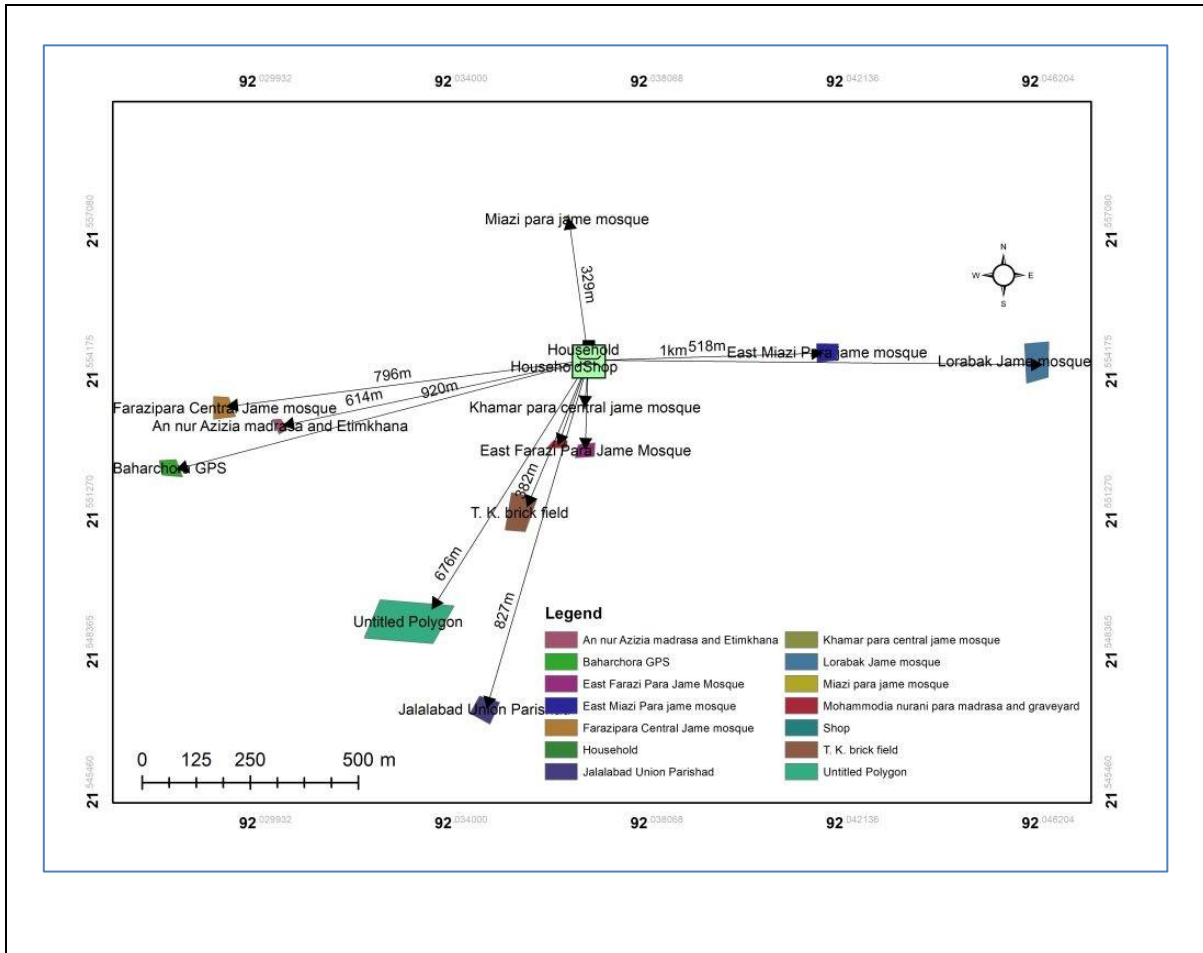
Section B: Environmental Screening

B.1: Environmental feature of sub-project location

Description of cultural properties (if applicable, including distance from site):

The proposed 57-meter RCC bridge will be constructed at chainage 2350 on the Eidgaon GC at Maij Para–Pokkhali (Faraze Para road). The site is surrounded by several key features in all directions. To the north, Miazi Para Jame Mosque is located approximately 329 meters away, with residential houses as close as 30 meters from the site. To the south, Khamar Para Central Jame Mosque is situated around 120 meters away. To the east, important landmarks include Farazi Para Jame Mosque (222 meters), Mohammodia Nurani Para Madrasa and Graveyard (228 meters), T. K. Brick Field (382 meters), Z. M. B. Brick Field (676 meters), and the Jalalabad Union Parishad Office (827 meters). To the west, notable establishments include An Nur Azizia Madrasa and Etimkhana (614 meters), Baharchora Government Primary School (920 meters), Farazipara Central Jame Mosque (796 meters), and residential houses located within 30 meters of the project site. The sketch of the surrounding features are given below.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas within the proposed site. To the north, Miazi Para Jame Mosque is located approximately 329 meters away, with residential houses as close as 30 meters from the site. To the south, Khamar Para Central Jame Mosque is situated around 120 meters away. To the east, important landmarks include Farazi Para Jame Mosque (222 meters), Mohammedia Nurani Para Madrasa and Graveyard (228 meters), T. K. Brick Field (382 meters), Z. M. B. Brick Field (676 meters), and the Jalalabad Union Parishad Office (827 meters). To the west, notable establishments include An Nur Azizia Madrasa and Etimkhana (614 meters), Baharchora Government Primary School (920 meters), Farazipara Central Jame Mosque (796 meters), and residential houses located within 30 meters of the project site. Construction and demolition activities may lead to dust and runoff contamination to the nearby water body; These impacts are short-term, site-specific and can be effectively managed through proper water sprinkling and site drainage. The proposed bridge will be replaced with an existing old concrete structure, crossing over Eidgaon chora.

Those will not be affected by the construction works, as the activities will be carried out over existing concrete bridge and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) potential impacts on remaining forests in/around camps Yes/No

N/A

(2) Other issues:

N/A

Baseline air quality and noise levels:

Air Quality

Site-specific baseline ambient air quality monitoring was not conducted for this sub-project. However, baseline conditions have been assessed based on secondary information from relevant environmental studies, Department of Environment (DoE) monitoring data, and previous environmental assessments of rural infrastructure projects implemented in Cox's Bazar District and similar coastal regions of Bangladesh. These sources indicate that ambient air quality in such rural and semi-urban areas is generally moderate to good, primarily due to the absence of major industrial activities and the dominance of local traffic and open land use.

According to the available DoE² monitoring data and previous environmental assessments under LGED and World Bank-supported projects, concentrations of gaseous pollutants such as sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and carbon monoxide (CO) in similar rural settings typically remain within the Bangladesh National Ambient Air Quality Standards (BNAAQs). Indicative values from comparable project areas show SO₂ concentrations ranging from 5-20 µg/m³, NO₂ from 15-30 µg/m³, and CO levels generally below 2.0 mg/m³.

Particulate matter (PM₁₀ and PM_{2.5}) levels in respective Upazila are generally moderate, but may increase during the dry season due to dust from unpaved surfaces, movement of vehicles, and local bazar activities. Secondary data from previous LGED road project EIAs³ indicate that PM₁₀ concentrations may range between 90-160 µg/m³ and PM_{2.5} between 40-70 µg/m³ during peak dry periods, with occasional short-term exceedances of national standards. These exceedances are typically localized, temporary, and reversible in nature.

Field observations at the proposed bridge construction site indicate generally good baseline air quality conditions, as the area is predominantly rural with low traffic density. Minor localized emissions are mainly associated with intermittent vehicular movement, small-scale rural activities, and nearby household activities. No significant industrial emission sources or air pollution hotspots were identified within the Project Influence Area. Overall, the baseline air quality in the project area is considered acceptable for a rural setting. Construction activities may temporarily increase dust and vehicular emissions, particularly during earthworks and material transport; however, these impacts are expected to be short-term and manageable through standard mitigation measures such as regular water spraying, covering of materials, and controlled movement of construction vehicles.

Noise Levels

Baseline noise monitoring was not carried out for the proposed road. However, secondary information from LGED environmental reports, DoE noise surveys, and field observations indicate that ambient noise levels in Cox's Bazar Sadar Upazila and nearby areas are generally low to moderate. Typical daytime noise levels in rural areas of Cox's Bazar range from 45–55 dB(A), while

² Department of Environment (DoE) (2005, amended 2018). Bangladesh National Ambient Air Quality Standards (BNAAQs). Ministry of Environment, Forest and Climate Change, Government of Bangladesh, Dhaka.

³ Local Government Engineering Department (LGED) (2019). Environmental Impact Assessment Reports for Rural Road Improvement Projects in Cox's Bazar District. LGED, Dhaka.

nighttime levels range from 38–45 dB(A)⁴, which are within the limits prescribed under the DoE Noise Pollution (Control) Rules for rural and residential areas.

Existing noise sources in the project influence area are limited to light vehicular traffic, local market activities, and occasional agricultural operations. No continuous or high-intensity noise-generating sources were identified near the proposed site. During construction, temporary increases in noise levels may occur due to the operation of construction machinery and vehicles. Such impacts are expected to be localized, intermittent, and time-bound, and can be effectively mitigated through scheduling works during daytime hours, maintaining equipment in good condition, and providing appropriate personal protective equipment (PPE) for workers.

Baseline soil quality:

Site-specific soil quality monitoring was not conducted for the proposed bridge site at the screening stage. However, baseline soil conditions have been assessed using secondary information and field observations along the proposed site. The project area lies within the coastal floodplain of Cox’s Bazar District and is characterized by young alluvial soils with silty clay to clay loam textures. These soils are generally fertile but may exhibit moderate salinity, particularly during the dry season due to tidal influence and saline water intrusion. Soil pH in the area typically ranges from 6.5 to 8.0, indicating neutral to slightly alkaline conditions common in coastal deltaic environments.

Electrical Conductivity (EC) of soils in the surrounding area varies seasonally, with moderate salinity (4-8 dS/m) observed in surface soils during the dry period. Salinity tends to decrease during the monsoon season due to rainfall and freshwater influx. Organic matter content is generally low to moderate (1-2%) as a result of frequent sediment deposition, tidal action, and limited biomass retention in cultivated and open areas along the proposed site. Available secondary data suggest that heavy metals such as lead (Pb), cadmium (Cd), chromium (Cr), and arsenic (As) are present at concentrations within permissible limits for rural and agricultural land use, with no indications of industrial contamination. Naturally high iron content, common in alluvial soils, is not considered a constraint for construction activities.

The proposed bridge construction site is located within a rural setting, primarily surrounded by agricultural land and scattered settlements. The bridge footprint is confined to the immediate crossing area, and no active agricultural activities are present within the core construction zone. Field verification did not identify any signs of contaminated land, illegal dumping, or nearby industrial operations. During construction, activities such as excavation for abutments, piling, and material handling may temporarily disturb the topsoil and pose minor risks of localized soil contamination from fuel, lubricants, cement slurry, and construction waste. These potential impacts are expected to be short-term, site-specific, and reversible in nature.

Landslide potential (high/medium/low, with explanation):

N/A (the sub-project will be constructed in a plain land)

⁴ Department of Environment (DoE) (2025). Noise Pollution (Control) Rules, 2025. Ministry of Environment, Forest and Climate Change, Government of the People’s Republic of Bangladesh, Dhaka.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Site-specific baseline surface water quality was not conducted for the proposed site. However, baseline conditions have been assessed using secondary information from the different Department and World Bank-funded projects previously implemented in Cox’s Bazar Sadar and adjacent coastal upazilas of Cox’s bazar District.

The baseline surface water and groundwater quality in Cox’s Bazar District shows moderate variability influenced by coastal processes, seasonal rainfall, and human activities. Groundwater in the region is generally slightly acidic to neutral, with pH values ranging from about 6.5 to 7.5, which falls within acceptable limits for drinking purposes⁵. However, iron (Fe) concentrations are often elevated and may exceed the Bangladesh drinking water standard (0.3 mg/L), causing aesthetic and operational concerns. Total dissolved solids (TDS) in both surface and groundwater typically range from low to moderate (approximately 300-1000 mg/L), although higher values can occur in coastal areas due to saline intrusion⁶. Surface water bodies, including ponds and canals, are more vulnerable to contamination and frequently show the presence of fecal coliform bacteria, indicating pollution from domestic wastewater, poor sanitation, and runoff, especially in densely populated and tourist areas. Groundwater is comparatively less contaminated microbiologically but may still be at risk in shallow aquifers. Overall, while pH and TDS are generally within acceptable ranges, elevated iron levels and fecal contamination in surface water represent key water quality concerns in the district.

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

No trees are found near the proposed area. The area is moderately populated and economically active, with most residents engaged in salt cultivation and small-scale trading.

Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre-construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

The proposed 57-meter RCC bridge will be constructed at chainage 2350 on the Eidgaon GC at Maij Para–Pokkhali (Faraze Para road). It is possible to carry the construction materials on this road to the construction site.

Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction:

No tubewell is present at the proposed location. In order to make a sustainable management to usage of water for construction works two numbers of tubewells should be installed. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget.

⁵ DPHE (Department of Public Health Engineering). (2019). Bangladesh Drinking Water Quality Survey 2018–2019. Government of Bangladesh.

World Health Organization (WHO). (2017). Guidelines for Drinking-water Quality (4th ed.). Geneva.

⁶ Bangladesh Bureau of Statistics (BBS). (2021). Statistical Yearbook of Bangladesh.

Electricity is available at the site.

Toilet facilities are not available near this location. To be used by the workers/contractor's staffs during the construction period toilet will need preparation for both male and another for female.

Possible location of labor camps:

On the north side of the selected site, or can be placed near the location of sub-project site.

Requirement and type of raw materials (e.g. sand, stone, wood, etc.):

Some of the raw materials for bridge construction are steel, concrete, stone, asphalt, water, bamboo & wood. Other materials include iron, timber, aluminum, rubber and other joint materials, and electro-mechanical equipment used in construction.

Identification of access road for transportation (Yes/No):

Yes. The proposed 57-meter RCC bridge will be constructed at chainage 2350 on the Eidgaon GC at Maj Para–Pokkhali (Faraze Para road), under Road ID: 422243002. It is possible to carry the construction materials on this road to the construction site.

Location identification for raw material storage:

On the north side of the proposed sub-project. Material storage area must be well fenced and materials will be covered with tarpaulins.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Solid waste: An existing concrete bridge will be demolished and the new RCC bridge will be constructed here. So, construction debris and other solid wastes will be generated both during the demolition and construction periods.

Type: woods-bamboo, copper wires, concrete, iron, plastic, tin, etc.

Quantity: Nearly 10 metric ton of solid waste, including demolition materials will be produced.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Solid waste: Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 7 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp.

Liquid waste: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 6 kg per day, which would be reduced in weight in course of time.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes viii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and ix) clay are the most common type of building material used in construction.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

There is no soil land or major vegetation cover on the right-of-way for the sub-project. No other placement as waste dumps or equipment is targeted in any vegetation cover as well.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

Low: No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the sub-project area. During construction period one or two water reservoir may be constructed due to construction activities. But all those will be completely demolished and cleared out, once the construction period is over.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

Proposed site is located at chainage 2350 on the Eidgaon GC at Maj Para–Pokkhali (Faraze Para road), which is a distributary of the Eidgaon chora however it is not subject to any modification. On the other hand, during construction period, water quality may be disturbed due to dust deposition and concrete and cement usage. The runoff from work site may enter the present canal which will be acute in degree and short in period.

Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

Low: The site is free from any significant aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: N/A

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)

N/A

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.

Likely direct and indirect impacts on economic development in the project areas by the sub-project:

Construction or implementation of a bridge project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.

Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes):(High/Medium/Low with description)

No significant modification to the water channel is anticipated. The proposed 57-meter RCC bridge will be constructed over a stream locally known as Eidgaon Chora, which acts as a seasonal drainage channel with variable water flow depending on rainfall intensity and is not classified as a wetland or marsh. It carries substantial water volume during the monsoon and has previously caused flooding in the area, which led to the collapse of the previous bridge structure. The area is moderately populated and economically active, with most residents engaged in salt cultivation and small-scale trading, but not dependent on the khal for drainage, therefore, no such effect can be anticipated.

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

There are no protected areas in or around project sites, and no known areas of ecological interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No.

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

During operation period, traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and loose soil being dispersed around during the dry weather, and accidents may occur due to the bad condition of the access road and unsafe driving through it.

High = Likely to cause long-term impacts or over large area (> 1 sq km); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1 sq km); Low = Likely to cause little, short-term damage and over small area (< 0.5 sq km)

Section C: Social Screening

C.1 General Labor Influx Screening

Key Screening questions	Aspects to Consider
Will the project potentially involve an influx of workers	How many foreign and local workers will be needed for the remaining period of the project, with what skill set?

to the project location, and will the influx be considered significant for the local community?

Answer The project will not require any foreign workers for the remaining construction period. The contractors will hire all skilled and unskilled labor locally. For the bridge construction, the project will need about **10 skilled workers** and **20 unskilled workers**. Skilled workers, such as masons, carpenters, and steel fixers, will come from nearby areas based on the technical needs of the bridge construction.

Since the bridge will be constructed within a **host community area**, and local skilled and unskilled labor is willingly available, the project will prioritize hiring from the local community. This approach will not only support local livelihoods but also promote stronger community ownership of the project.

✓ Can the project hire workers from the local workforce?

Answer: Yes, the project can hire workers from the local workforce. Both skilled and unskilled laborers will be recruited from nearby communities. The availability of local workers is sufficient to meet the project's labor demands.

✓ What is the size and skill level of the existing local workforce?

Answer: Based on consultations with local stakeholders, most of the required workforce both skilled and unskilled is available within the project area. However, if specialized skills are needed for specific technical activities, the contractors may need to hire a limited number of skilled workers from outside the immediate locality. Overall, the local workforce is capable of supporting the construction activities under the project.

✓ If the skill level of the local workforce does not match the needs of the project, can they be trained within a reasonable timeframe to meet project requirements?

Answer: Unskilled labor is readily available in the project area. If the skill level of the local workforce does not fully meet project requirements, the contractors can provide on-the-job training to upgrade their skills within a reasonable timeframe. This approach will enable the project to utilize local labor effectively while enhancing their technical capacity for bridge construction activities.

✓ How will the workers be accommodated? Will they commute or reside on site or outside of the camp? If so, what size of camp will be required?

Answer: Most of the workforce will be hired from the local

	<p>community, and they will commute daily from their own homes; therefore, they will not require accommodation at the construction site. However, skilled workers who may be sourced from outside the project area will require temporary accommodation near the site. Contractors will establish temporary labor sheds to house these external workers. The size of the labor camp will depend on the number of outside skilled workers needed, but it will be designed to comply with Environmental, Health, and Safety (EHS) guidelines to ensure proper living conditions, sanitation, and worker safety.</p>
<p>Is the project located in a rural or remote area?</p>	<p>✓ What is the size of local population in the project area? Answer: The size of the local population in the project area is approximately 12,000 people, including both male and female residents. This estimate is based on information collected during community consultation meetings held at the subproject site.</p> <p>✓ What is the size of the host Rohingya community? Answer: N/A</p> <p>✓ Is the project located / being carried out in an area that is not usually frequented by outsiders? Answer: The project is located in an area that is usually frequented by outsiders, including traders, farmers, salt cultivators, and daily commuters from nearby villages.</p> <p>✓ What is the frequency and extent of contact between the local community and outsiders? Answer: Daily</p> <p>✓ Are there sensitive environmental conditions that need to be considered? Answer: Yes, there are sensitive environmental conditions that need to be carefully considered during the implementation of the project. In addition to general construction activities, the demolition of the existing old bridge may also generate significant dust, noise, debris, and vibrations, which could impact nearby households, salt cultivation fields, pedestrians, and other sensitive establishments located within close vicinity to the site.</p> <p>To minimize these impacts, the construction site must be properly fenced to contain dust dispersion and reduce noise pollution, thereby safeguarding local residents and pedestrians. Dust suppression measures, such as water spraying at least twice daily, must be implemented throughout the construction and demolition periods. High-noise activities should be considered during less sensitive hours to minimize disturbance to nearby communities. Furthermore, all machinery and equipment should be properly</p>

	<p>maintained to control noise levels. Careful debris management during the dismantling of the old bridge will also be essential to prevent contamination of nearby water bodies.</p>
<p>Based on the socioeconomic, cultural, religious and demographic qualities of the local community, Rohingya population and the incoming workers, is there a possibility that their presence or interaction with the local community could create adverse impacts?</p>	<p>✓ Is it likely that the incoming workers and the local community come from a shared socio-economic, cultural, religious or demographic background?</p> <p>Answer: Most of the workforce is expected to come from the local host community. A small percentage of skilled workers may be hired from outside the project area if required. The local workforce and the incoming workers generally share a common socio-economic, cultural, religious, and demographic background, which is expected to support smooth integration at the work sites.</p> <p>Since this subproject is located in the host community area and will not involve Rohingya workers, the risk of conflict due to cultural or social differences is considered low. However, contractors must still take precautionary measures, such as awareness training on social behavior, code of conduct enforcement, and community engagement, to prevent misunderstandings and ensure a harmonious working environment.</p> <p>✓ What is the level of existing resources, and will the incoming workers use or create competition for these resources?</p> <p>Answer: The existing local resources, such as water supply, food, basic health services, and transportation facilities, are limited compared to the size of the local population. Although workers will be hired from the local community, a small number of incoming skilled workers from outside may create additional pressure on local resources. This could lead to a temporary increase in the demand for basic commodities and may cause price hikes in local markets during the construction period.</p> <p>✓ What is the expected duration of the incoming workers' presence in the community?</p> <p>Answer: One year but it may be extended.</p> <p>✓ Given the characteristics of the local community, are there any specific adverse impacts that may be anticipated?</p> <p>Answer: Yes, considering the characteristics of the local community, some specific adverse impacts may be anticipated during the construction phase. These include:</p> <ul style="list-style-type: none"> • Temporary price hikes in local markets due to increased demand for goods and services from workers.

	<ul style="list-style-type: none"> • Pressure on water supply and sanitation facilities, particularly if labor camps are not properly managed. • Movement disruption for local vehicles and pedestrians around the construction sites due to road blockages and heavy machinery operation. <p>However, no significant religious or cultural barriers are anticipated, as both the local community and the incoming workforce largely share a similar socio-cultural background.</p>
<p>Consultation with Community People</p>	<p>✓ Has the project authority and contractors conducted any consultation meetings with the community people and Rohingya population?</p> <p>Answer: The project authority has already conducted several consultation meetings with the local community during the environmental and social screening stage. Community opinions, concerns, and suggestions were received with great respect and consideration.</p> <p>After the finalization of the contractor, additional consultation meetings will be organized by the contractor in coordination with the project authority to ensure continued community engagement and address any new concerns during the construction phase.</p> <p>✓ Are local people aware about the labors?</p> <p>Answer: Local community members are well aware of the engagement of local laborers in the project activities. However, they currently have limited knowledge regarding the potential involvement of outside skilled workers.</p> <p>✓ Has the project authority involved the local community with the project?</p> <p>Answer: Yes, the project authority has actively involved the local community throughout the site selection and screening stages. Several formal consultation meetings and informal discussions were conducted at the proposed bridge location and with the local community. Community members shared their views, concerns, and expectations, which were carefully considered.</p>

Involuntary restrictions on land use or on access to legally designated parks and protected areas

Effects	Yes	No	Not Known	Remarks
10. Will people lose access to natural resources, communal facilities and services?		√		People's access to communal facilities and services will not be affected by the project.

11. If land use is changed, will it have an adverse impact on social and economic activities?		√		No scope to change site location.
12. Will access to land and resources owned communally or by the state be restricted?		√		No
Information on Displaced Persons:				
<p>Any estimate of the likely number of persons that will be displaced by the Project? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, approximately how many? N/A</p>				
<p>Are any of them poor, female-heads of households, or vulnerable to poverty risks? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</p>				
<p>Are any displaced persons from indigenous or ethnic minority groups? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</p>				
<p>During Screening, project authority will conduct consultation with the primary and secondary stakeholders and provide their observations in the following sections (13 to 18)</p>				
<p>13: Who are the stakeholders of the project?</p> <p>Answer: The stakeholders of the project include a wide range of individuals and institutions connected to the sub-project areas. They are:</p> <ul style="list-style-type: none"> • Local community members • Households and shopkeepers located on both sides of the project roads • Students and guardians from nearby educational institutions • Religious leaders and teachers • Local elected representatives (Union Parishad members, Ward members) • Local administration officials • Implementing agency (LGED) and relevant supporting agencies • Workers and laborers engaged in project construction activities • Community-Based Organizations (CBOs) • Local NGOs • Local traders 				
<p>14: What social and cultural factors affect the ability of stakeholders to participate or benefit from the proposed policy or project?</p> <p>Answer: There are no significant social or cultural factors that would restrict stakeholders' ability to participate in or benefit from the proposed project. The project area maintains a socially cohesive and culturally conducive environment, which supports broad community participation and equal access to project benefits. Stakeholders, including local residents, traders, students, and vulnerable groups, are expected to benefit positively from the improved infrastructure and services. The project's inclusive approach ensures that participation opportunities are available to all community members without discrimination.</p>				

15: Are project objectives consistent with their needs, interests and capacity?

Answer: Yes, the project objectives are highly consistent with the needs, interests, and capacities of the stakeholders. Community consultations and FGD during field visits clearly indicated strong local support for the project.

16: What will be the impact of the project or sub-project on the various stakeholders, especially women and vulnerable groups?

Answer: The construction of the proposed bridges will have a significantly positive impact on various stakeholders, particularly women, children, elderly people and other vulnerable groups. Improved transportation infrastructure will ensure **easier and safer mobility**, allowing women and vulnerable populations to travel more conveniently between villages, markets, schools, and health care facilities.

Access to hospitals and emergency services will become faster, which is crucial for women, elderly, and persons with disabilities. School-going children will also benefit through **safer, uninterrupted access to educational institutions**. Overall, the project will enhance social inclusion, reduce travel time, promote economic opportunities, and contribute to an improved quality of life for all segments of the local population.

17: What social risks might affect project or sub-project success?

Answer: Several social risks could potentially affect the success of the sub-projects if not properly managed. These risks include:

- **Minor conflicts** may arise between local community members and incoming skilled laborers, particularly if there are differences in behaviour or competition over local resources.
- **Temporary price hikes** of essential commodities in local markets (hat-bazar) due to increased demand from workers.
- **Risk of engagement in anti-social activities** by a few incoming workers, which could challenge local social norms and community harmony.
- **Noise and dust pollution** may be generated during construction activities, which may disturb schoolchildren, elderly residents, and other vulnerable groups living close to the project sites.

18: Has the project authority or any other organizations conducted any consultations with the affected community or people? If yes. Please provide a summary.

Answer: Yes, the project authority has conducted several consultation meetings with the potentially affected communities and other stakeholders. During the site selection phase, LGED officials organized discussions with local community members, Union Parishad representatives, local elites, school teachers, and civil society organizations to gather feedback regarding the construction of the proposed bridges.

Additionally, during the environmental and social screening process, the PIU Consultant of LGED conducted community consultations to inform local people about the project objectives, construction activities, potential impacts, and safeguard measures.

The key feedback and observations from the consultations include:

- During the consultation meeting and FGD, Community members strongly supported the construction of the bridges, they would enhance connectivity between economically complementary areas, boosting local trade and labor movement.
- Farmers and salt cultivation farmers expressed that the improved communication network would allow them to receive **fair prices** for their commodities and reduce transportation costs.
- Transportation systems would become easier, faster, and more reliable, saving time and reducing daily hardships for local residents.
- The construction of the bridges is expected to encourage the growth of local businesses and industries, stimulating the rural economy.
- Land value in the surrounding areas is likely to increase as accessibility improves.
- Improved road connectivity will enable quicker access to upazila and district-level hospitals, ensuring better healthcare facilities for the local population.
- The attendance and enrolment rates of school-going children are expected to rise due to safer and more convenient travel routes.
- The bridges will also strengthen the communication network by acting as vital links within the rural transportation system.

Section D: Environmental and Social Screening Summary of the Work Package

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Sub-project Interventions					
Construction of a RCC Bridge (degradation of air, water and soil quality, and local hydrology)	Under the sub-project intervention, the overall score is low	<ul style="list-style-type: none"> Limiting earthworks and artificial bank reinforcement should be avoided as far as possible; Bridge soffit (The bottom part of the bridge) levels and flood spans should be at least 1 metre above the maximum known flood level to allow floating debris to pass freely through the structure; Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered. The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. Storage of fuel, chemicals, equipment and construction materials so as to minimize the risk of soil contamination or water pollution; Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. 	Contractor, environmental specialist of PIU and D&SC	Visual monitoring result of air quality condition, Results of water test parameters, blockage of water flow with soil, debris or stack materials at site.	Throughout the time during the construction period.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Monitor water quality according to the environmental management plan. • Phasing of construction work to minimize disturbance to wildlife at sensitive times of year, such as during the breeding season or when young are being raised; • Use of techniques to minimize compaction of soil, such as restricting access during wet conditions, and using protective boarding and low-ground pressure machinery. If necessary, soil should be carefully removed and stored for subsequent reinstatement; • Access roads should avoid riparian zones and should be built using appropriate construction materials. 			
Pre-construction Phase					
Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • The proposed sub-project is targeted at existing old concrete bridges over local running canal. The construction area over this canal needs to be covered so that the water cannot receive debris and dust from the demolition and construction work. • Construction camp and material storage area should be located at the site & approved by the Environmental Specialist of D&SC. • The proposed bridge is along the Maijpara–Pokkhali (Faraze Para) road, where the eastern approach road is a Bituminous Carpeting (BC) surface and the western approach is a Herringbone Bond (HBB) road. Therefore, the labor camp must be established at a suitable location so that the movement along these approach roads remains undisturbed and community access is not hampered during construction. 	Contractor, environmental specialist of PIU and D&SC	Water quality test results. Location of stockpiles and labor shed.	Prior to the start of Construction works.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Loss of land / and other physical assets	No adverse impact will be generated.	<ul style="list-style-type: none"> No land acquisition will be required as RCC bridge will be constructed in own existing alignment, which is entirely Government land. No additional land will be required to construct the RCC bridge due to both sides of the canal being government vacant property as well as LGED roads. The local community has been agreed to provide space beside the bridge construction site to keep the construction materials during construction work. There is no physical asset affected by the intervention of the sub-project (bridge). In case of any grievance from a neighboring household, emergency consultation will be conducted to resolve the issue through the project GRC. 	Safeguard team of PIU, PSC and D&SC	Number of Complaints. Check Grievance register. Resolutions against the grievances.	Ensure regular supervision and Monitoring based on compliance.
Loss of livelihood	No impact may be generated.	<ul style="list-style-type: none"> Contractor need to engage local labor as priority (both skilled and unskilled) at their construction work. Due to government limitations Rohingya community is not entitle to work in host community because of restriction to buy daily necessary items. Woman labor should get priority at the time of labor recruitment. During construction work social safeguard compliance shall be maintained properly by the contractor. 	PIU, Contractor, Safeguard team of PIU, PSC and D&SC	Labor wages payroll. Interview with labor. Frequent visit by D&SC and PIU personnel	Monthly basis
Stakeholders Engagement	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> One community-level consultation meeting has already been conducted with the relevant stakeholders. The meeting aimed to gather feedback, ensure local participation and inform the community about the project scope and potential impacts. 	PIU, Contractor, Safeguard team of PIU, PSC and D&SC	List of participants in consultation and GRC. Disclosure records of safeguard documents.	Weekly basis

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Moving forward, additional consultation sessions will be held as needed to ensure inclusive stakeholder engagement throughout the project lifecycle. • All safeguard documents will be disclosed to the stakeholders prior to the commencement of construction works. • All the stakeholders will be made aware of the Grievance Redress Mechanism (GRM) and their active participation will be ensured through representation in the Grievance Redress Committee (GRC). 		Feedback and grievances are recorded and addressed. Level of awareness on GRM among stakeholders.	
Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of crime, children, animals, etc.)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • The contractor shall submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures. • Proper procedure for stockpiling/ storage of construction materials at the site will be 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 outsiders, children, animals, etc. • Spills/ hazardous substances should be disposed of at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination. 	Contractor, environmental specialist of PIU and D&SC	List of selected sites; Identified sources and storage place of materials.	During Design Stage

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Demolishing of an existing structure	Under the sub-project intervention, the overall score is Medium	<ul style="list-style-type: none"> • Water spraying at the demolition site • Fencing / Installing barriers should be shield from dust and aggregates • Avoid usage of machines/equipment with extra noise; • Do not accumulate and burn waste at the site • Carry out demolition activities in stages, give adequate notice and information of activities to the adjoining stakeholders • It needs to Identify proper location to dispose of solid waste from demolition and other activities in consultation with respective bodies • Make mandatory the use of safety gears (helmets, safety belts, masks, gloves and boot) by workers depending on nature of work. • Further guidance on demolition works and wastes management is given in appendix 2, below the ESMP table, to be followed by the contractor. 	Contractor, environmental specialist of PIU and D&SC	List of selected sites; Identified sources of materials.	During Design Stage
Setting up of labor camp (Generation of sewage waste; solid Waste; Water, soil, air & dust pollution/ environmental pollution; health hazard of workers due to poor quality drinking water)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Construction camp should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. 	Contractor, environmental specialist of PIU and D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Provision of waste bins/ cans, where appropriate; and 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 and/ or at the site pre-approved by the Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. 			
Accidents	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Provision of standard safety protocol. • Providing training on Environmental health and safety to the labors and associated field staffs is the responsibility of Upazila Engineer & Contractors. • Training should be scheduled twice, once before starting the construction & another in the middle of construction period. • Safety & protection gears, first aid box etc. should be available in the site during construction period. 	Contractor, environmental specialist of PIU and D&SC	Complaints from community; Complaints from the labors and associated field staffs; Regular inspection of materials transport vehicles.	Before and during the construction phase
Construction Phase					
Site Preparation: Soil Erosion; Alteration of natural drainage	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Construction facilities including material are to be placed at least 30- meter distance from bridge construction area in order to minimize impacts on water bodies and natural flow paths. • Any disruption of socially sensitive areas with regard to human habitation and areas of cultural significance will be avoided. • Retaining wall need to construct that structure retain (holds back) any material (usually earth) and prevents it from sliding or eroding away. 	Contractor, environmental & Social specialist of PIU and D&SC	<ul style="list-style-type: none"> • Presence and adequacy of retaining structures. • Functionality of the temporary bamboo bridge. • Visual evidence of erosion or drainage issues. 	Monthly, Immediate follow-up after heavy rainfall or erosion events.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> Ensured diversion / alternative bamboo made bridge for considering the bi-cycle, and Rickshaw movement, pedestrian and other transportation etc. The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents. 		<ul style="list-style-type: none"> Community complaints on disruption. 	
Increase in diversion road accidents	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> The contractor will prepare a response plan to accidents, it will ensure the victim to receive quick treatment. The movement of heavy machinery and equipment shall be restricted to diversion or temporary bridge. Proper signage to be displayed at diversion. Road diversions and closures to be informed well in advance to the local community. Local community will be trained on traffic management and awareness 	Construction Contractor, Safeguard team of PIU and D&SC	<ul style="list-style-type: none"> Traffic and Road Conditions. Accident and incident logs. Number and visibility of traffic signage. 	<ul style="list-style-type: none"> Weekly inspections by D&SC Daily monitoring by contractor Monthly review by PIU Safeguard team Immediate review after any accident or complaint.
Quality construction work of the RCC bridge	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Respected community deserving quality construction works (side by side with the construction engineers and Design and Supervision Consultant) 	Construction Contractor, Environmental & Social Consultant of PIU and D&SC	<ul style="list-style-type: none"> Community feedback should be acknowledged and addressed regarding construction quality. Material quality test results. Community feedback should be 	Daily supervision by D&SC. Weekly progress review by PIU.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
				acknowledged and addressed regarding construction quality. ☑ Ensure timely rectification of any construction defects.	
Safety during construction of the RCC bridge	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • An unauthorized person entry to the proposed site should restrict strictly and ensure proper storage and control of hazardous materials on site. • Child labors are not allowed for any kind of activities • Site shall be secured by fencing and ridge (if needed). • Ensuring that clear safety policies and procedures are in place and strictly enforced is essential, as is regular inspection and maintenance of all workplace equipment. • Awareness building program will be taken on social safety matters through imparting training from the project before commencement. At the same time, compliance should be ensured by the contractors. 	Construction Contractor, Environmental & Social Consultant of PIU and D&SC	☑ Regular inspection and maintenance records of machinery and safety gear. ☑ Register/Documents on social safety matters Checking stock register of personal protective equipment (PPE)	
Noise Impacts	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Avoid high noise making activities during after daylight. • Involve the community in planning the work program so that any particularly noisy or otherwise invasive activities can be scheduled to avoid sensitive times. 	Contractor, environmental specialist of PIU and D&SC	Number of complaints from stakeholders, use of silencers in noise-producing	Weekly

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> Avoid using of construction equipment producing excessive noise at night. Ear protection devices for the workers & site staffs should be available in site during construction period. 		equipment and sound barriers, Noise Level following decibel meter (dB)	
<p>Air Quality</p> <p>Conducting works at dry season and moving large quantity of materials may create dusts and increase in concentration of vehicle related pollutants which will affect people who live and work near the sites. The impacts are negative but short-term, site-specific within a relatively small area and reversible by mitigation measures.</p>	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Damp down exposed soil and any sand stockpiled on site by spraying with water during dry weather. Use tarpaulins to cover soils, sand and other loose material when transported by trucks. Unpaved surfaces used for haulage of materials within settlements shall be maintained dust-free. Arrangements to control dust through provision of water sprinklers and dust extraction systems shall be provided at all stone crushers (if these establishments are being setup exclusively for the subproject). Limiting speed of construction vehicles in work sites to maximum of 20 km/h. Regular monitoring of air quality. 	Contractor, environmental specialist of PIU and D&SC	Location of stockpiles, Covering of trucks, Records of air quality inspection, Numbers of complaints from sensitive receptors, Heavy equipment and pollution control devices, Maintain records	Monthly
Biodiversity	Under the sub-project intervention,	<ul style="list-style-type: none"> Prohibit employees from cutting trees for firewood. 	Contractor, environmental	If tree cutting is required, to be determined during	Monthly

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
(There are no protected areas in or around subproject sites, and no known areas of ecological interest.)	the overall score is low.	<ul style="list-style-type: none"> If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree cut. Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. Construction works should be limited or be finished before the fish breeding period (springtime esp. Bangla months of Baishakh and Jaishtha/ April and May, when the water warms up and the daylight lengthens), and restoration of sites (with removal of any hindrance or cofferdam, etc.) is imperatively necessary to protect the fish species. 	specialist of PIU and D&SC	Design stage, Numbers of complaints from sensitive receptors.	
Workers' health and safety	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Prevent excessive noise; Construction staffs are to make use of the facilities provided for them (e.g., fires for cooking); No fires permitted on site except if needed for the construction works; Staff must be trained to operate equipment. Availability and access to first-aid equipment and medical supplies. Ensure the presence and use of safety gear at site: Ear protection devices, Goggles, Illuminating jackets, Masks, Gloves, Helmets, Uniforms etc., Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately. 	Contractor, environmental specialist of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkway signage, and metal sheets placed at project location;	Monthly
Labour Base Camp: Conflicts with the local residents	Low impact may be generated.	<ul style="list-style-type: none"> An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. Awareness building about nutrition, disaster risk resilience or mitigation, adoption of clean energy for cooking; and 	Contractor, environmental &	Checking use of resources by labor. Document checking of awareness	Daily site visit

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<p>prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade.</p> <ul style="list-style-type: none"> • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • To be ensured adequate sanitation facilities in the labour camps. • Treated water will be made available at site for labour drinking purpose. • Adequate accommodation arrangements for labour and code of conduct to be disclosed through consultation and FGD. 	Social specialist of PIU and D&SC	<p>building activities. Physical Checking. Grievance register. Interview with local community.</p>	
Post-Construction Phase					
<p>Construction clean-up (Damage due to debris, spoils, excess construction materials, and after-effect water test)</p>	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Remove all spoils, wreckage, rubbish or temporary structures which are no longer required; • All affected structures rehabilitated/compensated; • The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up; • All imported materials are to be removed and the area shall be re-vegetated as per the specification that forms part of this document; • The contractor must arrange the cancellation of all temporary services; 	Contractor	<p>Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.</p> <p>Water test before handover of the project to check water quality for severe modification (if any).</p>	After the completion of Works

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Odor& waste disposal	Under the issue, the overall score is low.	<ul style="list-style-type: none"> Use bin covers and/or tarpaulins during transport of wastes. 	Contractor monitored by Consultant and PIU	Complaints from communities	Site inspection daily / weekly basis.
Vegetation	Under the issue the overall score is low.	<ul style="list-style-type: none"> After construction work, all structures need to be removed and the area shall be topsoiled and re-grassed using the guidelines set out in the re-vegetation specification that forms part of the bidding document. 	Contractor monitored by Consultant and PIU	The worksite is restored to its original conditions.	Over the completion of Works
Traffic Accidents	The low impact may be generated during construction even some times After construction	<ul style="list-style-type: none"> Clear diversion/bridge markings and signage. Diversion Road design to ensure traffic speed is not hazardous given slopes of the diversion. Recording and reporting of accident incidents to local police station. Annual reporting of accident figures to PSC. 	PIU, PSC, LGED and Local Governance institution	No. of the accident took place. Marking and signage of road. Record of the Police Station and PSC. Newspaper	Monthly basis
The sub-projects are expected to be sustainable	Low	<ul style="list-style-type: none"> The safeguard issues and maintenance of the RCC bridge taken care of by the concerned Union Parishad and Upazila Parishad for sustainability. 	LGED, Union Council and Upazila Parishad	Evidence of routine inspection and maintenance activities; community feedback on bridge condition.	Bi-annually

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Traffic movement and economic enhancement		<ul style="list-style-type: none"> • LGED expecting that after completion of RCC bridge traffic movement will be increased, diverted traffic will be generated, lives and livelihood of people will be improved of the catchment area. • The important places will be well-connected. • People will enjoy improved facilities for connecting both side canal local school, college and other educational institution. 	PIU, PSC, LGED and the Local Governance institution	<ul style="list-style-type: none"> • Community feedback. • Number of connected routes. • Increase in traffic volume. • Economic activity (shops, transport). 	Quarterly, post-construction assessment

* Overall Impact Score: High = Likely to cause long-term E&S impacts; Medium = Likely to cause temporary impacts; Low = Likely to cause little, short-term impacts

Recommendation for further environmental and social assessment and/or site-specific environmental and social management plan: Yes

**If yes, please specify what assessments/plans would be required.*

Appendix-2: Environmental and Social Management Plan (ESMP)

ESMP for Construction of 57m Long RCC Bridge on Eidgaon GC atMaijpara - Pokkhali (Faraze Para Road) at Ch. 2350m, Sadar Upazila District: Cox's Bazar, Road ID- 422243002, Package no: HELP-COX/BR-1:

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-construction Stage			
Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is required within this sub-project activity so, there is no mitigation measures according to this impact. The subproject will be constructed on Government land. 	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Loss of livelihood	<ul style="list-style-type: none"> Under this subproject, there is no scope of negative impact on livelihoods of the people of catchment area. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Stakeholders Engagement	<ul style="list-style-type: none"> All the project stakeholders will be consulted Separate community level consultation meeting with the potentially affected HHs Consultation meeting with nearby Host community about the project objectives and scope of works People living in nearby community and members of LGED Upazila will be involved with the GRM 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Loss of right to access	<ul style="list-style-type: none"> In case of unavoidable circumstances, alternative access will be provided. Proposed bridges will be well demarcated and accessibly paved. 	PIU	Social Development Specialist and Gender Specialist of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Site Preparation: Soil Erosion; Alteration of natural drainage	<ul style="list-style-type: none"> • Construction facilities including materials are to be placed at least 10 m (32 ft) distance from any water body in order to minimize impacts on water bodies and natural flow paths. • Minimize cut & fill operations, the site clearing and grubbing operations should be limited to specific locations only. • The existing slope and natural drainage pattern on the site should not be significantly altered. • The contractor shall ensure that site preparation activities do not lead to disruption of activities of the camp settlers and host community. 	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction stage			
Noise from construction works	<ul style="list-style-type: none"> • Construction activities will be finished at day time within 06:00 PM. Proper measures will be taken to avoid any disturbances. • All Personal Protective Equipment (PPE) shall be available at site before starting any kind of construction works. 	Contractor	Environmental Consultant of PIU, PSC
Dust	<ul style="list-style-type: none"> • Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> • Provision of using water sprinklers to dust control. • Construction materials should be covered properly while carrying in vehicles to the site. • Vehicle movement will be controlled on haul roads/access roads for limiting dust generation. 		
Safety Issues	<ul style="list-style-type: none"> • Unauthorized entry to the site area is completely prohibited and the site will be properly fenced with a single entry, for this purpose. • It will be ensured that proper training and guidance are provided on general and occupational health and safety to Contractors' personnel and labors forces, and records of training sessions are to be kept at site. • All kinds of Child labor will be completely prohibited. 	Contractor	Environmental Consultant of PIU, PSC
Traffic Management	<ul style="list-style-type: none"> • Contractors will discuss with traffic management authorities and take site specific traffic management measures to avoid congestion and any unwanted incidents or accidents. • Road signs and speed ramps are to be placed at strategic locations. 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> • A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. • If ground water is withdrawn, adequate approvals from the appropriate department need to be collected before setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction work starts. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Increase in road accidents	<ul style="list-style-type: none"> • Maintain safety measures during the movement and operation of heavy machineries and equipment. • Vehicular movement is to be controlled near sensitive locations, viz. schools, colleges, hospitals, child friendly centers, etc. identified along designated vehicular transportation routes. • Local community will be trained up about traffic management and awareness. 	Contractor	Environmental Consultant of PIU, PSC
Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> • Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, 	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site.</p> <ul style="list-style-type: none"> • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation. 		
<p>Construction runoff, sediment, cement slurry, and wastewater may enter the adjacent canal during earthworks, piling, and concreting activities, potentially causing temporary deterioration of surface water quality and increased turbidity. Improper management of construction materials and spoil may obstruct natural drainage and affect local water flow. Additionally, tidal influence in the canal during high tide may cause backflow, which could</p>	<ul style="list-style-type: none"> • Install temporary silt traps, sedimentation pits and perimeter earthen bunds around excavation areas and material storage zones. • Earthworks, piling, and concreting activities shall be carefully managed to prevent direct discharge of construction runoff, cement slurry, wastewater, or debris into the canal. • Ensure proper drainage management to prevent direct discharge of cement slurry, oil-contaminated water or construction runoff into 	<p>Contractor (implementation of mitigation measures and monitoring); Design & Supervision Consultant (technical verification and guidance)</p>	<p>PIU (Environmental & Social Specialists); Design & Supervision Consultant</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
<p>interact with construction activities and influence local hydrology as well as the long-term durability of bridge substructures if not adequately addressed.</p>	<p>the canal.</p> <ul style="list-style-type: none"> • Monitor pH and Total Suspended Solids (TSS) of any construction-phase discharge water at regular intervals. • Regular site inspections shall be conducted, particularly during the monsoon season, to ensure effective functioning of erosion and sediment control measures. • Works within or near the canal shall be scheduled, where feasible, during low-flow periods to minimize turbidity and disturbance to natural flow. 		
<p>Temporary disturbance to local biodiversity, including small terrestrial fauna and common bird species present in surrounding rural and agricultural landscapes; potential short-term alteration of aquatic habitat conditions and natural water flow in the canal during construction.</p>	<ul style="list-style-type: none"> • Conduct site-specific assessment of aquatic and ecological conditions prior to construction • Monitor bird activity, particularly during migratory season (November–February) • Avoid or limit piling, demolition, and other high-disturbance activities during peak migratory periods where feasible • Restore disturbed areas after construction • Construction works should be limited or be finished before the fish breeding period (springtime esp. Bangla months of Baishakh and Jaishtha/ April and May, when the water warms up and the daylight lengthens), and restoration of sites (with removal of any hindrance or cofferdam, etc.) is imperatively necessary to 	<p>Contractor</p>	<p>PIU and Supervision Consultant</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	protect the fish species.		
Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed of at waste disposal areas and/ or at the site. • The scrap material generated from the erection of structures and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. 	Contractor	Environmental Consultant of PIU, PSC
<p>Health & Safety Risks:</p> <ul style="list-style-type: none"> • The potential for exposure to safety events 	<ul style="list-style-type: none"> • All construction equipment will be properly inspected timely and kept fit for purpose. 	PIU & Contractor	Environmental Consultant as well as

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
<p>such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks.</p> <ul style="list-style-type: none"> Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<ul style="list-style-type: none"> The risk assessment will be prepared time to time for all types of work activities on site. Proper Signpost at any slippery areas will be ensured in construction site. Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. This sub project will have Proper communicative Emergency Response Plan (ERP) with all parties, to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. Provision to first aid box in sub-project areas will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. 		<p>Social Development and Gender Specialists of PIU, PSC</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> • All equipment will be available suitably (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.) in sub-project site, the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all sites, on different locations within the site. • Ensure to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Contractor must ensure that all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used. • Establish emergency response procedures, including fire, accident, and medical 		

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>emergencies.</p> <ul style="list-style-type: none"> • Display emergency contact charts at site offices and work areas. • Maintain OHS incident reporting and accident logbooks. • Conduct regular toolbox meetings and refresher safety training for all workers. 		
Pollution of water bodies	<ul style="list-style-type: none"> • Contractor will ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • oil interceptors or drip trays can be used in vehicle parking areas, and are inspected and cleaned regularly; 	Contractor	Environmental Consultant of PIU/D&SC, PSC
Operation Stage			
Maintenance of assets, properties and equipment	<ul style="list-style-type: none"> • Periodic maintenance of Bridge structure and seasonal conditions has to be carried out. 	LGED	UNO, Upazila Chairman of Upazila Parishad
Decommissioning			
<p>The impacts are similar to those listed in construction stage:</p> <ul style="list-style-type: none"> • Pollution from waste materials • Health & Safety risks to workers and local community/DRPs 	<ul style="list-style-type: none"> • Proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during decommissioning are anticipated to be similar to those identified for the 	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>construction phase.</p> <ul style="list-style-type: none"> Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those compartments seems to be significantly worse. 		

Demolition and Waste Management Plan:

Demolition Plan:

The purpose of this Demolition Plan is to ensure the safe, environmentally sound, and socially responsible removal of the existing dilapidated bridge structure prior to the construction of the proposed RCC Girder Bridge. The plan aims to prevent environmental pollution, ensure worker and community safety, and minimize disruption to local movement and livelihoods. The scope of demolition works includes the removal of the existing concrete deck slab and girders, dismantling of damaged abutments and substructures as required, extraction and segregation of reinforcement steel, and clearing of debris from the canal and adjacent approach areas. All demolition activities will be confined within the existing bridge footprint and right-of-way.

Pre-Demolition phase	Structural Assessment & Method Statement	<ul style="list-style-type: none"> Detailed structural assessment of the old bridge condition. Identify weak sections, reinforcement exposure, and deterioration level. Confirm load positions and dismantling sequence.
	Site Preparation	<ul style="list-style-type: none"> Demarcation and barricading of the demolition zone. Signboards, warning signs, and safety instructions in Bangla. Installation of temporary crossing facilities (if needed), e.g.: Temporary wooden planks for pedestrians, Alternate route notification for vehicles
	Utility and Service Disconnection	<ul style="list-style-type: none"> Confirm absence of underground utilities. Disconnect or reroute any drainage pipes, electricity poles, or telecom cables if nearby.

	Worker Safety Orientation	<ul style="list-style-type: none"> • Conduct safety training and toolbox meeting before demolition. • Ensure all workers receive PPE: helmets, gloves, safety boots, masks, goggles, life jackets (for water-edge work).
Demolition phase	Demolition Technique	<ul style="list-style-type: none"> • Manual and mechanical combination method to minimize vibration and protect nearby features. Steps include: • Removal of railings, parapet walls, and footpaths (manual). • Breaking RCC deck slab using small hydraulic breakers. • Cutting reinforcement bars using gas cutter. • Sequential removal of girders using crane or excavator. • Demolition of piers and abutments after girder removal. • Extraction of old piles (if required); otherwise, trim piles below ground level.
	Vibration & Noise Control	<ul style="list-style-type: none"> • Use low-vibration hydraulic breakers. • Avoid nighttime demolition. • Install temporary noise barriers near households.
	Water Protection Measures	<ul style="list-style-type: none"> • Silt traps placed near the canal edge. • Tarpaulin sheets under deck demolition to prevent debris falling into water. • Immediate collection of debris from any accidental drop.

Environmental Compliance	Dust & Air Quality Control	<ul style="list-style-type: none"> • Install temporary debris containment systems (e.g., netting or catch platforms) to prevent falling debris into the khal. • Avoid dumping any demolition waste into the canal. • Implement waste segregation at source (concrete, steel, other materials). • Reuse suitable concrete rubble as sub-base or backfilling material where technically feasible. • Transport non-reusable waste to an approved disposal site with authorization from LGED and the respective authority. • Apply water spraying to control dust during dismantling. • Prohibit washing of equipment directly in or near the khal.
	Oil, Fuel, Hazardous Material, and Waste Management	<ul style="list-style-type: none"> • Demolition waste includes: RCC debris, Steel rods, Brick/earth materials, Packaging waste • Waste Handling Measures: Segregate waste at source. • Recyclable steel rods sold to authorized recyclers. • Concrete debris reused as road sub-base (if suitable) or disposed of at LGED-approved disposal site. • Hazardous waste (oil, lubricants) stored in spill-proof containers and handed over to DoE-approved handlers. • Store fuels and lubricants in a designated area with secondary containment (bundled platform or drip trays). • Keep spill kits available at the site at all times. • Prohibit refueling or oil changing near the khal or ponds.
	Water Quality Protection	<ul style="list-style-type: none"> • Prevent concrete slurry, cement dust, oil, and debris from entering the canal. • Collect all water used in demolition activities in settling pits.

Occupational Health & Safety (OHS)	Worker Health and Safety	<ul style="list-style-type: none"> • Provide Personal Protective Equipment (PPE) such as helmets, gloves, masks, safety boots, and harnesses. • Ensure trained personnel handle cutting and dismantling works. • Conduct toolbox safety meetings before commencement of demolition. • Prohibit child labor and ensure compliance with national labor laws and WB standards.
Traffic and Community Management	Traffic Diversion	<ul style="list-style-type: none"> • Prepare temporary detour route with signage. • Coordinate with community and local leaders.
	Community Safety Measures	<ul style="list-style-type: none"> • Inform local residents 3-5 days before demolition. • Restrict community access near the demolition zone. • Provide alternative pedestrian routes as needed. • Install proper barricades and warning signage around the demolition zone.
Demolition Completion and Site Clearance		<ul style="list-style-type: none"> • Remove all debris from site. • Level the ground and prepare substructure area for new bridge foundation. • Restore access roads and pathways. • Conduct final environmental cleanup.

Waste Management Plan:

The Waste Segregation and Reuse Plan is to ensure environmentally sound management of construction and demolition waste generated during the dismantling of the existing bridge and construction of the proposed RCC bridge. The plan aims to minimize waste generation, promote reuse and recycling, prevent soil and water pollution, and ensure compliance with relevant regulations.

Waste Type	Source of Waste	Potential Impacts / Concerns	Management, Segregation & Reuse Measures	Institutional Responsibility	Supervision & Monitoring
Concrete debris and rubble	Demolition of existing bridge structure	Obstruction of drainage, soil and water pollution, visual nuisance	Segregate at source; crush and reuse as sub-base, embankment fill, or approach road material subject to LGED approval	Contractor	LGED PIU & D&SC Consultant
Steel reinforcement and metal scraps	Dismantling of old bridge and construction activities	Injury risk, improper disposal	Store separately; sell or hand over to authorized scrap dealers/recyclers	Contractor	LGED PIU & D&SC Consultant
Excavated soil and spoil	Foundation excavation and earthworks	Sedimentation of nearby canals, land degradation	Reuse for site leveling, slope protection, or embankment filling; excess disposed at approved sites	Contractor	D&SC Consultant
Packaging materials (cement bags, plastics, timber)	Construction material handling	Littering, clogging of drainage	Collect separately; reuse where possible; recycle or dispose of at approved facilities	Contractor	LGED PIU & D&SC Consultant
Domestic solid waste	Labor camps and work sites	Health hazards, vector breeding	Provide covered bins; daily collection; disposal at LGED/Local Authority approved sites	Contractor	PIU, D & SC Consultant & Local Authority
Used oil, grease, lubricants	Equipment maintenance and refueling	Soil and water contamination, fire hazard	Store in sealed containers with secondary containment; hand over to licensed recyclers; prohibit dumping	Contractor	LGED PIU & D&SC Consultant

Waste Type	Source of Waste	Potential Concerns	Impacts /	Management, Segregation & Reuse Measures	Institutional Responsibility	Supervision & Monitoring
Oil-contaminated rags and containers	Machinery operation and maintenance	Hazardous pollution	exposure,	Collect in labeled containers; dispose through approved hazardous waste handlers	Contractor	D&SC Consultant
Mixed non-recyclable waste	Construction activities	Environmental pollution		Transport to landfill sites; maintain disposal records	Contractor	LGED PIU & D&SC Consultant

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Appendix-3: Cost of Environmental Mitigation and Enhancement Works in BOQ

In consideration to the above-mentioned environmental and social impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
1	Erection and maintenance of semi-permanent site office and removal of the same after completion of work in accordance with the conditions of contract. In addition to the office required for own use, the contractor shall provide and maintain furnished site office for the use of Engineer-incharge and his staff. The site office must have tiles floor, adequate foundation, brick walls, false ceiling of gypsum board and all windows are to be glazed, shuttered and provided with steel grill. Outside and inside wall surface are to be painted on plaster acceptable to the Engineer-incharge. The site office shall be maintained in a secure condition by the contractor until the completion of the contract and shall be provided with electricity, water supply, wash rooms and sewerage facilities. All doors shall be fitted with approved locks and windows shall be provided with screen/blinds. Before construction the contractor shall submit plans and drawings showing proposed details and location for the site office, including foundations, access roads, shades, layout of electrical and water supply and hard standings there for the approval of Engineer-incharge. The Engineer-in-charge may require revision of the plans prior to giving approval for construction. The contractor shall also submit detailed proposed furniture, fittings and other items of equipment and plant to the Engineer-in-charge for approval. These items shall be of the standard quality suitable for site. The office, complete with furnishings, fittings, access roads and hard standings shall be ready for occupation by the Engineer-in-charge within 28 days of the date when the contractor first occupies the site. The contractor shall provide day and night guards and an attendant for the field office. At the	job	1	535843	5,35,843.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	end of the contract all materials, equipment and plant, furniture, fittings recovered from dismantling the office and removing access road will be the property of the contractor. No interim payment shall be certified unless engineer's office with required facilities are constructed and accepted by the Engineer-in-charge. (This is a time related item; proportionate payment for this item shall be made distributing in each bill on the basis of percentage progress of the whole works under contract) Engineer's site office of minimum 38 sqm plinth area with providing necessary facilities including office furniture, 24000 BTU air cooler, umbrella, crookeries, water purifier, PC with monitor, uninterruptible power supply (UPS), laserjet printer (minimum 20 ppm), LED flood light fittings(Halogen) for sight security etc.				
2	Project Profile Signboard: Providing and fixing of typical project profile signboard as per direction of E-I-C, to be placed at a suitable place of the site including submission of proposals for the materials & size of the signboards (recommended size: 1800mm x 1200 mm with 2 nos. 75mm dia. MS post, outer & inner frames of board shall be 50mm x 50mm x 5mm & 25mm x 25mm x 5 mm respectively) and text layout to the engineer for approval which will be positioned as directed by the engineer and removing the same on completeion of the works or as instructed by the E-I-C. Sheeting will be made of encapsulated lens with retro-reflective type and messages/ borders will be screen printed. The text shall mention among others the name of the project, name of the implementing agency, cost of the project, completion time, name of the contractor etc.	sqm	Length-1.8m Width 1.2m Area volume 2.160m ² No. of bridge 1 Total quantity of works 1*2.16m ² = 2.16m ² .	18508.52	39,978.40
3	Supplying and providing of first aid box with necessary materials/medicine (hygienic gown, thermometer, adhesive ressings, antiseptic solutions, andages, cotton balls or swaps, emergency blanket, gloves, hand sanitizer, ice pack, saline etc). All complete as per direction of Engineer-in - charge.	each	2	17836	35,672.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
4	Mobilization and cleaning site before commencing actual physical work and during contract period and demobilization after completion of the works under contract to be accepted by the Engineer-in-charge. This work shall also cover cleaning and clearing, cutting or filling, dressing the project area on and in the ground to an extent that all the events of works of the project can be executed smoothly in a working environment with a particular attention on safety and security in all respects, and to stockpile the end outcome to a place for disposal agreed by the Engineer-in-charge, where, payments are to be based on ground area determined by the Engineer-in-charge and be proportionate to the percentage progress of work under contract as a whole in all respects and approved by the Engineer-in-charge.	sqm	Length 25m width 10m Area 250m ² No of items per bridge 2. Total qty per bridge 250*2= 500m ² .	235.40	1,17,700.00
5	Temporary Toilet: Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	each	2	14172.16	28,344.32
6	Marble Name Plate: Supplying, fitting and fixing 18mm thick marble Name plate including cost of materials, labour, form work, engraving neatly the approved Sample given by the engineer etc. complete as per drawings and direction of the Engineer-in-charge.	sqm	2	9343.42	18,686.84
7	Drinking Water Facilities: 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	Ls	1	20000	20,000.00

SI no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	contractor and payment will be made after 100% completion of the contract successfully.				
8	Control of Air Pollution (Dust Suppression): Maintaining, carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust which has originated from contractor's activities/ operations at the worksite and site office, including sprinkling water on aggregates/unpaved roads at least three times a day or more depending on the atmospheric conditions, including keeping necessary covering/protection on stockpiled fine aggregates to reduce dust nuisance during natural air blowing, all complete like emission of dust into the atmosphere shall be strictly controlled during manufacture, handling, storage of concrete, road aggregates, and to be used such methods and equipment as are necessary for collection and disposal, or prevention, of dust during these operations means of eliminating atmospheric discharges of dust as per requirement and carrying out air quality test as PM10, PM25, SPM, NOx, Sox as per instruction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	Ls	1	12000	12,000.00
9	Personal Protection Equipment for Workers: Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket for construction workers made of 100% polyester waterproof fabric, fluorescent yellow/orange/green/red/blue or pantone color, (ii) suitable hand protection gloves for construction work of Flexible/ durable/ excellent puncture resistance working gloves with PVC palm and T/C drill back, pasted cuff, palm liner and fit properly and be reasonably comfortable	Ls	1	250000	2,50,000.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	to wear, (iii) appropriate foot protection shoes having impact-resistant toes and heat-resistant soles that will protect the feet against hot working surfaces, (iv) best quality safety helmets of ABS shell, tough, lightweight, durable which will be able to resist penetration by objects, absorb the shock of a blow and water-resistant and slow burning with available four-six-point adjustable suspension for shock-absorbing, slotted sides to accommodate accessories, such as face shields, ear muffs (v) suitable eye protection goggles to protect against specific workplace hazards, fit properly and be reasonably comfortable to wear, provide unrestricted vision and movement, including instructing workers to wear strictly during working time and reviewing periodically, updating, evaluating the effectiveness of PPE and maintaining, replacing worn or damaged PPE etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.				
10	Painting the vertical end faces of posts, wheel guard, railing, rail post, parapet wall, kilometer post, road name plate, guide post, traffic signs, etc. in two coats with best quality synthetic enamel paint of approved make and brand of different shades over a coat of priming, applying one vertical and one horizontal coat for each coat and successive coat is to be applied after drying up of previous coat by brush/roller/spray, including cleaning and washing the surface, rubbing and mending good damages as necessary and necessary scaffolding, etc. all complete in all respect as direction of the Engineer-in-charge. Rate is inclusive of cost of all materials, labour and all incidental charges in this connection. Two coats over a prime coat for new concrete surface.	sqm	328	246.38	80,812.64
Subtotal Bill: Environmental Safety and Enhancement Works					11,39,036.80

Appendix-4: Environmental and Social Monitoring Plan (ESMP Implementation and Monitoring Framework)

Environmental and social monitoring for the proposed sub-project has been incorporated into the Environmental and Social Management Framework (ESMF). The detailed Environmental and Social Monitoring Plan, including monitoring parameters, indicators, responsible institutions, the frequency of monitoring during the pre-construction, construction, and operation phases, and the reporting line, is presented here. A mid-term third-party environmental audit may be conducted during implementation to independently assess compliance with the ESMP and World Bank Environmental and Social Standards (ESS1–ESS10).

Monitoring stage	Monitoring Indicator	Method of Verification	Frequency	Responsibility	Reporting Line
1. Monitoring During Pre-Construction Phase	Site-specific ESMP approved before mobilization	Approved ESMP document	Once (Before mobilization)	PIU	PIU → PSC → WB
	Baseline environmental condition (visual record, nearby water condition) documented	Baseline checklist & photos	Once	Contractor (verified by D&SC)	Contractor → D&SC → PIU
	Appointment of EHS Supervisor	Appointment letter	Once	Contractor	Contractor → D&SC
	OHS Plan, Emergency Response Plan (ERP) prepared	Approved plan copies	Once	Contractor	Contractor → D&SC → PIU
	Waste Management Plan prepared	Approved WMP	Once	Contractor	Contractor → D&SC
	Traffic Management Plan prepared	Approved TMP	Once	Contractor	Contractor → D&SC
	ESMP summary disclosed in Bengali at Union Parishad & site	Disclosure photos & record	Once before works	PIU	PIU → WB
2. Monitoring During Construction Phase	A. Environmental Monitoring				
	Indicator	Standard / Target	Monitoring Frequency	Responsibility	Reporting Line
	General ESMP compliance (%)	100% compliance	Weekly	D&SC	D&SC → PIU

PM10 / Dust control	No visible excessive dust; water sprinkling ≥ 2 times/day	Daily visual; weekly record	Contractor	Contractor \rightarrow D&SC
Noise Level	Within DoE standard (Daytime ≤ 75 dB(A) for commercial/mixed areas)	Monthly or during piling	Contractor (verified by D&SC)	Contractor \rightarrow D&SC \rightarrow PIU
pH of discharge water	6.5–8.5	Monthly (if water discharge occurs)	Contractor	Contractor \rightarrow D&SC
TSS in runoff	Within DoE surface water standard	Monthly (during piling/concreting)	Contractor	Contractor \rightarrow D&SC
Installation of silt traps & bunds	100% installed where required	Weekly inspection	D&SC	D&SC \rightarrow PIU
Oil & lubricant storage with secondary containment	100% compliance	Weekly	D&SC	D&SC \rightarrow PIU
Construction waste segregated & disposed at approved site	Disposal records maintained	Weekly	Contractor	Contractor \rightarrow D&SC
Obstruction of canal flow	No blockage observed	Weekly	D&SC	D&SC \rightarrow PIU
Bird disturbance (if observed Nov–Feb)	No active piling during high congregation	Seasonal (Nov–Feb)	D&SC	D&SC \rightarrow PIU
B. Occupational Health & Safety Monitoring				
Indicator	Target	Frequency	Responsibility	Reporting Line

Workers provided PPE	100% PPE use	Daily	Contractor	Contractor → D&SC
Toolbox meetings conducted	At least 1/week	Weekly	Contractor	Contractor → D&SC
OHS incident reporting	100% incidents recorded within 24 hrs	As needed	Contractor	Contractor → D&SC → PIU
First-aid station functional	Fully equipped	Weekly inspection	D&SC	D&SC → PIU
Labor camp sanitation & hygiene	Clean, adequate toilets & waste bins	Weekly	D&SC	D&SC → PIU
No child or forced labor	Zero tolerance	Monthly verification	PIU	PIU → WB
C. Community Health & Safety Monitoring				
Indicator	Target	Frequency	Responsibility	Reporting Line
Site barricading & signage installed	100% coverage	Weekly	D&SC	D&SC → PIU
Safe pedestrian diversion pathway	Functional & safe	Weekly	D&SC	D&SC → PIU
Traffic management implementation	No major accident	Weekly	D&SC	D&SC → PIU
Spill incidents affecting canal/agri land	Zero major spill	Continuous	Contractor	Contractor → D&SC
D. Stakeholder & GRM Monitoring				
Indicator	Target	Frequency	Responsibility	Reporting Line
GRM register maintained	Updated regularly	Monthly review	PIU	PIU → PSC
Grievances resolved within timeline	10–15 days (as per tier)	Monthly tracking	PIU	PIU → WB
Community consultation during construction	At least 1 meeting/quarter	Quarterly	PIU	PIU → WB

	Indicator	Target	Frequency	Responsibility	
3. Post-Construction / Operation Phase Monitoring	Site restoration completed	100% cleared & restored	Once after completion	D&SC	
	Waste cleared from site	No residual debris	Once	D&SC	
	Bridge safety features (railings, guideposts, signage) installed	100% installed	Once before handover	D&SC	
	Canal flow unobstructed	No blockage	Once after completion	PIU	
	Final community feedback	Documented	Once before closure	PIU	

Reporting Hierarchy: Contractor → D&SC → PIU (LGED) → World Bank

The D&SC will prepare a Monthly report on Environmental and Social Compliance and submit it to the PIU. The PIU will review and transmit the Monthly Environmental and Social Compliance Report to the World Bank as part of the project's regular safeguard reporting obligations.



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

**Host and FDMN Enhancement of Lives through
Infrastructure Improvement Project (HELP)**



ENVIRONMENTAL AND SOCIAL SCREENING REPORT

Of the Sub-project:

**Construction of 65m Long RCC Bridge at ch 1520 on Pekua to Arabshah Bazar
via Rajakhali Sabuj Bazar road ID:422952002**

Under the Package No. **HELP-COX/BR-1**

Funded by:



Government of the People's Republic of Bangladesh & World Bank

October 2025

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ACRONYMS

BOQ	Bill of Quantities
BPDB	Bangladesh Power Development Board
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
DPHE	Department of Public Health Engineering
EA	Environmental Assessment
EC	Electrical Conductivity
E-I-C	Engineer-in-Charge
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESF	Environmental and Social Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
HELP	Host and FDMN Enhancement of Lives through Infrastructure Improvement Project
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
MPSC	Multi-purpose Community and Service Center
MoLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
MoRTB	Ministry of Road Transport and Bridges
MoPEMR	Ministry of Power, Energy and Mineral Resources
NDRCC	National Disaster Response Coordination Center
OHS	Occupational Health and Safety
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
RCC	Reinforced Cement Concrete
RHD	Roads and Highways Department
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project Background

Since 2017, Bangladesh has been hosting nearly one million Displaced Rohingya Population (DRP) who fled violence in Myanmar. Most of this population resides in 33 densely populated camps in Ukhiya and Teknaf upazilas of Cox's Bazar district. At the same time, approximately 30,000 have been voluntarily relocated to Bhasan Char, an isolated island in Noakhali District. This unprecedented humanitarian influx has placed immense pressure on the host communities, infrastructure, essential services, and the surrounding environment in a region already characterized by socio-economic vulnerabilities.

The FDMNs now outnumber host populations in affected areas by a ratio of approximately 2:1, contributing to crowding in local markets, overburdening social service systems, escalating environmental degradation, and heightening risks during disasters. In response to these complex challenges, the Government of Bangladesh (GoB), with support from the World Bank, has initiated the Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (**HELP**). The project aims to improve access to basic services and enhance disaster and climate resilience of DRP (Displaced Rohingya Population) and host communities. HELP builds on lessons learned from the ongoing **Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) and its additional financing**, which have been supporting emergency response, resilient infrastructure, and institutional strengthening in Cox's Bazar since 2019.

HELP proposes a multi-sectoral development approach focusing on critical needs such as water supply, sanitation, renewable energy, shelter upgrades, solid and fecal waste management, and the improvement of road connectivity. The project also emphasizes disaster risk reduction, climate-resilient infrastructure, and institutional capacity building. It targets the high-priority gaps identified through annual needs assessments and field consultations, with particular attention to vulnerable groups including female-headed households, persons with disabilities, and those residing in disaster-prone areas.

The project scope encompasses a range of integrated infrastructure interventions aimed at improving resilience, accessibility, and service delivery for both the DRP and host communities. Key activities include the construction of new multi-purpose disaster shelters to provide enhanced protection during natural calamities, as well as the improvement and repair of existing shelters to ensure they meet disaster-resilience standards. The project also involves the development of road communication infrastructure, including the construction and rehabilitation of roads, bridges, and culverts to improve connectivity and access to essential services. In addition, various community-level facilities will be developed or upgraded, such as internal roads, drainage systems, hat-bazar (local markets), footpaths, firefighting systems, lightning protection devices, and solar-powered street lighting contributing to safer and more inclusive living environments.

The project is jointly implemented by four government agencies LGED, DPHE, RHD, and BPDB under the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C), the Ministry of Road Transport and Bridges (MoRTB), and the Ministry of Power, Energy and Mineral Resources (MoPEMR). The project comprises four components, covering resilient water and sanitation services, climate-resilient infrastructure and energy, institutional capacity strengthening, and emergency

response. Under Component 2, LGED is undertaking key infrastructure development including rural roads and bridges to ensure improved connectivity and disaster preparedness.

The objective of the Project is to improve access to basic services and enhance disaster and climate resilience of the FDMN and host communities through:

- Supporting improved access to basic services, climate-resilient infrastructure, and disaster and emergency response services;
- Improving Road interventions for easy access to essential services;
- Reducing vulnerability to accidental fire;
- Strengthening disaster preparedness and response through construction of multipurpose disaster shelters, provision of key equipment, and disaster risk management trainings at the community level;
- Improving Renewable and sustainable energy infrastructure in camps and for host community;
- Strengthening the GoB's capacity to provide essential services and address the needs of the host communities and the DRP, including risks to disasters and climate change;
- Reducing poverty in the project area

This Environmental and Social Screening Report has been prepared to assess potential environmental and social risks and impacts associated with the proposed interventions for constructing a bridge at Pekua Upazila of Cox's Bazar District under HELP. It provides a preliminary evaluation of the biophysical and socio-economic settings of the project areas and identifies key issues that require special consideration or mitigation. The report serves as a guiding tool for environmentally and socially sound project implementation in compliance with national regulations and the World Bank Environmental and Social Framework (ESF).

1.2 Rationale of Site Selection for bridge under the project

LGED is responsible for development and management of local infrastructure including rural roads, bridges, culverts, waterways, markets, river jetties and others in order to contributing to socioeconomic development of the rural community and overall reducing of poverty in the country. It is also developing, maintaining and managing transport, trading and small-scale water resources infrastructure at the local level with ensuring LGI and community participation and taking care of environmental and social issues. In 2013, Government of Bangladesh (GoB) has adopted a Rural Roads and Bridges Maintenance Policy with an objective to develop a sustainable rural transport system through appropriate maintenance management to provide safe operation of vehicles and to ensure necessary funding for their maintenance establishing a comprehensive and reliable inventory of roads, bridges and culverts across the country.

The onsite investigation reveals that a dilapidated bridge does exist on the same point where a new bridge has been proposed. The existing bridge on a local canal has turned into a shabby structure posing risks for moving vehicles and people, thus affecting the lives and livelihoods of local communities. In fact, salt Cultivation, fishing and agriculture- all three dominant livelihood options for the local people in the areas require climate resilient and sustained infrastructure for transportation of goods or products to local, regional or national trading centers as well as to processing hubs and so on. People living in and across the areas also need to have access to nearby educational, health,

employment and other services, which for this proposed bridge would act as a lifeline for the entire community

As the project is intended to strengthen the Government of Bangladesh systems in order to improve access to basic services and climate-resilient infrastructure of the host communities, constructing a bridge at the proposed point would resuscitate the communication, trade and service delivery system between Barobakia and Rajakhali union and other parts of the Pekua Upazila, which has been at risk now with the use of the dilapidated existing bridge structure.

The approach of this project also includes undertaking design, construction, rehabilitation or expansion of rural bridges in phases based on site-specific requirement and availability and allocation of resources. Accordingly, the proposed site for **Construction of 65.00m Long RCC Bridge on Pekua to Arabshah Bazar Via Rajakhali- Sabuj Bazar Road at Ch. 1520m** is required to be implemented in order to remove the existing barrier (e.g., presence of Khal/river on this point) to the local communication system and service delivery through this specific place, and expedite the socioeconomic activities in/around the place.

Project activities will largely be on existing available lands, preferably of government-owned.

1.3 Background of the Work Package

HELP (Host and FDMN Enhancement of Lives through Infrastructure Improvement Project) is a World Bank-supported project that aims to assist the Government of Bangladesh in responding to the continued humanitarian and development challenges posed by the presence of the Forcibly Displaced Myanmar Nationals (FDMNs) and their impact on host communities. The project seeks to improve access to basic services, and enhance disaster and climate resilience in both Cox's Bazar and Noakhali district.

While much of the displaced population resides in the Ukhiya and Teknaf upazilas, the broader Cox's Bazar district—including other upazilas—also experiences strain from increased movement, demand for resource and services, and the need for resilient infrastructure. The host communities across the district face challenges such as inadequate road connectivity, limited access to essential services, scarcity of basic resources, and vulnerability to natural disasters including floods and cyclones. In response, HELP focuses on inclusive development interventions that benefit both displaced and host populations.

Under this specific work package of the HELP project, **four (4) RCC bridges** are planned to be constructed across **four different upazilas of Cox's Bazar district Cox's Bazar Sadar, Ramu, Pekua, and Maheshkhali**. These bridges aim to strengthen the rural road communication network by improving access to essential services such as health, education, markets, and disaster shelters. The improved infrastructure is expected to support both the mobility of the host communities and the efficiency of service delivery, especially in remote or underserved areas of the district. This report focuses specifically on the Construction of a 65-meter Long RCC Bridge at chainage 1520 on the Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road (Road ID: 422952002) in Pekua Upazila. The bridge will be constructed over the Toitong Khal, a canal that serves as an active waterway used by fishing trawlers and small boats, making it vital for both local transportation and livelihoods. Once

implemented, this sub-project is expected to greatly improve transport connectivity, facilitate the movement of goods and people and enhance disaster resilience for the surrounding communities.

The catchment area of this sub-project is predominantly inhabited by host community members, particularly from the villages of West Jaliakata, Notunghona, Doshor Ghona, Kutubpara, Bodamaghir Ghona and East Jaliakata. The northern approach of the bridge falls under Rajakhali Union (New Ghona village), while the southern approach lies within Baro Bakia Union (West Jaliakata village). The location was selected based on field-level needs assessments, local consultations and its strategic importance in supporting local accessibility, improving disaster resilience and strengthening economic activities, especially fishing and small-scale trading.

The objective of this Environmental and Social Screening Report is to evaluate the environmental and social settings of the proposed bridge construction site under this work package, identify potential impacts both positive and adverse and recommend appropriate mitigation, enhancement, and management measures. This screening ensures that all interventions align with national regulatory requirements and the World Bank's Environmental and Social Framework (ESF), while promoting environmentally sustainable and socially inclusive development.

1.4 Fundamentals of Work Package Components

It is crucial to acknowledge the proposed infrastructure component under Work Package- HELP-COX/BR-1 in order to conduct an effective screening and verification process aligned with the World Bank's Environmental and Social Framework (ESF) as well as the project's Environmental and Social Management Framework (ESMF). Accordingly, detailed information of the proposed sub-project under this package has been outlined in Table 1.4.1, with a location-specific overview map of Pekua Upazila presented in Figure 1.4.1.

The proposed sub-project will follow standardized construction features and safety protocols, including but not limited to:

1. Construction of a Semi-Pucca Field Office, fully equipped with essential office furniture, computers with printing equipment, sanitary and electrical facilities, water supply arrangements and necessary tools and equipment for engineering supervision. The site office will ensure heat resistance, damp-proofing, and proper ventilation as directed by the Engineer-in-Charge (E-I-C).
2. Installation of Temporary Diversion Bridge (2m wide bamboo structure) as directed by the Engineer-in-Charge (E-I-C) to maintain uninterrupted movement for local communities during construction activities, ensuring minimal disruption to daily life.
3. Full Construction of Bridge Structures including foundation, substructure, and superstructure as per the approved design and technical drawings, along with all related fittings and fixtures.
4. Provision and Installation of Safety Features, such as painted vertical end faces of posts, wheel guards, railing systems, parapet walls, bilingual nameplates (in Bengali and English), guideposts, traffic signage, and kilometer markers.
5. Backfilling Behind Abutments and Retaining Structures with selected granular material, followed by proper compaction using approved machinery like plate compactors.
6. Construction of Approach Roads on both ends of the bridge, ensuring connectivity in compliance with LGED specifications and site conditions.
7. Placement of RCC Guideposts (1.70m long), positioned as per standard drawings and safety regulations.

8. Health, Safety, and Environmental Safeguards, including maintaining first-aid boxes at site and office, displaying safety notices, deploying environmental and social safeguard personnel for continuous monitoring, implementing dust suppression through water sprinkling, erecting health and safety signage, and organizing two rounds of safety and ESHS training for Upazila Engineers and Contractors before and after commencement of works.

Table 1.4.1: Basic Featured Information of component [Sources of data: Field survey, 2025, LGED]

Sl no.	Component's name	Upazila	Union	Distance from Upazila	Location under Project	Name of the river canal	Proposed length (m)	Carriage Width (m)	Estimated Footprint (Sqm)	GPS coordinate	Construction Period
1	Construction of RCC Bridge at ch 1520 on Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road ID:422952002	Pekua	Boro Bakia , Rajakhali	4 km	Catchment villages are West Jaliakata, Notunghona, Doshorghona, kutubpara , Bodamaghirghona, East Jaliakata	Toitongkhal	65	7.3	475.5	21.836404, 91.947201	2 years

Though the bridge was initially planned to be 35 m in length, after detailed survey in the area the length was replanned to 65 m. Therefore, the total footprint area for the bridge is 475.5 sq.m.

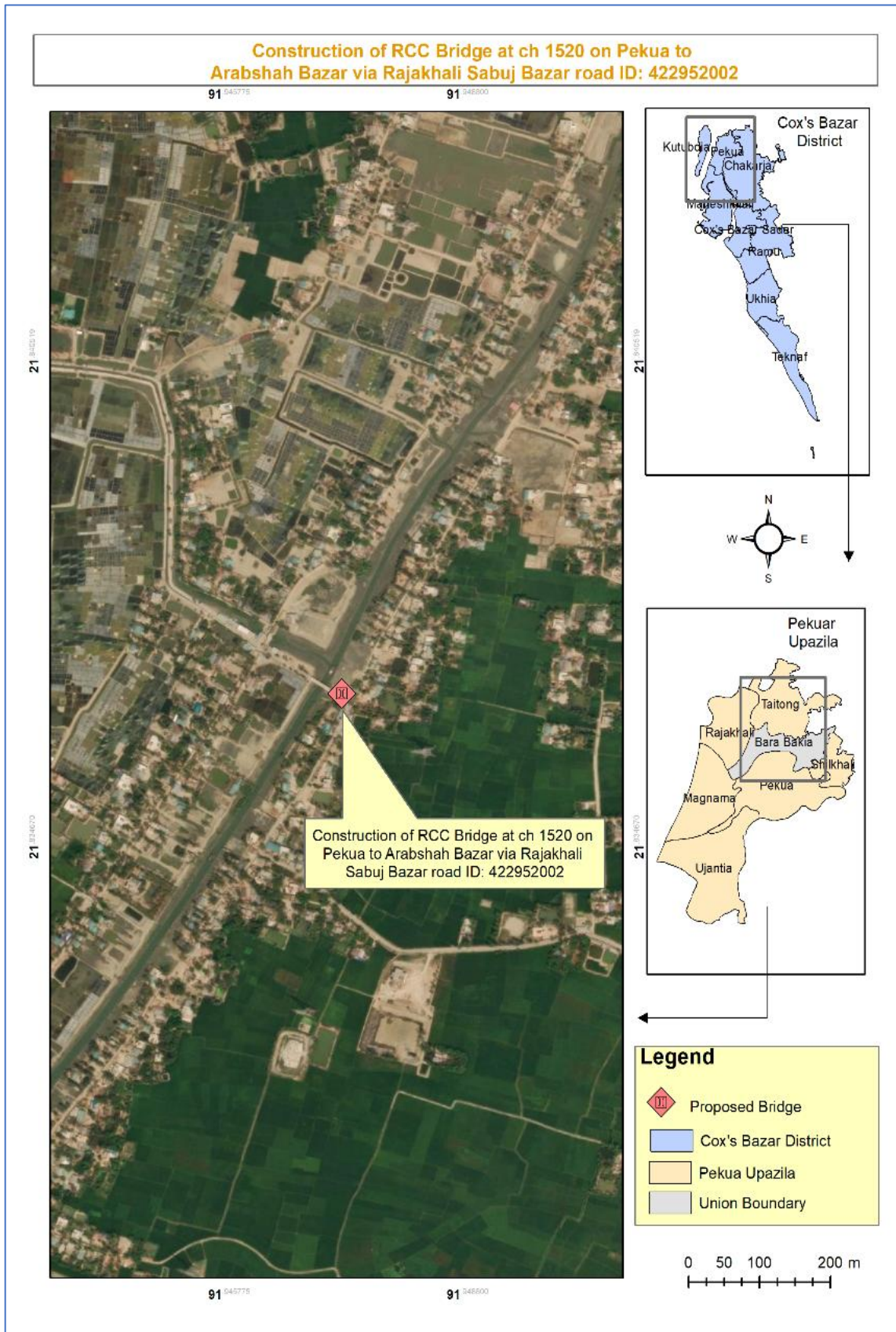


Figure 1.4.1: Map illustrating bridge location in the proposed Upazila

2. PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology and Approach

Public participation and community consultation have been taken up as an integral part of environmental and social assessment process of the project. As part of the impact assessment, participatory public consultation was conducted in areas of concern for proposed bridges by the field level staffs and consultants from PIU. The consultation meeting was attended by different social groups representing local inhabitants of different age groups, social class and occupations. Among the participants, some will have major active roles before, during and even after the construction works. 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. In order to serve our screening process, relevant items placed towards the audience to discuss and troubleshoot confusing or worrying matters regarding the proposed interventions under the package work. Impacts in regards to environment, socio-economic matters during pre-construction, construction and post construction phases and the provision for project Grievance Redress Mechanism along with its applicability have been put forth. Possible mitigation measures and relevant needs have turned out during these sessions as well. Moreover, their comprehension as a stakeholder has been up lifted in light of project guidelines.



However, 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-projects' 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.

2.2 Issues and Recommendations raised by the Participants in regards to component interventions

After facilitating the consultation sessions with a warm and informed manner at Mirza Bahadur Store at West Jaliakata village of the package area, the participants and stakeholders drifted delightfully with the sessions and pointed out many issues and suggestions, which have been taken into account for further inclusion in design, estimation and formulation of ESMP. During the period of consultation, environmental and social issues and their relevant impacts for the infrastructure development work such as bridge improvement or maintenance were discussed. The advantages and possible nuisance that may emerge during the sub-project activities were also revealed. The participants expected that none of the interventions would worsen their living conditions, social cohesion surrounding environment and they requested for adopting all measures to reduce/avoid both environmental and social risks during the implementation phase. Participants were also informed of the structure and redressing procedure under project Grievance Redress Mechanism (GRM).

Table 2.2.1: Consultation Meetings Summary

Meeting No.	Date	Venue	Main Participant Groups	No. of Participants	Remarks (If any)
1.	19 th March 2025	Mirza Bahadur Store at West Jaliakata village & Upazila Engineer and project personnel at Pekua Upazila Office	Host Community & Upazila Engineer and project personnel	16	Existing bridge built in 2003 is heavily damaged and deteriorated due to prolonged use. Participants emphasized the need for a stronger replacement bridge to ensure safe and smooth transport of goods. Most of the community people in this locality are salt farmer and fisherman.

Note: Here, Meeting number column corresponds with Serial Number column in Table 2.2.2

Some key issues discussed during the consultation are summarized in the table (Table 2.2.2) below, reflecting participants' inputs relevant to the specific components of the proposed intervention. The consultation meeting summary, attendance sheet and photographs from the meeting held at Mirza Bahadur Store at West Jaliakata village are provided in Table 2.2.1, Annexure-01, and Annexure-02, respectively.

Table 2.2.2: Issues and Recommendations raised by the Participants

Sl. No.	Component's name under HELP-COX/BR-1	Issues raised and discussed	Recommendations and Comments
1.	Construction of 65m Long RCC Bridge at ch 1520 on Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road ID:422952002	<ul style="list-style-type: none"> The bridge is located over a deep canal locally known as Toitong Khal, which is used as a regular navigation route for fishermen's boats. However, during the monsoon season, the water level rises significantly above the average. The existing RCC Bridge is old, structurally weak, and prone to accidents. The existing bridge, constructed in 2003, has significantly deteriorated due to prolonged use and increased traffic load. Toitong Khal remains active during the monsoon season, with increased water flow due to its connection with Bhola Khal (1.66 km downstream). Possibility of saline water corrosion affecting structural integrity over time. The existing RCC bridge is a critical infrastructure asset that 	<ul style="list-style-type: none"> Representatives participating in the discussions assured the local people that the dilapidated RCC bridge will be replaced by a longer and stronger bridge structure, which will strongly support local life and livelihoods and increase connectivity and accessibility to various services and amenities. The bridge has been planned to redesign to increase its length so that non-motorized vehicles can easily use the structure due to the smooth slope, and accessibility under the structure remains Uninterrupted. The bridge design should consider highest water level thereby ensuring it is not submerging or affected by mass water flow during rainy seasons. Appropriate diversion should be placed during the construction period as alternative pathway. The participants have expressed their greater interest for this intervention and believe this will surely bring security and prosperity for the entire catchment dwellers. They have suggested using corrosion-resistant materials considering the saline water exposure.

Sl. No.	Component's name under HELP-COX/BR-1	Issues raised and discussed	Recommendations and Comments
		<p>significantly supports the local population's livelihood and economic well-being. It is particularly vital for salt cultivators and fishermen, as it facilitates and governs nearly all of their economic activities.</p> <ul style="list-style-type: none"> •Possible dust and noise pollution during the construction works. •Local community wish to have a better drainage system along with the Bridge in order to allow waters from high grounds to find a uninterrupted pathway not causing weak establishment to wash away. Moreover, from a conservation stand point, it will protect the top soil for future growth. •Safety of children and adults at the sites during construction works. Involving local people as a priority in implementation works as far as possible. • Locals have no issue if outsiders come to work as skilled labor 	<ul style="list-style-type: none"> •They also requested to include signage and safety features to guide both pedestrians and transport users. •The bridge should have considered highest water level thereby ensuring it is not submerging or affected by mass water flow during rainy seasons. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •Alternate pathway should be facilitated during the construction near or around existing structure. •Since the bridge is on running canal (Toitong Khal), the intervention will invite water pollution on moderate level. However, preventive actions and measures can be taken to keep the surface water quality from degrading more than it is. •Priority for jobs should also consider to women. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. •The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • They recommended prioritizing early completion of the new bridge to relieve the burden on locals.

3. ENVIRONMENTAL AND SOCIAL SURVEY AND SCREENING

3.1 Objective of the Survey and Screening

The primary purpose of the survey and screening is to identify potential risks and impacts associated with the sub-project, assess their significance, and propose appropriate mitigation and management measures to ensure compliance with the ESF along with the project ES compliance documents. The screening process also considers the cumulative and residual impacts of the intervention within the context of the local physical, biological, and socio-economic environment.

To achieve a comprehensive understanding of the environmental and social baseline and the possible implications of the proposed works, detailed field investigations were carried out in and across the sub-project sites within the Project Influence Area (PIA). The screening process included direct observation, stakeholder consultations and the use of the Environmental and Social Screening Format (ESSF), aligned with the Environmental and Social Management Framework (ESMF) developed for the HELP project.

Screening results, impact identification, and mitigation guidance have been summarized and compiled in **Appendix-1**, with site-specific details and supporting documentation. This integrated approach ensures early identification of risks and supports the development of appropriate mitigation and enhancement measures for sustainable project implementation.

The subsequent sections outline the survey findings, including important features and establishment within the PIA, along with potential environmental and social impacts that may arise due to the proposed sub-project interventions within a half-kilometer radial distance around the project site. This Environmental and Social Screening has been conducted in accordance with the requirements of the World Bank's Environmental and Social Framework (ESF), particularly focusing on the relevant Environmental and Social Standards (ESSs).

3.2 Important features/establishments around the PIA

The proposed bridge sub-project has undergone a thorough review to identify Environmental and Social resources and baseline conditions, potential environmental and socio-economic risks that may arise during construction and future operation. To accurately assess these concerns, a Project Influence Area (PIA) with a 0.5-kilometer radius surrounding the bridge site was considered during the screening process. Each issue was evaluated on a case-by-case basis without generalization, ensuring site-specific factors were properly addressed. Sensitive environmental and social findings, if any, were carefully noted, and appropriate mitigation or minimization measures were recommended to manage these risks throughout the project lifecycle. In addition, opportunities for enhancing both environmental and social conditions, as well as incorporating monitoring initiatives, have been outlined and integrated into the Environmental and Social Management Plan (ESMP) and its corresponding budget. The contractor's role in addressing identified impacts has been clearly defined, and all assessments and proposed interventions were conducted in full compliance with the Environmental and Social Management Framework (ESMF) of the HELP project.

Initial screening process is conducted through direct involvement of PIU in the influence area of the proposed component, which allows to raise significant questions and ideas towards participants. In combination of both field walk-through and inputs of audience, a register of existing features is formed. The following table describes the important features under Project Influence Area. Additional spatial understanding is supported through a hand-sketched map provided in Appendix-01.

Table 3.2.1: Important features under Project Influence Area

Sl. No.	Component's name under W-08	Direction	Important features/ establishment (approx. distance from the proposed site)
1.	Construction of RCC Bridge at ch 1520 on Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar road ID:422952002	North	Rajakhali Jame Mosque and Graveyard (175m), Jaliakata Old Jame Mosque (550m), Doshor Ghona Jame Mosque (618m), Jaliakata Hazrat Belal mosque & graveyard (330m)
		South	M.H GPS (660m), Household (40m), shop (50m)
		East	Fasiakhali Jamiya Madrasa & Yatimkhana (820m), Pekua bBzar mosque (920m), Baitul Mamur Jame mosque (820m), Household (50m)
		West	Household (50m)

3.3 Major Findings

The Environmental and Social Screening has revealed an integrated overview of site-specific environmental and social conditions of the proposed sub-project. These findings offer valuable insight into the interaction between the sub-project components and their surrounding biophysical and socio-economic settings. While many sub-projects are found to be aligned with the characteristics of their respective locations, the nature, magnitude, and extent of impacts vary based on topography, ecological sensitivity, surrounding land use, and community dependency.

The analysis confirms that while some impacts such as temporary disruptions during construction, generation of noise and dust and minor vegetation clearance are commonly anticipated, several site-specific concerns were identified for the proposed RCC Bridge at chainage 1520 on the Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road. These include the location of the site over Toitong Khal, which is an active waterway used by fishing trawlers and small boats, making navigation safety a critical concern. The bridge plays a vital role in supporting local transportation and livelihoods by improving connectivity between Rajakhali Union and Baro Bakia Union. Furthermore, social vulnerabilities were noted, including pedestrian and community access during construction, as well as potential short-term impacts on nearby households, shops, and educational institutions situated within proximity to the proposed site.

The screening has also identified both direct and indirect risks that may arise if not appropriately mitigated. Findings indicate that with suitable mitigation measures as proposed in the ESMF and site-specific Environmental and Social Management Plans (ESMPs) most risks are manageable under ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), and relevant associated standards such as ESS4 (Community Health and Safety), ESS2 (Labor and Working Conditions), and ESS10 (Stakeholder Engagement and Information Disclosure).

A summary of the significant environmental and social issues identified during the screening process, along with associated potential impacts, is presented in **Table 3.2.1**. These findings provide critical input for developing context-specific mitigation strategies and highlight areas requiring enhanced monitoring and community engagement during project implementation. None of the activities fall in the E&S exclusion list attached to the project ESMF.

Table 3.2.1: Concerning environmental and social issues relating to each proposed subproject and influence area

	Key Environmental & Social Findings	Anticipated Impacts / Concerns
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	The proposed site is not located within any significant environmentally sensitive area, except for the Toitong Khal which serves as a local waterway flowing directly beneath the bridge alignment. This khal remains active year-round and is used by fishing trawlers and other small boats, making it an important channel for local navigation and livelihoods. While the surrounding area is primarily semi-urban with households, shops, and community facilities nearby, no critical ecological habitats or reserved environmental zones are situated within close proximity to the site.	Will not cause any severe negative effects to the area's environmental settings, nor to important ecological features.
	The proposed sub-project targets an existing old concrete bridge over the Toitong canal, which has deteriorated over time due to prolonged use.	Replacing a concrete bridge with an identical one at the same location necessitates the removal of the existing bridge, which may result in waste production, harm water quality and minor air pollution due to dust and airborne particles less than PM ₁₀ .
	Environmental and social screening conducted; moderate risks identified.	Manageable with appropriate mitigation measures.
	Heavy vehicular movement and future construction activities may cause air, noise, and water pollution.	Construction and demolition activities may lead to localized dust, air pollution, and runoff contamination; these impacts are short-term, site specific and can be effectively managed through water sprinkling, dust control, noise barriers and proper site drainage.
	No fish farming activities or significant vegetation coverage were observed within the immediate vicinity of the proposed bridge site. However, the Toitong Khal beneath the alignment is an active canal used by fishing trawlers and small boats, which makes it important for local navigation and livelihoods. Additionally, several households and shops are located within 40 to 50 meters of the site on the south, east, and west sides. These settlements represent sensitive receptors that must be safeguarded from potential construction-related impacts such as dust, noise, and runoff to ensure minimal disturbance to community health and wellbeing.	Will not cause any severe negative effects to the environmental settings of the area nor important environmental features. Air and noise pollution may occur during the construction period due to construction activities and the transportation of materials. In some cases, accidents may happen due to unauthorized entry into the construction site. These impacts are short-term, site-specific, and within a small scale and manageable by mitigation measures.
	Construction activities and the establishment of labor camps, along with associated facilities and services, may lead to adverse environmental and social impacts if not properly managed.	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 (in labor camp), will more likely to take place. Strain on local resources such as water, sanitation and electricity. Health and hygiene risk due to overcrowding or poor camp management. Social tension with nearby communities may arise if laborers' behavior or camp facilities are not adequately supervised.
	Earth excavation work will be involved during the piling.	Consequently, air, noise and dust pollution will be occurred within a small-scale during the construction period only.
	Chemical spills or improper disposal of construction waste materials due to lack of workers' training and misconduct of contractor's safety initiatives. Kitchen and labor camp waste may be generated during construction period.	Soil and water can be further eroded and polluted.
	Vibration effects generated from piling, drilling, or other construction works	May trigger harmful disturbances to local faunal species.
	A functional Grievance Redress Mechanism (GRM) must be in place to ensure community feedback, transparency, and accountability in managing environmental and social risks during project implementation.	Lack of an effective GRM may lead to unresolved community complaints, misinformation, reduced stakeholder trust, and potential conflict or resistance during project implementation. However, the project's three-level GRM structure comprising Local, Project, and Ministry-level committees offers a systematic approach to resolve such issues in a timely, transparent, and inclusive manner.
ESS2: Labor and Working Conditions	Local workers may be hired; labor influx is not anticipated. No child or forced labor permitted.	Low risk of labor-community tension or burden on local infrastructure; reduced potential for social conflict.
	OHS risks during pile-driving and construction works.	Injury risk for laborers.
	Safe working conditions, personal protective equipment (PPE), and sanitation facilities must be ensured at site.	Risk of injury or health hazards if workers lack PPE or safety supervision. Potential spread of illness if hygiene and sanitation facilities are inadequate.
	Risk of accidents during demolition of old structure or pile-driving and construction phase; proper training and labor code compliance are required.	Risk of falls, tool-related injuries, or exposure to noise and dust without safety training. Possibility of non-compliance with national labor standards or World Bank EHS guidelines.
	Labor camps must comply with EHS guidelines. Inadequate ventilation, poor lighting and overcrowded conditions can disrupt normal living standards, increase the risk of disease transmission and negatively impact workers' health and well-being.	Risk of poor living conditions, waste mismanagement, health and hygiene issues, or community tension if camps are not properly managed.

<p>ESS3: Resource Efficiency and Pollution Prevention and Management</p>	<p>Dust from earthwork, vehicle movement, and material handling during the construction period may cause air pollution.</p>	<p>Site specific, short-term, can be controlled by regular sprinkling and covered transport</p>
	<p>Construction works will involve chemical usages (Cementitious Chemicals as Ordinary Portland Cement, Fly Ash, Slag Cement, and Lubricants & Fuels as Diesel, engine oil, hydraulic oil) and preparation of on-site add-ons to the bridge that will generate scraps and residues. Use of concrete, cement and machinery used oil/grease during construction may lead to runoff polluting nearby households and canals.</p>	<p>Moderate scale of water pollution may be caused during construction period due to concrete and cement usage. The runoff from work site may enter the present canal, nearby households and reduce the water quality which will be acute, if chemical gets mixed with water. Risk is manageable with drainage controls and silt traps.</p>
	<p>Noise from piling and construction machinery.</p>	<p>Potential hearing risks and stress for laborers and local residents exposed to prolonged noise. Limited to working hours and local area, can be reduced by timing and barriers.</p>
	<p>Construction waste, including debris from dismantling of old bridge and packaging materials, waste from labor camps, must be handled with designated waste management plan.</p>	<p>Soil and water contamination from unmanaged waste near households, shops and Toitong canal. Health hazards for workers and nearby communities due to uncollected solid waste. Waste can be stored and disposed at designated landfill with contractor oversight.</p>
<p>ESS4: Community Health and Safety</p>	<p>The construction zones must be barricaded; signage and awareness campaigns to minimize risks to pedestrians and vehicles. Participants recommended dedicated pedestrian walkways and strong railings to enhance community safety.</p>	<p>Increased risk of accidents and injuries to pedestrians, especially children and elderly, due to unprotected construction zones. Obstruction or confusion for local traffic and pedestrians in the absence of proper signage and temporary pathways. Community dissatisfaction if safety measures are not visibly in place. Unsafe movement near deep excavation or elevated bridge structures during construction. Proper use of signage and barricades may ensure the construction site's safety.</p>
	<p>Use of heavy machinery during construction may result in significant dust and noise emissions. Runoff containing oil, grease, or cement slurry may enter nearby households, shops and khal, potentially affecting community health and livelihoods.</p>	<p>Air pollution from dust and emissions can affect nearby residents. Noise pollution may disturb local communities. Water pollution due to runoff of oil, grease, or cement slurry may contaminate adjacent households, shops and khal (canals), harming aquatic life and reducing water usability. These impacts are short-term, site-specific and within a small area and manageable by mitigation measure.</p>
<p>ESS5:</p>	<p>No land acquisition required; construction is within the existing right of way.</p>	<p>Temporary access disruptions during construction can be mitigated by providing alternative access during construction.</p>

<p>Land Acquisition, Restrictions on Land Use and Involuntary Resettlemen</p>		<p>Vehicles. A Memorandum of Understanding (MoU) should be signed with the landowner in cases where private or community land is temporarily required for storing construction materials or setting up labor camps.</p>
<p>ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p>	<p>No critical natural habitats were identified within 500 meters of the proposed 60-meter RCC Bridge. Within this radius, several households are located as close as 40 to 50 meters to the south, east and west of the site, along with small shops about 50 meters away. In addition, community institutions such as Rajakhali Jame Mosque (175m), Jaliakata Hazrat Belal Mosque and graveyard (330m), and Jaliakata Old Jame Mosque (550m, slightly beyond 500m) are situated nearby, making the area socially sensitive.</p>	<p>Some features are located near the proposed sites, where dust and noise pollution may cause impacts. These impacts are expected to be negative but short-term, site-specific, and reversible with appropriate mitigation measures. Other features are situated at relatively greater distances, where significant disturbance is not anticipated. To minimize any potential impacts, strict construction site management practices should be enforced, including limiting work to daytime hours, applying water-sprinkling at least twice daily around the site, installing proper fencing around the working area, and ensuring safe storage of construction materials.</p>
<p>ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</p>	<p>No Indigenous or Small Ethnic Communities found in project influence area.</p>	<p>Not applicable.</p>
<p>ESS8: Cultural Heritage</p>	<p>No known cultural or archaeological sites identified within project site.</p>	<p>Not applicable.</p>
<p>ESS9: Financial Intermediaries</p>	<p>Not applicable as project does not involve financial intermediaries.</p>	<p>Not applicable.</p>
<p>ESS10: Stakeholder Engagement and Information Disclosure</p>	<p>Consultations were conducted with local host community members and relevant stakeholders at all four proposed bridge locations. On 19 March 2025, a meeting was held with 16 participants at Mirza Bahadur Store at West Jaliakata village near the bridge, where participants emphasized the urgent need for a new bridge to address transport difficulties and safety risks due to the deteriorated condition of the existing structure.</p>	<p>Participants anticipated support for the project and emphasized the importance of safety features and pollution control. The feedback collected underscores the need for continued stakeholder engagement during implementation, including maintaining a functional grievance redress mechanism (GRM), accessible communication channels and a transparent complaint registry to ensure inclusive and responsive project delivery.</p>

The navigability of canals and community safety remain critical considerations during both the construction and operational phases of the bridge subproject. As per good environmental and social practice, and consistent with World Bank Environmental and Social Standards (ESS4 and ESS6), no construction or structural intervention over waterways should impede the free and safe passage of local water transport. During construction, temporary arrangements must be ensured so that local communities can continue crossing canals from alternative access points without disruption.

Safety during the operation phase is equally important. Measures such as the installation of reflective guideposts, visible signage, and proper lighting for vehicles and pedestrians approaching the bridge are essential and must be integrated into the construction phase planning. These elements significantly enhance commuter and pedestrian safety and should be reflected in the engineering design and budget estimations.

Furthermore, to minimize environmental degradation and offset potential negative impacts, a comprehensive set of site-specific mitigation measures will be adopted in addition to standard construction practices. These will follow the Environmental and Social Management Plan (ESMP) and the relevant national codes of practice, ensuring compliance with the requirements outlined in the Environmental and Social Management Framework (ESMF).

3.4 Climate Change Impact

3.4.1 General Consideration

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geo-morphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank¹ has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, the vigorous monsoons make the area prone to landslides, and there is always the lurking threat of cyclones and thunderstorm across the area.

Together with the above-mentioned hazardous situation, availability of potable water from shallow tube wells that pump water up from about 120 feet has already reached to a critical level. Averting the problem requires new tube wells to be plumbing deeper into the poorly mapped aquifer but going deeper than 300-500 feet in some places may cause salt water to contaminate freshwater resources, which could be disastrous for both refugees and residents.

Considering the general climate change effects in Cox's Bazar area and offsetting the aggravating environmental situation due to the mass arrival of Rohingya communities, several specific measures including tree plantation in sub-project areas and construction of drainage facilities in optimum numbers with wide opening, along the road length have been suggested and will be implemented under this project.

3.4.2 Site Specific Consideration

The sub-project area is not adjacent to the sea. The cyclone has higher impact in the area and intensity of precipitation has been seen to have increased in the past few years. Salinity and the occurrence of cyclonic storm surge were not reported in the vicinity of the subproject. Temperature was reported to be increased, and Thunderstorm is found to have highest impact in the area. Thunderstorm has been observed creating more damage than before, but no casualty was reported. Flash flood in or around the site is not observed; but the area experiences water logging issues during the monsoon, which for several structures have been suggested to include in the design.

Site specific climate change impacts are often not so easy to measure or deduce plausibly while the site is confined to a narrow strip of roadways only, and associated mitigation or offsetting measures are really hard to plot on the same tiny impact areas, though an overall set of measures are often considered in practical aspect.

¹ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

The anticipated environmental and social impacts of the proposed sub-project are primarily construction-related and considered to be temporary, site-specific, and manageable. These impacts can be effectively addressed through the adoption of good engineering practices, good housekeeping, better *in-situ* construction materials management, standard environmental controls, and adherence to World Bank Environmental and Social Standards (ESS1–ESS10), especially those related to health, safety protocols, and pollution prevention.

Contractors must adhere to implement the Environmental and Social Management Plan (ESMP) as part of their contractual obligations. This includes regular implementation of dust control measures, such as water spraying at least twice daily, proper solid waste management, noise control and site demarcation to ensure minimal disturbance to surrounding communities and environment of the sub-project sites. Given the site's proximity to Toitong Khal which flows directly beneath the proposed bridge alignment and the presence of nearby households, shops and community institutions within 40 to 200 meters, extra caution must be exercised to prevent runoff of construction materials, cement slurry, oil, or debris from entering the canal or affecting surrounding residential and institutional areas. Further construction related activities that may result in adverse impacts in the surrounding environment of the sub-project must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance.

In addition, all site workers, engineers, and Contractor's staffs must receive training on occupational health and safety (OHS), good practice construction works, code of conduct, efficient labor camp management, labor management procedure, emergency response, and environmental best practices and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects of this proposed construction work are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

The sub-project-specific mitigation and monitoring measures have been outlined in the respective ESMP in Appendix-2, which guides pre-construction, construction, and post-construction phases. With proper implementation of these measures, the proposed infrastructure intervention is expected to deliver long-term social and economic benefits to the host communities, with minimal residual environmental impact.

4.2 Cost of Environmental and social Enhancement Works in BOQ

In consideration to the aforementioned environmental impacts and their mitigation measures for the proposed construction activities, a set of items are included in the BOQ for every sub-project. The estimated cost to implement the ESMP is shown in Appendix-3.

5. CONTRACTOR AND LABOR MANAGEMENT

Most of the workers for this subproject will come from the local community, who share a common socio-economic, cultural, religious, and demographic background. Based on consultations with local stakeholders, it is anticipated that only a small portion of skilled labor may need to be hired from outside the project area, depending on availability. Therefore, the likelihood of internal conflicts

among workers is expected to be minimal. It is estimated that approximately 20 laborers will be engaged during the construction phase, comprising 4 skilled (25%) and 16 unskilled (75%) workers, generating around 10,800 active working man-days (as detailed in Table- 5.1).

Although female participation in rural construction work is traditionally low, higher involvement of women is expected in this sub-project. Nonetheless, if female participation remains limited, the contractor must still conduct mandatory GBV (Gender-Based Violence) awareness training for all workers prior to the commencement of construction to mitigate risks of harassment, discrimination, or hostile behavior at the worksite.

The contractor's area will include the working zone surrounding the construction site, materials stacking and storage area, labor shed, and office space ideally located within or adjacent to the proposed Sub project location premises/boundaries for better coordination and monitoring. Contractor will be strictly instructed to maintain cleanliness at the worksite by ensuring waste, debris and dust are regularly cleared and that all bulk construction materials such as sand, stone chips, and steel are stored properly and covered with plastic sheets to prevent environmental degradation.

Experiences from ongoing LGED projects in Cox's Bazar indicate a shortage of skilled labor, which has contributed to delays in some cases. In this sub-project, LGED anticipates that general and non-technical labor will be sufficiently available locally, with only specific technical expertise needing to be sourced from outside if required. It is expected that the scale of labor influx will remain manageable and will not pose significant risks of social tension or GBV during the construction period.

Table 5.1: Subproject-wise number of labor and total active working days

SI no	Package Number	Name of Subproject	Total Space of proposed Construction (Square meters)	Tentative per day labor (No)	Days	Total active working days
01	HELP-COX/BR-1	Construction of RCC Bridge at ch 1520 on Rekuia to Arabshah Bazar via Rajakhali Sabuj Bazar road ID: 422952002	475.5	20	540	10,800
Grand Total =				20	540	10,800

6. GRIEVANCE REDRESS MECHANISM (GRM)

In accordance with the Environmental and Social Management Framework (ESMF) of the HELP project, a robust and accessible Grievance Redress Mechanism (GRM) has been established to address project-related grievances from host communities, workers and other stakeholders. A structured and inclusive Grievance Mechanism (GM) has been established to ensure timely and effective resolution of complaints arising from project activities in the host communities. Since LGED is the Implementing Agency (IA), the grievance redress structure has been designed to operate across three levels local (Upazila), Project Implementation Unit (PIU) and Project Steering Committee (PSC) to address concerns efficiently and equitably.

Local Level GRC

At the local level, a Grievance Redress Committee (GRC) is formed in each Upazila where LGED has subproject activities. The GRC is chaired by the Upazila Engineer from LGED (or a nominated official by the Project Director if required), serving as the Convener. The Environmental Specialist and/or Social Specialist from the PIU, depending on the nature of the complaint, act as the Member-Secretary and remain common across all local GRCs under LGED. The committee also includes an Environmental and/or Social Specialist from the Supervision Firm appointed by LGED, a representative from the respective Union Parishad (preferably female if the complainant is female), and a community representative such as a teacher, NGO staff member, or a local individual nominated by the complainant. Specialists for these roles are expected to be hired within 3 to 6 months of project effectiveness. All grievances at the local level must be heard and resolved within 10 working days of receipt. Complaints related to LGED activities will be received at the office of the respective Upazila Engineer.

PIU-level GRC

If a complaint cannot be resolved at the local level, it is escalated to the PIU-level GRC. This committee is chaired by the Project Director of LGED and includes the Social and Environmental Specialists from the PIU as Member-Secretaries. It also includes a local government representative either the same individual from the local level hearing or another as appropriate (must be female if the complainant is female) and a community representative, preferably the same individual who participated at the local level. The PIU-level GRC is responsible for reviewing unresolved grievances and delivering a decision within 15 working days. In addition, the Social or Environmental Specialist at the PIU, with assistance from the local GRC's Member-Secretary, will conduct regular visits to subproject sites to engage with communities and affected persons, and to document any new concerns, suggestions, or complaints in the GRM register.

PSC-level GRC

For grievances that remain unresolved at the PIU level, the matter is further referred to the PSC-level GRC, which represents the final tier of grievance resolution. This committee is led by a representative of the Secretary from the relevant ministry, serving as the Convener, with the Project Director of LGED acting as the Member-Secretary. The PSC-level GRC is required to make a final decision on such grievances within a maximum of four weeks. Any resolution reached at any level of the grievance process that is agreed upon by the aggrieved party is considered binding on LGED and will be implemented accordingly.

This multi-tiered GM structure under LGED ensures that all grievances from host community members are addressed in a fair, inclusive, and transparent manner. It fosters accountability and trust in project implementation while upholding the World Bank's Environmental and Social Standard 10 (ESS10) on stakeholder engagement and information disclosure.

7. INSTITUTIONAL ARRANGEMENT

LGED, through the Project Implementation Unit (PIU), will have overall responsibility for environmental and social risk management through implementation of ESMP and compliance with the World Bank's Environmental and Social Framework (ESF). The PIU's ES team comprising of a Sr. Environmental Consultant, a Sr. Social Development Consultant, and a Gender Specialist will oversee ESMP implementation including functional operation of Grievance Redress system, review monitoring reports from the D&S Consultant, and coordinate reporting to the World Bank. The Design and Supervision Consultant (D&SC) will provide day-to-day site supervision, verify contractor's compliance

with ESMP requirements along with taking prime actions in the progress of grievance redressal and advise corrective actions wherever required. The Contractor will be responsible for on-site implementation of all mitigation measures, including occupational health and safety (OHS), waste management, environmental protection and grievance management. Coordination among PIU of LGED, D&SC, and the Contractor will be ensured through regular supervision, reporting, and redressal mechanisms.

Institutional Roles and Responsibilities Table (Recommended for ESMP)

Institution / Entity	Key Roles and Responsibilities
LGED Project Implementation Unit (PIU)	<ul style="list-style-type: none"> • Oversee environmental and social risk management framework and activities • Review and approve site-specific ESMPs • Monitor implementation through field inspections • Manage and supervise GRM at the project level • Approve E&S documents and corrective actions • Report ESMP performance to the World Bank
PIU Environmental & Social Specialists	<ul style="list-style-type: none"> • Technical supervision of ESMP implementation • Review contractor’s E&S compliance plans and related records. • Conduct site visits and compliance audits • Provide guidance on ESS compliance and required corrective actions • Leads capacity-building and training sessions for consultants and contractors. • Review and approve periodic monitoring reports and submit to the Project Director for sending them to the WB.
Design & Supervision Consultant (D&SC)	<ul style="list-style-type: none"> • Provides full-time, site-level supervision of ESMP implementation. • Verifies that mitigation measures are integrated into physical construction activities. • Verify contractor compliance with mitigation measures • Maintains detailed monitoring checklists, incident logs, and photographic records. • Support PIU in Compliance reporting.
Construction Contractor	<ul style="list-style-type: none"> • Executes all mitigation measures defined in the approved ESMP. • Prepare site-specific plans (OHS, waste, traffic, labor camp, etc.) and implement the same. • Ensure PPE use, safety training, and daily toolbox meetings • Appoints a designated EHS Supervisor to manage site-level compliance and reporting.
Grievance Redress Committees (3-tier GRM)	<ul style="list-style-type: none"> • Receives, registers, and investigates grievances from workers and the community. • Ensures a transparent, culturally appropriate, and timely resolution process. • Coordinate with PIU and local administration

8. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

Monitoring is a critical component under the Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP) to ensure that environmental and social mitigation and enhancement measures outlined in the Environmental and Social Management Plan (ESMP) are effectively implemented and that their intended benefits are realized over time. The Environmental and Social Management Framework (ESMF) of the HELP Project provides a detailed monitoring mechanism, assigning responsibilities to all relevant parties directly involved in or overseeing the construction and implementation of sub-projects.

Several tiers of monitoring responsibilities have been established under the HELP Project. At the implementation level, contractors are required to ensure that environmental and social risks are effectively minimized throughout the construction period. This includes implementing adequate Occupational Health and Safety (OHS) measures for both workers and surrounding host communities. Contractors must assign site managers and safeguard supervisors (or equivalent personnel) to supervise daily implementation of the ESMP. These personnel are responsible for ensuring environmental protection both on and off-site and for preventing damage or nuisance to individuals, public and private property, and surrounding features or institutions. Pollution, noise, and other detrimental effects arising from construction operations must be strictly controlled. In addition to implementing the ESMP, contractors are also responsible for preparing and executing specific management plans, such as drainage management, traffic management and emergency preparedness and response, where required. Proper implementation of these plans, along with timely site decommissioning and restoration, must be ensured. The detailed Environmental and Social Monitoring Plan, including monitoring parameters, indicators, responsible institutions, and frequency of monitoring during pre-construction, construction, and operation phases, is presented in Appendix-4.

The first tier of supervision is led by the Design and Supervision Consultant (D&SC) firm. Once the contractors are mobilized, safeguard consultants from the D&SC and the Resident Engineer are tasked with ensuring contractor compliance with the ESMP and with the application of good engineering practices at the site. This includes strict enforcement of OHS measures. The D&SC is responsible for preparing regular monitoring reports based on field-level supervision and findings.

At the second tier, the Project Implementation Unit (PIU) will play a key role in overall monitoring. The PIU will have dedicated environmental and social safeguard specialists who will conduct frequent field visits to assess ESMP implementation. These specialists, in coordination with the Executive Engineer's Office in Cox's Bazar district and Upazila Engineers' Office in the respective upazila, will ensure strong site-level oversight. The PIU safeguard team will also ensure that all contractor staff and other relevant personnel receive adequate initial and ongoing training on environmental and social safeguards. Moreover, the PIU will verify proper site cleaning and reclamation upon completion of construction and recommend necessary corrective or punitive measures if any non-compliance is observed.

At the highest tier, the Ministerial Project Steering Committee (PSC), chaired by the Senior Secretary/Secretary of the Local Government Division (LGD), Ministry of LGRD&C, will provide strategic oversight of monitoring activities. In collaboration with the PIU, the PSC will ensure that environmental and social safeguard training is provided to all relevant project staff and that implementation at the field level aligns with national policies and the World Bank's Environmental and Social Framework (ESF). This structured multi-tiered monitoring approach under HELP will help ensure that the construction of the RCC bridge at Pekua Upazila is environmentally and socially responsible, and aligned with sustainable development objectives.

9. CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are fully implemented, there will be no significant negative environmental or social impacts related to the selection, design, construction, and operation of the proposed sub-project. In fact, the recommended mitigation and enhancement measures will lead to significant benefits, improving both the environmental quality and the social well-being of the local communities. The project will contribute to enhanced infrastructure, improved livelihoods and better access to essential services, ultimately benefiting both the host communities and the displaced populations. Major improvements in quality of life, communication and socio-economic influences will be ensured once the scheme is in operation.

Overall, the screening study can be summarized as follows:

- The communities will receive large benefits in terms of quality of life, particularly with better reach of services and goods.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for those who live in the vicinity of the construction site and will provide them a short-term economic gain.
- A comprehensive Environmental and social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from these Subproject activities.
- Detail cost estimation for incorporating ESMP has been shown in Appendix-3. This budget can change due to change of market prices and if the project implementation period extends.

Implementation of this Sub-project will have large positive impacts to the communities in terms of improved infrastructural transportation & communication facilities, which would eventually develop the socio-economic condition of the catchment areas. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Annexure-01: Attendance of consultation meetings for sub-project

Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP)
Local Government Engineering Department (LGED)
Public Consultation Participants List
Focus Group Discussion

সময়: 10:00 AM তারিখ: 19/03/23
উপ-প্রকল্প/কমপোনেন্ট এর নাম:
মত বিনিময় স্থান: **পশ্চিম কোলিয়ারি ডিও অফিসের স্টেট**
ইউনিয়ন: **বাবুসাকিয়া** ওয়ার্ড নং: **৮** ডাকঘর: **বাবুসাকিয়া** উপজেলা: **পেকুয়া** জেলা: **রাজশাহী**
সাব প্যাকেজ নং:

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
	আব্দুল হামিদ রবিয়া	৪৮	পুরুষ	পশ্চিম কোলিয়ারি	
	হাজিরা রশিদ	৪৫	৫	৫	মোহাম্মদ হাজিরা
	নূর রশিদ	৭২	৫	৫	নূর রশিদ
	মির্জা বাহাদুর	৫৫	৫	৫	মির্জা বাহাদুর
	আব্দুল হাজিরা	৫৭	৫	৫	আব্দুল হাজিরা
	দেলোয়ার হোসেন	৫০	৫	৫	দেলোয়ার
	আজু	৫৫	৫	৫	আজু
	আব্দুল	৬০	৫	৫	আব্দুল
	শো: হামিদ	৫৬	৫	৫	হামিদ
	শো: হোসেন	৫৫	৫	৫	হোসেন
	শো: আবদুল হামিদ	৫৬	৫	৫	আবদুল হামিদ
	মিনহাজ হামিদ	৫৫	৫	৫	মিনহাজ
	আবদুল হামিদ	৫৫	৫	৫	আবদুল হামিদ
	শো: হামিদ	৫০	৫	৫	হামিদ

Figure: Attendance of consultation meeting for 65m Long RCC Bridge at ch 1520 on Rekuia to Arabshah Bazar via Rajakhali Sabuj Bazar road ID: 422952002 (Package no: HELP-COX/BR-1) (Pekua Upazila)

Annexure-02: Sub-project location pictures



Figure: Present condition of the proposed location for 65m Long RCC Bridge at ch 1520 on Rekuia to Arabshah Bazar via Rajakhali Sabuj Bazar road ID: 422952002 (Package no: HELP-COX/BR-1) (Pekua Upazila)

Appendix-1: Environmental and Social Screening Form for examining sub-project

Environmental and Social Screening Form

Work Package Description Form:

Name of component: Construction of 65m Long RCC Bridge at ch 1520 on Rekuia to Arabshah Bazar via Rajakhali Sabuj Bazar road ID:422952002 (Proposed Length- 65m)

Package no: HELP-COX/BR-1

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): As per LGED rate schedule

Estimated construction period duration: 18-24 months

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar

Sub-District: Pekua

Union: Matarbari

Name of Community/Local Area: Mirza Bahadur Store at West Jaliakata village

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

One RCC Bridge will be constructed replacing an existing old concrete bridge. There are some activities for RCC bridge construction such as Earth cutting and filling for foundation, Back filling and approach road construction, Brick soling work, CC work, RCC work, Rod cutting, bending and binding and Shuttering work.

Estimated footprint / land area for this sub-project is 474.5 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.):

Proposed 65-meter Long RCC bridge is situated at chainage 1520 on the Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road (Road ID: 422952002), located in Pekua Upazila, Cox's Bazar District. The bridge is located over Toitong Khal, a canal that flows all year and is used regularly by fishing trawlers and small boats. This canal is very important for local transport and the livelihoods of nearby people.

The north-western side of the bridge is in New Ghona village under Rajakhali Union, and the south-eastern side is in West Jaliakata village under Baro Bakia Union. The site is about 4 kilometers from the Pekua Upazila headquarters and serves nearby villages such as West Jaliakata, Notunghona, Doshor Ghona, Kutubpara, Bodamaghir Ghona, and East Jaliakata.

The existing approach road to the bridge is constructed with bituminous carpeting (BC) that allows local vehicles to pass. Nearby features include shops about 50 meters to the south, a house around 40 meters to the south, and other houses around 50 meters to the east and west. A mosque named Rajakhali Jame Mosque and Graveyard located at 175m north from the proposed site.

The area is semi-urban and somewhat developed, with both homes and businesses on either side of the canal. The bridge serves as a critical transportation link, used by an estimated 25,000-30,000 people daily, including salt field workers, traders, fishermen and residents from the adjacent

communities. Currently, no other important environmental feature is found within the proposed sub-project location.

The proposed Sub-project of RCC Bridge is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to demolition of an old bridge and later construction of a new bridge on the same place. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of plastic. Human wastes might be generated in labor camps.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Following activities for RCC bridge construction are:

- Earth cutting and filling for foundation
- Back filling and approach road construction
- Brick soling work
- CC work
- RCC work
- Rod cutting, bending and binding
- Shuttering work

For bridge safety,

- Color painting on rallying
- Traffic safety guide post for approach
- Safety measures will be taken within the construction

Others,

- Any bridge side is not on private land
- Alternative diversion will be provided for traffic movement and not disturbing of water flow or flora and fauna
- Mainly on very small canals and dispersed land will necessary for water drainage

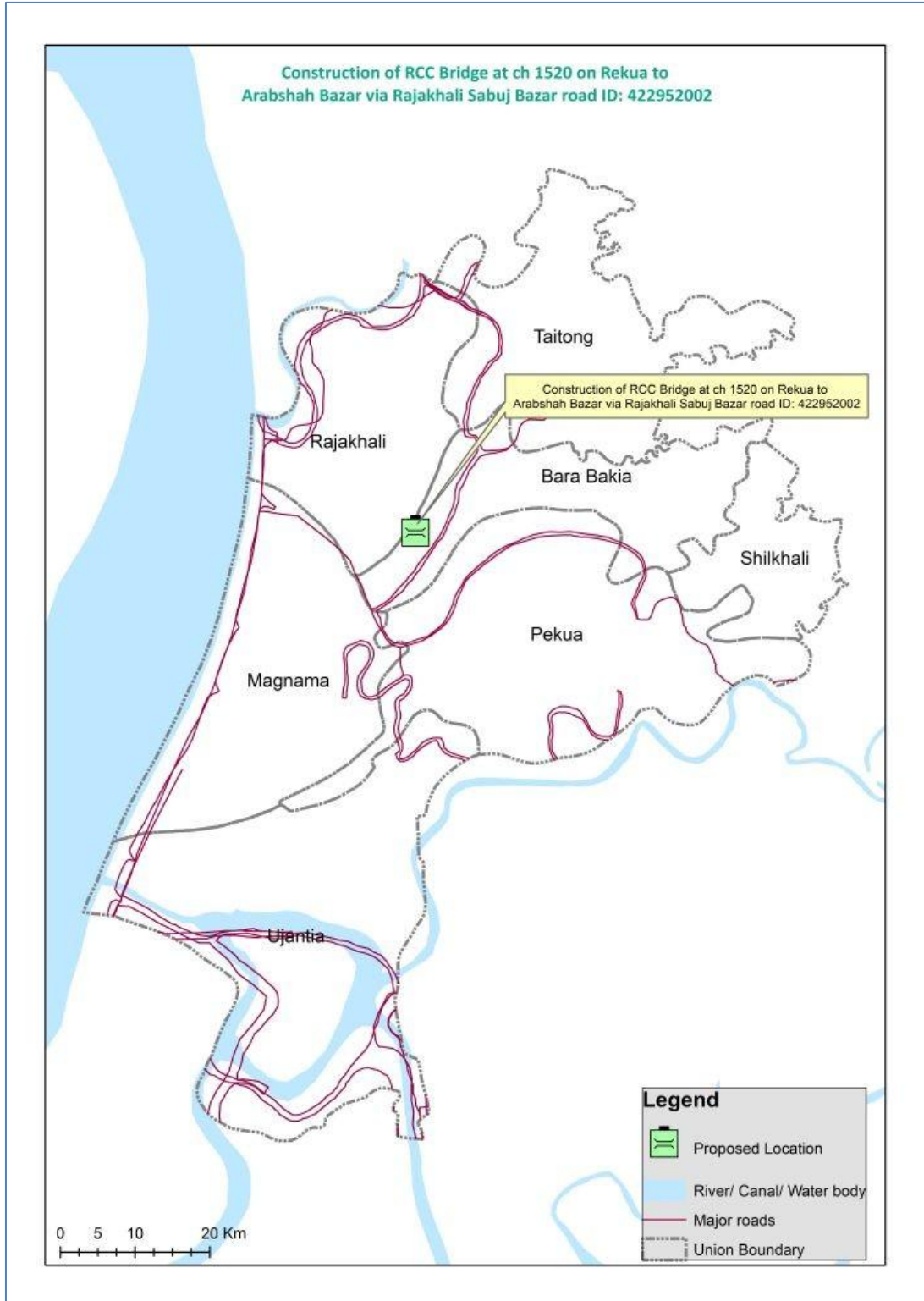
For livelihood,

- No private land will be used
- No shifting of any structure will be needed

Sub-project Location:

The proposed 65-meter RCC bridge will be constructed at chainage 1520 on the Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road (Road ID: 422952002), in Pekua Upazila, Cox's Bazar District. The bridge will cross over Toitong Khal, a canal that flows all year round and is often used by fishing boats and small water vessels. The north-west side of the bridge is in New Ghona village under Rajakhali Union, and the south-east side is in West Jaliakata village under Baro Bakia Union. The bridge is about 4 kilometers away from the Pekua Upazila headquarters. It will serve nearby villages such as West Jaliakata, Notunghona, Doshier Ghona, Kutubpara, Bodamaghir Ghona, and East

Jaliakata, making travel and transport easier for local people. The GPS coordinate is 21.836404, 91.947201.



Land ownership
Government Land

Expected construction period: 12 (Twelve months)

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas and historical or cultural assets): Please also explain any analysis on alternative location was conducted:

Project intervention area will be adjusted on the existing old concrete bridge but influence area should consider nearly half a kilometer radius around the proposed site.

To the north, Rajakhali Jame Mosque and Graveyard is located at 175 meters, Jaliakata Old Jame Mosque at 550 meters, Doshier Ghona Jame Mosque at 618 meters, and Jaliakata Hazrat Belal Mosque and Graveyard at 330 meters. To the south, the area includes M.H Government Primary School at 660 meters, a residential household 40 meters away, and small shops about 50 meters from the bridge site. On the eastern side, the site is located near Fasiakhali Jamiya Madrasa and Yatimkhana (820 meters), Pekua Bazar Mosque (920 meters), Baitul Mamur Jame Mosque (820 meters), and a household at 50 meters. On the western side, another household is located within 50 meters of the proposed bridge alignment.

But there is no scope to be affected by the construction activities. No structures, trees and livelihood will be affected by this construction activity. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified.

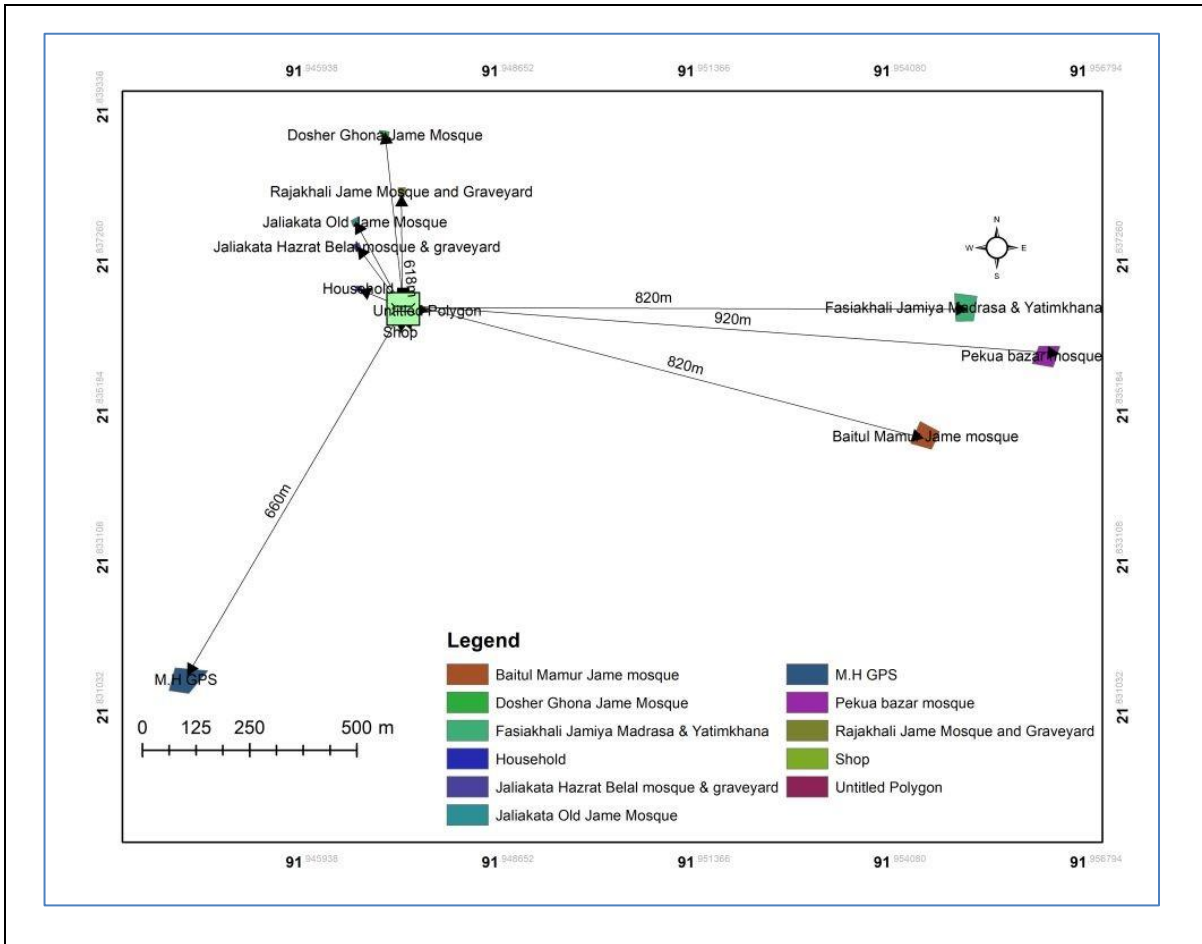
Section B: Environmental Screening

B.1: Environmental feature of sub-project location

Description of cultural properties (if applicable, including distance from site):

The proposed 65-meter Long RCC bridge will be constructed at chainage 1520 on the Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road (Road ID: 422952002), in Pekua Upazila, Cox's Bazar District. The bridge will cross over Toitong Khal, a canal that flows all year round and is often used by fishing boats and small water vessels. The area is semi-urban and somewhat developed, with both homes and businesses on either side of the canal. However, to the north, key features include Rajakhali Jame Mosque and Graveyard at 175 meters, Jaliakata Old Jame Mosque at 550 meters, Doshier Ghona Jame Mosque at 618 meters, and Jaliakata Hazrat Belal Mosque and Graveyard at 330 meters. To the south, the area includes M.H Government Primary School at 660 meters, a residential household 40 meters away, and small shops about 50 meters from the bridge site. On the eastern side, the site is located near Fasiakhali Jamiya Madrasa and Yatimkhana (820 meters), Pekua Bazar Mosque (920 meters), Baitul Mamur Jame Mosque (820 meters), and a household at 50 meters. On the western side, another household is located within 50 meters of the proposed bridge alignment. The existing approach road to the bridge is constructed with bituminous carpeting (BC) that allows local vehicles to pass. The sketch of the surrounding features are given below.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas within the proposed site. To the north, Rajakhali Jame Mosque and Graveyard is located at 175 meters, Jaliakata Old Jame Mosque at 550 meters, Doshier Ghona Jame Mosque at 618 meters, and Jaliakata Hazrat Belal Mosque and Graveyard at 330 meters. To the south, the area includes M.H Government Primary School at 660 meters, a residential household 40 meters away, and small shops about 50 meters from the bridge site. On the eastern side, the site is located near Fasiakhali Jamiya Madrasa and Yatimkhana (820 meters), Pekua Bazar Mosque (920 meters), Baitul Mamur Jame Mosque (820 meters), and a household at 50 meters. On the western side, another household is located within 50 meters of the proposed bridge alignment.

These impacts are short-term, site-specific and can be effectively managed through proper water sprinkling and site drainage. The proposed bridge will be replaced with an existing old concrete structure, crossing over Toitong khal.

Those will not be affected by the construction works, as the activities will be carried out over the existing concrete bridge and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) potential impacts on remaining forests in/around camps Yes/No

N/A

(2) Other issues:

N/A

Baseline air quality and noise levels:

Air Quality

Site-specific baseline ambient air quality monitoring was not conducted for this sub-project. However, baseline conditions have been assessed based on secondary information from relevant environmental studies, Department of Environment (DoE) monitoring data, and previous environmental assessments of rural infrastructure projects implemented in Cox's Bazar District and similar coastal regions of Bangladesh. These sources indicate that ambient air quality in such rural and semi-urban areas is generally moderate to good, primarily due to the absence of major industrial activities and the dominance of local traffic and open land use.

According to the available DoE² monitoring data and previous environmental assessments under LGED and World Bank-supported projects, concentrations of gaseous pollutants such as sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and carbon monoxide (CO) in similar rural settings typically remain within the Bangladesh National Ambient Air Quality Standards (BNAAQs). Indicative values from comparable project areas show SO₂ concentrations ranging from 5-20 µg/m³, NO₂ from 15-30 µg/m³, and CO levels generally below 2.0 mg/m³.

Particulate matter (PM₁₀ and PM_{2.5}) levels in respective Upazila are generally moderate, but may increase during the dry season due to dust from unpaved surfaces, movement of vehicles, and local bazar activities. Secondary data from previous LGED road project EIAs³ indicate that PM₁₀ concentrations may range between 90-160 µg/m³ and PM_{2.5} between 40-70 µg/m³ during peak dry periods, with occasional short-term exceedances of national standards. These exceedances are typically localized, temporary, and reversible in nature.

Field observations at the proposed bridge construction site indicate generally good baseline air quality conditions, as the area is predominantly rural with low traffic density. Minor localized emissions are mainly associated with intermittent vehicular movement, small-scale rural activities, and nearby household activities. No significant industrial emission sources or air pollution hotspots were identified within the Project Influence Area. Overall, the baseline air quality in the project area is considered acceptable for a rural setting. Construction activities may temporarily increase dust and vehicular emissions, particularly during earthworks and material transport; however, these impacts are expected to be short-term and manageable through standard mitigation measures such as regular water spraying, covering of materials, and controlled movement of construction vehicles.

Noise Levels

Baseline noise monitoring was not carried out for the proposed road. However, secondary information from LGED environmental reports, DoE noise surveys, and field observations indicate that ambient noise levels in Pekua Upazila and nearby areas are generally low to moderate. Typical daytime noise levels in rural areas of Cox's Bazar range from 45–55 dB(A), while nighttime levels

² Department of Environment (DoE) (2005, amended 2018). Bangladesh National Ambient Air Quality Standards (BNAAQs). Ministry of Environment, Forest and Climate Change, Government of Bangladesh, Dhaka.

³ Local Government Engineering Department (LGED) (2019). Environmental Impact Assessment Reports for Rural Road Improvement Projects in Cox's Bazar District. LGED, Dhaka.

range from 38–45 dB(A)⁴, which are within the limits prescribed under the DoE Noise Pollution (Control) Rules for rural and residential areas.

Existing noise sources in the project influence area are limited to light vehicular traffic, local market activities, and occasional agricultural operations. No continuous or high-intensity noise-generating sources were identified near the proposed site. During construction, temporary increases in noise levels may occur due to the operation of construction machinery and vehicles. Such impacts are expected to be localized, intermittent, and time-bound, and can be effectively mitigated through scheduling works during daytime hours, maintaining equipment in good condition, and providing appropriate personal protective equipment (PPE) for workers.

Baseline soil quality:

Site-specific soil quality monitoring was not conducted for the proposed bridge site at the screening stage. However, baseline soil conditions have been assessed using secondary information and field observations along the proposed site. The project area lies within the coastal floodplain of Cox’s Bazar District and is characterized by young alluvial soils with silty clay to clay loam textures. These soils are generally fertile but may exhibit moderate salinity, particularly during the dry season due to tidal influence and saline water intrusion⁵. Soil pH in the area typically ranges from 6.5 to 8.0, indicating neutral to slightly alkaline conditions common in coastal deltaic environments.

Electrical Conductivity (EC) of soils in the surrounding area varies seasonally, with moderate salinity (4-8 dS/m) observed in surface soils during the dry period. Salinity tends to decrease during the monsoon season due to rainfall and freshwater influx. Organic matter content is generally low to moderate (1-2%) as a result of frequent sediment deposition, tidal action, and limited biomass retention in cultivated and open areas along the proposed site. Available secondary data suggest that heavy metals such as lead (Pb), cadmium (Cd), chromium (Cr), and arsenic (As) are present at concentrations within permissible limits for rural and agricultural land use, with no indications of industrial contamination⁶. Naturally high iron content, common in alluvial soils, is not considered a constraint for construction activities.

The proposed bridge construction site is located within a rural setting, primarily surrounded by agricultural land and scattered settlements. The bridge footprint is confined to the immediate crossing area, and no active agricultural activities are present within the core construction zone. Field verification did not identify any signs of contaminated land, illegal dumping, or nearby industrial operations. During construction, activities such as excavation for abutments, piling, and material handling may temporarily disturb the topsoil and pose minor risks of localized soil contamination from fuel, lubricants, cement slurry, and construction waste. These potential impacts are expected to be short-term, site-specific, and reversible in nature.

Landslide potential (high/medium/low, with explanation):

N/A (the sub-project will be constructed in a plain land)

⁴ Department of Environment (DoE) (2025). Noise Pollution (Control) Rules, 2025. Ministry of Environment, Forest and Climate Change, Government of the People’s Republic of Bangladesh, Dhaka.

⁵ SRDI (2018). Soil Salinity Status of Bangladesh. Soil Resources Development Institute, Ministry of Agriculture.

⁶ Local Government Engineering Department (LGED) (2020). Environmental Impact Assessment Reports for Rural Infrastructure Projects in Cox’s Bazar District. LGED, Dhaka.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Site-specific baseline surface water quality was not conducted for the proposed site. However, baseline conditions have been assessed using secondary information from the different Department and World Bank-funded projects previously implemented in Pekua and adjacent coastal upazilas of Cox’s Bazar District.

The baseline surface water and groundwater quality in Cox’s Bazar District shows moderate variability influenced by coastal processes, seasonal rainfall, and human activities. Groundwater in the region is generally slightly acidic to neutral, with pH values ranging from about 6.5 to 7.5, which falls within acceptable limits for drinking purposes⁷. However, iron (Fe) concentrations are often elevated and may exceed the Bangladesh drinking water standard (0.3 mg/L), causing aesthetic and operational concerns. Total dissolved solids (TDS) in both surface and groundwater typically range from low to moderate (approximately 300–1000 mg/L), although higher values can occur in coastal areas due to saline intrusion⁸. Surface water bodies, including ponds and canals, are more vulnerable to contamination and frequently show the presence of fecal coliform bacteria, indicating pollution from domestic wastewater, poor sanitation, and runoff, especially in densely populated and tourist areas. Groundwater is comparatively less contaminated microbiologically but may still be at risk in shallow aquifers. Overall, while pH and TDS are generally within acceptable ranges, elevated iron levels and fecal contamination in surface water represent key water quality concerns in the district.

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

No trees are found near the proposed area. The proposed site will be developed in an open space surrounded by salt fields.

Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

The proposed sub-project involves the construction of a 65-meter RCC bridge at chainage 1520 over Toitong Khal, along the Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road (Road ID: 422952002). It is possible to carry the construction materials on this road to the construction site.

Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction:

No tubewell are present at the proposed location. In order to make a sustainable management to usage of water for construction works two numbers of tubewells should be installed. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget.

⁷ DPHE (Department of Public Health Engineering). (2019). Bangladesh Drinking Water Quality Survey 2018–2019. Government of Bangladesh.

World Health Organization (WHO). (2017). Guidelines for Drinking-water Quality (4th ed.). Geneva.

⁸ Bangladesh Bureau of Statistics (BBS). (2021). Statistical Yearbook of Bangladesh.

Electricity is available at the site.

Toilet facilities are not available near this location. To be used by the workers/contractor's staffs during the construction period toilet will need preparation for both male and another for female.

Possible location of labor camps:

On the east side of the selected site, or can be placed near the location of sub-project site.

Requirement and type of raw materials (e.g. sand, stone, wood, etc.):

Some of the raw materials for bridge construction are steel, concrete, stone, asphalt, water, bamboo & wood. Other materials include iron, timber, aluminum, rubber and other joint materials, and electro-mechanical equipment used in construction.

Identification of access road for transportation (Yes/No):

Yes. The proposed sub-project involves the construction of a 65-meter RCC bridge at chainage 1520 over Toitong Khal, along the Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar Road (Road ID: 422952002). It is possible to carry the construction materials on this road to the construction site.

Location identification for raw material storage:

On the east side of the proposed sub-project. Material storage area must be well fenced and materials will be covered with tarpaulins.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Solid waste: An existing concrete bridge will be demolished and the new RCC bridge will be constructed here. So, construction debris and other solid wastes will be generated both during the demolition and construction periods.

Type: woods-bamboo, copper wires, concrete, iron, plastic, tin, etc.

Quantity: Nearly 10 metric ton of solid waste, including demolition materials will be produced.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Solid waste: Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 7 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp.

Liquid waste: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 6 kg per day, which would be reduced in weight in course of time.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes viii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

There is no soil land or major vegetation cover on the right-of-way for the sub-project. No other placement as waste dumps or equipment is targeted in any vegetation cover as well.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

Low: No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the sub-project area. During construction period one or two water reservoir may be constructed due to construction activities. But all those will be completely demolished and cleared out, once the construction period is over.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

Proposed site is located along the Pekua to Arabshah Bazar via Rajakhali Sabuj Bazar road, which is a distributary of the Toitong Khal however it is not subject to any modification. On the other hand, during construction period, water quality may be disturbed due to dust deposition and concrete and cement usage. The runoff from work site may enter the present canal which will be acute in degree and short in period.

Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

Low: The site is free from any significant aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: N/A

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)

N/A

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.

Likely direct and indirect impacts on economic development in the project areas by the sub-project:

Construction or implementation of a bridge project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.

Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes):(High/Medium/Low with description)

No significant modification to the water channel is anticipated. The proposed bridge will be constructed over Toitong Khal, which is a navigable and active canal used year-round by local fishing trawlers and other small water vessels and is not classified as a wetland or marsh. The area is semi-urban and somewhat developed, with both homes and businesses on either side of the canal, but not dependent on the khal for drainage, therefore, no such effect can be anticipated

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

There are no protected areas in or around project sites, and no known areas of ecological interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No.

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

During operation period, traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and loose soil being dispersed around during the dry weather, and accidents may occur due to the bad condition of the access road and unsafe driving through it.

High = Likely to cause long-term impacts or over large area (> 1 sq km); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1 sq km); Low = Likely to cause little, short-term damage and over small area (< 0.5 sq km)

Section C: Social Screening

C.1 General Labor Influx Screening

Key Screening questions	Aspects to Consider
Will the project potentially involve an influx of workers to the project location, and will the influx be considered significant for the local	How many foreign and local workers will be needed for the remaining period of the project, with what skill set? Answer The project will not require any foreign workers for the remaining construction period. The contractors will hire all skilled and unskilled labor locally. For the bridge construction, the project

<p>community?</p>	<p>will need about 10 skilled workers and 20 unskilled workers. Skilled workers, such as masons, carpenters, and steel fixers, will come from nearby areas based on the technical needs of the bridge construction.</p> <p>Since the bridge will be constructed within a host community area, and local skilled and unskilled labor is willingly available, the project will prioritize hiring from the local community. This approach will not only support local livelihoods but also promote stronger community ownership of the project.</p> <p>✓ Can the project hire workers from the local workforce?</p> <p>Answer: Yes, the project can hire workers from the local workforce. Both skilled and unskilled laborers will be recruited from nearby communities. The availability of local workers is sufficient to meet the project’s labor demands.</p> <p>✓ What is the size and skill level of the existing local workforce?</p> <p>Answer: Based on consultations with local stakeholders, most of the required workforce both skilled and unskilled is available within the project area. However, if specialized skills are needed for specific technical activities, the contractors may need to hire a limited number of skilled workers from outside the immediate locality. Overall, the local workforce is capable of supporting the construction activities under the project.</p> <p>✓ If the skill level of the local workforce does not match the needs of the project, can they be trained within a reasonable timeframe to meet project requirements?</p> <p>Answer: Unskilled labor is readily available in the project area. If the skill level of the local workforce does not fully meet project requirements, the contractors can provide on-the-job training to upgrade their skills within a reasonable timeframe. This approach will enable the project to utilize local labor effectively while enhancing their technical capacity for bridge construction activities.</p> <p>✓ How will the workers be accommodated? Will they commute or reside on site or outside of the camp? If so, what size of camp will be required?</p> <p>Answer: Most of the workforce will be hired from the local community, and they will commute daily from their own homes; therefore, they will not require accommodation at the construction site. However, skilled workers who may be sourced from outside the project area will require temporary</p>
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	<p>accommodation near the site. Contractors will establish temporary labor sheds to house these external workers. The size of the labor camp will depend on the number of outside skilled workers needed, but it will be designed to comply with Environmental, Health, and Safety (EHS) guidelines to ensure proper living conditions, sanitation, and worker safety.</p>
<p>Is the project located in a rural or remote area?</p>	<p>✓ What is the size of local population in the project area? Answer: The size of the local population in the project area is approximately 9,100 people, including both male and female residents. This estimate is based on information collected during community consultation meetings held at the subproject site.</p> <p>✓ What is the size of the host Rohingya community? Answer: N/A</p> <p>✓ Is the project located / being carried out in an area that is not usually frequented by outsiders? Answer: The project is located in an area that is usually frequented by outsiders, including traders, farmers, salt cultivators and daily commuters from nearby villages.</p> <p>✓ What is the frequency and extent of contact between the local community and outsiders? Answer: Daily</p> <p>✓ Are there sensitive environmental conditions that need to be considered? Answer: Yes, there are sensitive environmental conditions that need to be carefully considered during the implementation of the project. In addition to general construction activities, the demolition of the existing old bridge may also generate significant dust, noise, debris, and vibrations, which could impact nearby households, shop, pedestrians and other sensitive establishments located within close vicinity to the site.</p> <p>To minimize these impacts, the construction site must be properly fenced to contain dust dispersion and reduce noise pollution, thereby safeguarding local residents and pedestrians. Dust suppression measures, such as water spraying at least twice daily, must be implemented throughout the construction and demolition periods. High-noise activities should be considered during less sensitive hours to minimize disturbance to nearby communities. Furthermore, all machinery and equipment should be properly maintained to control noise levels. Careful debris management during the dismantling of the old bridge will also be essential to prevent contamination of nearby water bodies.</p>

Based on the socioeconomic, cultural, religious and demographic qualities of the local community, Rohingya population and the incoming workers, is there a possibility that their presence or interaction with the local community could create adverse impacts?

✓ Is it likely that the incoming workers and the local community come from a shared socio-economic, cultural, religious or demographic background?

Answer: Most of the workforce is expected to come from the local host community. A small percentage of skilled workers may be hired from outside the project area if required. The local workforce and the incoming workers generally share a **common socio-economic, cultural, religious, and demographic background**, which is expected to support smooth integration at the work sites.

Since this subproject is located in the host community area and will not involve Rohingya workers, the risk of conflict due to cultural or social differences is considered **low**. However, contractors must still take precautionary measures, such as **awareness training on social behavior, code of conduct enforcement, and community engagement**, to prevent misunderstandings and ensure a harmonious working environment.

✓ What is the level of existing resources, and will the incoming workers use or create competition for these resources?

Answer: The existing local resources, such as water supply, food, basic health services, and transportation facilities, are limited compared to the size of the local population. Although workers will be hired from the local community, a small number of incoming skilled workers from outside may create **additional pressure on local resources**. This could lead to a **temporary increase in the demand for basic commodities** and may cause **price hikes** in local markets during the construction period.

✓ What is the expected duration of the incoming workers' presence in the community?

Answer: One year but it may be extended.

✓ Given the characteristics of the local community, are there any specific adverse impacts that may be anticipated?

Answer: Yes, considering the characteristics of the local community, some specific adverse impacts may be anticipated during the construction phase. These include:

- **Temporary price hikes** in local markets due to increased demand for goods and services from workers.
- **Pressure on water supply and sanitation facilities**, particularly if labor camps are not properly managed.

	<ul style="list-style-type: none"> • Movement disruption for local vehicles and pedestrians around the construction sites due to road blockages and heavy machinery operation. <p>However, no significant religious or cultural barriers are anticipated, as both the local community and the incoming workforce largely share a similar socio-cultural background.</p>
<p>Consultation with Community People</p>	<p>✓ Has the project authority and contractors conducted any consultation meetings with the community people and Rohingya population?</p> <p>Answer: The project authority has already conducted several consultation meetings with the local community during the environmental and social screening stage. Community opinions, concerns, and suggestions were received with great respect and consideration.</p> <p>After the finalization of the contractor, additional consultation meetings will be organized by the contractor in coordination with the project authority to ensure continued community engagement and address any new concerns during the construction phase.</p> <p>✓ Are local people aware about the labors?</p> <p>Answer: Local community members are well aware of the engagement of local laborers in the project activities. However, they currently have limited knowledge regarding the potential involvement of outside skilled workers.</p> <p>✓ Has the project authority involved the local community with the project?</p> <p>Answer: Yes, the project authority has actively involved the local community throughout the site selection and screening stages. Several formal consultation meetings and informal discussions were conducted at the proposed bridge location and with the local community. Community members shared their views, concerns, and expectations, which were carefully considered.</p>

Involuntary restrictions on land use or on access to legally designated parks and protected areas

Effects	Yes	No	Not Known	Remarks
10. Will people lose access to natural resources, communal facilities and services?		√		People's access to communal facilities and services will not be affected by the project.
11. If land use is changed, will it have an adverse impact on social and economic activities?		√		No scope to change site location.
12. Will access to land and resources owned communally or by the state be		√		No

restricted?				
Information on Displaced Persons:				
Any estimate of the likely number of persons that will be displaced by the Project? [V] No [] Yes If yes, approximately how many? N/A				
Are any of them poor, female-heads of households, or vulnerable to poverty risks? [V] No [] Yes				
Are any displaced persons from indigenous or ethnic minority groups? [V] No [] Yes				
During Screening, project authority will conduct consultation with the primary and secondary stakeholders and provide their observations in the following sections (13 to 18)				
13: Who are the stakeholders of the project? Answer: The stakeholders of the project include a wide range of individuals and institutions connected to the sub-project areas. They are: <ul style="list-style-type: none"> • Local community members • Households and shopkeepers located on both sides of the project roads • Students and guardians from nearby educational institutions • Religious leaders and teachers • Local elected representatives (Union Parishad members, Ward members) • Local administration officials • Implementing agency (LGED) and relevant supporting agencies • Workers and laborers engaged in project construction activities • Community-Based Organizations (CBOs) • Local NGOs • Local traders 				
14: What social and cultural factors affect the ability of stakeholders to participate or benefit from the proposed policy or project? Answer: There are no significant social or cultural factors that would restrict stakeholders' ability to participate in or benefit from the proposed project. The project area maintains a socially cohesive and culturally conducive environment , which supports broad community participation and equal access to project benefits. Stakeholders, including local residents, traders, students, and vulnerable groups, are expected to benefit positively from the improved infrastructure and services. The project's inclusive approach ensures that participation opportunities are available to all community members without discrimination.				
15: Are project objectives consistent with their needs, interests and capacity? Answer: Yes, the project objectives are highly consistent with the needs, interests, and capacities of the stakeholders. Community consultations and FGD during field visits clearly indicated strong local support for the project.				
16: What will be the impact of the project or sub-project on the various stakeholders, especially women and vulnerable groups? Answer: The construction of the proposed bridges will have a significantly positive impact on various stakeholders, particularly women, children, elderly people and other vulnerable groups. Improved transportation infrastructure will ensure easier and safer mobility , allowing women and				

vulnerable populations to travel more conveniently between villages, markets, schools, and health care facilities.

Access to hospitals and emergency services will become faster, which is crucial for women, elderly, and persons with disabilities. School-going children will also benefit through **safer, uninterrupted access to educational institutions**. Overall, the project will enhance social inclusion, reduce travel time, promote economic opportunities, and contribute to an improved quality of life for all segments of the local population.

17: What social risks might affect project or sub-project success?

Answer: Several social risks could potentially affect the success of the sub-projects if not properly managed. These risks include:

- **Minor conflicts** may arise between local community members and incoming skilled laborers, particularly if there are differences in behaviour or competition over local resources.
- **Temporary price hikes** of essential commodities in local markets (hat-bazar) due to increased demand from workers.
- **Risk of engagement in anti-social activities** by a few incoming workers, which could challenge local social norms and community harmony.
- **Noise and dust pollution** may be generated during construction activities, which may disturb schoolchildren, elderly residents, and other vulnerable groups living close to the project sites.

18: Has the project authority or any other organizations conducted any consultations with the affected community or people? If yes. Please provide a summary.

Answer: Yes, the project authority has conducted several consultation meetings with the potentially affected communities and other stakeholders. During the site selection phase, LGED officials organized discussions with local community members, Union Parishad representatives, local elites, school teachers, and civil society organizations to gather feedback regarding the construction of the proposed bridges.

Additionally, during the environmental and social screening process, the PIU Consultant of LGED conducted community consultations to inform local people about the project objectives, construction activities, potential impacts, and safeguard measures.

The key feedback and observations from the consultations include:

- During the consultation meeting and FGD, Community members strongly supported the construction of the bridges, they would enhance connectivity between economically complementary areas, boosting local trade and labor movement.
- Farmers, businessman and salt cultivation farmers expressed that the improved communication network would allow them to receive **fair prices** for their commodities and reduce transportation costs.
- Transportation systems would become easier, faster, and more reliable, saving time and reducing daily hardships for local residents.
- The construction of the bridges is expected to **encourage the growth of local businesses and industries**, stimulating the rural economy.
- Land value in the surrounding areas is likely to increase as accessibility improves.

- Improved road connectivity will enable quicker access to **upazila and district-level hospitals**, ensuring better healthcare facilities for the local population.
- The attendance and enrollment rates of school-going children are expected to rise due to safer and more convenient travel routes.
- The bridges will also strengthen the communication network by acting as vital links within the rural transportation system.

Section D: Environmental and Social Screening Summary of the Work Package

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Sub-project Interventions					
Construction of a RCC Bridge (degradation of air, water and soil quality, and local hydrology)	Under the sub-project intervention, the overall score is low	<ul style="list-style-type: none"> Limiting earthworks and artificial bank reinforcement should be avoided as far as possible; Bridge soffit (The bottom part of the bridge) levels and flood spans should be at least 1 metre above the maximum known flood level to allow floating debris to pass freely through the structure; Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered. The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. Storage of fuel, chemicals, equipment and construction materials so as to minimize the risk of soil contamination or water pollution; Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. 	Contractor, environmental specialist of PIU and D&SC	Visual monitoring result of air quality condition, Results of water test parameters, blockage of water flow with soil, debris or stack materials at site.	Throughout the time during the construction period.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Monitor water quality according to the environmental management plan. • Phasing of construction work to minimize disturbance to wildlife at sensitive times of year, such as during the breeding season or when young are being raised; • Use of techniques to minimize compaction of soil, such as restricting access during wet conditions, and using protective boarding and low-ground pressure machinery. If necessary, soil should be carefully removed and stored for subsequent reinstatement. • Access roads should avoid riparian zones and should be built using appropriate construction materials. 			
Pre-construction Phase					
Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • The proposed sub-project is targeted at existing old concrete bridges over local running canal. The construction area over this canal needs to be covered so that the water cannot receive debris and dust from the demolition and construction work. • Construction camp and material storage area should be located at the site & approved by the Environmental Specialist of D&SC. • The Pekua bridge is proposed along the Pekua–Arabshah Bazar via Rajakhali Sabuj Bazar road, which is a Bituminous Carpeting (BC) road. Therefore, any required labor camp and related facilities should be established in a designated area away from the road alignment to ensure that traffic flow and community movement are not obstructed. 	Contractor, environmental specialist of PIU and D&SC	Water quality test results. Location of stockpiles and labor shed.	Prior to the start of Construction works.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Loss of land / and other physical assets	No adverse impact will be generated.	<ul style="list-style-type: none"> No land acquisition will be required as RCC bridge will be constructed in own existing alignment, which is entirely Government land. No additional land will be required to construct the RCC bridge due to both sides of the canal being government vacant property as well as LGED roads. The local community has been agreed to provide space beside the bridge construction site to keep the construction materials during construction work. There is no physical asset affected by the intervention of the sub-project (bridge). In case of any grievance from a neighboring household, emergency consultation will be conducted to resolve the issue through the project GRC. 	Safeguard team of PIU, PSC and D&SC	Number of Complaints. Check Grievance register. Resolutions against the grievances.	Ensure regular supervision and Monitoring based on compliance.
Loss of livelihood	No impact may be generated.	<ul style="list-style-type: none"> Contractor need to engage local labor as priority (both skilled and unskilled) at their construction work. Due to government limitations Rohingya community is not entitle to work in host community because of restriction to buy daily necessary items. Woman labor should get priority at the time of labor recruitment. During construction work social safeguard compliance shall be maintained properly by the contractor. 	PIU, Contractor, Safeguard team of PIU, PSC and D&SC	Labor wages payroll. Interview with labor. Frequent visit by D&SC and PIU personnel	Monthly basis
Stakeholders Engagement	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> One community-level consultation meeting has already been conducted with the relevant stakeholders. The meeting aimed to gather feedback, ensure local participation and inform the community about the project scope and potential impacts. 	PIU, Contractor, Safeguard team of PIU, PSC and D&SC	List of participants in consultation and GRC. Disclosure records of safeguard documents.	Weekly basis

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Moving forward, additional consultation sessions will be held as needed to ensure inclusive stakeholder engagement throughout the project lifecycle. • All safeguard documents will be disclosed to the stakeholders prior to the commencement of construction works. • All the stakeholders will be made aware of the Grievance Redress Mechanism (GRM) and their active participation will be ensured through representation in the Grievance Redress Committee (GRC). 		Feedback and grievances are recorded and addressed. Level of awareness on GRM among stakeholders.	
<p>Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of crime, children, animals, etc.)</p>	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • The contractor shall submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures. • Proper procedure for stockpiling/ storage of construction materials at the site will be 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 outsiders, children, animals, etc. • Spills/ hazardous substances should be disposed of at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination. 	Contractor, environmental specialist of PIU and D&SC	List of selected sites; Identified sources and storage place of materials.	During Design Stage

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Demolishing of an existing structure	Under the sub-project intervention, the overall score is Medium	<ul style="list-style-type: none"> • Water spraying at the demolition site • Fencing / Installing barriers should be shield from dust and aggregates • Avoid usage of machines/equipment with extra noise; • Do not accumulate and burn waste at the site • Carry out demolition activities in stages, give adequate notice and information of activities to the adjoining stakeholders • It needs to Identify proper location to dispose of solid waste from demolition and other activities in consultation with respective bodies • Make mandatory the use of safety gears (helmets, safety belts, masks, gloves and boot) by workers depending on nature of work. • Further guidance on demolition works and wastes management is given in appendix 2, below the ESMP table, to be followed by the contractor. 	Contractor, environmental specialist of PIU and D&SC	List of selected sites; Identified sources of materials.	During Design Stage
Setting up of labor camp (Generation of sewage waste; solid Waste; Water, soil, air & dust pollution/ environmental pollution; health hazard of workers due to poor quality drinking water)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Construction camp should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. 	Contractor, environmental specialist of PIU and D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> Provision of waste bins/ cans, where appropriate; and 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 and/ or at the site pre-approved by the Environmental Specialist of D&SC. Camp and working areas are to be kept clean and tidy at all times. 			
Accidents	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Provision of standard safety protocol. Providing training on Environmental health and safety to the labors and associated field staffs is the responsibility of Upazila Engineer & Contractors. Training should be scheduled twice, once before starting the construction & another in the middle of construction period. Safety & protection gears, first aid box etc. should be available in the site during construction period. 	Contractor, environmental specialist of PIU and D&SC	Complaints from community; Complaints from the labors and associated field staffs; Regular inspection of materials transport vehicles.	Before and during the construction phase
Construction Phase					
Site Preparation: Soil Erosion; Alteration of natural drainage	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Construction facilities including material are to be placed at least 30- meter distance from bridge construction area in order to minimize impacts on water bodies and natural flow paths. Any disruption of socially sensitive areas with regard to human habitation and areas of cultural significance will be avoided. Retaining wall need to construct that structure retain (holds back) any material (usually earth) and prevents it from sliding or eroding away. 	Contractor, environmental & Social specialist of PIU and D&SC	<ul style="list-style-type: none"> Presence and adequacy of retaining structures. Functionality of the temporary bamboo bridge. Visual evidence of erosion or drainage issues. 	Monthly, Immediate follow-up after heavy rainfall or erosion events.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> Ensured diversion / alternative bamboo made bridge for considering the bi-cycle, and Rickshaw movement, pedestrian and other transportation etc. The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents. 		<ul style="list-style-type: none"> Community complaints on disruption. 	
Increase in diversion road accidents	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> The contractor will prepare a response plan to accidents, it will ensure the victim to receive quick treatment. The movement of heavy machinery and equipment shall be restricted to diversion or temporary bridge. Proper signage to be displayed at diversion. Road diversions and closures to be informed well in advance to the local community. Local community will be trained on traffic management and awareness 	Construction Contractor, Safeguard team of PIU and D&SC	<ul style="list-style-type: none"> Traffic and Road Conditions. Accident and incident logs. Number and visibility of traffic signage. 	<ul style="list-style-type: none"> Weekly inspections by D&SC Daily monitoring by contractor Monthly review by PIU Safeguard team Immediate review after any accident or complaint.
Quality construction work of the RCC bridge	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Respected community deserving quality construction works (side by side with the construction engineers and Design and Supervision Consultant) 	Construction Contractor, Environmental & Social Consultant of PIU and D&SC	<ul style="list-style-type: none"> Community feedback should be acknowledged and addressed regarding construction quality. Material quality test results. Community feedback should be 	Daily supervision by D&SC. Weekly progress review by PIU.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
				acknowledged and addressed regarding construction quality. ☒ Ensure timely rectification of any construction defects.	
Safety during construction of the RCC bridge	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • An unauthorized person entry to the proposed site should restrict strictly and ensure proper storage and control of hazardous materials on site. • Child labors are not allowed for any kind of activities • Site shall be secured by fencing and ridge (if needed). • Ensuring that clear safety policies and procedures are in place and strictly enforced is essential, as is regular inspection and maintenance of all workplace equipment. • Awareness building program will be taken on social safety matters through imparting training from the project before commencement. At the same time, compliance should be ensured by the contractors. 	Construction Contractor, Environmental & Social Consultant of PIU and D&SC	☒ Regular inspection and maintenance records of machinery and safety gear. ☒ Register/Documents on social safety matters Checking stock register of personal protective equipment (PPE)	
Noise Impacts	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Avoid high noise making activities during after daylight. • Involve the community in planning the work program so that any particularly noisy or otherwise invasive activities can be scheduled to avoid sensitive times. • Avoid using of construction equipment producing excessive noise at night. 	Contractor, environmental specialist of PIU and D&SC	Number of complaints from stakeholders, use of silencers in noise-producing equipment and sound barriers,	Weekly

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Ear protection devices for the workers & site staffs should be available in site during construction period. 		Noise Level following decibel meter (dB)	
<p>Air Quality</p> <p>Conducting works at dry season and moving large quantity of materials may create dusts and increase in concentration of vehicle related pollutants which will affect people who live and work near the sites. The impacts are negative but short-term, site-specific within a relatively small area and reversible by mitigation measures.</p>	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Damp down exposed soil and any sand stockpiled on site by spraying with water during dry weather. • Use tarpaulins to cover soils, sand and other loose material when transported by trucks. • Unpaved surfaces used for haulage of materials within settlements shall be maintained dust-free. • Arrangements to control dust through provision of water sprinklers and dust extraction systems shall be provided at all stone crushers (if these establishments are being setup exclusively for the subproject). • Limiting speed of construction vehicles in work sites to maximum of 20 km/h. • Regular monitoring of air quality. 	Contractor, environmental specialist of PIU and D&SC	Location of stockpiles, Covering of trucks, Records of air quality inspection, Numbers of complaints from sensitive receptors, Heavy equipment and pollution control devices, Maintain records	Monthly
<p>Biodiversity</p> <p>(There are no protected areas in or around subproject</p>	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Prohibit employees from cutting trees for firewood. • If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree cut. 	Contractor, environmental specialist of PIU and D&SC	If tree cutting is required, to be determined during Design stage, Numbers of	Monthly

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
sites, and no known areas of ecological interest.)		<ul style="list-style-type: none"> Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. Construction works should be limited or be finished before the fish breeding period (springtime esp. Bangla months of Baishakh and Jaishtha/ April and May, when the water warms up and the daylight lengthens), and restoration of sites (with removal of any hindrance or cofferdam, etc.) is imperatively necessary to protect the fish species. 		complaints from sensitive receptors.	
Workers' health and safety	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Prevent excessive noise; Construction staffs are to make use of the facilities provided for them (e.g., fires for cooking); No fires permitted on site except if needed for the construction works; Staff must be trained to operate equipment. Availability and access to first-aid equipment and medical supplies. Ensure the presence and use of safety gear at site: Ear protection devices, Goggles, Illuminating jackets, Masks, Gloves, Helmets, Uniforms etc., Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately. 	Contractor, environmental specialist of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkway signage, and metal sheets placed at project location;	Monthly
Labour Base Camp: Conflicts with the local residents	Low impact may be generated.	<ul style="list-style-type: none"> An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. Awareness building about nutrition, disaster risk resilience or mitigation, adoption of clean energy for cooking; and prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. 	Contractor, environmental & Social specialist of PIU and D&SC	Checking use of resources by labor. Document checking of awareness building activities. Physical Checking. Grievance register.	Daily site visit

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<ul style="list-style-type: none"> • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • To be ensured adequate sanitation facilities in the labour camps. • Treated water will be made available at site for labour drinking purpose. • Adequate accommodation arrangements for labour and code of conduct to be disclosed through consultation and FGD. 		Interview with local community.	
Post-Construction Phase					
Construction clean-up (Damage due to debris, spoils, excess construction materials, and after-effect water test)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • Remove all spoils, wreckage, rubbish or temporary structures which are no longer required; • All affected structures rehabilitated/compensated; • The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up; • All imported materials are to be removed and the area shall be re-vegetated as per the specification that forms part of this document; • The contractor must arrange the cancellation of all temporary services; 	Contractor	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions. Water test before handover of the project to check water quality for severe modification (if any).	After the completion of Works
Odor& waste disposal	Under the issue, the	<ul style="list-style-type: none"> • Use bin covers and/or tarpaulins during transport of wastes. 	Contractor monitored by	Complaints from communities	Site inspection daily / weekly basis.

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
	overall score is low.		Consultant and PIU		
Vegetation	Under the issue the overall score is low.	<ul style="list-style-type: none"> After construction work, all structures need to be removed and the area shall be topsoiled and re-grassed using the guidelines set out in the re-vegetation specification that forms part of the bidding document. 	Contractor monitored by Consultant and PIU	The worksite is restored to its original conditions.	Over the completion of Works
Traffic Accidents	The low impact may be generated during construction even some times After construction	<ul style="list-style-type: none"> Clear diversion/bridge markings and signage. Diversion Road design to ensure traffic speed is not hazardous given slopes of the diversion. Recording and reporting of accident incidents to local police station. Annual reporting of accident figures to PSC. 	PIU, PSC, LGED and Local Governance institution	No. of the accident took place. Marking and signage of road. Record of the Police Station and PSC. Newspaper	Monthly basis
The sub-projects are expected to be sustainable	Low	<ul style="list-style-type: none"> The safeguard issues and maintenance of the RCC bridge taken care of by the concerned Union Parishad and Upazila Parishad for sustainability. 	LGED, Union Council and Upazila Parishad	Evidence of routine inspection and maintenance activities; community feedback on bridge condition.	Bi-annually
Traffic movement and economic enhancement		<ul style="list-style-type: none"> LGED expecting that after completion of RCC bridge traffic movement will be increased, diverted traffic will be 	PIU, PSC, LGED	<ul style="list-style-type: none"> Community feedback. Number of 	Quarterly, post-construction assessment

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
		<p>generated, lives and livelihood of people will be improved of the catchment area.</p> <ul style="list-style-type: none"> • The important places will be well-connected. • People will enjoy improved facilities for connecting both side canal local school, college and other educational institution. 	and the Local Governance institution	<p>connected routes.</p> <ul style="list-style-type: none"> • Increase in traffic volume. • Economic activity (shops, transport). 	

* Overall Impact Score: High = Likely to cause long-term E&S impacts; Medium = Likely to cause temporary impacts; Low = Likely to cause little, short-term impacts

Recommendation for further environmental and social assessment and/or site-specific environmental and social management plan: Yes

**If yes, please specify what assessments/plans would be required.*

Appendix-2: Environmental and Social Management Plan (ESMP)

ESMP for Construction of 65m Long RCC Bridge at ch 1520 on Rekuva to Arabshah Bazar via Rajakhali Sabuj Bazar road ID:422952002

Package no: HELP-COX/BR-1:

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-construction Stage			
Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is required within this sub-project activity so, there is no mitigation measures according to this impact. The subproject will be constructed on Government land. 	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Loss of livelihood	<ul style="list-style-type: none"> Under this subproject, there is no scope of negative impact on livelihoods of the people of catchment area. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Stakeholders Engagement	<ul style="list-style-type: none"> All the project stakeholders will be consulted Separate community level consultation meeting with the potentially affected HHs Consultation meeting with nearby Host community about the project objectives and scope of works People living in nearby community and members of LGED Upazila will be involved with the GRM 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Loss of right to access	<ul style="list-style-type: none"> In case of unavoidable circumstances, alternative access will be provided. Proposed bridges will be well demarcated and accessibly paved. 	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Site Preparation: Soil Erosion; Alteration of natural drainage	<ul style="list-style-type: none"> Construction facilities including materials are to be placed at least 10 m (32 ft) distance from any water body in order to minimize impacts on water bodies and natural flow paths. Minimize cut & fill operations, the site clearing and grubbing operations should be limited to specific locations only. The existing slope and natural drainage pattern on the site should not be significantly altered. 	PIU & Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> The contractor shall ensure that site preparation activities do not lead to disruption of activities of the camp settlers and host community. 		
Construction stage			
Noise from construction works	<ul style="list-style-type: none"> Construction activities will be finished at day time within 06:00 PM. Proper measures will be taken to avoid any disturbances. All Personal Protective Equipment (PPE) shall be available at site before starting any kind of construction works. 	Contractor	Environmental Consultant of PIU, PSC
Dust	<ul style="list-style-type: none"> Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. Provision of using water sprinklers to dust control. Construction materials should be covered properly while carrying in vehicles to the site. Vehicle movement will be controlled on haul roads/access roads for limiting dust generation. 	Contractor	Environmental Consultant of PIU, PSC
Safety Issues	<ul style="list-style-type: none"> Unauthorized entry to the site area is completely prohibited and the site will be properly fenced with a single entry, for this purpose. It will be ensured that proper training and guidance are provided on general and occupational health and safety to Contractors' personnel and labors forces, and records of training sessions are to be kept at site. All kinds of Child labor will be completely prohibited. 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Traffic Management	<ul style="list-style-type: none"> Contractors will discuss with traffic management authorities and take site specific traffic management measures to avoid congestion and any unwanted incidents or accidents. Road signs and speed ramps are to be placed at strategic locations. 	Contractor	Environmental Consultant of PIU, PSC
Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. If ground water is withdrawn, adequate approvals from the appropriate department need to be collected before setting up bore wells. Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. Local community must be consulted before any construction work starts. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Increase in road accidents	<ul style="list-style-type: none"> Maintain safety measures during the movement and operation of heavy machineries and equipment. Vehicular movement is to be controlled near sensitive locations, viz. schools, colleges, hospitals, child friendly centers, etc. identified along designated vehicular transportation routes. Local community will be trained up about traffic management and awareness. 	Contractor	Environmental Consultant of PIU, PSC
Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual 	Contractor	Social Development Specialist and Gender

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site.</p> <ul style="list-style-type: none"> • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation. 		Specialist of PIU, PSC
<p>Construction runoff, sediment, cement slurry, and wastewater may enter the adjacent canal during earthworks, piling, and concreting activities, potentially causing temporary deterioration of surface water quality and increased turbidity. Improper management of construction materials and spoil may obstruct natural drainage and affect local water flow. Additionally, tidal influence in the canal during high</p>	<ul style="list-style-type: none"> • Install temporary silt traps, sedimentation pits and perimeter earthen bunds around excavation areas and material storage zones. • Earthworks, piling, and concreting activities shall be carefully managed to prevent direct discharge of construction runoff, cement slurry, wastewater, or debris into the canal. • Ensure proper drainage management to prevent direct discharge of cement slurry, oil-contaminated water or construction runoff into the canal. • Monitor pH and Total Suspended Solids (TSS) of any construction-phase discharge water at regular intervals. • Regular site inspections shall be conducted, particularly during the monsoon season, to ensure effective functioning of erosion 	<p>Contractor (implementation of mitigation measures and monitoring); Design & Supervision Consultant (technical verification and guidance)</p>	<p>PIU (Environmental & Social Specialists); Design & Supervision Consultant</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
tide may cause backflow, which could interact with construction activities and influence local hydrology as well as the long-term durability of bridge substructures if not adequately addressed.	and sediment control measures. <ul style="list-style-type: none"> • Works within or near the canal shall be scheduled, where feasible, during low-flow periods to minimize turbidity and disturbance to natural flow. 		
Temporary disturbance to local biodiversity, including small terrestrial fauna and common bird species present in surrounding rural and agricultural landscapes; potential short-term alteration of aquatic habitat conditions and natural water flow in the canal during construction.	<ul style="list-style-type: none"> • Conduct site-specific assessment of aquatic and ecological conditions prior to construction • Monitor bird activity, particularly during migratory season (November–February) • Avoid or limit piling, demolition, and other high-disturbance activities during peak migratory periods where feasible • Restore disturbed areas after construction • Construction works should be limited or be finished before the fish breeding period (springtime esp. Bangla months of Baishakh and Jaishtha/ April and May, when the water warms up and the daylight lengthens), and restoration of sites (with removal of any hindrance or cofferdam, etc.) is imperatively necessary to protect the fish species. 	Contractor	PIU and Supervision Consultant
	<ul style="list-style-type: none"> • 		
Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: <ul style="list-style-type: none"> • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> • Construction site is to be checked for spills of substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed of at waste disposal areas and/ or at the site. • The scrap material generated from the erection of structures and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. 		
<p>Health & Safety Risks:</p> <ul style="list-style-type: none"> • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<ul style="list-style-type: none"> • All construction equipment will be properly inspected timely and kept fit for purpose. • The risk assessment will be prepared time to time for all types of work activities on site. • Proper Signpost at any slippery areas will be ensured in construction site. • Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. • This sub project will have Proper communicative Emergency Response Plan (ERP) with all parties, to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and 	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>personnel will be trained and drilled to test and ensure the coherence with the plan.</p> <ul style="list-style-type: none"> • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • All equipment will be available suitably (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.) in sub-project site, the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all sites, on different locations within the site. • Ensure to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Contractor must ensure that all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are 		

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>being used.</p> <ul style="list-style-type: none"> Establish emergency response procedures, including fire, accident, and medical emergencies. Display emergency contact charts at site offices and work areas. Maintain OHS incident reporting and accident logbooks. Conduct regular toolbox meetings and refresher safety training for all workers. 		
Pollution of water bodies	<ul style="list-style-type: none"> Contractor will ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. oil interceptors or drip trays can be used in vehicle parking areas, and are inspected and cleaned regularly; 	Contractor	Environmental Consultant of PIU/D&SC, PSC
Operation Stage			
Maintenance of assets, properties and equipment	<ul style="list-style-type: none"> Periodic maintenance of Bridge structure and seasonal conditions has to be carried out. 	LGED	UNO, Upazila Chairman of Upazila Parishad
Decommissioning			
<p>The impacts are similar to those listed in construction stage:</p> <ul style="list-style-type: none"> Pollution from waste materials Health & Safety risks to workers and local community/DRPs 	<ul style="list-style-type: none"> Proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during decommissioning are anticipated to be similar to those identified for the construction phase. Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those compartments seems to be significantly worse. 	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Demolition and Waste Management Plan:

Demolition Plan:

The purpose of this Demolition Plan is to ensure the safe, environmentally sound, and socially responsible removal of the existing dilapidated bridge structure prior to the construction of the proposed RCC Girder Bridge. The plan aims to prevent environmental pollution, ensure worker and community safety, and minimize disruption to local movement and livelihoods. The scope of demolition works includes the removal of the existing concrete deck slab and girders, dismantling of damaged abutments and substructures as required, extraction and segregation of reinforcement steel, and clearing of debris from the canal and adjacent approach areas. All demolition activities will be confined within the existing bridge footprint and right-of-way.

Pre-Demolition phase	Structural Assessment & Method Statement	<ul style="list-style-type: none"> • Detailed structural assessment of the old bridge condition. • Identify weak sections, reinforcement exposure, and deterioration level. • Confirm load positions and dismantling sequence.
	Site Preparation	<ul style="list-style-type: none"> • Demarcation and barricading of the demolition zone. • Signboards, warning signs, and safety instructions in Bangla. • Installation of temporary crossing facilities (if needed), e.g.: Temporary wooden planks for pedestrians, • Alternate route notification for vehicles
	Utility and Service Disconnection	<ul style="list-style-type: none"> • Confirm absence of underground utilities. • Disconnect or reroute any drainage pipes, electricity poles, or telecom cables if nearby.
	Worker Safety Orientation	<ul style="list-style-type: none"> • Conduct safety training and toolbox meeting before demolition. • Ensure all workers receive PPE: helmets, gloves, safety boots, masks, goggles, life jackets (for water-edge work).

Demolition phase	Demolition Technique	<ul style="list-style-type: none"> Manual and mechanical combination method to minimize vibration and protect nearby features. Steps include: <ul style="list-style-type: none"> Removal of railings, parapet walls, and footpaths (manual). Breaking RCC deck slab using small hydraulic breakers. Cutting reinforcement bars using gas cutter. Sequential removal of girders using crane or excavator. Demolition of piers and abutments after girder removal. Extraction of old piles (if required); otherwise, trim piles below ground level.
	Vibration & Noise Control	<ul style="list-style-type: none"> Use low-vibration hydraulic breakers. Avoid nighttime demolition. Install temporary noise barriers near households.
	Water Protection Measures	<ul style="list-style-type: none"> Silt traps placed near the canal edge. Tarpaulin sheets under deck demolition to prevent debris falling into water. Immediate collection of debris from any accidental drop.
Environmental Compliance	Dust & Air Quality Control	<ul style="list-style-type: none"> Install temporary debris containment systems (e.g., netting or catch platforms) to prevent falling debris into the khal. Avoid dumping any demolition waste into the canal. Implement waste segregation at source (concrete, steel, other materials). Reuse suitable concrete rubble as sub-base or backfilling material where technically feasible. Transport non-reusable waste to an approved disposal site with authorization from LGED and the respective authority. Apply water spraying to control dust during dismantling. Prohibit washing of equipment directly in or near the khal.

	Oil, Fuel, Hazardous Material, and Waste Management	<ul style="list-style-type: none"> • Demolition waste includes: RCC debris, Steel rods, Brick/earth materials, Packaging waste • Waste Handling Measures: Segregate waste at source. • Recyclable steel rods sold to authorized recyclers. • Concrete debris reused as road sub-base (if suitable) or disposed of at LGED-approved disposal site. • Hazardous waste (oil, lubricants) stored in spill-proof containers and handed over to DoE-approved handlers. • Store fuels and lubricants in a designated area with secondary containment (bundled platform or drip trays). • Keep spill kits available at the site at all times. • Prohibit refueling or oil changing near the khal or ponds.
	Water Quality Protection	<ul style="list-style-type: none"> • Prevent concrete slurry, cement dust, oil, and debris from entering the canal. • Collect all water used in demolition activities in settling pits.
Occupational Health & Safety (OHS)	Worker Health and Safety	<ul style="list-style-type: none"> • Provide Personal Protective Equipment (PPE) such as helmets, gloves, masks, safety boots, and harnesses. • Ensure trained personnel handle cutting and dismantling works. • Conduct toolbox safety meetings before commencement of demolition. • Prohibit child labor and ensure compliance with national labor laws and WB standards.
Traffic and Community Management	Traffic Diversion	<ul style="list-style-type: none"> • Prepare temporary detour route with signage. • Coordinate with community and local leaders.
	Community Safety Measures	<ul style="list-style-type: none"> • Inform local residents 3-5 days before demolition. • Restrict community access near the demolition zone. • Provide alternative pedestrian routes as needed. • Install proper barricades and warning signage around the demolition zone.

Demolition Completion and Site Clearance	<ul style="list-style-type: none"> • Remove all debris from site. • Level the ground and prepare substructure area for new bridge foundation. • Restore access roads and pathways. • Conduct final environmental cleanup.
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Waste Management Plan:

The Waste Segregation and Reuse Plan is to ensure environmentally sound management of construction and demolition waste generated during the dismantling of the existing bridge and construction of the proposed RCC bridge. The plan aims to minimize waste generation, promote reuse and recycling, prevent soil and water pollution, and ensure compliance with relevant regulations.

Waste Type	Source of Waste	Potential Impacts / Concerns	Management, Segregation & Reuse Measures	Institutional Responsibility	Supervision & Monitoring
Concrete debris and rubble	Demolition of existing bridge structure	Obstruction of drainage, soil and water pollution, visual nuisance	Segregate at source; crush and reuse as sub-base, embankment fill, or approach road material subject to LGED approval	Contractor	LGED PIU & D&SC Consultant
Steel reinforcement and metal scraps	Dismantling of old bridge and construction activities	Injury risk, improper disposal	Store separately; sell or hand over to authorized scrap dealers/recyclers	Contractor	LGED PIU & D&SC Consultant
Excavated soil and spoil	Foundation excavation and earthworks	Sedimentation of nearby canals, land degradation	Reuse for site leveling, slope protection, or embankment filling; excess disposed at approved sites	Contractor	D&SC Consultant
Packaging materials (cement bags, plastics, timber)	Construction material handling	Littering, clogging of drainage	Collect separately; reuse where possible; recycle or dispose of at approved facilities	Contractor	LGED PIU & D&SC Consultant

Domestic solid waste	Labor camps and work sites	Health hazards, vector breeding	Provide covered bins; daily collection; disposal at LGED/Local Authority approved sites	Contractor	PIU, D & SC Consultant & Local Authority
Used oil, grease, lubricants	Equipment maintenance and refueling	Soil and water contamination, fire hazard	Store in sealed containers with secondary containment; hand over to licensed recyclers; prohibit dumping	Contractor	LGED PIU & D&SC Consultant
Oil-contaminated rags and containers	Machinery operation and maintenance	Hazardous exposure, pollution	Collect in labeled containers; dispose through approved hazardous waste handlers	Contractor	D&SC Consultant
Mixed non-recyclable waste	Construction activities	Environmental pollution	Transport to DoE/LGED-approved landfill sites; maintain disposal records	Contractor	LGED PIU & D&SC Consultant

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Appendix-3: Cost of Environmental Mitigation and Enhancement Works in BOQ

In consideration to the above-mentioned environmental and social impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
1	Erection and maintenance of semi-permanent site office and removal of the same after completion of work in accordance with the conditions of contract. In addition to the office required for own use, the contractor shall provide and maintain furnished site office for the use of Engineer-incharge and his staff. The site office must have tiles floor, adequate foundation, brick walls, false ceiling of gypsum board and all windows are to be glazed, shuttered and provided with steel grill. Outside and inside wall surface are to be painted on plaster acceptable to the Engineer-incharge. The site office shall be maintained in a secure condition by the contractor until the completion of the contract and shall be provided with electricity, water supply, wash rooms and sewerage facilities. All doors shall be fitted with approved locks and windows shall be provided with screen/blinds. Before construction the contractor shall submit plans and drawings showing proposed details and location for the site office, including foundations, access roads, shades, layout of electrical and water supply and hard standings there for the approval of Engineer-incharge. The Engineer-in-charge may require revision of the plans prior to giving approval for construction. The contractor shall also submit detailed proposed furniture, fittings and other items of equipment and plant to the Engineer-in-charge for approval. These items shall be of the standard quality suitable for site. The office, complete with furnishings, fittings, access roads and hard standings shall be ready for occupation by the Engineer-in-charge within 28 days of the date when the contractor first occupies the site. The contractor shall provide day and night guards and an attendant for the field office. At the end of the contract all materials, equipment and plant, furniture, fittings recovered from dismantling the office and removing access road will be the property of the contractor. No interim payment shall be certified unless engineer's office with required facilities are constructed and accepted by the	job	1	535843	5,35,843.00

SI no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	Engineer-in-charge. (This is a time related item; proportionate payment for this item shall be made distributing in each bill on the basis of percentage progress of the whole works under contract) Engineer's site office of minimum 38 sqm plinth area with providing necessary facilities including office furniture, 24000 BTU air cooler, umbrella, crockeries, water purifier, PC with monitor, uninterruptible power supply (UPS), laserjet printer (minimum 20 ppm), LED flood light fittings(Halogen) for sight security etc.				
2	Project Profile Signboard: Providing and fixing of typical project profile signboard as per direction of E-I-C, to be placed at a suitable place of the site including submission of proposals for the materials & size of the signboards (recommended size: 1800mm x 1200 mm with 2 nos. 75mm dia. MS post, outer & inner frames of board shall be 50mm x 50mm x 5mm & 25mm x 25mm x 5 mm respectively) and text layout to the engineer for approval which will be positioned as directed by the engineer and removing the same on completeion of the works or as instructed by the E-I-C. Sheeting will be made of encapsulated lens with retro-reflective type and messages/ borders will be screen printed. The text shall mention among others the name of the project, name of the implementing agency, cost of the project, completion time, name of the contractor etc.	sqm	Length-1.8m Width 1.2m Area volume 2.160m ² No. of bridge 1 Total quantity of works 1*2.16m ² = 2.16m ² .	18508.52	39,978.40
3	Supplying and providing of first aid box with necessary materials/medicine (hygienic gown, thermometer, adhesive ressing, antiseptic solutions, andages, cotton balls or swaps, emergency blanket, gloves, hand sanitizer, ice pack, saline etc). All complete as per direction of Engineer-in - charge.	each	2	17836	35,672.00
4	Mobilization and cleaning site before commencing actual physical work and during contract period and demobilization after completion of the works under contract to be accepted by the Engineer-in-charge. This work shall also cover cleaning and clearing, cutting or filling, dressing the project area on and in the ground to an extent that all the events of works of the project can be executed smoothly in a working environment with a particular attention on safety and security in all respects, and to stockpile the end outcome to a place for disposal agreed by the Engineer-in-charge, where, payments are to be based on ground area determined by the Engineer-in-charge and be	sqm	Length 25m width 10m Area 250m ² No of items per bridge 2. Total qty per bridge 250*2= 500m ² .	235.40	1,17,700.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	proportionate to the percentage progress of work under contract as a whole in all respects and approved by the Engineer-in-charge.				
5	Temporary Toilet: Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	each	2	14172.16	28,344.32
6	Marble Name Plate: Supplying, fitting and fixing 18mm thick marble Name plate including cost of materials, labour, form work, engraving neatly the approved Sample given by the engineer etc. complete as per drawings and direction of the Engineer-in-charge.	sqm	2	9343.42	18,686.84
7	Drinking Water Facilities: 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.	Ls	1	20000	20,000.00
8	Control of Air Pollution (Dust Suppression): Maintaining, carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust which has originated from contractor's activities/ operations at the worksite and site office, including sprinkling water on aggregates/unpaved roads at least three times a day or more depending on the atmospheric conditions, including keeping necessary covering/protection on stockpiled fine aggregates to reduce dust nuisance during natural air blowing, all complete like emission of dust into the atmosphere shall be strictly controlled during manufacture, handling, storage of concrete, road aggregates, and to be used such methods and equipment as are necessary for collection and disposal, or prevention, of dust during these	Ls	1	12000	12,000.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	operations means of eliminating atmospheric discharges of dust as per requirement and carrying out air quality test as PM10, PM25, SPM, NOx, Sox as per instruction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.				
9	Personal Protection Equipment for Workers: Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket for construction workers made of 100% polyester waterproof fabric, fluorescent yellow/orange/green/red/blue or pantone color, (ii) suitable hand protection gloves for construction work of Flexible/ durable/ excellent puncture resistance working gloves with PVC palm and T/C drill back, pasted cuff, palm liner and fit properly and be reasonably comfortable to wear, (iii) appropriate foot protection shoes having impact-resistant toes and heat-resistant soles that will protect the feet against hot working surfaces, (iv) best quality safety helmets of ABS shell, tough, lightweight, durable which will be able to resist penetration by objects, absorb the shock of a blow and water-resistant and slow burning with available four-six-point adjustable suspension for shock-absorbing, slotted sides to accommodate accessories, such as face shields, ear muffs (v) suitable eye protection goggles to protect against specific workplace hazards, fit properly and be reasonably comfortable to wear, provide unrestricted vision and movement, including instructing workers to wear strictly during working time and reviewing periodically, updating, evaluating the effectiveness of PPE and maintaining, replacing worn or damaged PPE etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	Ls	1	250000	2,50,000.00
10	Painting the vertical end faces of posts, wheel guard, railing, rail post, parapet wall, kilometer post, road name plate, guide post, traffic signs, etc. in two coats with best quality synthetic enamel paint of approved make and brand	sqm	373.80	246.38	92,096.84

SI no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	of different shades over a coat of priming, applying one vertical and one horizontal coat for each coat and successive coat is to be applied after drying up of previous coat by brush/roller/spray, including cleaning and washing the surface, rubbing and mending good damages as necessary and necessary scaffolding, etc. all complete in all respect as direction of the Engineer-in-charge. Rate is inclusive of cost of all materials, labour and all incidental charges in this connection. Two coats over a prime coat for new concrete surface.				
Subtotal Bill: Environmental Safety and Enhancement Works					11,50,320.30

Appendix-4: Environmental and Social Monitoring Plan (ESMP Implementation and Monitoring Framework)

Environmental and social monitoring for the proposed sub-project has been incorporated into the Environmental and Social Management Framework (ESMF). The detailed Environmental and Social Monitoring Plan, including monitoring parameters, indicators, responsible institutions, the frequency of monitoring during the pre-construction, construction, and operation phases, and the reporting line, is presented here. A mid-term third-party environmental audit may be conducted during implementation to independently assess compliance with the ESMP and World Bank Environmental and Social Standards (ESS1–ESS10).

Monitoring stage	Monitoring Indicator	Method of Verification	Frequency	Responsibility	Reporting Line
1. Monitoring During Pre-Construction Phase	Site-specific ESMP approved before mobilization	Approved ESMP document	Once (Before mobilization)	PIU	PIU → PSC → WB
	Baseline environmental condition (visual record, nearby water condition) documented	Baseline checklist & photos	Once	Contractor (verified by D&SC)	Contractor → D&SC → PIU
	Appointment of EHS Supervisor	Appointment letter	Once	Contractor	Contractor → D&SC
	OHS Plan, Emergency Response Plan (ERP) prepared	Approved plan copies	Once	Contractor	Contractor → D&SC → PIU
	Waste Management Plan prepared	Approved WMP	Once	Contractor	Contractor → D&SC
	Traffic Management Plan prepared	Approved TMP	Once	Contractor	Contractor → D&SC
	ESMP summary disclosed in Bengali at Union Parishad & site	Disclosure photos & record	Once before works	PIU	PIU → WB
2. Monitoring During Construction Phase	A. Environmental Monitoring				
	Indicator	Standard / Target	Monitoring Frequency	Responsibility	Reporting Line
	General ESMP compliance (%)	100% compliance	Weekly	D&SC	D&SC → PIU

PM10 / Dust control	No visible excessive dust; water sprinkling ≥ 2 times/day	Daily visual; weekly record	Contractor	Contractor \rightarrow D&SC
Noise Level	Within DoE standard (Daytime ≤ 75 dB(A) for commercial/mixed areas)	Monthly or during piling	Contractor (verified by D&SC)	Contractor \rightarrow D&SC \rightarrow PIU
pH of discharge water	6.5–8.5	Monthly (if water discharge occurs)	Contractor	Contractor \rightarrow D&SC
TSS in runoff	Within DoE surface water standard	Monthly (during piling/concreting)	Contractor	Contractor \rightarrow D&SC
Installation of silt traps & bunds	100% installed where required	Weekly inspection	D&SC	D&SC \rightarrow PIU
Oil & lubricant storage with secondary containment	100% compliance	Weekly	D&SC	D&SC \rightarrow PIU
Construction waste segregated & disposed at approved site	Disposal records maintained	Weekly	Contractor	Contractor \rightarrow D&SC
Obstruction of canal flow	No blockage observed	Weekly	D&SC	D&SC \rightarrow PIU
Bird disturbance (if observed Nov–Feb)	No active piling during high congregation	Seasonal (Nov–Feb)	D&SC	D&SC \rightarrow PIU
B. Occupational Health & Safety Monitoring				
Indicator	Target	Frequency	Responsibility	Reporting Line
Workers provided PPE	100% PPE use	Daily	Contractor	Contractor \rightarrow D&SC
Toolbox meetings conducted	At least 1/week	Weekly	Contractor	Contractor \rightarrow D&SC

	OHS incident reporting	100% incidents recorded within 24 hrs	As needed	Contractor	Contractor → D&SC → PIU
	First-aid station functional	Fully equipped	Weekly inspection	D&SC	D&SC → PIU
	Labor camp sanitation & hygiene	Clean, adequate toilets & waste bins	Weekly	D&SC	D&SC → PIU
	No child or forced labor	Zero tolerance	Monthly verification	PIU	PIU → WB
C. Community Health & Safety Monitoring					
	Indicator	Target	Frequency	Responsibility	Reporting Line
	Site barricading & signage installed	100% coverage	Weekly	D&SC	D&SC → PIU
	Safe pedestrian diversion pathway	Functional & safe	Weekly	D&SC	D&SC → PIU
	Traffic management implementation	No major accident	Weekly	D&SC	D&SC → PIU
	Spill incidents affecting canal/agri land	Zero major spill	Continuous	Contractor	Contractor → D&SC
D. Stakeholder & GRM Monitoring					
	Indicator	Target	Frequency	Responsibility	Reporting Line
	GRM register maintained	Updated regularly	Monthly review	PIU	PIU → PSC
	Grievances resolved within timeline	10–15 days (as per tier)	Monthly tracking	PIU	PIU → WB
	Community consultation during construction	At least 1 meeting/quarter	Quarterly	PIU	PIU → WB
3. Post-Construction / Operation	Indicator	Target	Frequency	Responsibility	
	Site restoration completed	100% cleared & restored	Once after completion	D&SC	
	Waste cleared from site	No residual debris	Once	D&SC	

Phase Monitoring	Bridge safety features (railings, guideposts, signage) installed	100% installed	Once before handover	D&SC	
	Canal flow unobstructed	No blockage	Once after completion	PIU	
	Final community feedback	Documented	Once before closure	PIU	

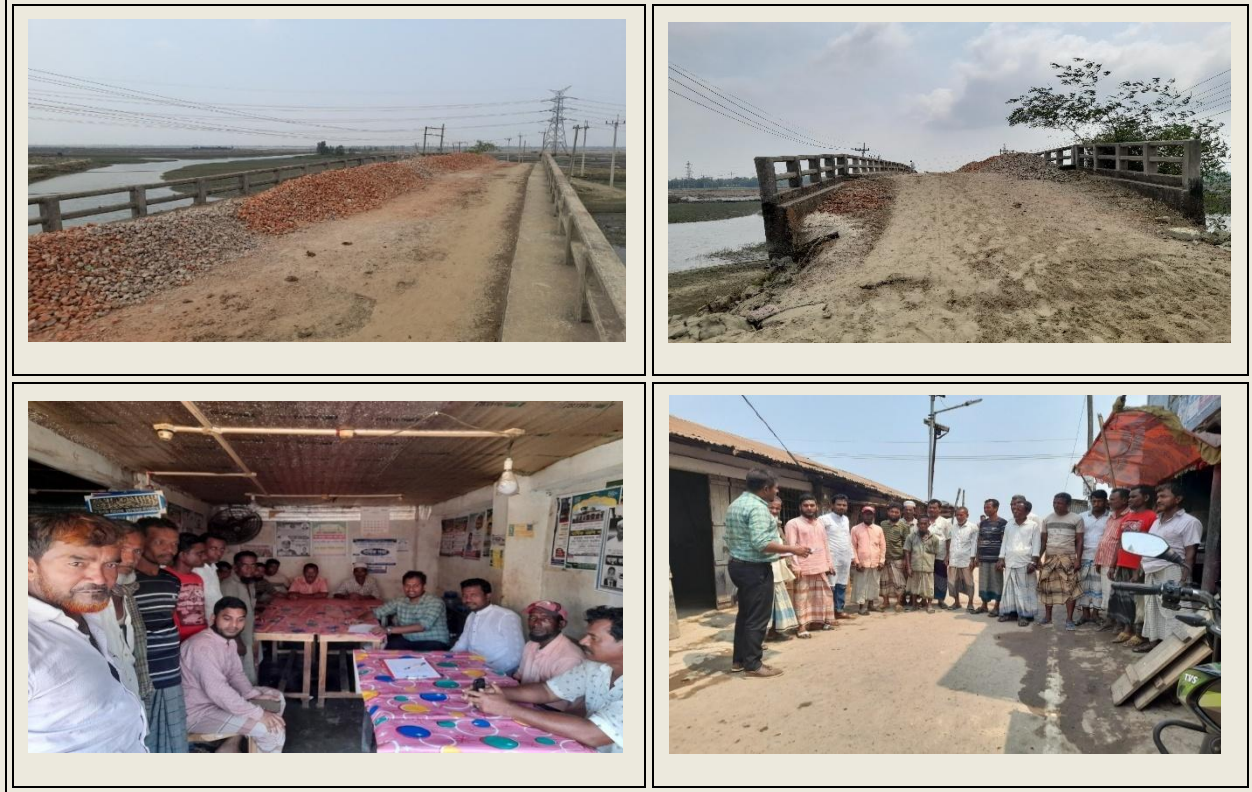
Reporting Hierarchy: Contractor → D&SC → PIU (LGED) → World Bank

The D&SC will prepare a Monthly report on Environmental and Social Compliance and submit it to the PIU. The PIU will review and transmit the Monthly Environmental and Social Compliance Report to the World Bank as part of the project’s regular safeguard reporting obligations.



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

**Host and FDMN Enhancement of Lives through
Infrastructure Improvement Project (HELP)**



ENVIRONMENTAL AND SOCIAL SCREENING REPORT

Of the Sub-project:

**Construction of 96.10m Long PSC Grider Bridge on Uttar Nalbila- Matarbari GC
Connecting Road (Up to Ghat) Road at Ch. 1768m, Moheskhalı Upazila**

District: Cox's Bazar, Road ID: 422492002

Under the Package No. **HELP-COX/BR-1**

Funded by:



Government of the People's Republic of Bangladesh & World Bank

October 2025

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ACRONYMS

BOQ	Bill of Quantities
BPDB	Bangladesh Power Development Board
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
DPHE	Department of Public Health Engineering
EA	Environmental Assessment
EC	Electrical Conductivity
E-I-C	Engineer-in-Charge
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESF	Environmental and Social Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
HELP	Host and FDMN Enhancement of Lives through Infrastructure Improvement Project
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
MPSC	Multi-purpose Community and Service Center
MoLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
MoRTB	Ministry of Road Transport and Bridges
MoPEMR	Ministry of Power, Energy and Mineral Resources
NDRCC	National Disaster Response Coordination Center
OHS	Occupational Health and Safety
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Pre-Stressed Concrete
PSC	Project Steering Committee
RCC	Reinforced Cement Concrete
RHD	Roads and Highways Department
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project Background

Since 2017, Bangladesh has been hosting nearly one million Displaced Rohingya Population (DRP) who fled violence in Myanmar. Most of this population resides in 33 densely populated camps in Ukhiya and Teknaf upazilas of Cox's Bazar district. At the same time, approximately 30,000 have been voluntarily relocated to Bhasan Char, an isolated island in Noakhali District. This unprecedented humanitarian influx has placed immense pressure on the host communities, infrastructure, essential services, and the surrounding environment in a region already characterized by socio-economic vulnerabilities.

The FDMNs now outnumber host populations in affected areas by a ratio of approximately 2:1, contributing to crowding in local markets, overburdening social service systems, escalating environmental degradation, and heightening risks during disasters. In response to these complex challenges, the Government of Bangladesh (GoB), with support from the World Bank has initiated the Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (**HELP**). The project aims to improve access to basic services and enhance disaster and climate resilience of DRP (Displaced Rohingya Population) and host communities. HELP builds on lessons learned from the ongoing **Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) and its additional financing**, which have been supporting emergency response, resilient infrastructure and institutional strengthening in Cox's Bazar since 2019.

HELP proposes a multi-sectoral development approach focusing on critical needs such as water supply, sanitation, renewable energy, shelter upgrades, solid and fecal waste management and the improvement of road connectivity. The project also emphasizes disaster risk reduction, climate-resilient infrastructure, and institutional capacity building. It targets the high-priority gaps identified through annual needs assessments and field consultations, with particular attention to vulnerable groups including female-headed households, persons with disabilities, and those residing in disaster-prone areas.

The project scope encompasses a range of integrated infrastructure interventions aimed at improving resilience, accessibility, and service delivery for both the DRP and host communities. Key activities include the construction of new multi-purpose disaster shelters to provide enhanced protection during natural calamities, as well as the improvement and repair of existing shelters to ensure they meet disaster-resilience standards. The project also involves the development of road communication infrastructure, including the construction and rehabilitation of roads, bridges, and culverts to improve connectivity and access to essential services. In addition, various community-level facilities will be developed or upgraded, such as internal roads, drainage systems, hat-bazar (local markets), footpaths, firefighting systems, lightning protection devices, and solar-powered street lighting contributing to safer and more inclusive living environments.

The project is jointly implemented by four government agencies LGED, DPHE, RHD, and BPDB under the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C), the Ministry of Road Transport and Bridges (MoRTB), and the Ministry of Power, Energy and Mineral Resources (MoPEMR). The project comprises four components, covering resilient water and sanitation services, climate-resilient infrastructure and energy, institutional capacity strengthening, and emergency

response. Under Component 2, LGED is undertaking key infrastructure development including rural roads and bridges to ensure improved connectivity and disaster preparedness.

The objective of the Project is to improve access to basic services and enhance disaster and climate resilience of the the FDMN and host communities through:

- Supporting improved access to basic services, climate-resilient infrastructure, and disaster and emergency response services;
- Improving Road interventions for essay access to essential services;
- Reducing vulnerability to accidental fire;
- Strengthening disaster preparedness and response through construction of multipurpose disaster shelters, provision of key equipment, and disaster risk management trainings at the community level;
- Improving Renewable and sustainable energy infrastructure in camps and for host community;
- Strengthening the GoB's capacity to provide essential services and address the needs of the host communities and the DRP, including risks to disasters and climate change;
- Reducing poverty in the project area

This Environmental and Social Screening Report has been prepared to assess potential environmental and social risks and impacts associated with the proposed interventions for constructing a bridge at Moheshkhali Upazila of Cox's Bazar District under HELP. It provides a preliminary evaluation of the biophysical and socio-economic settings of the project areas and identifies key issues that require special consideration or mitigation. The report serves as a guiding tool for environmentally and socially sound project implementation in compliance with national regulations and the World Bank Environmental and Social Framework (ESF).

1.2 Rationale of Site Selection for bridge under the project

LGED is responsible for development and management of local infrastructure including rural roads, bridges, culverts, waterways, markets, river jetties and others in order to contributing to socioeconomic development of the rural community and overall reducing poverty in the country. It is also developing, maintaining and managing transport, trading and small-scale water resources infrastructure at the local level with ensuring LGI and community participation and taking care of environmental and social issues. In 2013, Government of Bangladesh (GoB) has adopted a Rural Roads and Bridges Maintenance Policy with an objective to develop a sustainable rural transport system through appropriate maintenance management to provide safe operation of vehicles and to ensure necessary funding for their maintenance establishing a comprehensive and reliable inventory of roads, bridges and culverts across the country.

The onsite investigation reveals that a dilapidated bridge does exist on the same point where a new bridge has been proposed. The existing bridge on a local canal has turned into a shabby structure posing risks for moving vehicles and people, thus affecting the lives and livelihoods of local communities. In fact, salt Cultivation, fishing and agriculture- all three dominant livelihood options for the local people in the areas require climate resilient and sustained infrastructure for transportation of goods or products to local, regional or national trading centers as well as to

processing hubs and so on. People living in and across the areas also need to have access to nearby educational, health, employment and other services, which for this proposed bridge would act as a lifeline for the entire community

As the project is intended to strengthen the Government of Bangladesh systems in order to improve access to basic services and climate-resilient infrastructure of the host communities, constructing a bridge at the proposed point would resuscitate the communication, trade and service delivery system between Matarbari union and other parts of the Moheshkhali Upazila, which has been at risk now with the use of the dilapidated existing bridge structure.

The approach of this project also includes undertaking design, construction, rehabilitation or expansion of rural bridges in phases based on site-specific requirement and availability and allocation of resources. Accordingly, the proposed site for **Construction of 96.10m PSC Grider Bridge at ch 1768 on Uttarnalbila - Materbari GC Connection Road** is required to be implemented in order to remove the existing barrier (e.g., presence of Khal/river on this point) to the local communication system and service delivery through this specific place, and expedite the socioeconomic activities in/around the place.

Project activities will largely be on existing available lands, preferably of government owned.

1.3 Background of the Work Package

HELP (Host and FDMN Enhancement of Lives through Infrastructure Improvement Project) is a World Bank-supported project that aims to assist the Government of Bangladesh in responding to the continued humanitarian and development challenges posed by the presence of the Forcibly Displaced Myanmar Nationals (FDMNs) and their impact on host communities. The project seeks to improve access to basic services, and enhance disaster and climate resilience in both Cox's Bazar and Noakhali district.

While much of the displaced population resides in the Ukhiya and Teknaf upazilas, the broader Cox's Bazar district—including other upazilas also experiences strain from increased movement, demand for resource and services, and the need for resilient infrastructure. The host communities across the district face challenges such as inadequate road connectivity, limited access to essential services, scarcity of basic resources, and vulnerability to natural disasters including floods and cyclones. In response, HELP focuses on inclusive development interventions that benefit both displaced and host populations.

Under this specific work package of the HELP project, **four (4) bridges** are planned to be constructed across **four different upazilas of Cox's Bazar district Cox's Bazar Sadar, Ramu, Pekua and Moheshkhali**. These bridges aim to strengthen the rural road communication network by improving access to essential services such as health, education, markets, and disaster shelters. The improved infrastructure is expected to support both the mobility of the host communities and the efficiency of service delivery, especially in remote or underserved areas of the district. This report focuses specifically on the Construction of a 96.10m Long PSC Grider Bridge on Uttar Nalbila- Matarbari GC Connecting Road (Up to Ghat) Road at Ch. 1768m, Moheshkhali Upazila District: Cox's Bazar, Road ID: 422492002. The bridge will replace an existing structurally weak bridge that has been heavily

affected by saltwater runoff and long-term usage. Once implemented, this sub-project is expected to significantly improve transport connectivity, facilitate the movement of goods and people, and enhance the resilience of the local community in the surrounding salt cultivation areas.

The catchment area of this sub-project is predominantly inhabited by host community members, particularly from the surrounding villages of Rajghat and Majherchor in Moheshkhali Upazila. Although the broader Cox's Bazar district continues to experience the impacts of the ongoing displacement crisis, the selected location for this bridge has been prioritized based on field-level needs assessments, community consultations, and its strategic importance for improving local accessibility, enhancing disaster resilience, and supporting economic activities especially those related to salt cultivations.

The objective of this Environmental and Social Screening Report is to evaluate the environmental and social settings of the proposed bridge construction site under this work package, identify potential impacts both positive and adverse and recommend appropriate mitigation, enhancement, and management measures. This screening ensures that all interventions align with national regulatory requirements and the World Bank's Environmental and Social Framework (ESF), while promoting environmentally sustainable and socially inclusive development.

1.4 Fundamentals of Work Package Components

It is crucial to acknowledge the proposed infrastructure component under Work Package- HELP-COX/BR-1 in order to conduct an effective screening and verification process aligned with the World Bank's Environmental and Social Framework (ESF) as well as the project's Environmental and Social Management Framework (ESMF). Accordingly, detailed information of the proposed sub-project under this package has been outlined in Table 1.4.1, with a location-specific overview map of Moheshkhali Upazila presented in Figure 1.4.1.

The proposed sub-project will follow standardized construction features and safety protocols, including but not limited to:

1. Construction of a Semi-Pucca Field Office, fully equipped with essential office furniture, computers with printing equipment, sanitary and electrical facilities, water supply arrangements and necessary tools and equipment for engineering supervision. The site office will ensure heat resistance, damp-proofing, and proper ventilation as directed by the Engineer-in-Charge (E-I-C).
2. Installation of Temporary Diversion Bridge (2m wide bamboo structure) as directed by the Engineer-in-Charge (E-I-C) to maintain uninterrupted movement for local communities during construction activities, ensuring minimal disruption to daily life.
3. Full Construction of Bridge Structures including foundation, substructure, and superstructure as per the approved design and technical drawings, along with all related fittings and fixtures.
4. Provision and Installation of Safety Features, such as painted vertical end faces of posts, wheel guards, railing systems, parapet walls, bilingual nameplates (in Bengali and English), guideposts, traffic signage, and kilometer markers.
5. Backfilling Behind Abutments and Retaining Structures with selected granular material, followed by proper compaction using approved machinery like plate compactors.
6. Construction of Approach Roads on both ends of the bridge, ensuring connectivity in compliance with LGED specifications and site conditions.

7. Placement of RCC Guideposts (1.70m long), positioned as per standard drawings and safety regulations.
8. Health, Safety, and Environmental Safeguards, including maintaining first-aid boxes at site and office, displaying safety notices, deploying environmental and social safeguard personnel for continuous monitoring, implementing dust suppression through water sprinkling, erecting health and safety signage, and organizing two rounds of safety and ESHS training for Upazila Engineers and Contractors before and after commencement of works.

Table 1.4.1: Basic Featured Information of component [Sources of data: Field survey, 2025, LGED]

Sl. no.	Component's name	Upazila	Union	Distance from Upazila HQ	Primary Catchment area	Name of the river/canal	Proposed length (m)	Carriage Width (m)	Estimated Footprint (Sqm)	GPS coordinate	Construction Period
1	Construction of Bridge at ch 1768 on Uttarnabila - Materbari GC Connection Road (Up to ghat) Road ID:422492002	Moheshali	Matarbari	29km	Catchment villages are Rajghat, Majherchor Shikdar Para, Lailaghon, Monhajir Para, and Bolie Para.	Garakhal	96.10	7.3	700.8	21.718726, 91.920578	2 years

Though the bridge was initially planned to be 55 m in length, after detailed survey in the area the length has been replanned to 96 m. Therefore, the total footprint area for the bridge is 700.8 sq.m.

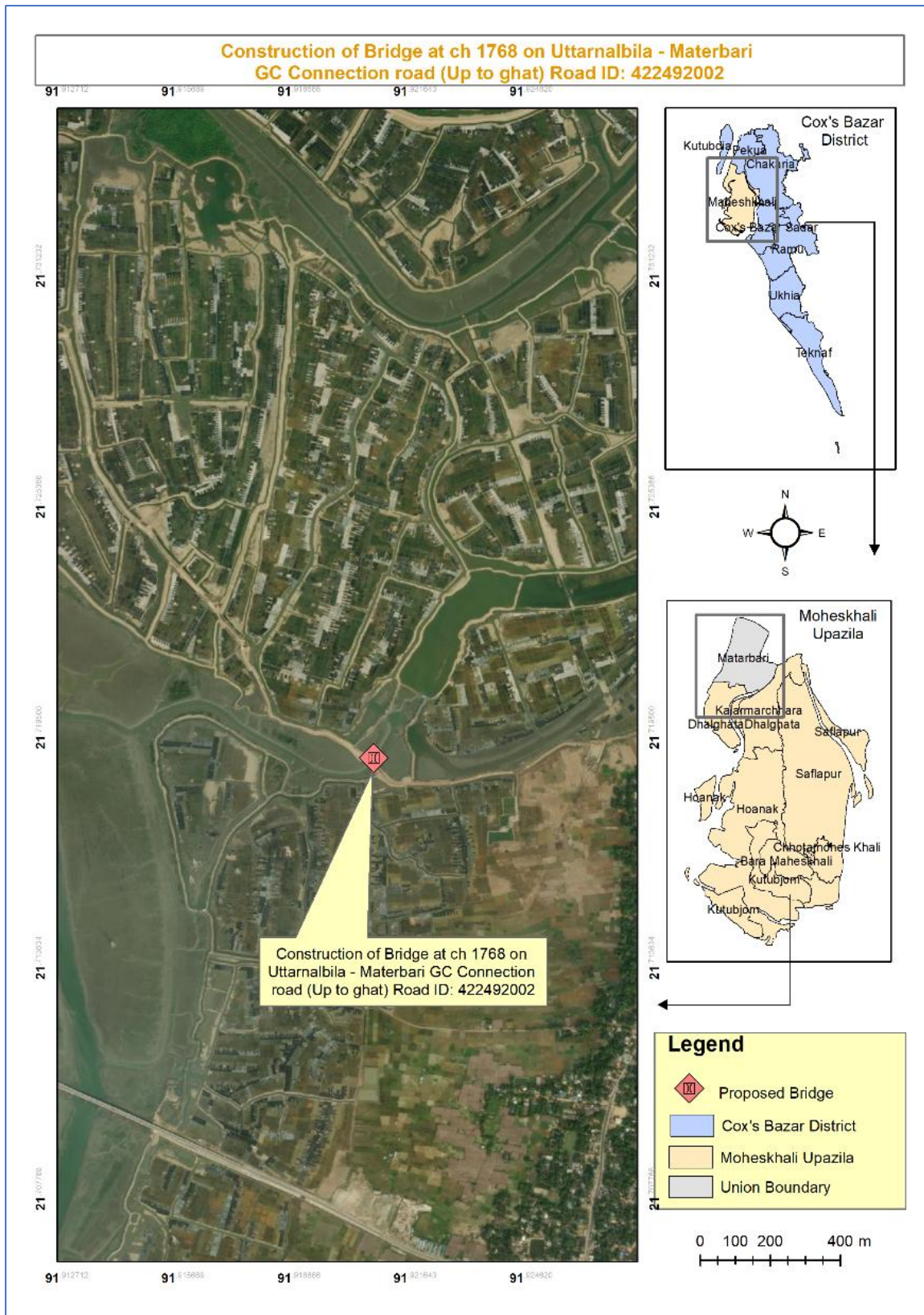


Figure 1.4.1: Map illustrating bridge location in the proposed Upazila

2. PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology and Approach

Public participation and community consultation have been taken up as an integral part of environmental and social assessment process of the project. As part of the impact assessment, participatory public consultation was conducted in areas of concern for proposed bridges by the field level staffs and consultants from PIU. The consultation meeting was attended by different social groups representing local inhabitants of different age groups, social class and occupations. Among the participants, some 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. In order to serve our screening process, relevant items placed towards the audience to discuss and troubleshoot confusing or worrying matters regarding the proposed interventions under the package work. Impacts in regards to environment, socio-economic matters during pre-construction, construction and post construction phases and the provision for project Grievance Redress Mechanism along with its applicability have been put forth. Possible mitigation measures and relevant needs have turned out during these sessions as well. Moreover, their comprehension as a stakeholder has been up lifted in light of project guidelines.



However, 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-projects' 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.

2.2 Issues and Recommendations raised by the Participants in regards to component interventions

After facilitating the consultation sessions with a warm and informed manner at Moktar Shoudagor's Shop in Rajghat Bazar of the package area, the participants and stakeholders drifted delightfully with the sessions and pointed out many which have been taken into account for further inclusion in design, estimation and formulation of ESMP. During the period of consultation, environmental and social issues and their relevant impacts for the infrastructure development work such as bridge improvement or maintenance were discussed. The advantages and possible nuisance that may

emerge during the sub-project activities were also revealed. The participants expected that none of the interventions would worsen their living conditions, social cohesion surrounding environment and they requested for adopting all measures to reduce/avoid both environmental and social risks during the implementation phase. Participants were also informed of the structure and redressing procedure under project Grievance Redress Mechanism (GRM).

Table 2.2.1: Consultation Meetings Summary

Meeting No.	Date	Venue	Main Participant Groups	No. of Participants	Remarks (If any)
1.	20 th March 2025	Moktar's Shoudagor Shop, Rajghat Bazar	Host Community	25	Discussions focused on the importance of the bridge for local accessibility and safety. Participants emphasized the urgent need for a new bridge due to the deteriorated condition of the existing one.

Note: Here, Meeting number column corresponds with Serial Number column in Table 2.2.2

Some key issues discussed during the consultation are summarized in the table (Table 2.2.2) below, reflecting participants' inputs relevant to the specific components of the proposed intervention. The consultation meeting summary, attendance sheet, and photographs from the meeting held at Moktar's Soudagor Shop in Rajghat Bazar are provided in Table 2.2.1, Annexure-01, and Annexure-02, respectively.

Table 2.2.2: Issues and Recommendations raised by the Participants

Sl. No.	Component's name under HELP-COX/BR-1	Issues raised and discussed	Recommendations and Comments
1.	Construction of 96.10m Long PSC Grider Bridge on Uttar Nalbila-Matarbari GC Road (Up to Ghat) Road at Ch. 1768m, Moheskhal Upazila District: Cox's Bazar, Road ID: 422492002	<ul style="list-style-type: none"> •They are very much concerned with absence of reliable path route over the Dhara Khal. •Existing RCC Bridge is old, structurally weak, and prone to accidents. •The existing RCC bridge is a critical infrastructure asset that significantly supports the local population's livelihood and economic well-being. It is particularly vital for salt cultivators and fishermen, as it facilitates and governs nearly all of their economic activities. •Lack of accessibility in case of emergency exits. • Surrounded by salt cultivation 	<ul style="list-style-type: none"> •Representatives participating in the discussions assured the local people that the dilapidated RCC bridge will be replaced by a longer and stronger bridge structure, which will strongly support local life and livelihoods and increase connectivity and accessibility to various services and amenities. The bridge has been planned to redesign to increase its length so that non-motorized vehicles can easily use the structure due to the smooth slope, and accessibility under the structure remains Uninterrupted. •The bridge design should consider highest water level thereby ensuring it is not submerging or affected by mass water flow during rainy seasons. Appropriate diversion should be placed during the construction period as alternative pathway. •The bridge should use corrosion-resistant materials and protective coatings suitable for saline

Sl. No.	Component's name under HELP-COX/BR-1	Issues raised and discussed	Recommendations and Comments
	<p>fields; saltwater leakage from trucks corrodes the bridge and connecting roads.</p> <ul style="list-style-type: none"> •They cannot carry the dead on this (existing) weak structure in times of grief • Bridge surface is uneven and degraded due to prolonged exposure to saline water. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. Involving local people as a priority in implementation works as far as possible. • Flooding during rainy season leads to waterlogging around approach roads. •Local community wish to have a better drainage system along with the Bridge in order to allow waters from high grounds to find a uninterrupted pathway not causing weak establishment to wash away. Moreover, from a conservation stand point, it will protect the top soil for future growth. •The construction work will include dismantling the current RCC bridge in order to make space for the new PSC Grider Bridge. 	<p>environments.</p> <ul style="list-style-type: none"> • Participants also requested to conduct awareness programs for salt transporters to avoid spillage and protect road infrastructure. •The participants have expressed their greater interest for this intervention and believe this will surely bring security and prosperity for the entire catchment dwellers. •Construction site safety should be ensured to avoid any mishaps or accidents during the working periods. •They considered small lumbering and suggested tree plantation initiatives. • local community will be given preference in engaging to construction works; however, technical labors will be welcome outside the local area. Priority for jobs should also consider women. • Alternate pathway should be facilitated during the construction near or around existing structure. •Since the bridge is on running canal (Dara Khal), the intervention will invite water pollution on moderate level. However, preventive actions and measures should be taken to keep the surface water quality from degrading more than it is. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • Proper drainage system will be embedded with the bridge as well as the bridge-approach. • Dismantling of bridge will be undertaken with optimum caution and care in order to avoid any potential risk to the people and resources. • They also requested regular maintenance of approach roads and bridge surface to ensure durability. •They also suggested to include dedicated pedestrian walkway and strong side railings for enhanced safety. 	

3. ENVIRONMENTAL AND SOCIAL SURVEY AND SCREENING

3.1. Objective of the Survey and Screening

The primary purpose of the survey and screening is to identify potential risks and impacts associated with the sub-project, assess their significance, and propose appropriate mitigation and management measures to ensure compliance with the ESF along with the project ES compliance documents. The

screening process also considers the cumulative and residual impacts of the intervention within the context of the local physical, biological, and socio-economic environment.

To achieve a comprehensive understanding of the environmental and social baseline and the possible implications of the proposed works, detailed field investigations were carried out for each sub-project site within the Project Influence Area (PIA). The screening process included direct observation, stakeholder consultations and the use of the Environmental and Social Screening Format (ESSF), aligned with the Environmental and Social Management Framework (ESMF) developed for the HELP project.

Screening results, impact identification, and mitigation guidance have been summarized and compiled in **Appendix-1**, with site-specific details and supporting documentation. This integrated approach ensures early identification of risks and supports the development of appropriate mitigation and enhancement measures for sustainable project implementation.

The subsequent sections outline the survey findings including important features and establishment within the PIA, along with potential environmental and social impacts that may arise due to the proposed sub-project interventions within a half-kilometer radial distance around the project site. This Environmental and Social Screening has been conducted in accordance with the requirements of the World Bank's Environmental and Social Framework (ESF), particularly focusing on the relevant Environmental and Social Standards (ESSs).

3.2 Important features/establishments around the PIA

The proposed bridge sub-project has undergone a thorough review to identify Environmental and Social resources and baseline conditions, potential environmental and socio-economic risks that may arise during construction and future operation. To accurately assess these concerns, a Project Influence Area (PIA) with a 0.5-kilometer radius surrounding the bridge site was considered during the screening process. Each issue was evaluated on a case-by-case basis without generalization, ensuring site-specific factors were properly addressed. Sensitive environmental and social findings, if any, were carefully noted, and appropriate mitigation or minimization measures were recommended to manage these risks throughout the project lifecycle. In addition, opportunities for enhancing both environmental and social conditions, as well as incorporating monitoring initiatives, have been outlined and integrated into the Environmental and Social Management Plan (ESMP) and its corresponding budget. The contractor's role in addressing identified impacts has been clearly defined, and all assessments and proposed interventions were conducted in full compliance with the Environmental and Social Management Framework (ESMF) of the HELP project.

Initial screening process is conducted through direct involvement of PIU in the influence area of the proposed component, which allows to raise significant questions and ideas towards participants. In combination of both field walk-through and inputs of audience, a register of existing features is formed. The following table describes the important features under Project Influence Area. Additional spatial understanding is supported through a hand-sketched map provided in Appendix-01.

Table 3.2.1: Important features under Project Influence Area

Sl. No.	Component's name under W-08	Direction	Important features/ establishment (approx. distance from the proposed site)
1.	Construction of 96.10m Long PSC Grider Bridge on Uttar Nalbila-Matarbari GC Connecting Road (Up to Ghat) Road at Ch. 1768m, Moheskhali Upazila District: Cox's Bazar, Road ID: 422492002	North	Salt cultivation field (60m)
		South	Salt cultivation field (50m), Mir akter project road (500m)
		East	Uttar Nalbila GPS (850m), GTCL Valve station (580m), Salt cultivation field (40m)
		West	Kohelia River (820m), Salt cultivation field (50m)

Based on the satellite image (Figure: 3.2.1) and field verification, it is evident that the canal (locally referred to as khal) where the proposed 96.10m Long PSC Grider Bridge on Uttar Nalbila- Matarbari GC Connecting Road (Up to Ghat) Road at Ch. 1768m, Moheskhali Upazila District: Cox's Bazar, (Road ID: 422492002) is not a navigational waterway. The red-marked line in the image clearly illustrates the direction and extent of the canal, which flows eastward and terminates shortly after the bridge location. Beyond this point, there is no further water connectivity for boat passage or motorized water transport. Instead, extensive salt fields begin where the canal ends, confirming that this khal is primarily used as a functional water supply channel to support salt cultivation, not for navigation.

Furthermore, the canal's connection to the Gara River visible on the west side of the image indicates that water flows into the canal and is then diverted into the adjacent salt fields for evaporation and salt production. The canal is relatively narrow and shallow, with no visible signs of jetties, boat docks, or water vehicle activity, further substantiating its non-navigational nature.

The canal where the bridge will be constructed serves as a supporting irrigation channel for salt production and does not facilitate water transport or navigation activities. Therefore, the construction of the PSC Grider bridge will not interfere with any navigational route or waterway transportation system.

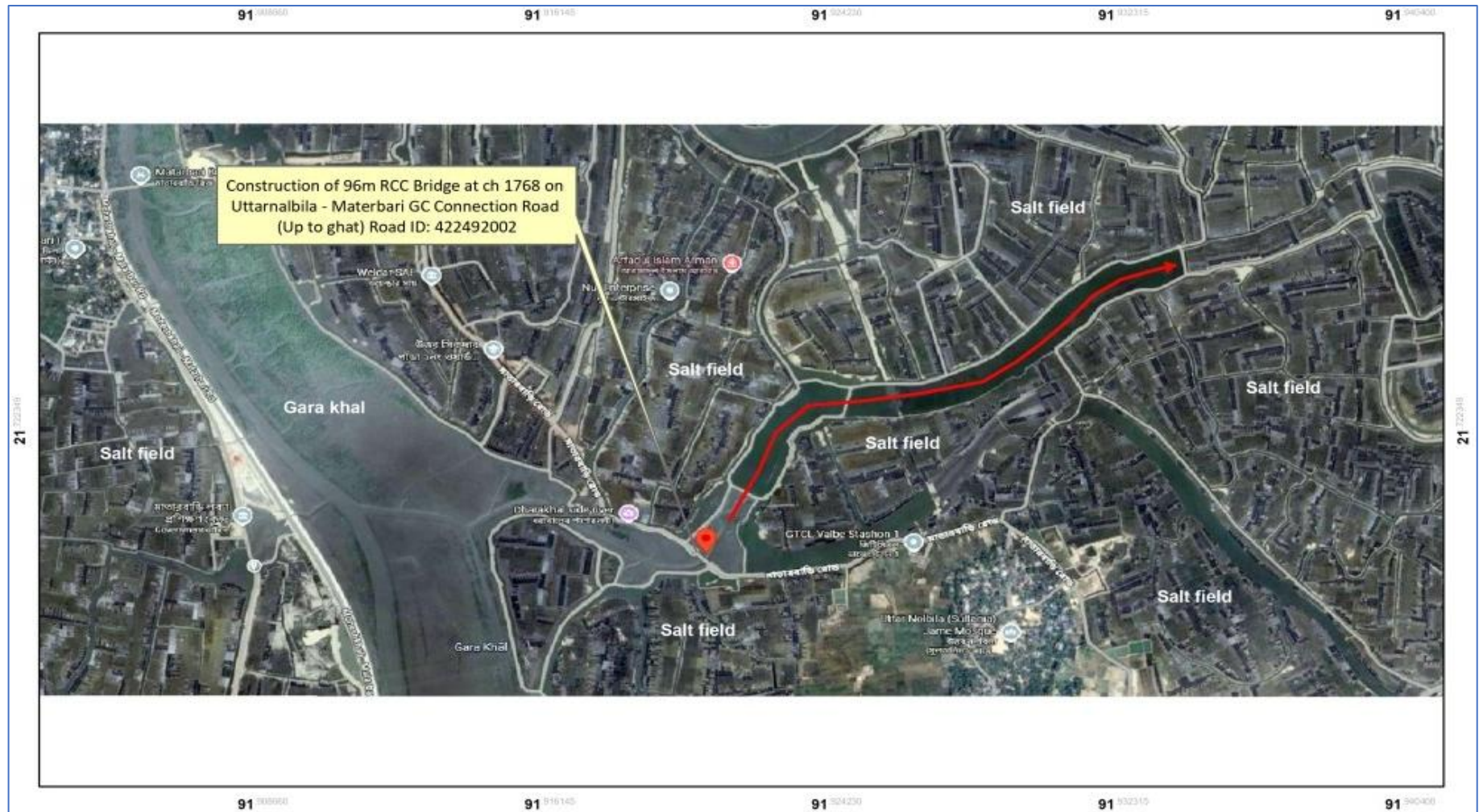


Figure 3.2.1: Non-Navigational Canal and Proposed Bridge Location

3.3 Major Findings

The Environmental and Social Screening has revealed an integrated overview of site-specific environmental and social conditions of the proposed sub-project. These findings offer valuable insight into the interaction between the sub-project components and their surrounding biophysical and socio-economic settings. While many sub-projects are found to be aligned with the characteristics of their respective locations, the nature, magnitude, and extent of impacts vary based on topography, ecological sensitivity, surrounding land use, and community dependency.

The analysis confirms that while some impacts such as temporary disruptions during construction, generation of noise and dust, and minor vegetation clearance are commonly anticipated, several site-specific concerns were identified for the proposed 96.10 meter PSC Bridge at chainage 1768 on the Uttarnabila–Matarbari GC Connection Road. These include the proximity of the site to salt cultivation fields and the Gara khal canal, which is part of the Kohelia River system. The bridge plays a vital role in supporting the transport of salt and other local livelihoods. Furthermore, social vulnerabilities were noted, including community access requirements, safety of pedestrians during construction and potential short-term impacts on market access and daily movement.

The screening has also identified both direct and indirect risks that may arise if not appropriately mitigated. Findings indicate that with suitable mitigation measures as proposed in the ESMF and site-specific Environmental and Social Management Plans (ESMPs) most risks are manageable under ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), and relevant associated standards such as ESS4 (Community Health and Safety), ESS2 (Labor and Working Conditions), and ESS10 (Stakeholder Engagement and Information Disclosure).

A summary of the significant environmental and social issues identified during the screening process, along with associated potential impacts, is presented in **Table 3.3.1**. These findings provide critical input for developing context-specific mitigation strategies and highlight areas requiring enhanced monitoring and community engagement during project implementation. None of the activities fall in the E&S exclusion list attached to the project ESMF.

Table 3.3.1: Concerning environmental and social issues relating to each proposed subproject and influence area

	Key Environmental & Social Findings	Anticipated Impacts / Concerns
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	The proposed site is not located within any significant environmentally sensitive area, except for the Garakhal canal which is a distributary of the Kohelia River that flows directly beneath the proposed bridge alignment.	Will not cause any severe negative effects to the area's environmental settings, nor to important ecological features.
	The proposed sub-project targets an existing old concrete bridge over the Garakhal canal, which has deteriorated over time due to prolonged use.	Replacing a concrete bridge with an identical one at the same location necessitates the removal of the existing bridge, which may result in waste production, harm water quality and minor air pollution due to dust and airborne particles less than PM ₁₀ .
	Environmental and social screening conducted; moderate risks identified.	Manageable with appropriate mitigation measures.
	Heavy vehicular movement and future construction activities may cause air, noise, and water pollution.	Construction and demolition activities may lead to localized dust, air pollution, and runoff contamination; these impacts are short-term, site specific and can be effectively managed through water sprinkling, dust control, noise barriers and proper site drainage.
	No fish farming activities or significant vegetation coverage were found within close proximity to the proposed site. However, the area is predominantly surrounded by salt fields, located approximately 40 to 60 meters to the north, south and east of the bridge site. These salt cultivation zones are critical to the local economy and should be protected from potential construction-related runoff and pollution.	Will not cause any severe negative effects to the environmental settings of the area nor important environmental features. Air and noise pollution may occur during the construction period due to construction activities and the transportation of materials. In some cases, accidents may happen due to unauthorized entry into the construction site. These impacts are short-term, site-specific, and within a small scale and manageable by mitigation measures.
	Construction activities and the establishment of labor camps, along with associated facilities and services, may lead to adverse environmental and social impacts if not properly managed.	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 (in labor camp), will more likely to take place. Strain on local resources such as water, sanitation and electricity. Health and hygiene risk due to overcrowding or poor camp management. Social tension with nearby communities may arise if laborers' behavior or camp facilities are not adequately supervised.
	Earth excavation work will be involved during the piling.	Consequently, air, noise and dust pollution will be occurred within a small-scale during the construction period only.
	Chemical spills or improper disposal of construction waste materials due to	Soil and water can be further eroded and polluted.

	<p>lack of workers' training and misconduct of contractor's safety initiatives. Kitchen and labor camp waste may be generated during construction period. Vibration effects generated from piling, drilling, or other construction works</p> <p>A functional Grievance Redress Mechanism (GRM) must be in place to ensure community feedback, transparency, and accountability in managing environmental and social risks during project implementation.</p>	<p>May trigger harmful disturbances to local faunal species.</p> <p>Lack of an effective GRM may lead to unresolved community complaints, misinformation, reduced stakeholder trust, and potential conflict or resistance during project implementation. However, the project's three-level GRM structure comprising Local, Project, and Ministry-level committees offers a systematic approach to resolve such issues in a timely, transparent, and inclusive manner.</p>
<p>ESS2: Labor and Working Conditions</p>	<p>Local workers may be hired; labor influx is not anticipated. No child or forced labor permitted. OHS risks during pile-driving and construction works. Safe working conditions, personal protective equipment (PPE), and sanitation facilities must be ensured at site. Risk of accidents during demolition of old structure or pile-driving and construction phase; proper training and labor code compliance are required.</p> <p>Labor camps must comply with EHS guidelines. Inadequate ventilation, poor lighting and overcrowded conditions can disrupt normal living standards, increase the risk of disease transmission and negatively impact workers' health and well-being.</p>	<p>Low risk of labor-community tension or burden on local infrastructure; reduced potential for social conflict. Injury risk for laborers. Risk of injury or health hazards if workers lack PPE or safety supervision. Potential spread of illness if hygiene and sanitation facilities are inadequate. Risk of falls, tool-related injuries, or exposure to noise and dust without safety training. Possibility of non-compliance with national labor standards or World Bank EHS guidelines. Risk of poor living conditions, waste mismanagement, health and hygiene issues, or community tension if camps are not properly managed.</p>
<p>ESS3: Resource Efficiency and Pollution Prevention and Management</p>	<p>Dust from earthwork, vehicle movement, and material handling during the construction period may cause air pollution. Construction works will involve chemical usages (Cementitious Chemicals as Ordinary Portland Cement, Fly Ash, Slag Cement, and Lubricants & Fuels as Diesel, engine oil, hydraulic oil) and preparation of on-site add-ons to the bridge that will generate scraps and residues. Use of concrete, cement and machinery used oil/grease during construction may lead to runoff polluting nearby salt fields and canals. Noise from piling and construction machinery.</p> <p>Construction waste, including debris from dismantling of old bridge and packaging materials, waste from labor camps, must be handled with designated waste management plan.</p>	<p>Site specific, short-term, can be controlled by regular sprinkling and covered transport Moderate scale of water pollution may be caused during construction period due to concrete and cement usage. The runoff from work site may enter the present canal, salt field and reduce the water quality which will be acute, if chemical gets mixed with water. Risk is manageable with drainage controls and silt traps. Potential hearing risks and stress for laborers and local residents exposed to prolonged noise. Limited to working hours and local area, can be reduced by timing and barriers. Soil and water contamination from unmanaged waste near salt fields and the Garakhal canal. Health hazards for workers and nearby communities due to uncollected solid waste. Waste can be stored and disposed at designated</p>

		landfill with contractor oversight.
ESS4: Community Health and Safety	<p>The construction zones must be barricaded; signage and awareness campaigns to minimize risks to pedestrians and vehicles. Participants recommended dedicated pedestrian walkways and strong railings to enhance community safety.</p> <p>Use of heavy machinery during construction may result in significant dust and noise emissions. Runoff containing oil, grease, or cement slurry may enter nearby salt fields and khal, potentially affecting community health and livelihoods.</p>	<p>Increased risk of accidents and injuries to pedestrians, especially children and elderly, due to unprotected construction zones. Obstruction or confusion for local traffic and pedestrians in the absence of proper signage and temporary pathways. Community dissatisfaction if safety measures are not visibly in place. Unsafe movement near deep excavation or elevated bridge structures during construction. Proper use of signage and barricades may ensure the construction site's safety.</p> <p>Air pollution from dust and emissions can affect nearby residents. Noise pollution may disturb local communities. Water pollution due to runoff of oil, grease, or cement slurry may contaminate adjacent salt fields and khal (canals), harming aquatic life and reducing water usability. These impacts are short-term, site-specific and within a small area and manageable by mitigation measure.</p>
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	No land acquisition required; construction is within the existing right of way.	Temporary access disruptions during construction can be mitigated by providing alternative access during construction. Vehicles. A Memorandum of Understanding (MoU) should be signed with the landowner in cases where private or community land is temporarily required for storing construction materials or setting up labor camps.
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	No critical natural habitats within 500m. The 96.10m PSC bridge in Moheshkhali is surrounded by salt cultivation fields on all sides, with distances ranging from 40 to 60 meters.	Some features are located near the proposed sites, where dust and noise pollution may cause impacts. These impacts are expected to be negative but short-term, site-specific, and reversible with appropriate mitigation measures. Other features are situated at relatively greater distances, where significant disturbance is not anticipated. To minimize any potential impacts, strict construction site management practices should be enforced, including limiting work to daytime hours, applying water-sprinkling at least twice daily around the site, installing proper fencing around the working area, and ensuring safe storage of construction materials.
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	No Indigenous or Small Ethnic Communities found in project influence area.	Not applicable.
ESS8:	No known cultural or archaeological sites identified within project site.	Not applicable.

Cultural Heritage		
ESS9: Financial Intermediaries	Not applicable as project does not involve financial intermediaries.	Not applicable.
ESS10: Stakeholder Engagement and Information Disclosure	Consultations were conducted with local host community members and relevant stakeholders at all four proposed bridge locations. On 20 March 2025, a meeting was held with 25 participants at Moktar’s Soudagor Shop near the Moheshkhali bridge, where participants emphasized the urgent need for a new bridge to address transport difficulties and safety risks due to the deteriorated condition of the existing structure.	Participants anticipated support for the project and emphasized the importance of safety features and pollution control. The feedback collected underscores the need for continued stakeholder engagement during implementation, including maintaining a functional grievance redress mechanism (GRM), accessible communication channels and a transparent complaint registry to ensure inclusive and responsive project delivery.

The navigability of canals and community safety remain critical considerations during both the construction and operational phases of the bridge subproject. As per good environmental and social practice, and consistent with World Bank Environmental and Social Standards (ESS4 and ESS6), no construction or structural intervention over waterways should impede the free and safe passage of local water transport. During construction, temporary arrangements must be ensured so that local communities can continue crossing canals from alternative access points without disruption.

Safety during the operation phase is equally important. Measures such as the installation of reflective guideposts, visible signage, and proper lighting for vehicles and pedestrians approaching the bridge are essential and must be integrated into the construction phase planning. These elements significantly enhance commuter and pedestrian safety and should be reflected in the engineering design and budget estimations.

Furthermore, to minimize environmental degradation and offset potential negative impacts, a comprehensive set of site-specific mitigation measures will be adopted in addition to standard construction practices. These will follow the Environmental and Social Management Plan (ESMP) and the relevant national codes of practice, ensuring compliance with the requirements outlined in the Environmental and Social Management Framework (ESMF).

3.4 Climate Change Impact

3.4.1 General Consideration

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geo-morphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank¹ has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, the vigorous monsoons make the area prone to landslides, and there is always the lurking threat of cyclones and thunderstorm across the area.

Together with the above-mentioned hazardous situation, availability of potable water from shallow tube wells that pump water up from about 120 feet has already reached to a critical level. Averting the problem requires new tube wells to be plumbing deeper into the poorly mapped aquifer but going deeper than 300-500 feet in some places may cause salt water to contaminate freshwater resources, which could be disastrous for both refugees and residents.

Considering the general climate change effects in Cox's Bazar area and offsetting the aggravating environmental situation due to the mass arrival of Rohingya communities, several specific measures including tree plantation in sub-project areas and construction of drainage facilities in optimum numbers with wide opening, along the road length have been suggested and will be implemented under this project.

3.4.2 Site Specific Consideration

The sub-project area is not adjacent to the sea. The cyclone has higher impact in the area and intensity of precipitation has been seen to have increased in the past few years. Salinity and the occurrence of cyclonic storm surge were not reported in the vicinity of the subproject. Temperature was reported to be increased, and Thunderstorm is found to have highest impact in the area. Thunderstorm has been observed creating more damage than before, but no casualty was reported. Flash flood in or around the site is not observed; but the area experiences water logging issues during the monsoon, which for several structures have been suggested to include in the design.

Site specific climate change impacts are often not so easy to measure or deduce plausibly while the site is confined to a narrow strip of roadways only, and associated mitigation or offsetting measures are really hard to plot on the same tiny impact areas, though an overall set of measures are often considered in practical aspect.

¹ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

The anticipated environmental and social impacts of the proposed sub-project are primarily construction-related and considered to be temporary, site-specific, and manageable. These impacts can be effectively addressed through the adoption of good engineering practices, good housekeeping, better *in-situ* construction materials management, standard environmental controls, and adherence to World Bank Environmental and Social Standards (ESS1–ESS10), especially those related to health, safety protocols, and pollution prevention.

Contractors must adhere to implement the Environmental and Social Management Plan (ESMP) as part of their contractual obligations. This includes regular implementation of dust control measures, such as water spraying at least twice daily, proper solid waste management, noise control and site demarcation to ensure minimal disturbance to surrounding communities and environment of the sub-project sites. Given the site's proximity to salt fields located within 40 to 60 meters on the north, south, and east sides extra caution must be exercised to prevent runoff of construction materials, cement slurry, oil, or debris from entering these environmentally and economically sensitive zones. Further construction related activities that may result in adverse impacts in the surrounding environment of the sub-project must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance.

In addition, all site workers, engineers, and Contractor's staffs must receive training on occupational health and safety (OHS), good practice construction works, code of conduct, efficient labor camp management, labor management procedure, emergency response, and environmental best practices and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects of this proposed construction work are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

The sub-project-specific mitigation and monitoring measures have been outlined in the respective ESMP in Appendix-2, which guides pre-construction, construction, and post-construction phases. With proper implementation of these measures, the proposed infrastructure intervention is expected to deliver long-term social and economic benefits to the host communities, with minimal residual environmental impact.

4.2 Cost of Environmental and social Enhancement Works in BOQ

In consideration to the aforementioned environmental impacts and their mitigation measures for the proposed construction activities, a set of items are included in the BOQ for every sub-project. The estimated cost to implement the ESMP is shown in Appendix-3.

5. CONTRACTOR AND LABOR MANAGEMENT

Most of the workers for this subproject will come from the local community, who share a common socio-economic, cultural, religious, and demographic background. Based on consultations with local stakeholders, it is anticipated that only a small portion of skilled labor may need to be hired from outside the project area, depending on availability. Therefore, the likelihood of internal conflicts

among workers is expected to be minimal. It is estimated that approximately 20 laborers will be engaged during the construction phase, comprising 4 skilled (25%) and 16 unskilled (75%) workers, generating around 10,800 active working man-days (as detailed in Table- 5.1).

Although female participation in rural construction work is traditionally low, higher involvement of women is expected in this sub-project. Nonetheless, if female participation remains limited, the contractor must still conduct mandatory GBV (Gender-Based Violence) awareness training for all workers prior to the commencement of construction to mitigate risks of harassment, discrimination, or hostile behavior at the worksite.

The contractor's area will include the working zone surrounding the construction site, materials stacking and storage area, labor shed, and office space ideally located within or adjacent to the proposed Sub project location premises/boundaries for better coordination and monitoring. Contractor will be strictly instructed to maintain cleanliness at the worksite by ensuring waste, debris and dust are regularly cleared and that all bulk construction materials such as sand, stone chips, and steel are stored properly and covered with plastic sheets to prevent environmental degradation.

Experiences from ongoing LGED projects in Cox's Bazar indicate a shortage of skilled labor, which has contributed to delays in some cases. In this sub-project, LGED anticipates that general and non-technical labor will be sufficiently available locally, with only specific technical expertise needing to be sourced from outside if required. It is expected that the scale of labor influx will remain manageable and will not pose significant risks of social tension or GBV during the construction period.

Table 5.1: Subproject-wise number of labor and total active working days

SI no	Package Number	Name of Subproject	Total Space of proposed Construction (Square meters)	Tentative per day labor (No)	Days	Total active working days
01	HELP-COX/BR-1	Construction of 96.10m Long PSC Grider Bridge on Uttar Nalbila-Matarbari GC Connecting Road (Up to Ghat) Road at Ch. 1768m, Moheskhali Upazila District: Cox's Bazar, Road ID: 422492002	701.53	20	540	10,800
Grand Total =				20	540	10,800

6. GRIEVANCE REDRESS MECHANISM (GRM)

In accordance with the Environmental and Social Management Framework (ESMF) of the HELP project, a robust and accessible Grievance Redress Mechanism (GRM) has been established to address project-related grievances from host communities, workers and other stakeholders. A structured and inclusive Grievance Mechanism (GM) has been established to ensure timely and

effective resolution of complaints arising from project activities in the host communities. Since LGED is the Implementing Agency (IA), the grievance redress structure has been designed to operate across three levels local (Upazila), Project Implementation Unit (PIU) and Project Steering Committee (PSC) to address concerns efficiently and equitably.

Local Level GRC

At the local level, a Grievance Redress Committee (GRC) is formed in each Upazila where LGED has subproject activities. The GRC is chaired by the Upazila Engineer from LGED (or a nominated official by the Project Director if required), serving as the Convener. The Environmental Specialist and/or Social Specialist from the PIU, depending on the nature of the complaint, act as the Member-Secretary and remain common across all local GRCs under LGED. The committee also includes an Environmental and/or Social Specialist from the Supervision Firm appointed by LGED, a representative from the respective Union Parishad (preferably female if the complainant is female), and a community representative such as a teacher, NGO staff member, or a local individual nominated by the complainant. Specialists for these roles are expected to be hired within 3 to 6 months of project effectiveness. All grievances at the local level must be heard and resolved within 10 working days of receipt. Complaints related to LGED activities will be received at the office of the respective Upazila Engineer.

PIU-level GRC

If a complaint cannot be resolved at the local level, it is escalated to the PIU-level GRC. This committee is chaired by the Project Director of LGED and includes the Social and Environmental Specialists from the PIU as Member-Secretaries. It also includes a local government representative either the same individual from the local level hearing or another as appropriate (must be female if the complainant is female) and a community representative, preferably the same individual who participated at the local level. The PIU-level GRC is responsible for reviewing unresolved grievances and delivering a decision within 15 working days. In addition, the Social or Environmental Specialist at the PIU, with assistance from the local GRC's Member-Secretary, will conduct regular visits to subproject sites to engage with communities and affected persons, and to document any new concerns, suggestions, or complaints in the GRM register.

PSC-level GRC

For grievances that remain unresolved at the PIU level, the matter is further referred to the PSC-level GRC, which represents the final tier of grievance resolution. This committee is led by a representative of the Secretary from the relevant ministry, serving as the Convener, with the Project Director of LGED acting as the Member-Secretary. The PSC-level GRC is required to make a final decision on such grievances within a maximum of four weeks. Any resolution reached at any level of the grievance process that is agreed upon by the aggrieved party is considered binding on LGED and will be implemented accordingly.

This multi-tiered GM structure under LGED ensures that all grievances from host community members are addressed in a fair, inclusive, and transparent manner. It fosters accountability and trust in project implementation while upholding the World Bank's Environmental and Social Standard 10 (ESS10) on stakeholder engagement and information disclosure.

7. INSTITUTIONAL ARRANGEMENT

LGED, through the Project Implementation Unit (PIU), will have overall responsibility for environmental and social risk management through implementation of ESMP and compliance with the World Bank’s Environmental and Social Framework (ESF). The PIU’s ES team comprising of a Sr. Environmental Consultant, a Sr. Social Development Consultant, and a Gender Specialist will oversee ESMP implementation including functional operation of Grievance Redress system, review monitoring reports from the D&S Consultant, and coordinate reporting to the World Bank. The Design and Supervision Consultant (D&SC) will provide day-to-day site supervision, verify contractor’s compliance with ESMP requirements along with taking prime actions in the progress of grievance redressal and advise corrective actions wherever required. The Contractor will be responsible for on-site implementation of all mitigation measures, including occupational health and safety (OHS), waste management, environmental protection and grievance management. Coordination among PIU of LGED, D&SC, and the Contractor will be ensured through regular supervision, reporting, and redressal mechanisms.

Institutional Roles and Responsibilities Table (Recommended for ESMP)

Institution / Entity	Key Roles and Responsibilities
LGED Project Implementation Unit (PIU)	• Oversee environmental and social risk management framework and activities
	• Review and approve site-specific ESMPs
	• Monitor implementation through field inspections
	• Manage and supervise GRM at the project level
	• Approve E&S documents and corrective actions
	• Report ESMP performance to the World Bank
PIU Environmental & Social Specialists	• Technical supervision of ESMP implementation
	• Review contractor’s E&S compliance plans and related records.
	• Conduct site visits and compliance audits
	• Provide guidance on ESS compliance and required corrective actions
	• Leads capacity-building and training sessions for consultants and contractors.
	• Review and approve periodic monitoring reports and submit to the Project Director for sending them to the WB.
Design & Supervision Consultant (D&SC)	• Provides full-time, site-level supervision of ESMP implementation.
	• Verifies that mitigation measures are integrated into physical construction activities.
	• Verify contractor compliance with mitigation measures
	• Maintains detailed monitoring checklists, incident logs, and photographic records.
	• Support PIU in Compliance reporting.
Construction Contractor	• Executes all mitigation measures defined in the approved ESMP.
	• Prepare site-specific plans (OHS, waste, traffic, labor camp, etc.)

		and implement the same.
		<ul style="list-style-type: none"> • Ensure PPE use, safety training, and daily toolbox meetings • Appoints a designated EHS Supervisor to manage site-level compliance and reporting.
Grievance Redress Committees (3-tier GRM)		<ul style="list-style-type: none"> • Receives, registers, and investigates grievances from workers and the community. • Ensures a transparent, culturally appropriate, and timely resolution process. • Coordinate with PIU and local administration

8. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

Monitoring is a critical component under the Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP) to ensure that environmental and social mitigation and enhancement measures outlined in the Environmental and Social Management Plan (ESMP) are effectively implemented and that their intended benefits are realized over time. The Environmental and Social Management Framework (ESMF) of the HELP Project provides a detailed monitoring mechanism, assigning responsibilities to all relevant parties directly involved in or overseeing the construction and implementation of sub-projects.

Several tiers of monitoring responsibilities have been established under the HELP Project. At the implementation level, contractors are required to ensure that environmental and social risks are effectively minimized throughout the construction period. This includes implementing adequate Occupational Health and Safety (OHS) measures for both workers and surrounding host communities. Contractors must assign site managers and safeguard supervisors (or equivalent personnel) to supervise daily implementation of the ESMP. These personnel are responsible for ensuring environmental protection both on and off-site and for preventing damage or nuisance to individuals, public and private property, and surrounding features or institutions. Pollution, noise, and other detrimental effects arising from construction operations must be strictly controlled. In addition to implementing the ESMP, contractors are also responsible for preparing and executing specific management plans, such as drainage management, traffic management and emergency preparedness and response, where required. Proper implementation of these plans, along with timely site decommissioning and restoration, must be ensured. The detailed Environmental and Social Monitoring Plan, including monitoring parameters, indicators, responsible institutions, and frequency of monitoring during pre-construction, construction, and operation phases, is presented in Appendix-4.

The first tier of supervision is led by the Design and Supervision Consultant (D&SC) firm. Once the contractors are mobilized, safeguard consultants from the D&SC and the Resident Engineer are tasked with ensuring contractor compliance with the ESMP and with the application of good engineering practices at the site. This includes strict enforcement of OHS measures. The D&SC is responsible for preparing regular monitoring reports based on field-level supervision and findings.

At the second tier, the Project Implementation Unit (PIU) will play a key role in overall monitoring. The PIU will have dedicated environmental and social safeguard specialists who will conduct frequent field visits to assess ESMP implementation. These specialists, in coordination with the

Executive Engineer's Office in Cox's Bazar district and Upazila Engineers' Office in the respective upazila, will ensure strong site-level oversight. The PIU safeguard team will also ensure that all contractor staff and other relevant personnel receive adequate initial and ongoing training on environmental and social safeguards. Moreover, the PIU will verify proper site cleaning and reclamation upon completion of construction and recommend necessary corrective or punitive measures if any non-compliance is observed.

At the highest tier, the Ministerial Project Steering Committee (PSC), chaired by the Senior Secretary/Secretary of the Local Government Division (LGD), Ministry of LGRD&C, will provide strategic oversight of monitoring activities. In collaboration with the PIU, the PSC will ensure that environmental and social safeguard training is provided to all relevant project staff and that implementation at the field level aligns with national policies and the World Bank's Environmental and Social Framework (ESF). This structured multi-tiered monitoring approach under HELP will help ensure that the construction of the PSC bridge at Moheskhal Upazila is environmentally and socially responsible, and aligned with sustainable development objectives.

9. CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are fully implemented, there will be no significant negative environmental or social impacts related to the selection, design, construction, and operation of the proposed sub-project. In fact, the recommended mitigation and enhancement measures will lead to significant benefits, improving both the environmental quality and the social well-being of the local communities. The project will contribute to enhanced infrastructure, improved livelihoods and better access to essential services, ultimately benefiting both the host communities and the displaced populations. Major improvements in quality of life, communication and socio-economic influences will be ensured once the scheme is in operation.

Overall, the screening study can be summarized as follows:

- The communities will receive large benefits in terms of quality of life, particularly with better reach of services and goods.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for those who live in the vicinity of the construction site and will provide them a short-term economic gain.
- A comprehensive Environmental and social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from these Subproject activities.
- Detail cost estimation for incorporating ESMP has been shown in Appendix-3. This budget can change due to change of market prices and if the project implementation period extends.

Implementation of this Sub-project will have large positive impacts to the communities in terms of improved infrastructural transportation & communication facilities, which would eventually develop the socio-economic condition of the catchment areas. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Annexure-01: Attendance of consultation meetings for sub-project

Host and FDMN Enhancement of Lives through Infrastructure Improvement Project (HELP)
Local Government Engineering Department (LGED)
Public Consultation Participants List
Focus Group Discussion

সময় : ১২:৩০ PM
উপ-প্রকল্প/কম্পোনেন্ট এর নাম Construction of 96'10m long ISC Overhead Bridge
যত বিস্তারিত হলে : উত্তর কুমিল্লা জাতীয় সড়ক প্রকল্পের অধীনে
ইউনিট : কুমিল্লা জাতীয় সড়ক প্রকল্পের ৬ নং সেকশন
সহ প্রকল্পের নাম : HELP-COX/BR-1
তারিখ : ২০/০৬/২০

আংশগ্রহণকারীদের হাতির (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / চিহ্নসহ
১.	শ্রী: জাফর উদ্দিন	৩৮	পুরুষ	উ: মতলুপ	Adun
২.	জাফর উদ্দিন জাফর	৪১	"	"	জাফর উদ্দিন
৩.	জাফর উদ্দিন রক	২৬	"	"	জাফর উদ্দিন
৪.	জাফর উদ্দিন রক	৩৫	"	"	জাফর উদ্দিন
৫.	শ্রী: জাফর	৬২	"	"	জাফর
৬.	জাফর উদ্দিন রক	৪২	"	"	জাফর উদ্দিন
৭.	জাফর উদ্দিন	৪৮	"	"	জাফর উদ্দিন
৮.	জাফর উদ্দিন রক	৪০	"	"	জাফর উদ্দিন
৯.	জাফর উদ্দিন	৪৮	"	উ: মতলুপ	জাফর উদ্দিন
১০.	জাফর উদ্দিন	৪২	"	"	জাফর উদ্দিন
১১.	জাফর উদ্দিন	৬০	"	"	জাফর উদ্দিন
১২.	জাফর উদ্দিন	৩৭	"	"	জাফর উদ্দিন
১৩.	জাফর উদ্দিন	৩২	"	"	জাফর উদ্দিন
১৪.	জাফর উদ্দিন	৪০	"	"	জাফর উদ্দিন
১৫.	জাফর উদ্দিন	৩০	"	"	জাফর উদ্দিন
১৬.	জাফর উদ্দিন	৪৪	"	"	জাফর উদ্দিন
১৭.	জাফর উদ্দিন	৫০	"	"	জাফর উদ্দিন
১৮.	জাফর উদ্দিন	২৮	"	"	জাফর উদ্দিন

Annexure-02: Sub-project location pictures



Figure: Present condition of the proposed location for 96.10m Long PSC Grider Bridge at ch 1768 on Uttarnalbila - Materbari GC Connection Road (Up to ghat) Road ID: 422492002 (Package no: HELP-COX/BR-1) (Moheskhali Upazila)

Appendix-1: Environmental and Social Screening Form for examining sub-project

Environmental & Social Screening Form

Work Package Description Form:

Name of component: Construction of 96.10m Long PSC Grider Bridge on Uttar Nalbila- Matarbari GC Connecting Road (Up to Ghat) Road at Ch. 1768m, Moheshkhali Upazila District: Cox's Bazar, Road ID: 422492002

Package no: HELP-COX/BR-1

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): As per LGED rate schedule

Estimated construction period duration: 18-24 months

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar

Sub-District: Moheshkhali

Union: Matarbari

Name of Community/Local Area: Moktar's Shoudagor Shop at Rajghat Bazar

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

One PSC Bridge will be constructed replacing an existing concrete bridge. There are some activities for PSC bridge construction such as Earth cutting and filling for foundation, Back filling and approach road construction, Brick soling work, CC work, PSC work, Rod cutting, bending and binding and Shuttering work.

Estimated footprint / land area for this sub-project is 701.53 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.):

Proposed site is located along the Uttarnalbila–Matarbari GC Road (Road ID: 422492002), crossing over Garakhal, which is a distributary of the Kohelia River. Geographically, the eastern end of the bridge falls within Majherchor village under Kalarmar Chora Union, while the western end is situated in Rajghat village of Matarbari Union.

The present land use of the site is an open area, and no residential households or agricultural fields located near the construction area. The surrounding environment is predominantly comprised of salt cultivation fields. The primary catchment villages that rely on this bridge for daily movement include Rajghat, Majherchor, Shikdar Para, Laillaghona, Monhajir Para, and Bolie Para.

The nearest major road, known locally as the Mir Akter Project Road, lies approximately 500 meters from the project site, while the site itself is about 29 kilometers from the Moheshkhali Upazila. The bridge serves as a critical transportation link, used by an estimated 20,000 to 25,000 people daily, including salt field workers, traders, and residents from the adjacent communities.

The existing approach road to the bridge is constructed with bituminous carpeting (BC), but it is currently in deteriorated condition. This is due to partial excavation carried out by the previous contractor for construction purposes, which has remained unresolved for over a year, thereby

affecting mobility and posing threats for the local community. Currently, no other important environmental feature is found within the proposed sub-project location.

The proposed Sub-project of PSC Bridge is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to demolition of an old bridge and later construction of a new bridge on the same place. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of plastic. Human wastes might be generated in labor camps.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The following activities for PSC bridge construction are:

- Earth cutting and filling for the foundation
- Backfilling and approach road construction
- Brick soling work
- CC work
- RCC work
- Rod cutting, bending and binding
- Shuttering work

For bridge safety,

- Color painting on rallying
- Traffic safety guide post for approach
- Safety measures will be taken within the construction

Others,

- Any bridge side is not on private land.
- Alternative diversion will be provided for traffic movement and not disturbing of water flow or flora and fauna
- Mainly on very small canals and dispersed land will be necessary for water drainage

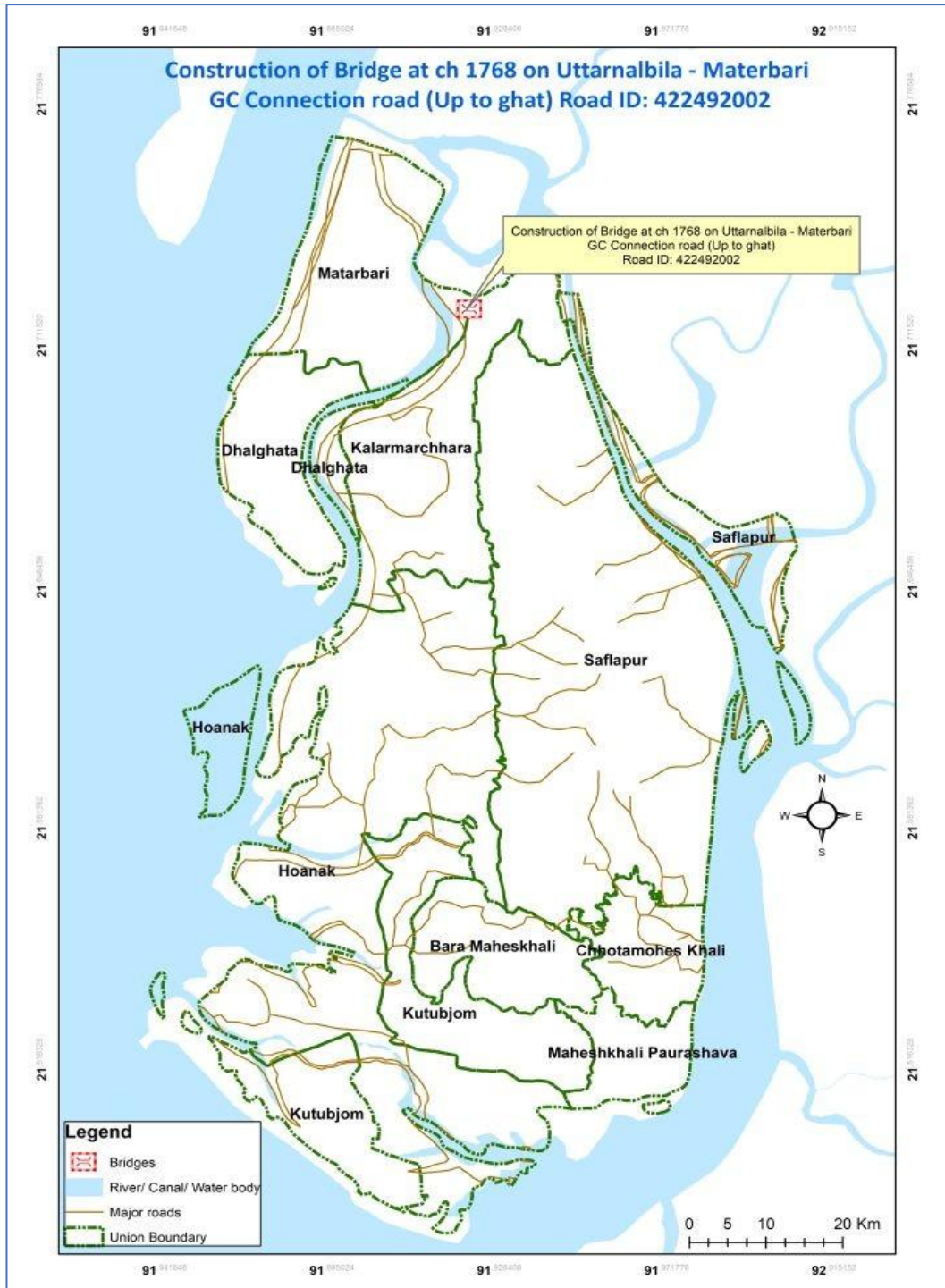
For livelihood,

- No private land will be used
- No shifting of any structure will be needed

Sub-project Location:

Proposed site is located along the Uttarnabila–Matarbari GC Road (Road ID: 422492002), crossing over Garakhal, which is a distributary of the Kohelia River. Geographically, the eastern end of the bridge falls within Majherchor village under Kalarmar Chora Union, while the western end is situated in Rajghat village of Matarbari Union under Moheshkhali Upazila of Cox’s Bazar district.

The primary catchment villages that rely on this bridge for daily movement include Rajghat, Majherchor, Shikdar Para, Laillaghona, Monhajir Para, and Bolie Para. The GPS coordinate is 21.718726, 91.920578. The distance from the Upazila headquarter is about 29 km.



Land ownership

Government Land

Expected construction period: 18-24 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas and historical or cultural assets):
Please also explain any analysis on alternative location was conducted:

Project intervention area will be adjusted on the existing old concrete bridge but influence area should consider nearly half a kilometer radius around the proposed site.

Mosque/ Madrassa (500m), open field (50m), Elephant watch tower (300m NE) are present on the north. Agricultural Field (50m), Modhurchora Village (80m) is present to the south. Agricultural Field(50m), Boroitoli Road(50m), Redcross Office (120m) were found to the west and Mosque (200m), Camp settlement (200m), Clump of trees(30m) were found on the east of the sub-project location but there is no chance to disturbance during this construction activity.

Red cross office was found on west side from the proposed project location. But there is no scope to be affected by the construction activities. No structures, trees and livelihood will be affected by this construction activity. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified.

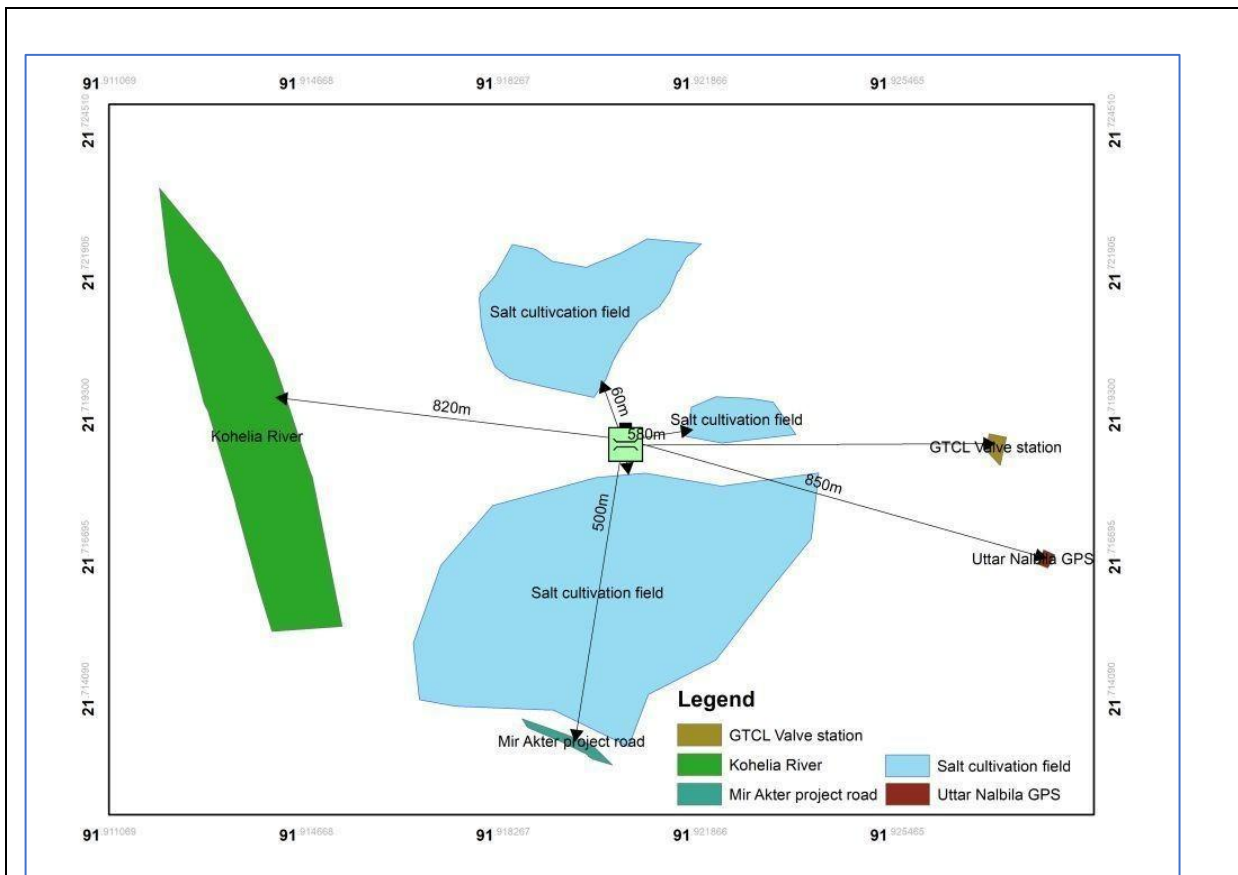
Section B: Environmental Screening

B.1: Environmental feature of sub-project location

Description of cultural properties (if applicable, including distance from site):

The proposed sub-project is located at CH 1768 on the Uttarnalbila–Materbari GC Connection Road, will replace an existing old concrete bridge, crossing over Garakhal, which is a distributary of the Kohelia River. The proposed area is an open space with no households or agricultural land on the site. However, it is surrounded by salt cultivation fields, which are located 60 meters to the north, 50 meters to the south, 40 meters to the east, and 50 meters to the west of the site. Uttar Nalbila located at 850m east and GTCL valve station located at 580m from the proposed site. The Mir Akter Project Road, a key regional access route, is located approximately 500 meters from the site. The existing BC approach road is in poor condition due to partial demolition by the previous contractor, which has remained unresolved for over a year. The sketch of the surrounding features are given below.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas within the proposed site, except for the salt fields surrounding the area, which are located 60 meters to the north, 50 meters to the south, 40 meters to the east, and 50 meters to the west of the site. Construction and demolition activities may lead to dust and runoff contamination to the salt field; These impacts are short-term, site-specific and can be effectively managed through proper water sprinkling and site drainage. The proposed bridge will be replaced with an existing old concrete structure, crossing over Garakhal.

Those will not be affected by the construction works, as the activities will be carried out over existing concrete bridge and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) potential impacts on remaining forests in/around camps Yes/No

N/A

(2) Other issues:

The existing approach road to the bridge is constructed with bituminous carpeting (BC), but it is currently in deteriorated condition. This is due to partial excavation carried out by the previous contractor for construction purposes, which has remained unresolved for over a year, thereby affecting mobility and posing hazards for local community.

Baseline air quality and noise levels:

Air Quality

Site-specific baseline ambient air quality monitoring was not conducted for this sub-project. However, baseline conditions have been assessed based on secondary information from relevant

environmental studies, Department of Environment (DoE) monitoring data, and previous environmental assessments of rural infrastructure projects implemented in Cox's Bazar District and similar coastal regions of Bangladesh. These sources indicate that ambient air quality in such rural and semi-urban areas is generally moderate to good, primarily due to the absence of major industrial activities and the dominance of local traffic and open land use.

According to the available DoE² monitoring data and previous environmental assessments under LGED and World Bank-supported projects, concentrations of gaseous pollutants such as sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and carbon monoxide (CO) in similar rural settings typically remain within the Bangladesh National Ambient Air Quality Standards (BNAAQs). Indicative values from comparable project areas show SO₂ concentrations ranging from 5-20 µg/m³, NO₂ from 15-30 µg/m³, and CO levels generally below 2.0 mg/m³.

Particulate matter (PM₁₀ and PM_{2.5}) levels in respective Upazila are generally moderate, but may increase during the dry season due to dust from unpaved surfaces, movement of vehicles, and local bazar activities. Secondary data from previous LGED road project EIAs³ indicate that PM₁₀ concentrations may range between 90-160 µg/m³ and PM_{2.5} between 40-70 µg/m³ during peak dry periods, with occasional short-term exceedances of national standards. These exceedances are typically localized, temporary, and reversible in nature.

Field observations at the proposed bridge construction site indicate generally good baseline air quality conditions, as the area is predominantly rural with low traffic density. Minor localized emissions are mainly associated with intermittent vehicular movement, small-scale rural activities, and nearby household activities. No significant industrial emission sources or air pollution hotspots were identified within the Project Influence Area. Overall, the baseline air quality in the project area is considered acceptable for a rural setting. Construction activities may temporarily increase dust and vehicular emissions, particularly during earthworks and material transport; however, these impacts are expected to be short-term and manageable through standard mitigation measures such as regular water spraying, covering of materials, and controlled movement of construction vehicles.

Noise Levels

Baseline noise monitoring was not carried out for the proposed road. However, secondary information from LGED environmental reports, DoE noise surveys, and field observations indicate that ambient noise levels in Moheskali Upazila and nearby areas are generally low to moderate. Typical daytime noise levels in rural areas of Cox's Bazar range from 45–55 dB(A), while nighttime levels range from 38–45 dB(A)⁴, which are within the limits prescribed under the DoE Noise Pollution (Control) Rules for rural and residential areas.

Existing noise sources in the project influence area are limited to light vehicular traffic, local market

² Department of Environment (DoE) (2005, amended 2018). Bangladesh National Ambient Air Quality Standards (BNAAQs). Ministry of Environment, Forest and Climate Change, Government of Bangladesh, Dhaka.

³ Local Government Engineering Department (LGED) (2019). Environmental Impact Assessment Reports for Rural Road Improvement Projects in Cox's Bazar District. LGED, Dhaka.

⁴ Department of Environment (DoE) (2025). Noise Pollution (Control) Rules, 2025. Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka.

activities, and occasional agricultural operations. No continuous or high-intensity noise-generating sources were identified near the proposed site. During construction, temporary increases in noise levels may occur due to the operation of construction machinery and vehicles. Such impacts are expected to be localized, intermittent, and time-bound, and can be effectively mitigated through scheduling works during daytime hours, maintaining equipment in good condition, and providing appropriate personal protective equipment (PPE) for workers.

Baseline soil quality:

Site-specific soil quality monitoring was not conducted for the proposed bridge site at the screening stage. However, baseline soil conditions have been assessed using secondary information and field observations along the proposed site. The project area lies within the coastal floodplain of Cox's Bazar District and is characterized by young alluvial soils with silty clay to clay loam textures. These soils are generally fertile but may exhibit moderate salinity, particularly during the dry season due to tidal influence and saline water intrusion⁵. Soil pH in the area typically ranges from 6.5 to 8.0, indicating neutral to slightly alkaline conditions common in coastal deltaic environments.

Electrical Conductivity (EC) of soils in the surrounding area varies seasonally, with moderate salinity (4-8 dS/m) observed in surface soils during the dry period. Salinity tends to decrease during the monsoon season due to rainfall and freshwater influx. Organic matter content is generally low to moderate (1-2%) as a result of frequent sediment deposition, tidal action, and limited biomass retention in cultivated and open areas along the proposed site. Available secondary data suggest that heavy metals such as lead (Pb), cadmium (Cd), chromium (Cr), and arsenic (As) are present at concentrations within permissible limits for rural and agricultural land use, with no indications of industrial contamination⁶. Naturally high iron content, common in alluvial soils, is not considered a constraint for construction activities.

The proposed bridge construction site is located within a rural setting, primarily surrounded by agricultural land and scattered settlements. The bridge footprint is confined to the immediate crossing area, and no active agricultural activities are present within the core construction zone. Field verification did not identify any signs of contaminated land, illegal dumping, or nearby industrial operations. During construction, activities such as excavation for abutments, piling, and material handling may temporarily disturb the topsoil and pose minor risks of localized soil contamination from fuel, lubricants, cement slurry, and construction waste. These potential impacts are expected to be short-term, site-specific, and reversible in nature.

Landslide potential (high/medium/low, with explanation):

N/A (the sub-project will be constructed in a plain land)

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Site-specific baseline surface water quality was not conducted for the proposed site. However, baseline conditions have been assessed using secondary information from the different Department and World Bank-funded projects previously implemented in Pekua and adjacent coastal upazilas of Cox's Bazar District.

⁵ SRDI (2018). Soil Salinity Status of Bangladesh. Soil Resources Development Institute, Ministry of Agriculture.

⁶ Local Government Engineering Department (LGED) (2020). Environmental Impact Assessment Reports for Rural Infrastructure Projects in Cox's Bazar District. LGED, Dhaka.

The baseline surface water and groundwater quality in Cox’s Bazar District shows moderate variability influenced by coastal processes, seasonal rainfall, and human activities. Groundwater in the region is generally slightly acidic to neutral, with pH values ranging from about 6.5 to 7.5, which falls within acceptable limits for drinking purposes⁷. However, iron (Fe) concentrations are often elevated and may exceed the Bangladesh drinking water standard (0.3 mg/L), causing aesthetic and operational concerns. Total dissolved solids (TDS) in both surface and groundwater typically range from low to moderate (approximately 300–1000 mg/L), although higher values can occur in coastal areas due to saline intrusion⁸. Surface water bodies, including ponds and canals, are more vulnerable to contamination and frequently show the presence of fecal coliform bacteria, indicating pollution from domestic wastewater, poor sanitation, and runoff, especially in densely populated and tourist areas. Groundwater is comparatively less contaminated microbiologically but may still be at risk in shallow aquifers. Overall, while pH and TDS are generally within acceptable ranges, elevated iron levels and fecal contamination in surface water represent key water quality concerns in the district.

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

No trees are found near the proposed area. The proposed site will be developed in an open space surrounded by salt fields.

Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

The proposed bridge is located at chainage (CH) 1768 on the Uttarnalbila - Materbari GC Connection Road (Road ID: 422492002). This road connects to the Janatabazar-Gorokghata Highway on the east side. It is possible to carry the construction materials on this road to the construction site.

Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction:

No tubewell or fresh water sources are present at the proposed location, as there are no known permanent residents in the immediate vicinity. In order to make a sustainable management to usage of water for construction works two numbers of tubewells should be installed. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget.

Electricity is not available at the site. Solar light needs to be installed.

Toilet facilities are not available near this location. To be used by the workers/contractor’s staffs during the construction period toilet will need preparation for both male and another for female.

Possible location of labor camps:

On the west side of the selected site, or can be placed near the location of sub-project site.

⁷ DPHE (Department of Public Health Engineering). (2019). Bangladesh Drinking Water Quality Survey 2018–2019. Government of Bangladesh.

World Health Organization (WHO). (2017). Guidelines for Drinking-water Quality (4th ed.). Geneva.

⁸ Bangladesh Bureau of Statistics (BBS). (2021). Statistical Yearbook of Bangladesh.

<p>Requirement and type of raw materials (e.g. sand, stone, wood, etc.):</p> <p>Some of the raw materials for bridge construction are steel, concrete, stone, asphalt, water, bamboo & wood. Other materials include iron, timber, aluminum, rubber and other joint materials, and electro-mechanical equipment used in construction.</p>
<p>Identification of access road for transportation (Yes/No):</p> <p>Yes. The proposed bridge is located at chainage (CH) 1768 on the Uttarnalbila - Materbari GC Connection Road (Road ID: 422492002). It is possible to carry the construction materials on this road to the construction site. It passes from east to west.</p>
<p>Location identification for raw material storage:</p> <p>On the west side of the proposed sub-project. Material storage area must be well fenced and materials will be covered with tarpaulins.</p>
<p>Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):</p> <p>Solid waste: An existing concrete bridge will be demolished and the new PSC bridge will be constructed here. So, construction debris and other solid wastes will be generated both during the demolition and construction periods.</p> <p>Type: woods-bamboo, copper wires, concrete, iron, plastic, tin, etc.</p> <p>Quantity: Nearly 10 metric ton of solid waste, including demolition materials will be produced.</p>

B.3: Construction Phase

<p>Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):</p> <p>Solid waste: Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc.</p> <p>Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 7 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp.</p> <p>Liquid waste: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 6 kg per day, which would be reduced in weight in course of time.</p>
<p>Type and quantity of raw materials used (wood, bricks, cement, water, etc.):</p> <p>Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes viii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction.</p> <p>Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site.</p>
<p>Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:</p> <p>There is no soil land or major vegetation cover on the right-of-way for the sub-project. No other placement as waste dumps or equipment is targeted in any vegetation cover as well.</p>
<p>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</p> <p>Low: No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the sub-project area. During construction period one or two water reservoir</p>

<p>may be constructed due to construction activities. But all those will be completely demolished and cleared out, once the construction period is over.</p>
<p>Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</p> <p>Proposed site is located along the Uttarnalbila–Matarbari GC Road, crossing over khal, which is a tributary of the Kohelia River however it is not subject to any modification. On the other hand, during construction period, water quality may be disturbed due to dust deposition and concrete and cement usage. The runoff from work site may enter the present canal which will be acute in degree and short in period.</p>
<p>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</p> <p>Low: The site is free from any significant aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.</p>
<p>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: N/A</p>
<p>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</p> <p>N/A</p>
<p>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</p> <p>No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.</p> <p>High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)</p>
<p>B.4: Operation Phase</p>
<p>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</p> <p>No</p>
<p>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</p> <p>No</p>
<p>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</p> <p>No</p>
<p>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</p> <p>There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.</p>
<p>Likely direct and indirect impacts on economic development in the project areas by the sub-project:</p> <p>Construction or implementation of a bridge project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and</p>

indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes):(High/Medium/Low with description) No significant modification to the water channel is anticipated. The khal itself functions as a seasonal waterway and is not classified as a wetland or marsh. Surrounding areas are primarily salt fields, but not dependent on the khal for drainage, therefore, no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: During operation period, traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and loose soil being dispersed around during the dry weather, and accidents may occur due to the bad condition of the access road and unsafe driving through it.

High = Likely to cause long-term impacts or over large area (> 1 sq km); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1 sq km); Low = Likely to cause little, short-term damage and over small area (< 0.5 sq km)

Section C: Social Screening

C.1 General Labor Influx Screening

Key Screening questions	Aspects to Consider
Will the project potentially involve an influx of workers to the project location, and will the influx be considered significant for the local community?	<p>How many foreign and local workers will be needed for the remaining period of the project, with what skill set?</p> <p>Answer The project will not require any foreign workers for the remaining construction period. The contractors will hire all skilled and unskilled labor locally. For the bridge construction, the project will need about 10 skilled workers and 20 unskilled workers. Skilled workers, such as masons, carpenters, and steel fixers, will come from nearby areas based on the technical needs of the bridge construction.</p> <p>Since the bridge will be constructed within a host community area, and local skilled and unskilled labor is willingly available, the project will prioritize hiring from the local community. This approach will not only support local livelihoods but also promote stronger community ownership of the project.</p> <p>✓ Can the project hire workers from the local workforce?</p>

Key Screening questions	Aspects to Consider
	<p>Answer: Yes, the project can hire workers from the local workforce. Both skilled and unskilled laborers will be recruited from nearby communities. The availability of local workers is sufficient to meet the project’s labor demands.</p> <p>✓ What is the size and skill level of the existing local workforce?</p> <p>Answer: Based on consultations with local stakeholders, most of the required workforce both skilled and unskilled is available within the project area. However, if specialized skills are needed for specific technical activities, the contractors may need to hire a limited number of skilled workers from outside the immediate locality. Overall, the local workforce is capable of supporting the construction activities under the project.</p> <p>✓ If the skill level of the local workforce does not match the needs of the project, can they be trained within a reasonable timeframe to meet project requirements?</p> <p>Answer: Unskilled labor is readily available in the project area. If the skill level of the local workforce does not fully meet project requirements, the contractors can provide on-the-job training to upgrade their skills within a reasonable timeframe. This approach will enable the project to utilize local labor effectively while enhancing their technical capacity for bridge construction activities.</p> <p>✓ How will the workers be accommodated? Will they commute or reside on site or outside of the camp? If so, what size of camp will be required?</p> <p>Answer: Most of the workforce will be hired from the local community, and they will commute daily from their own homes; therefore, they will not require accommodation at the construction site. However, skilled workers who may be sourced from outside the project area will require temporary accommodation near the site. Contractors will establish temporary labor sheds to house these external workers. The size of the labor camp will depend on the number of outside skilled workers needed, but it will be designed to comply with Environmental, Health, and Safety (EHS) guidelines to ensure proper living conditions, sanitation, and worker safety.</p>
Is the project located in a rural or remote area?	<p>✓ What is the size of local population in the project area?</p> <p>Answer: The size of the local population in the project area is</p>

Key Screening questions	Aspects to Consider
	<p>approximately 4,000 people, including both male and female residents. This estimate is based on information collected during community consultation meetings held at the subproject site.</p> <p>✓ What is the size of the host Rohingya community? Answer: N/A</p> <p>✓ Is the project located / being carried out in an area that is not usually frequented by outsiders? Answer: The project is located in an area that is usually frequented by outsiders, including traders, farmers, salt cultivators, and daily commuters from nearby villages.</p> <p>✓ What is the frequency and extent of contact between the local community and outsiders? Answer: Daily</p> <p>✓ Are there sensitive environmental conditions that need to be considered?</p> <p>Answer: Yes, there are sensitive environmental conditions that need to be carefully considered during the implementation of the project. In addition to general construction activities, the demolition of the existing old bridge may also generate significant dust, noise, debris, and vibrations, which could impact nearby households, salt cultivation fields, pedestrians, and other sensitive establishments located within close vicinity to the site.</p> <p>To minimize these impacts, the construction site must be properly fenced to contain dust dispersion and reduce noise pollution, thereby safeguarding local residents and pedestrians. Dust suppression measures, such as water spraying at least twice daily, must be implemented throughout the construction and demolition periods. High-noise activities should be considered during less sensitive hours to minimize disturbance to nearby communities. Furthermore, all machinery and equipment should be properly maintained to control noise levels. Careful debris management during the dismantling of the old bridge will also be essential to prevent contamination of surrounding salt fields and nearby water bodies.</p>
<p>Based on the socioeconomic, cultural, religious and demographic qualities of the local community, Rohingya population and the incoming workers, is there a possibility that their presence or interaction with the local</p>	<p>✓ Is it likely that the incoming workers and the local community come from a shared socio-economic, cultural, religious or demographic background?</p> <p>Answer: Most of the workforce is expected to come from the local host community. A small percentage of skilled workers may be hired from outside the project area if required. The local workforce and the incoming workers generally share a common</p>

Key Screening questions	Aspects to Consider
<p>community could create adverse impacts?</p>	<p>socio-economic, cultural, religious, and demographic background, which is expected to support smooth integration at the work sites.</p> <p>Since this subproject is located in the host community area and will not involve Rohingya workers, the risk of conflict due to cultural or social differences is considered low. However, contractors must still take precautionary measures, such as awareness training on social behavior, code of conduct enforcement, and community engagement, to prevent misunderstandings and ensure a harmonious working environment.</p> <p>✓ What is the level of existing resources, and will the incoming workers use or create competition for these resources?</p> <p>Answer: The existing local resources, such as water supply, food, basic health services, and transportation facilities, are limited compared to the size of the local population. Although workers will be hired from the local community, a small number of incoming skilled workers from outside may create additional pressure on local resources. This could lead to a temporary increase in the demand for basic commodities and may cause price hikes in local markets during the construction period.</p> <p>✓ What is the expected duration of the incoming workers' presence in the community?</p> <p>Answer: One year but it may be extended.</p> <p>✓ Given the characteristics of the local community, are there any specific adverse impacts that may be anticipated?</p> <p>Answer: Yes, considering the characteristics of the local community, some specific adverse impacts may be anticipated during the construction phase. These include:</p> <ul style="list-style-type: none"> • Temporary price hikes in local markets due to increased demand for goods and services from workers. • Pressure on water supply and sanitation facilities, particularly if labor camps are not properly managed. • Movement disruption for local vehicles and pedestrians around the construction sites due to road blockages and heavy machinery operation.

Key Screening questions	Aspects to Consider
	However, no significant religious or cultural barriers are anticipated, as both the local community and the incoming workforce largely share a similar socio-cultural background.
Consultation with Community People	<p>✓ Has the project authority and contractors conducted any consultation meetings with the community people and Rohingya population?</p> <p>Answer: The project authority has already conducted several consultation meetings with the local community during the environmental and social screening stage. Community opinions, concerns, and suggestions were received with great respect and consideration.</p> <p>After the finalization of the contractor, additional consultation meetings will be organized by the contractor in coordination with the project authority to ensure continued community engagement and address any new concerns during the construction phase.</p> <p>✓ Are local people aware about the labors?</p> <p>Answer: Local community members are well aware of the engagement of local laborers in the project activities. However, they currently have limited knowledge regarding the potential involvement of outside skilled workers.</p> <p>✓ Has the project authority involved the local community with the project?</p> <p>Answer: Yes, the project authority has actively involved the local community throughout the site selection and screening stages. Several formal consultation meetings and informal discussions were conducted at the proposed bridge location and with the local community. Community members shared their views, concerns, and expectations, which were carefully considered.</p>

Involuntary restrictions on land use or on access to legally designated parks and protected areas

Effects	Yes	No	Not Known	Remarks
10. Will people lose access to natural resources, communal facilities and services?		✓		People's access to communal facilities and services will not be affected by the project.
11. If land use is changed, will it have an adverse impact on social and economic activities?		✓		No scope to change site location.

12. Will access to land and resources owned communally or by the state be restricted?		√		No
Information on Displaced Persons:				
Any estimate of the likely number of persons that will be displaced by the Project? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, approximately how many? N/A				
Are any of them poor, female-heads of households, or vulnerable to poverty risks? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes				
Are any displaced persons from indigenous or ethnic minority groups? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes				
During Screening, project authority will conduct consultation with the primary and secondary stakeholders and provide their observations in the following sections (13 to 18)				
13: Who are the stakeholders of the project? Answer: The stakeholders of the project include a wide range of individuals and institutions connected to the sub-project areas. They are: <ul style="list-style-type: none"> • Local community members • Households and shopkeepers located on both sides of the project roads • Students and guardians from nearby educational institutions • Religious leaders and teachers • Local elected representatives (Union Parishad members, Ward members) • Local administration officials • Implementing agency (LGED) and relevant supporting agencies • Workers and laborers engaged in project construction activities • Community-Based Organizations (CBOs) • Local NGOs • Local traders 				
14: What social and cultural factors affect the ability of stakeholders to participate or benefit from the proposed policy or project? Answer: There are no significant social or cultural factors that would restrict stakeholders' ability to participate in or benefit from the proposed project. The project area maintains a socially cohesive and culturally conducive environment, which supports broad community participation and equal access to project benefits. Stakeholders, including local residents, traders, students, and vulnerable groups, are expected to benefit positively from the improved infrastructure and services. The project's inclusive approach ensures that participation opportunities are available to all community members without discrimination.				
15: Are project objectives consistent with their needs, interests and capacity? Answer: Yes, the project objectives are highly consistent with the needs, interests, and capacities of the stakeholders. Community consultations and FGD during field visits clearly indicated strong local support for the project.				

16: What will be the impact of the project or sub-project on the various stakeholders, especially women and vulnerable groups?

Answer: The construction of the proposed bridges will have a significantly positive impact on various stakeholders, particularly women, children, elderly people and other vulnerable groups. Improved transportation infrastructure will ensure **easier and safer mobility**, allowing women and vulnerable populations to travel more conveniently between villages, markets, schools and health care facilities.

Access to hospitals and emergency services will become faster, which is crucial for women, elderly, and persons with disabilities. School-going children will also benefit through **safer, uninterrupted access to educational institutions**. Overall, the project will enhance social inclusion, reduce travel time, promote economic opportunities, and contribute to an improved quality of life for all segments of the local population.

17: What social risks might affect project or sub-project success?

Answer: Several social risks could potentially affect the success of the sub-projects if not properly managed. These risks include:

- **Minor conflicts** may arise between local community members and incoming skilled laborers, particularly if there are differences in behaviour or competition over local resources.
- **Temporary price hikes** of essential commodities in local markets (hat-bazar) due to increased demand from workers.
- **Risk of engagement in anti-social activities** by a few incoming workers, which could challenge local social norms and community harmony.
- **Noise and dust pollution** may be generated during construction activities, which may disturb schoolchildren, elderly residents, and other vulnerable groups living close to the project sites.

18: Has the project authority or any other organizations conducted any consultations with the affected community or people? If yes. Please provide a summary.

Answer: Yes, the project authority has conducted several consultation meetings with the potentially affected communities and other stakeholders. During the site selection phase, LGED officials organized discussions with local community members, Union Parishad representatives, local elites, school teachers, and civil society organizations to gather feedback regarding the construction of the proposed bridges.

Additionally, during the environmental and social screening process, the PIU Consultant of LGED conducted community consultations to inform local people about the project objectives, construction activities, potential impacts, and safeguard measures.

The key feedback and observations from the consultations include:

- During the consultation meeting and FGD, Community members strongly supported the construction of the bridges, they would enhance connectivity between economically complementary areas, boosting local trade and labor movement.
- Farmers and salt cultivation farmers expressed that the improved communication network would allow them to receive **fair prices** for their commodities and reduce transportation costs.
- Transportation systems would become easier, faster, and more reliable, saving time and reducing daily hardships for local residents.
- The construction of the bridges is expected to **encourage the growth of local businesses and industries**, stimulating the rural economy.
- Land value in the surrounding areas is likely to increase as accessibility improves.
- Improved road connectivity will enable quicker access to **upazila and district-level hospitals**, ensuring better healthcare facilities for the local population.
- The attendance and enrollment rates of school-going children are expected to rise due to safer and more convenient travel routes.
- The bridges will also strengthen the communication network by acting as vital links within the rural transportation system.

Section D: Environmental and Social Screening Summary of the Work Package

Main Environmental & Social Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
				Indicators	Frequency
Sub-project Interventions					
Construction of a PSC Bridge (degradation of air, water and soil quality, and local hydrology)	Under the sub-project intervention, the overall score is low	<ul style="list-style-type: none"> Limiting earthworks and artificial bank reinforcement should be avoided as far as possible; Bridge soffit (The bottom part of the bridge) levels and flood spans should be at least 1 metre above the maximum known flood level to allow floating debris to pass freely through the structure; Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered. The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. Storage of fuel, chemicals, equipment and construction materials so as to minimize the risk of soil contamination or water pollution; Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. 	Contractor, environmental specialist of PIU and D&SC	Visual monitoring result of air quality condition, Results of water test parameters, blockage of water flow with soil, debris or stack materials at site.	Throughout the time during the construction period.

		<ul style="list-style-type: none"> • Monitor water quality according to the environmental management plan. • Phasing of construction work to minimize disturbance to wildlife at sensitive times of year, such as during the breeding season or when young are being raised; • Use of techniques to minimize compaction of soil, such as restricting access during wet conditions, and using protective boarding and low-ground pressure machinery. If necessary, soil should be carefully removed and stored for subsequent reinstatement; • Access roads should avoid riparian zones and should be built using appropriate construction materials. 			
Pre-construction Phase					
<p>Site planning (i.e. Labor camp, construction of material storage area etc.)</p>	<p>Under the sub-project intervention, the overall score is low.</p>	<ul style="list-style-type: none"> • The proposed sub-project is targeted at existing old concrete bridges over local running canal. The construction area over this canal needs to be covered so that the water cannot receive debris and dust from the demolition and construction work. • Construction camp and material storage area should be located at the site & approved by the Environmental Specialist of D&SC. • The Moheshkhali bridge is proposed along the Noltabari–Matarbari road, with a Bituminous Carpeting (BC) surface, so a labor camp needs to be set up in such a location that the road is not disturbed in any way. 	<p>Contractor, environmental specialist of PIU and D&SC</p>	<p>Water quality test results.</p> <p>Location of stockpiles and labor shed.</p>	<p>Prior to the start of Construction works.</p>
<p>Loss of land / and other physical assets</p>	<p>No adverse impact will be generated.</p>	<ul style="list-style-type: none"> • No land acquisition will be required as PSC bridge will be constructed in own existing alignment, which is entirely Government land. • No additional land will be required to construct the PSC bridge due to both sides of the canal being government vacant property as well as LGED roads. 	<p>Safeguard team of PIU, PSC and D&SC</p>	<p>Number of Complaints. Check Grievance register. Resolutions against the grievances.</p>	<p>Ensure regular supervision and Monitoring based on compliance.</p>

		<ul style="list-style-type: none"> The local community has been agreed to provide space beside the bridge construction site to keep the construction materials during construction work. There is no physical asset affected by the intervention of the sub-project (bridge). In case of any grievance from a neighboring household, emergency consultation will be conducted to resolve the issue through the project GRC. 			
Loss of livelihood	No impact may be generated.	<ul style="list-style-type: none"> Contractor need to engage local labor as priority (both skilled and unskilled) at their construction work. Due to government limitations Rohingya community is not entitle to work in host community because of restriction to buy daily necessary items. Woman labor should get priority at the time of labor recruitment. During construction work social safeguard compliance shall be maintained properly by the contractor. 	PIU, Contractor, Safeguard team of PIU, PSC and D&SC	Labor wages payroll. Interview with labor. Frequent visit by D&SC and PIU personnel	Monthly basis
Stakeholders Engagement	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> One community-level consultation meeting has already been conducted with the relevant stakeholders. The meeting aimed to gather feedback, ensure local participation and inform the community about the project scope and potential impacts. Moving forward, additional consultation sessions will be held as needed to ensure inclusive stakeholder engagement throughout the project lifecycle. All safeguard documents will be disclosed to the stakeholders prior to the commencement of construction works. All the stakeholders will be made aware of the Grievance Redress Mechanism (GRM) and their active participation will be ensured through representation in the Grievance Redress Committee (GRC). 	PIU, Contractor, Safeguard team of PIU, PSC and D&SC	List of participants in consultation and GRC. Disclosure records of safeguard documents. Feedback and grievances are recorded and addressed. Level of awareness on GRM among stakeholders.	Weekly basis

<p>Material storage area for construction</p> <p>(Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of crime, children, animals, etc.)</p>	<p>Under the sub-project intervention, the overall score is low.</p>	<ul style="list-style-type: none"> • The contractor shall submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures. • Proper procedure for stockpiling/ storage of construction materials at the site will be 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 outsiders, children, animals, etc. • Spills/ hazardous substances should be disposed of at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination. 	<p>Contractor, environmental specialist of PIU and D&SC</p>	<p>List of selected sites; Identified sources and storage place of materials.</p>	<p>During Design Stage</p>
<p>Demolishing of an existing structure</p>	<p>Under the sub-project intervention, the overall score is Medium</p>	<ul style="list-style-type: none"> • Water spraying at the demolition site • Fencing / Installing barriers should be shield from dust and aggregates • Avoid usage of machines/equipment with extra noise; • Do not accumulate and burn waste at the site • Carry out demolition activities in stages, give adequate notice and information of activities to the adjoining stakeholders • It needs to Identify proper location to dispose of solid waste from demolition and other activities in consultation with respective bodies • Make mandatory the use of safety gears (helmets, safety belts, masks, gloves and boot) by workers depending on nature of work. • Further guidance on demolition works and wastes management is given in appendix 2, below the ESMP table, to be followed by the contractor. 	<p>Contractor, environmental specialist of PIU and D&SC</p>	<p>List of selected sites; Identified sources of materials.</p>	<p>During Design Stage</p>

<p>Setting up of labor camp (Generation of sewage waste; solid Waste; Water, soil, air & dust pollution/ environmental pollution; health hazard of workers due to poor quality drinking water)</p>	<p>Under the sub-project intervention, the overall score is low.</p>	<ul style="list-style-type: none"> • Construction camp should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate; and 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 and/ or at the site pre-approved by the Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. 	<p>Contractor, environmental specialist of PIU and D&SC</p>	<p>Complaints from community; Regular inspection of waste management activity; Waste disposal record.</p>	<p>Prior to the start of Construction works</p>
<p>Accidents</p>	<p>Under the sub-project intervention, the overall score is low.</p>	<ul style="list-style-type: none"> • Provision of standard safety protocol. • Providing training on Environmental health and safety to the labors and associated field staffs is the responsibility of Upazila Engineer & Contractors. • Training should be scheduled twice, once before starting the construction & another in the middle of construction period. • Safety & protection gears, first aid box etc. should be available in the site during construction period. 	<p>Contractor, environmental specialist of PIU and D&SC</p>	<p>Complaints from community; Complaints from the labors and associated field staffs; Regular inspection of materials transport vehicles.</p>	<p>Before and during the construction phase</p>
<p>Construction Phase</p>					
<p>Site Preparation: Soil</p>	<p>Under the</p>	<ul style="list-style-type: none"> • Construction facilities including material are to be placed at 	<p>Contractor,</p>	<ul style="list-style-type: none"> • Presence and 	<p>Monthly,</p>

Erosion; Alteration of natural drainage	sub-project intervention, the overall score is low.	<p>least 30- meter distance from bridge construction area in order to minimize impacts on water bodies and natural flow paths.</p> <ul style="list-style-type: none"> Any disruption of socially sensitive areas with regard to human habitation and areas of cultural significance will be avoided. Retaining wall need to construct that structure retain (holds back) any material (usually earth) and prevents it from sliding or eroding away. Ensured diversion / alternative bamboo made bridge for considering the bi-cycle, and Rickshaw movement, pedestrian and other transportation etc. The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents. 	environmental & Social specialist of PIU and D&SC	<p>adequacy of retaining structures.</p> <ul style="list-style-type: none"> Functionality of the temporary bamboo bridge. Visual evidence of erosion or drainage issues. Community complaints on disruption. 	Immediate follow-up after heavy rainfall or erosion events.
Increase in diversion road accidents	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> The contractor will prepare a response plan to accidents, it will ensure the victim to receive quick treatment. The movement of heavy machinery and equipment shall be restricted to diversion or temporary bridge. Proper signage to be displayed at diversion. Road diversions and closures to be informed well in advance to the local community. Local community will be trained on traffic management and awareness 	Construction Contractor, Safeguard team of PIU and D&SC	<ul style="list-style-type: none"> Traffic and Road Conditions. Accident and incident logs. Number and visibility of traffic signage. 	<ul style="list-style-type: none"> Weekly inspections by D&SC Daily monitoring by contractor Monthly review by PIU Safeguard team Immediate review after any accident or complaint.
Quality construction work of the PSC bridge	Under the sub-project intervention, the overall	<ul style="list-style-type: none"> Respected community deserving quality construction works (side by side with the construction engineers and Design and Supervision Consultant) 	Construction Contractor, Environmental & Social Consultant	Community feedback should be acknowledged and addressed regarding	Daily supervision by D&SC. Weekly progress review

	score is low.		of PIU and D&SC	<p>construction quality.</p> <ul style="list-style-type: none"> ☐ Material quality test results. ☐ Community feedback should be acknowledged and addressed regarding construction quality. ☐ Ensure timely rectification of any construction defects. 	by PIU.
Safety during construction of the PSC bridge	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> • An unauthorized person entry to the proposed site should restrict strictly and ensure proper storage and control of hazardous materials on site. • Child labors are not allowed for any kind of activities • Site shall be secured by fencing and ridge (if needed). • Ensuring that clear safety policies and procedures are in place and strictly enforced is essential, as is regular inspection and maintenance of all workplace equipment. • Awareness building program will be taken on social safety matters through imparting training from the project before commencement. At the same time, compliance should be ensured by the contractors. 	Construction Contractor, Environmental & Social Consultant of PIU and D&SC	<ul style="list-style-type: none"> ☐ Regular inspection and maintenance records of machinery and safety gear. ☐ Register/Documents on social safety matters ☐ Checking stock register of personal protective equipment (PPE) 	
Noise Impacts	Under the sub-project	<ul style="list-style-type: none"> • Avoid high noise making activities during after daylights. 	Contractor, environmental	Number of complaints from	Weekly

	intervention, the overall score is low.	<ul style="list-style-type: none"> Involve the community in planning the work program so that any particularly noisy or otherwise invasive activities can be scheduled to avoid sensitive times. Avoid using of construction equipment producing excessive noise at night. Ear protection devices for the workers & site staffs should be available in site during construction period. 	specialist of PIU and D&SC	stakeholders, use of silencers in noise-producing equipment and sound barriers, Noise Level following decibel meter (dB)	
Air Quality	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Damp down exposed soil and any sand stockpiled on site by spraying with water during dry weather. Use tarpaulins to cover soils, sand and other loose material when transported by trucks. Unpaved surfaces used for haulage of materials within settlements shall be maintained dust-free. Arrangements to control dust through provision of water sprinklers and dust extraction systems shall be provided at all stone crushers (if these establishments are being setup exclusively for the subproject). Limiting speed of construction vehicles in work sites to maximum of 20 km/h. Regular monitoring of air quality. 	Contractor, environmental specialist of PIU and D&SC	Location of stockpiles, Covering of trucks, Records of air quality inspection, Numbers of complaints from sensitive receptors, Heavy equipment and pollution control devices, Maintain records	Monthly
Biodiversity (There are no	Under the sub-project intervention,	<ul style="list-style-type: none"> Prohibit employees from cutting trees for firewood. If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for 	Contractor, environmental specialist of PIU	If tree cutting is required, to be determined during	Monthly

protected areas in or around subproject sites, and no known areas of ecological interest.)	the overall score is low.	<p>every tree cut.</p> <ul style="list-style-type: none"> Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. Construction works should be limited or be finished before the fish breeding period (springtime esp. Bangla months of Baishakh and Jaishtha/ April and May, when the water warms up and the daylight lengthens), and restoration of sites (with removal of any hindrance or cofferdam, etc.) is imperatively necessary to protect the fish species. 	and D&SC	Design stage, Numbers of complaints from sensitive receptors.	
Workers' health and safety	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> Prevent excessive noise; Construction staffs are to make use of the facilities provided for them (e.g., fires for cooking); No fires permitted on site except if needed for the construction works; Staff must be trained to operate equipment. Availability and access to first-aid equipment and medical supplies. Ensure the presence and use of safety gear at site: Ear protection devices, Goggles, Illuminating jackets, Masks, Gloves, Helmets, Uniforms etc., Ensure adequate supply of drinking water. Sanitation facilities for male & female workers separately. 	Contractor, environmental specialist of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkway signage, and metal sheets placed at project location;	Monthly
Labour Base Camp: Conflicts with the local residents	Low impact may be generated.	<ul style="list-style-type: none"> An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. Awareness building about nutrition, disaster risk resilience or mitigation, adoption of clean energy for cooking; and prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, 	Contractor, environmental & Social specialist of PIU and D&SC	Checking use of resources by labor. Document checking of awareness building activities. Physical Checking. Grievance register. Interview with local community.	Daily site visit

		<p>poaching and tree felling.</p> <ul style="list-style-type: none"> To be ensured adequate sanitation facilities in the labour camps. Treated water will be made available at site for labour drinking purpose. Adequate accommodation arrangements for labour and code of conduct to be disclosed through consultation and FGD. 			
Post-Construction Phase					
<p>Construction clean-up (Damage due to debris, spoils, excess construction materials, and after-effect water test)</p>	<p>Under the sub-project intervention, the overall score is low.</p>	<ul style="list-style-type: none"> Remove all spoils, wreckage, rubbish or temporary structures which are no longer required; All affected structures rehabilitated/compensated; The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up; All imported materials are to be removed and the area shall be re-vegetated as per the specification that forms part of this document; The contractor must arrange the cancellation of all temporary services; 	Contractor	<p>Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.</p> <p>Water test before handover of the project to check water quality for severe modification (if any).</p>	<p>After the completion of Works</p>
<p>Odor& waste disposal</p>	<p>Under the issue, the overall score is low.</p>	<ul style="list-style-type: none"> Use bin covers and/or tarpaulins during transport of wastes. 	Contractor monitored by Consultant and PIU	Complaints from communities	Site inspection daily / weekly basis.
<p>Vegetation</p>	<p>Under the issue the overall score is</p>	<ul style="list-style-type: none"> After construction work, all structures need to be removed and the area shall be topsoiled and re-grassed using the guidelines set out in the re-vegetation specification that 	Contractor monitored by Consultant and	The worksite is restored to its	Over the completion of Works

	low.	forms part of the bidding document.	PIU	original conditions.	
Traffic Accidents	The low impact may be generated during construction even some times After construction	<ul style="list-style-type: none"> • Clear diversion/bridge markings and signage. • Diversion Road design to ensure traffic speed is not hazardous given slopes of the diversion. • Recording and reporting of accident incidents to local police station. • Annual reporting of accident figures to PSC. 	PIU, PSC, LGED and Local Governance institution	No. of the accident took place. Marking and signage of road. Record of the Police Station and PSC. Newspaper	Monthly basis
The sub-projects are expected to be sustainable	Low	<ul style="list-style-type: none"> • The safeguard issues and maintenance of the PSC bridge taken care of by the concerned Union Parishad and Upazila Parishad for sustainability. 	LGED, Union Council and Upazila Parishad	Evidence of routine inspection and maintenance activities; community feedback on bridge condition.	Bi-annually
Traffic movement and economic enhancement		<ul style="list-style-type: none"> • LGED expecting that after completion of PSC bridge traffic movement will be increased, diverted traffic will be generated, lives and livelihood of people will be improved of the catchment area. • The important places will be well-connected. • People will enjoy improved facilities for connecting both side canal local school, college and other educational institution. 	PIU, PSC, LGED and the Local Governance institution	<ul style="list-style-type: none"> • Community feedback. • Number of connected routes. • Increase in traffic volume. • Economic activity (shops, transport). 	Quarterly, post-construction assessment

* Overall Impact Score: High = Likely to cause long-term E&S impacts; Medium = Likely to cause temporary impacts; Low = Likely to cause little, short-term impacts

Recommendation for further environmental and social assessment and/or site-specific environmental and social management plan: Yes

**If yes, please specify what assessments/plans would be required.*

Appendix-2: Environmental and Social Management Plan (ESMP)

ESMP for Construction of 96.10m Bridge at ch 1768 on Uttarnalbila - Materbari GC Connection Road (Up to ghat) Road ID: 422492002.

Package no: HELP-COX/BR-1:

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-construction Stage			
Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is required within this sub-project activity so, there is no mitigation measures according to this impact. The subproject will be constructed on Government land. 	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Loss of livelihood	<ul style="list-style-type: none"> Under this subproject, there is no scope of negative impact on livelihoods of the people of catchment area. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Stakeholders Engagement	<ul style="list-style-type: none"> All the project stakeholders will be consulted Separate community level consultation meeting with the potentially affected HHs Consultation meeting with nearby Camp settlers and Host community about the project objectives and scope of works People living in nearby community and members of LGED Upazila will be involved with the GRM 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Loss of right to access	<ul style="list-style-type: none"> In case of unavoidable circumstances, alternative access will be provided. Proposed bridges will be well demarcated 	PIU	Social Development Specialist and Gender Specialist of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	and accessibly paved.		
Site Preparation: Soil Erosion; Alteration of natural drainage	<ul style="list-style-type: none"> Construction facilities including materials are to be placed at least 10 m (32 ft) distance from any water body in order to minimize impacts on water bodies and natural flow paths. Minimize cut & fill operations, the site clearing and grubbing operations should be limited to specific locations only. The existing slope and natural drainage pattern on the site should not be significantly altered. The contractor shall ensure that site preparation activities do not lead to disruption of activities of the camp settlers and host community. 	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction stage			
Noise from construction works	<ul style="list-style-type: none"> Construction activities will be finished at day time within 06:00 PM. Proper measures will be taken to avoid any disturbances. All Personal Protective Equipment (PPE) shall be available at site before starting any kind of construction works. 	Contractor	Environmental Consultant of PIU, PSC
Dust	<ul style="list-style-type: none"> Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>and Hydrocarbons.</p> <ul style="list-style-type: none"> • Provision of using water sprinklers to dust control. • Construction materials should be covered properly while carrying in vehicles to the site. • Vehicle movement will be controlled on haul roads/access roads for limiting dust generation. 		
Safety Issues	<ul style="list-style-type: none"> • Unauthorized entry to the site area is completely prohibited and the site will be properly fenced with a single entry, for this purpose. • It will be ensured that proper training and guidance are provided on general and occupational health and safety to Contractors' personnel and labors forces, and records of training sessions are to be kept at site. • All kinds of Child labor will be completely prohibited. 	Contractor	Environmental Consultant of PIU, PSC
Traffic Management	<ul style="list-style-type: none"> • Contractors will discuss with traffic management authorities and take site specific traffic management measures to avoid congestion and any unwanted incidents or accidents. 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> Road signs and speed ramps are to be placed at strategic locations. 		
Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. If ground water is withdrawn, adequate approvals from the appropriate department need to be collected before setting up bore wells. Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. Local community must be consulted before any construction work starts. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Increase in road accidents	<ul style="list-style-type: none"> Maintain safety measures during the movement and operation of heavy machineries and equipment. Vehicular movement is to be controlled near sensitive locations, viz. schools, colleges, hospitals, child friendly centers, etc. identified along designated vehicular transportation routes. Local community will be trained up about traffic management and awareness. 	Contractor	Environmental Consultant of PIU, PSC
Labor Base Camp: Conflicts with the local	<ul style="list-style-type: none"> Awareness building session will be 	Contractor	Social Development

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
residents	<p>undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site.</p> <ul style="list-style-type: none"> • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation. 		Specialist and Gender Specialist of PIU, PSC
Construction runoff, sediment, cement slurry, and wastewater may enter the adjacent canal during earthworks, piling, and concreting activities, potentially causing temporary deterioration of surface water quality and increased turbidity. Improper management of construction materials and spoil may obstruct natural drainage and affect local water flow.	<ul style="list-style-type: none"> • Install temporary silt traps, sedimentation pits and perimeter earthen bunds around excavation areas and material storage zones. • Earthworks, piling, and concreting activities shall be carefully managed to prevent direct discharge of construction runoff, cement slurry, wastewater, or debris into the canal. • Ensure proper drainage management to 	Contractor (implementation of mitigation measures and monitoring); Design & Supervision Consultant (technical verification and guidance)	PIU (Environmental & Social Specialists); Design & Supervision Consultant

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
<p>Additionally, tidal influence in the canal during high tide may cause backflow, which could interact with construction activities and influence local hydrology as well as the long-term durability of bridge substructures if not adequately addressed.</p>	<p>prevent direct discharge of cement slurry, oil-contaminated water or construction runoff into the canal.</p> <ul style="list-style-type: none"> • Monitor pH and Total Suspended Solids (TSS) of any construction-phase discharge water at regular intervals. • Regular site inspections shall be conducted, particularly during the monsoon season, to ensure effective functioning of erosion and sediment control measures. • Works within or near the canal shall be scheduled, where feasible, during low-flow periods to minimize turbidity and disturbance to natural flow. 		
<p>Temporary disturbance to local biodiversity, including small terrestrial fauna and common bird species present in surrounding rural and agricultural landscapes; potential short-term alteration of aquatic habitat conditions and natural water flow in the canal during construction.</p>	<ul style="list-style-type: none"> • Conduct site-specific assessment of aquatic and ecological conditions prior to construction • Monitor bird activity, particularly during migratory season (November–February) • Avoid or limit piling, demolition, and other high-disturbance activities during peak migratory periods where feasible • Restore disturbed areas after construction • Construction works should be limited or be finished before the fish breeding period (springtime esp. Bangla months of Baishakh and Jaishtha/ April and May, when the water warms up and the daylight lengthens), and restoration 	<p>Contractor</p>	<p>PIU and Supervision Consultant</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	of sites (with removal of any hindrance or cofferdam, etc.) is imperatively necessary to protect the fish species.		
Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed of at waste disposal areas and/ or at the site. • The scrap material generated from the erection of structures and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. 	Contractor	Environmental Consultant of PIU, PSC

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
<p>Health & Safety Risks:</p> <ul style="list-style-type: none"> • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<ul style="list-style-type: none"> • All construction equipment will be properly inspected timely and kept fit for purpose. • The risk assessment will be prepared time to time for all types of work activities on site. • Proper Signpost at any slippery areas will be ensured in construction site. • Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. • This sub project will have Proper communicative Emergency Response Plan (ERP) with all parties, to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan 	<p>PIU & Contractor</p>	<p>Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC</p>

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>will exist in sub-project area.</p> <ul style="list-style-type: none"> • All equipment will be available suitably (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.) in sub-project site, the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all sites, on different locations within the site. • Ensure to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Contractor must ensure that all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used. • Establish emergency response procedures, 		

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>including fire, accident, and medical emergencies.</p> <ul style="list-style-type: none"> • Display emergency contact charts at site offices and work areas. • Maintain OHS incident reporting and accident logbooks. • Conduct regular toolbox meetings and refresher safety training for all workers. 		
Pollution of water bodies	<ul style="list-style-type: none"> • Contractor will ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • oil interceptors or drip trays can be used in vehicle parking areas, and are inspected and cleaned regularly; 	Contractor	Environmental Consultant of PIU/D&SC, PSC
Operation Stage			
Maintenance of assets, properties and equipment	<ul style="list-style-type: none"> • Periodic maintenance of Bridge structure and seasonal conditions has to be carried out. 	LGED	UNO, Upazila Chairman of Upazila Parishad
Decommissioning			
<p>The impacts are similar to those listed in construction stage:</p> <ul style="list-style-type: none"> • Pollution from waste materials • Health & Safety risks to workers and local 	<ul style="list-style-type: none"> • Proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during decommissioning are anticipated to be 	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
community/DRPs	<p>similar to those identified for the construction phase.</p> <ul style="list-style-type: none"> • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those compartments seems to be significantly worse. 		

Demolition and Waste Management Plan:

Demolition Plan:

The purpose of this Demolition Plan is to ensure the safe, environmentally sound, and socially responsible removal of the existing dilapidated bridge structure prior to the construction of the proposed RCC Girder Bridge. The plan aims to prevent environmental pollution, ensure worker and community safety, and minimize disruption to local movement and livelihoods. The scope of demolition works includes the removal of the existing concrete deck slab and girders, dismantling of damaged abutments and substructures as required, extraction and segregation of reinforcement steel, and clearing of debris from the canal and adjacent approach areas. All demolition activities will be confined within the existing bridge footprint and right-of-way.

Pre-Demolition phase	Structural Assessment & Method Statement	<ul style="list-style-type: none"> • Detailed structural assessment of the old bridge condition. • Identify weak sections, reinforcement exposure, and deterioration level. • Confirm load positions and dismantling sequence.
	Site Preparation	<ul style="list-style-type: none"> • Demarcation and barricading of the demolition zone. • Signboards, warning signs, and safety instructions in Bangla. • Installation of temporary crossing facilities (if needed), e.g.: Temporary wooden planks for pedestrians, • Alternate route notification for vehicles

	<p>Utility and Service Disconnection</p> <ul style="list-style-type: none"> • Confirm absence of underground utilities. • Disconnect or reroute any drainage pipes, electricity poles, or telecom cables if nearby.
	<p>Worker Safety Orientation</p> <ul style="list-style-type: none"> • Conduct safety training and toolbox meeting before demolition. • Ensure all workers receive PPE: helmets, gloves, safety boots, masks, goggles, life jackets (for water-edge work).
<p>Demolition phase</p>	<p>Demolition Technique</p> <ul style="list-style-type: none"> • Manual and mechanical combination method to minimize vibration and protect nearby features. <p>Steps include:</p> <ul style="list-style-type: none"> • Removal of railings, parapet walls, and footpaths (manual). • Breaking RCC deck slab using small hydraulic breakers. • Cutting reinforcement bars using gas cutter. • Sequential removal of girders using crane or excavator. • Demolition of piers and abutments after girder removal. • Extraction of old piles (if required); otherwise, trim piles below ground level.
	<p>Vibration & Noise Control</p> <ul style="list-style-type: none"> • Use low-vibration hydraulic breakers. • Avoid nighttime demolition. • Install temporary noise barriers near households.
	<p>Water Protection Measures</p> <ul style="list-style-type: none"> • Silt traps placed near the canal edge. • Tarpaulin sheets under deck demolition to prevent debris falling into water. • Immediate collection of debris from any accidental drop.

Environmental Compliance	Dust & Air Quality Control	<ul style="list-style-type: none"> • Install temporary debris containment systems (e.g., netting or catch platforms) to prevent falling debris into the khal. • Avoid dumping any demolition waste into the canal. • Implement waste segregation at source (concrete, steel, other materials). • Reuse suitable concrete rubble as sub-base or backfilling material where technically feasible. • Transport non-reusable waste to an approved disposal site with authorization from LGED and the respective authority. • Apply water spraying to control dust during dismantling. • Prohibit washing of equipment directly in or near the khal.
	Oil, Fuel, Hazardous Material, and Waste Management	<ul style="list-style-type: none"> • Demolition waste includes: RCC debris, Steel rods, Brick/earth materials, Packaging waste • Waste Handling Measures: Segregate waste at source. • Recyclable steel rods sold to authorized recyclers. • Concrete debris reused as road sub-base (if suitable) or disposed of at LGED-approved disposal site. • Hazardous waste (oil, lubricants) stored in spill-proof containers and handed over to DoE-approved handlers. • Store fuels and lubricants in a designated area with secondary containment (bundled platform or drip trays). • Keep spill kits available at the site at all times. • Prohibit refueling or oil changing near the khal or ponds.
	Water Quality Protection	<ul style="list-style-type: none"> • Prevent concrete slurry, cement dust, oil, and debris from entering the canal. • Collect all water used in demolition activities in settling pits.

Occupational Health & Safety (OHS)	Worker Health and Safety	<ul style="list-style-type: none"> • Provide Personal Protective Equipment (PPE) such as helmets, gloves, masks, safety boots, and harnesses. • Ensure trained personnel handle cutting and dismantling works. • Conduct toolbox safety meetings before commencement of demolition. • Prohibit child labor and ensure compliance with national labor laws and WB standards.
Traffic and Community Management	Traffic Diversion	<ul style="list-style-type: none"> • Prepare temporary detour route with signage. • Coordinate with community and local leaders.
	Community Safety Measures	<ul style="list-style-type: none"> • Inform local residents 3-5 days before demolition. • Restrict community access near the demolition zone. • Provide alternative pedestrian routes as needed. • Install proper barricades and warning signage around the demolition zone.
Demolition Completion and Site Clearance		<ul style="list-style-type: none"> • Remove all debris from site. • Level the ground and prepare substructure area for new bridge foundation. • Restore access roads and pathways. • Conduct final environmental cleanup.

Waste Management Plan:

The Waste Segregation and Reuse Plan is to ensure environmentally sound management of construction and demolition waste generated during the dismantling of the existing bridge and construction of the proposed RCC bridge. The plan aims to minimize waste generation, promote reuse and recycling, prevent soil and water pollution, and ensure compliance with relevant regulations.

Waste Type	Source of Waste	Potential Impacts / Concerns	Management, Segregation & Reuse Measures	Institutional Responsibility	Supervision & Monitoring
Concrete debris and rubble	Demolition of existing bridge structure	Obstruction of drainage, soil and water pollution, visual nuisance	Segregate at source; crush and reuse as sub-base, embankment fill, or approach road material subject to LGED approval	Contractor	LGED PIU & D&SC Consultant

Steel reinforcement and metal scraps	Dismantling of old bridge and construction activities	Injury risk, improper disposal	Store separately; sell or hand over to authorized scrap dealers/recyclers	Contractor	LGED PIU & D&SC Consultant
Excavated soil and spoil	Foundation excavation and earthworks	Sedimentation of nearby canals, land degradation	Reuse for site leveling, slope protection, or embankment filling; excess disposed at approved sites	Contractor	D&SC Consultant
Packaging materials (cement bags, plastics, timber)	Construction material handling	Littering, clogging of drainage	Collect separately; reuse where possible; recycle or dispose of at approved facilities	Contractor	LGED PIU & D&SC Consultant
Domestic solid waste	Labor camps and work sites	Health hazards, vector breeding	Provide covered bins; daily collection; disposal at LGED/Local Authority approved sites	Contractor	PIU, D & SC Consultant & Local Authority
Used oil, grease, lubricants	Equipment maintenance and refueling	Soil and water contamination, fire hazard	Store in sealed containers with secondary containment; hand over to licensed recyclers; prohibit dumping	Contractor	LGED PIU & D&SC Consultant
Oil-contaminated rags and containers	Machinery operation and maintenance	Hazardous exposure, pollution	Collect in labeled containers; dispose through approved hazardous waste handlers	Contractor	D&SC Consultant
Mixed non-recyclable waste	Construction activities	Environmental pollution	Transport to DoE/LGED-approved landfill sites; maintain disposal records	Contractor	LGED PIU & D&SC Consultant

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Appendix-3: Cost of Environmental Mitigation and Enhancement Works in BOQ

In consideration to the above-mentioned environmental and social impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
1	Erection and maintenance of semi-permanent site office and removal of the same after completion of work in accordance with the conditions of contract. In addition to the office required for own use, the contractor shall provide and maintain furnished site office for the use of Engineer-in-charge and his staff. The site office must have tiles floor, adequate foundation, brick walls, false ceiling of gypsum board and all windows are to be glazed, shuttered and provided with steel grill. Outside and inside wall surface are to be painted on plaster acceptable to the Engineer-in-charge. The site office shall be maintained in a secure condition by the contractor until the completion of the contract and shall be provided with electricity, water supply, wash rooms and sewerage facilities. All doors shall be fitted with approved locks and windows shall be provided with screen/blinds. Before construction the contractor shall submit plans and drawings showing proposed details and location for the site office, including foundations, access roads, shades, layout of electrical and water supply and hard standings there for the approval of Engineer-in-charge. The Engineer-in-charge may require revision of the plans prior to giving approval for construction. The contractor shall also submit detailed proposed furniture, fittings and other items of equipment and plant to the Engineer-in-charge for approval. These items shall be of the standard quality suitable for site. The office, complete with furnishings, fittings, access roads and hard standings shall be ready for occupation by the Engineer-in-charge within 28 days of the date when the contractor first occupies the site. The contractor shall provide day and night guards and an attendant for the field office. At the end of the contract all materials, equipment and plant, furniture, fittings	job	1	535843	5,35,843.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	recovered from dismantling the office and removing access road will be the property of the contractor. No interim payment shall be certified unless engineer's office with required facilities are constructed and accepted by the Engineer-in-charge. (This is a time related item; proportionate payment for this item shall be made distributing in each bill on the basis of percentage progress of the whole works under contract) Engineer's site office of minimum 38 sqm plinth area with providing necessary facilities including office furniture, 24000 BTU air cooler, umbrella, crookeries, water purifier, PC with monitor, uninterruptible power supply (UPS), laserjet printer (minimum 20 ppm), LED flood light fittings(Halogen) for sight security etc.				
2	Project Profile Signboard: Providing and fixing of typical project profile signboard as per direction of E-I-C, to be placed at a suitable place of the site including submission of proposals for the materials & size of the signboards (recommended size: 1800mm x 1200 mm with 2 nos. 75mm dia. MS post, outer & inner frames of board shall be 50mm x 50mm x 5mm & 25mm x 25mm x 5 mm respectively) and text layout to the engineer for approval which will be positioned as directed by the engineer and removing the same on completion of the works or as instructed by the E-I-C. Sheeting will be made of encapsulated lens with retro-reflective type and messages/ borders will be screen printed. The text shall mention among others the name of the project, name of the implementing agency, cost of the project, completion time, name of the contractor etc.	sqm	Length-1.8m Width 1.2m Area volume 2.160m ² No. of bridge 1 Total quantity of works 1*2.16m ² = 2.16m ² .	18508.52	39,978.40
3	Supplying and providing of first aid box with necessary materials/medicine (hygienic gown, thermometer, adhesive dressings, antiseptic solutions, bandages, cotton balls or swabs, emergency blanket, gloves, hand sanitizer, ice pack, saline etc). All complete as per direction of Engineer-in - charge.	each	2	17836	35,672.00
4	Mobilization and cleaning site before commencing actual physical work and during contract period and demobilization after completion of the works	sqm	Length 25m width 10m	235.40	1,17,700.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	under contract to be accepted by the Engineer-in-charge. This work shall also cover cleaning and clearing, cutting or filling, dressing the project area on and in the ground to an extent that all the events of works of the project can be executed smoothly in a working environment with a particular attention on safety and security in all respects, and to stockpile the end outcome to a place for disposal agreed by the Engineer-in-charge, where, payments are to be based on ground area determined by the Engineer-in-charge and be proportionate to the percentage progress of work under contract as a whole in all respects and approved by the Engineer-in-charge.		Area 250m ² No of items per bridge 2. Total qty per bridge 250*2= 500m ² .		
5	Temporary Toilet: Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	each	2	14172.16	28,344.32
6	Marble Name Plate: Supplying, fitting and fixing 18mm thick marble Name plate including cost of materials, labour, form work, engraving neatly the approved Sample given by the engineer etc. complete as per drawings and direction of the Engineer-in-charge.	sqm	2	9343.42	18,686.84
7	Drinking Water Facilities: 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.	Ls	1	20000	20,000.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
8	Control of Air Pollution (Dust Suppression): Maintaining, carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust which has originated from contractor's activities/ operations at the worksite and site office, including sprinkling water on aggregates/unpaved roads at least three times a day or more depending on the atmospheric conditions, including keeping necessary covering/protection on stockpiled fine aggregates to reduce dust nuisance during natural air blowing, all complete like emission of dust into the atmosphere shall be strictly controlled during manufacture, handling, storage of concrete, road aggregates, and to be used such methods and equipment as are necessary for collection and disposal, or prevention, of dust during these operations means of eliminating atmospheric discharges of dust as per requirement and carrying out air quality test as PM10, PM25, SPM, NOx, Sox as per instruction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	Ls	1	12000	12,000.00
9	Personal Protection Equipment for Workers: Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket for construction workers made of 100% polyester waterproof fabric, fluorescent yellow/orange/green/red/blue or pantone color, (ii) suitable hand protection gloves for construction work of Flexible/ durable/ excellent puncture resistance working gloves with PVC palm and T/C drill back, pasted cuff, palm liner and fit properly and be reasonably comfortable to wear, (iii) appropriate foot protection shoes having impact-resistant toes and heat-resistant soles that will protect the feet against hot working	Ls	1	250000	2,50,000.00

Sl no.	Description of item	Unit	Quantity/ Area	Unit price	Total amount
	surfaces, (iv) best quality safety helmets of ABS shell, tough, lightweight, durable which will be able to resist penetration by objects, absorb the shock of a blow and water-resistant and slow burning with available four-six-point adjustable suspension for shock-absorbing, slotted sides to accommodate accessories, such as face shields, ear muffs (v) suitable eye protection goggles to protect against specific workplace hazards, fit properly and be reasonably comfortable to wear, provide unrestricted vision and movement, including instructing workers to wear strictly during working time and reviewing periodically, updating, evaluating the effectiveness of PPE and maintaining, replacing worn or damaged PPE etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.				
10	Painting the vertical end faces of posts, wheel guard, railing, rail post, parapet wall, kilometer post, road name plate, guide post, traffic signs, etc. in two coats with best quality synthetic enamel paint of approved make and brand of different shades over a coat of priming, applying one vertical and one horizontal coat for each coat and successive coat is to be applied after drying up of previous coat by brush/roller/spray, including cleaning and washing the surface, rubbing and mending good damages as necessary and necessary scaffolding, etc. all complete in all respect as direction of the Engineer-in-charge. Rate is inclusive of cost of all materials, labour and all incidental charges in this connection. Two coats over a prime coat for new concrete surface.	sqm	552.06	246.38	1,36,016.54
Subtotal Bill: Environmental Safety and Enhancement Works					11,94,240.70

Appendix-4: Environmental and Social Monitoring Plan (ESMP Implementation and Monitoring Framework)

Environmental and social monitoring for the proposed sub-project has been incorporated into the Environmental and Social Management Framework (ESMF). The detailed Environmental and Social Monitoring Plan, including monitoring parameters, indicators, responsible institutions, the frequency of monitoring during the pre-construction, construction, and operation phases, and the reporting line, is presented here. A mid-term third-party environmental audit may be conducted during implementation to independently assess compliance with the ESMP and World Bank Environmental and Social Standards (ESS1–ESS10).

Monitoring stage	Monitoring Indicator	Method of Verification	Frequency	Responsibility	Reporting Line
1. Monitoring During Pre-Construction Phase	Site-specific ESMP approved before mobilization	Approved ESMP document	Once (Before mobilization)	PIU	PIU → PSC → WB
	Baseline environmental condition (visual record, nearby water condition) documented	Baseline checklist & photos	Once	Contractor (verified by D&SC)	Contractor → D&SC → PIU
	Appointment of EHS Supervisor	Appointment letter	Once	Contractor	Contractor → D&SC
	OHS Plan, Emergency Response Plan (ERP) prepared	Approved plan copies	Once	Contractor	Contractor → D&SC → PIU
	Waste Management Plan prepared	Approved WMP	Once	Contractor	Contractor → D&SC
	Traffic Management Plan prepared	Approved TMP	Once	Contractor	Contractor → D&SC
	ESMP summary disclosed in Bengali at Union Parishad & site	Disclosure photos & record	Once before works	PIU	PIU → WB
2. Monitoring During Construction Phase	A. Environmental Monitoring				
	Indicator	Standard / Target	Monitoring Frequency	Responsibility	Reporting Line
	General ESMP compliance (%)	100% compliance	Weekly	D&SC	D&SC → PIU
PM10 / Dust control	No visible excessive	Daily visual; weekly	Contractor	Contractor → D&SC	

		dust; water sprinkling ≥ 2 times/day	record		
Noise Level	Within DoE standard (Daytime ≤ 75 dB(A) for commercial/mixed areas)	Monthly or during piling	Contractor (verified by D&SC)	Contractor \rightarrow D&SC \rightarrow PIU	
pH of discharge water	6.5–8.5	Monthly (if water discharge occurs)	Contractor	Contractor \rightarrow D&SC	
TSS in runoff	Within DoE surface water standard	Monthly (during piling/concreting)	Contractor	Contractor \rightarrow D&SC	
Installation of silt traps & bunds	100% installed where required	Weekly inspection	D&SC	D&SC \rightarrow PIU	
Oil & lubricant storage with secondary containment	100% compliance	Weekly	D&SC	D&SC \rightarrow PIU	
Construction waste segregated & disposed at approved site	Disposal records maintained	Weekly	Contractor	Contractor \rightarrow D&SC	
Obstruction of canal flow	No blockage observed	Weekly	D&SC	D&SC \rightarrow PIU	
Bird disturbance (if observed Nov–Feb)	No active piling during high congregation	Seasonal (Nov–Feb)	D&SC	D&SC \rightarrow PIU	
B. Occupational Health & Safety Monitoring					
	Indicator	Target	Frequency	Responsibility	Reporting Line
	Workers provided PPE	100% PPE use	Daily	Contractor	Contractor \rightarrow D&SC

	Toolbox meetings conducted	At least 1/week	Weekly	Contractor	Contractor → D&SC
	OHS incident reporting	100% incidents recorded within 24 hrs	As needed	Contractor	Contractor → D&SC → PIU
	First-aid station functional	Fully equipped	Weekly inspection	D&SC	D&SC → PIU
	Labor camp sanitation & hygiene	Clean, adequate toilets & waste bins	Weekly	D&SC	D&SC → PIU
	No child or forced labor	Zero tolerance	Monthly verification	PIU	PIU → WB
C. Community Health & Safety Monitoring					
	Indicator	Target	Frequency	Responsibility	Reporting Line
	Site barricading & signage installed	100% coverage	Weekly	D&SC	D&SC → PIU
	Safe pedestrian diversion pathway	Functional & safe	Weekly	D&SC	D&SC → PIU
	Traffic management implementation	No major accident	Weekly	D&SC	D&SC → PIU
	Spill incidents affecting canal/agri land	Zero major spill	Continuous	Contractor	Contractor → D&SC
D. Stakeholder & GRM Monitoring					
	Indicator	Target	Frequency	Responsibility	Reporting Line
	GRM register maintained	Updated regularly	Monthly review	PIU	PIU → PSC
	Grievances resolved within timeline	10–15 days (as per tier)	Monthly tracking	PIU	PIU → WB
	Community consultation during construction	At least 1 meeting/quarter	Quarterly	PIU	PIU → WB
3. Post-Construction	Indicator	Target	Frequency	Responsibility	
	Site restoration completed	100% cleared &	Once after	D&SC	

/ Operation Phase Monitoring		restored	completion		
	Waste cleared from site	No residual debris	Once	D&SC	
	Bridge safety features (railings, guideposts, signage) installed	100% installed	Once before handover	D&SC	
	Canal flow unobstructed	No blockage	Once after completion	PIU	
	Final community feedback	Documented	Once before closure	PIU	

Reporting Hierarchy: Contractor → D&SC → PIU (LGED) → World Bank

The D&SC will prepare a Monthly report on Environmental and Social Compliance and submit it to the PIU. The PIU will review and transmit the Monthly Environmental and Social Compliance Report to the World Bank as part of the project’s regular safeguard reporting obligations.