GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Ministry of Local Government, Rural Development and Co-operatives
Local Government Division
Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762 **IDA Credit No. 5561-BD**




Design and Supervision Consultancy

Environmental Screening Report

For Battali-Classipara Road with culverts and side drains

Under the package no. EMCRP/W16

December-2020

Development Design Consultants Ltd.

ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
EMP	Environmental Management Plan
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
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
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
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
UNO	Upazila Nirbahi Officer
VAT	Value-Added Tax
WB	World Band

Contents

Executive Summary

Rohingya influx in Bangladesh has been one of the highlighted issues of this decade. This has definitely modified our way of thinking for the future development of the country. This forcefully displaced population has posed challenges for the district of Cox's bazar in terms of livelihood improvement and environmental protection and services. Nevertheless, to aid into the condition and improve the symbiotic relationship between the Hosting Community and the Displaced Rohingya Population (DRP), many forms of interventions are taking place. One of those is Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) which is aided by World Bank holding one of the objectives to provide improved communication network for Upazila of Teknaf and Ukhiya. Among all different components of this project such as preparation of school cum cyclone shelters, facilitating growth centers and RCC Bridge development, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agency with D&SC (Development Design Consultants Limited-DDC) identifies the project beneficiary as Displaced Rohingya Population (DRP) and Hosting Community or in other words, local population. From many of the project's purposes, identification of environmental and social components which might fall into bargain for improvement works and ensuring the safeguards of those components are very basic or fundamental motives. In order to take these matters into consideration, screening and assessment of these elements has been carried out in accordance with guidelines from World Bank; as a result environmental and social screening reports has been produced along with worked out impact factors which are introduced with mitigation and management measures. In order to present a quick picturesque of the proposed component, an overview is given hereunder.

This proposed Battali- Classipara road belongs to Battali-Classipara village at Haldiapalong union, ward -07 under Ukhiya Upazila of Cox's Bazar district. The improvement works will take place from Rumkha Battali Classipara box culvert stretches further 1475 meters from north to south, and will host 7 Cross drains and 2 box culverts on the road, together with 553 m L-Drain and 97m U-drain along different chainages. 78m Brick palisading works and 58m Toe wall (1.5m height) of some chainage and instrumental works on road safety are also included into this development works. Apart from this feature some dispersed human settlement along the road, though at sufficient distance from the alignment, there are some important socio-cultural and religious components along the road length, including are Robi Chattar (5m), a high school named Sheed A.T.M Jafor Alom School & College (10m), Sabek Rumkha Mosque & Madrasha (30m), a primary school named Sabek Rumkha GPS (National Election Center) within 160m, two graveyards and another three mosques are within 50m from proposed sub-project, a brickfield is stand on Classipara within 130m at north side, Torchakhali Chorra and Baruapara village is situated about one kilometer distance at south side from sub-project location. The proposed road is not passing through any sensitive environmental components or reserved areas. However, the construction works will generate significant amount of dust and air pollutants, create noise, and have a potential to pollute water resources and affect some trees. All these impacts are site-specific and adjustable by mitigation or offsetting measures. Good management practices in labor camps, material storage areas, borrow pits, and in the areas of occupational health safety, road safety, and hazardous material management would suffice in curbing the potential pollution, hazards and any further risks related to construction works.

Appendix 02 of this report has detailed out the mitigation measures within the scope of interventions associated with this component of the sub-project.

This component of the sub-project has been proposed to ameliorate the socio-economic condition of the people living in the surrounding and connecting areas through providing climate resilient roadways and associated safeguard facilities. Since the road will not pass through any sensitive areas of any kind and necessary environmental conservative, mitigation and offsetting measures will be adopted with due care and diligence during the construction period, the component should be taken undoubtedly in further consideration for development.

1 INTRODUCTION

1.1 Project Background

An estimated 730,000[1] people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033[2]. This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained social service delivery system even before the crisis evolved and the mass exodus of FDMN has worsened the situation further. Almost all of these displaced people are hosted in Ukhiya and Teknaf Upazila of Cox's Bazar, in extremely congested settlements in areas having very minimal access to basic infrastructure and services and is prone to natural disasters. The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of Forcibly Displaced Myanmar National (FDMN) along with people from the host communities in Teknaf and Ukhiya Upazila under Cox's Bazar District, to different disasters and improve the social service delivery system and disaster resilience to both the communities. This project will follow a sustainable development pathway that is resilient to disaster and climate change effects.

The project is jointly being implemented by Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE) and Ministry of Disaster Management and Relief (MoDMR) under their respective mandate and scope of works. Given the project interventions, sensitivity of the areas and volume of people in or around the sites, the project is more likely to trigger certain Operational Policies and Bank Procedures, namely Environmental Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Forest (OP/BP 4.36) and Physical Cultural Resources (OP /BP 4.11).

1.2 Objective of the Sub-Project

In order to uplift the hosting community of Ukhiya & Teknaf Upazila along with the displaced community from Myanmar, Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been initiated which will improve the communication status as such. This project is designed to improve the road communication network of overall Teknaf & Ukhiya Upazila. Since this surge of displaced community from Myanmar has invited more commute and caused more traffic in this

[1] ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)
[2] IOM Needs and Population Monitoring round 12 as of October 10, 2018

area, this project will surely aid in the betterment of the target location and moreover initiate the growth potential of the area.

The sub-project has the primary target to improve the communication facilities of the area. This intervention, without a doubt facilitates the following: it will

- ✓ Support to rural development along with education, business, agriculture, farming etc.
- ✓ Improve the local planning, coordination and work execution capacity
- ✓ Facilitate emergency route in case of emergency situation
- ✓ Decrease road accidents & promote efficient use of existing facilities
- ✓ Make a crucial contribution to economic development and growth and bring important social benefits

This document represents the Findings from Environmental Screening of the sub-projects under 'Construction of 4 RCC roads under Cox's Bazar District'; **with a package name-EMCRP/W16.**

Table 1.2.1: Significant features of the Sub-project

Package Name: EMCRP/W16: Construction of 4 RCC roads under Cox's Bazar District:

Sub-project Component no. (1) Battali-Classipara Road

Component Location :

i. ID-422944016	ii. Ward No.: 7	iii. Mouza : Rumkhapalong
iv.Village : Battali	v. Name of Union : Haldiapalong	
vi. Name of the Upazila : Ukhiya		
vii. Construction Year: 2020-2021	viii. Length (m) : 1475	ix. Width (m): 4.0
Distance from UZHQ : 7 Km.		
GPS Coordinates	Latitude Value: 21˚17'7.37" N (Starting Point) Longitude Value: 92˚6' 1.15" E (Starting Point)	
	Latitude Value: 21˚17'17.9" N (Ending Point) Longitude Value: 92˚6' 34.3" E (Ending Point)	
Condition of Road	Brick Flat Soiling (BFS)	
Communication Source	Radio & Mobile Network	

Subproject interventions:

- **RCC** options.
- 7 nos. **Cross Drain** (dimension: 975mmX 975mm)
- 2 nos. **Box Culverts** (dimension: 2X4.00mX 4.50m) at 6m and (dimension: 2.00mX1.50m) at 1110m of chainage
- **553 m L-Drain**
- **97m U-Drain**
- 78m Brick Palisading wall
- 58m Toe wall (1.5m height)
- For road safety 2nos. Km Post,
- 30nos. Guide post,

• 1no. Traffic sign & • 1no.Name Plate
Implementing Agency: Local Government Engineering Department (LGED)
Expected construction period: 2020-2021
Estimated total cost of component: 41,271,214.83 (Tk.)

2 PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Several events of consultation meetings were carried out in different dates and times with different types of stakeholders. D&SC conducted the consultation meeting with local community from 11:00 AM to 12:30 PM on 20 December, 2019 at Sheed A.T.M Zafor Alom School & College (Chainage: 300m-600m) which is adjacent of the sub-project location, Refer to **Figure 2.1.1** , Public Consultation Participants List are attached in **Appendix-5.** The local individuals, chairman and/or member of Union Parishad, teachers from different school and colleges participated in those consultation events. A questionnaire was kept ready and responses were elicited during the FGD. During these consultations, the communities were explained about the project, its benefits, associated social and environmental aspects.

Figure 2.1.1: Consultation meeting (FGD) with local community

2.2 Summary of Public Consultation Meeting

In the consultation meeting, environmental issues and their relevant impacts for the infrastructure development work such as road maintenance were discussed. The advantages and disadvantages regarding the sub-project activities were also revealed. A successful public consultation programme requires the following three elements to be effectively executed (i) dissemination of information to the stakeholders (ii) solicitation of information from affected parties and inhabitants on environmental issues. (iii) Consultation with interest groups and the public.

Every consultation event presents a useful channel for the collection of specific social information through the local people. Affected parties and inhabitants should be informed in advance so that they can make the necessary arrangements to avoid or minimize adverse impacts upon them. Information should be disseminated to all interested parties, professionals and the general public so that they can develop informed opinions and provide useful input. Effective communication with the affected parties and individuals helps resolve any adversary to the road project concerned. Cooperation from informed residents and groups can lead to substantial savings in costs and time.

The participants were spontaneous and expressed that the sub- project will provide them various benefits including communication and transportation facilities. They also expressed that at present they are facing various types of problems due to this unimproved condition of the road.

Discussion was also made on various environmental issues like dust/air pollution, water pollution etc. which are potential environmental hazards during road construction. The participants expected that none of the interventions would worsen their living conditions or surrounding environment and they requested for adopting all measures to reduce/avoid the environmental hazards during the implementation phase.

2.3 Suggestions and recommendations of the participants

The significant suggestions that came out during the meeting are given below:

- Slope protection should properly be established on the side of the proposed road at different chainages.
- Best available measures should be adopted to avoid potential negative environmental impacts and enhance positive impacts.
- Participants' suggestions and expectations that came out through the different forms of consultation meetings are taken into consideration to reflect their wishes and minimize the adverse impacts of construction works.
- Steps should be taken for minimizing the air pollution by spraying water at the construction sites.
- Noise pollution should be effectively minimized to a tolerable limit.

3 ENVIRONMENTAL SCREENING

3.1 General

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures. Environmental Screening form, as adopted in **Appendix 2** of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents. The screening data and information for this Sub-project and details screening summary have been formulated and shown in **Appendix-1**

3.2 Major Findings

The proposed sub-project is not located within any environmentally sensitive area and has no chance to create adverse impacts to important environmental components. The project road crosses several community, agricultural lands and community level forest. During construction period several trees may need to cut down. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials. Noise emission from construction machineries and equipment can cause nuisance to local residents and workers. Thus, the ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.

Some dispersed human settlement along the road, though at sufficient distance from the alignment, there are some important socio-cultural and religious components along the road length, including are Robi Chattar (5m), a high school named Sheed A.T.M Jafor Alom School & College (10m), Sabek Rumkha Mosque & Madrasha (30m), a primary school named Sabek Rumkha GPS (National Election Center) within 160m, two graveyards and another three mosques are within 50m from proposed sub-project, a brickfield is stand on Classipara within 130m at north side, Torchakhali Chorra and Baruapara village is situated about one kilometer distance at south side the proposed improvement site. No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc. Construction equipment may generate vibration at the properties immediately adjacent to the road alignment. Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties. During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage.

There is no evidence of presence of elephants in the subproject area. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

In order to offset the loss or attenuating the environmental degradation, a set of mitigation measures will be adopted, on top of general practice of standard construction procedure or following the relevant codes of practices.

3.3 Climate Change Impact

3.3.1 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 geomorphological 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 Bank[3] 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 150 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 700 feet in some places may cause salt water to contaminate freshwater resources, which could be disastrous for both refugees and local 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 planation in sub-project areas, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific

The sub-project area is not adjacent to the sea. The cyclone has higher impact in the area and water stagnation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and the occurrence of cyclonic storm surge was not reported in the vicinity of the subproject. Temperature was reported to be increased and Thunder storm is found to have highest impact in the area. Thunder storm has been seen create more damage than before but no casualty was reported.

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. Tree planation along the road slope is suggested wherever possible, among others, to sooth the temperature effect and increase the water retaining capacity of soil, at the same time.

[3] https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf

4 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

Considering the environmental settings of the sub-project area, it can be assumed that possible impacts would be largely construction-related, and could be addressed through adoption of good engineering practices; good housekeeping; better *in-situ* construction materials management; and observance of health and safety protocols during the implementation period.

The proposed road is on a plain land. A number of trees of road side will be cut down during construction period and as a mitigation measure, 5 nos. trees will be replanted for each tree in the periphery of the subproject. Some dispersed human settlement along the road, though at sufficient distance from the alignment, there are some important socio-cultural and religious components along the road length, including Robi Chattar, a high school named Sheed A.T.M Jafor Alom School & College, Sabek Rumkha Mosque & Madrasha; linking a primary school named Sabek Rumkha GPS (National Election Center) within 160m, and two graveyards and another three mosques are within 50m distance from the proposed improvement site. Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being. Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the level best. Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand some part of the proposed road is passing by the agricultural land. So, 7 nos. Cross Drain (Size: 975mmX 975mm) at different chainage and 2 nos. Box Culverts (Size: 2X4.00mX 4.50m) at 6m chainage and (Size: 2.00mX1.50m) at 1110m of chainage will be constructed at the subproject area for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. Some small hills or high land is found beside the road. As a mitigation measure, 553 m L-Drain at different chainage and 73m U-Drain at different chainage will be constructed for drainage mountain eel water during rainy season. Due to the low land in different chainage of the road 78m Brick Palisading wall and 58m Guide wall will be constructed for mitigation measure.

Further construction related activities which 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. Once the effects are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities. The subproject specific environmental management plan has been outlined in **Appendix-2**. The mitigation measures as well as monitoring program of ESMP have also been incorporated in the management plan.

Environmental quality enhancement: Under the additional financing to the EMCRP project, Forest Department of the Government of Bangladesh will afforest along 200 km of road length area, primarily under the Ukhiya and Teknaf Upazila of Cox's Bazar district in order to offset the environmental and ecological devastation, that had been occurred due to the evolution of Rohingya Crisis, to an achievable level. Many of these road lengths will go through and by the Rohingya Camps, up on the hill and are already denuded of trees or vegetation. Local Government Engineering Department (LGED) will allocate and channelize the finance to the Forest Department under the said

additional financing component and oversee the progress of works with due diligence. However, this enhancement work will improve the environmental quality of the area and reinstate some parts of the ecosystem services to those areas, though primarily.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed guideline containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices.

However, among many other relevant issues, the guidelines emphasize on following line of directives:

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.
c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement is to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols has to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

Following the additional health and safety measures presented in that guideline, sub-project specific BOQ items have been inserted to supplement the budget considering the country-specific situation, capacities, and scope of interventions. The additional cost to Health and Safety Measures under COVID 19 situation is shown in Appendix-3.

4.3 Cost of Environmental Enhancement Works in BOQ

In consideration to the above mentioned environmental impacts and their mitigation measures for this sub-project, a set of items are included in the BOQ of this sub-project. The estimated cost to implement the ESMP is shown in **Appendix-3**.

5 LIMITATION OF THIS STUDY

With the countrywide spread of coronavirus and its huge detrimental including fatal effects on people and livelihood had made the government of Bangladesh to impose a nationwide lockdown from March 26, 2020 onward coupled with banning on passenger traveling across the districts. This development was accompanied by all office works to be suspended or postponed. However, in the backdrop of continued fragile economic and human plight being observed across the country which has primarily been caused by this COVID situation, Government of Bangladesh has had no other option but to reopen all the economic and official activities by early June, with strong guidance on limiting movement to the least. This neo-normal situation is still limiting the movement of consultants and supervising staffs to the proposed working sites for undertaking the screening survey along with conducting effective consultation meetings, which is in turn affecting the overall progress of the project and there might have a likely chance to remain the gaps in overall screening process and outcomes.

6 CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are implemented in full, there will be no significant negative environmental impacts in regards to the selection of location, design, construction, and/or operation procedure of the proposed Sub-project. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

The conclusions of the Screening study can be summarized as follows:

- The communities will receive large benefits through improved infrastructural facilities, transportation & communication etc.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety 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.
- The green belt development, if necessary for the road site, with large-growing trees at the periphery of the site will give the places a more natural and pleasing appearance.
- A comprehensive Environmental and Social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities.

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.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: (Construction of 4 RCC roads under Cox's Bazar District; EMCRP/W16).

Name of the component: Battali-Classipara Road (Id-422944016)

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

Estimated total cost of sub-project (in Taka): 138,183,518.24

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 41,271,214.83

Estimated Operation and Maintenance period (life of sub-project): Project design life more than 15 (Fifteen) years but Government policies on how long projects can operate in the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Haldiapalong
Name of Community/Local Area: Battali, Classipara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road-A and construction with RCC options. For drainage of rain water 7 nos. **Cross Drain** (Size: 975mmX 975mm) at different chainage and 2 nos. **Box Culverts** (Size:2X4.00mX 4.50m) at 6m and (Size: 2.00mX2.00m) at 1110m of chainage, for mountain eel water drainage during rainy season **553 m L-Drain** at different chainage and **97m U-Drain** at different chainage has been included in the estimation. Due to the low land in different chainage of the road 78m Brick Palisading wall and 58m Toe wall(1.5m height) as well as for road safety 2nos. Km Post, 30nos. Guide post, 1no. Traffic sign & 1no.Name Plate has been included in the estimation (Technical Report 2019, EMCRP)

Estimated footprint / land area for this sub-project is 5900 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:
This proposed Battali-Classipara Road belongs to Battali-Classipara village at Haldiapalong union, Ward-07 under Ukhiya Upazila. This road has started from Battali on Cox's bazar-Teknaf road stretching 1475 meters from north to south, adjacent to Robi Cattar, a high school named Sheed A.T.M Jafor Alom School & College, Sabek Rumkha Mosque & Madrasha, linked a primary school named Sabek Rumkha GPS (National Election Center) within 160m, two graveyards and another three mosques are within 50m from proposed sub-project, a brickfield is stand on Classipara within 30m at north side. Torchakhali Chorra and Baruapara village is situated about one kilometer distance at south side from sub-project location.
There are four box culverts on sub-project location. This sub-project also linked with Dargahmura Graveyard and Kheowachori village.

Important Environmental Features (IEFs) near site:

Detail Chainage Length of the sub-project: 1475m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Chainage	Left	Right	Environmental Impact
"0" Point 000-300	L		Start from Rumkha Battali Classpara Box culvert, trees, Paddy land, Households, Tila, Semi-permanent house, Tin- shed Houses
		R	Trees, Paddy land, Brick boundary wall, building, protection wall, garden
300-600	L		Tin shed fence, Tin- shed Houses, betel nut tree, bamboo fence, existing u-drain, households, Sheed A.T.M Zafor Alam School & College, Fakiramura Hafez Khana,
		R	Bamboo fence, Tin shed households, tila, bamboo bushes, bamboo fence, earthen households, Tin shed fence, existing u-drain, brick boundary wall
600-900	L		Paddy land, Tin shed fence, trees, rope fencing, permanent households, brick boundary wall, Mango tree, Sabek Rumkha Ebtedayee Madrasha, Court bazar connecting road, Sabek Rumkha Moulovipara connecting road.
		R	Wire fencing, bamboo fencing, existing u-drain, paddy land, electric pole, brick boundary wall.
900-1200	L		Paddy land, Tin shed fence, brick boundary wall, trees, bamboo fencing, bamboo bushes, ditch, tila, electric pole, ditches,
		R	Trees, tine shed fence, bamboo fence, Mosque on tila,
1200-1500	L		brick field connecting road(30m), house road, bamboo bushes, households, betel nut garden
		R	Bamboo fence, electric pole, bamboo bushes, tila

Figure: Starting Point of Battali-Classipara Road

Overall Comments

The proposed sub-project (Road construction) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not

going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation.

The proposed Sub-project area for the construction of hillock village road 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 construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within battali classpara village under Haldiapalong union 7no. Ward of Ukhiya upazila, Cox's Bazar. Cox's Bazar-Teknaf highway is passing north side of the sub-project area. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are Robi Chattar (5m), a high school named Sheed A.T.M Jafor Alom School & College (10m), Sabek Rumkha Mosque & Madrasha (30m), a primary school named Sabek Rumkha GPS (National Election Center) within 160m, two graveyards and another three mosques are within 50m from proposed sub-project, a brickfield is stand on Classipara within 130m at north side, Torchakhali Chorra and Baruapara village is situated about one kilometer distance at south side from sub-project location. No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 10-12 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

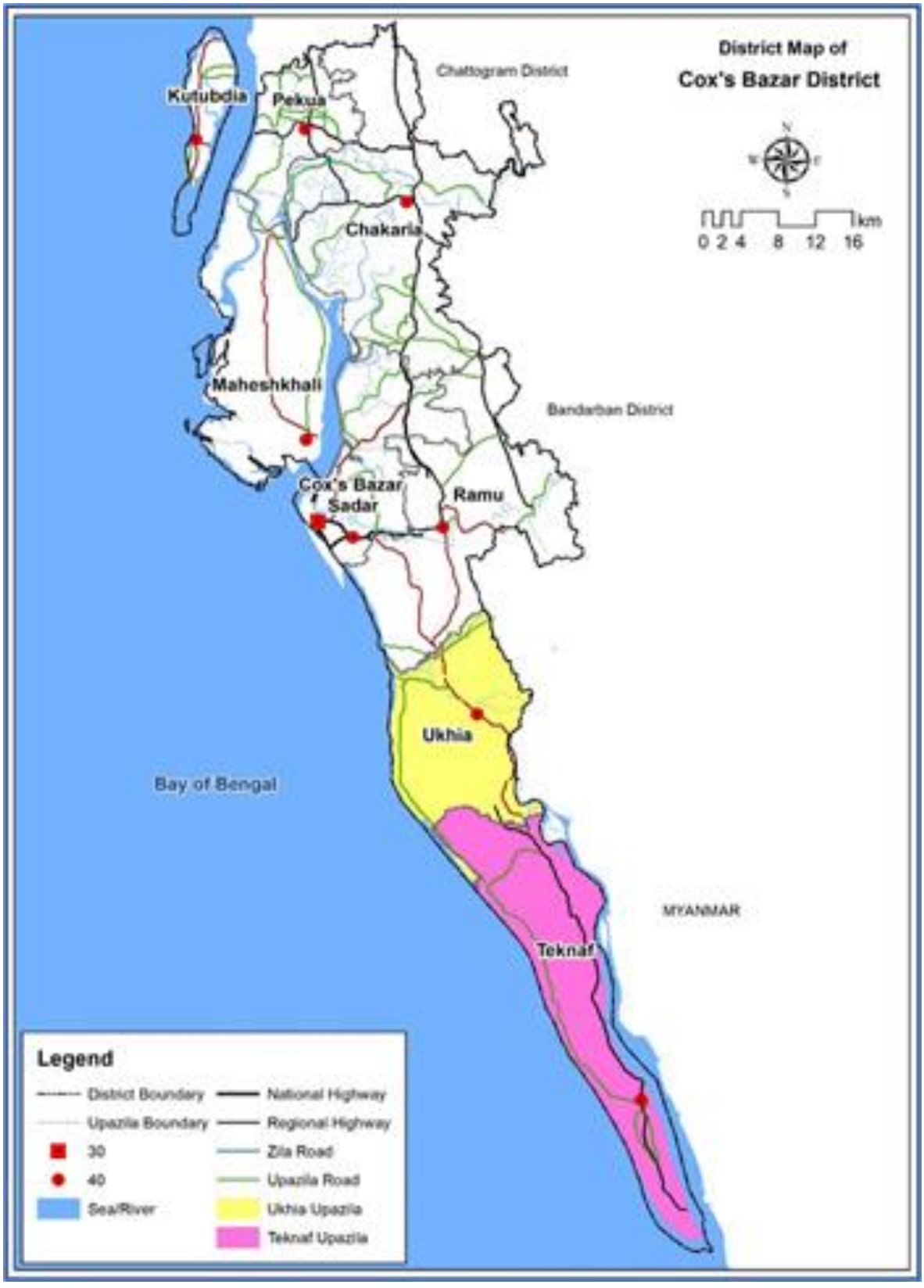


Figure 3: District Map with project location

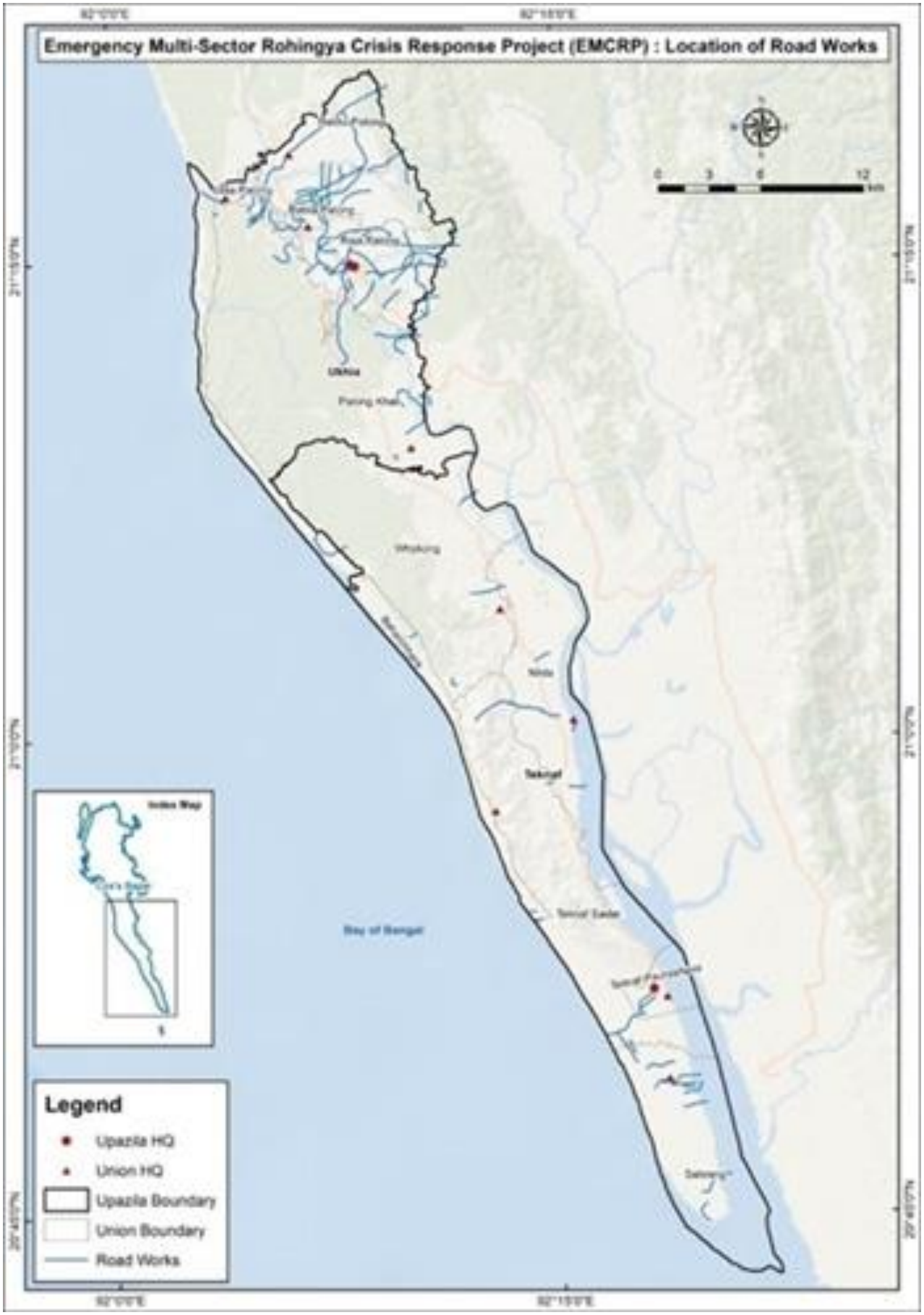


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

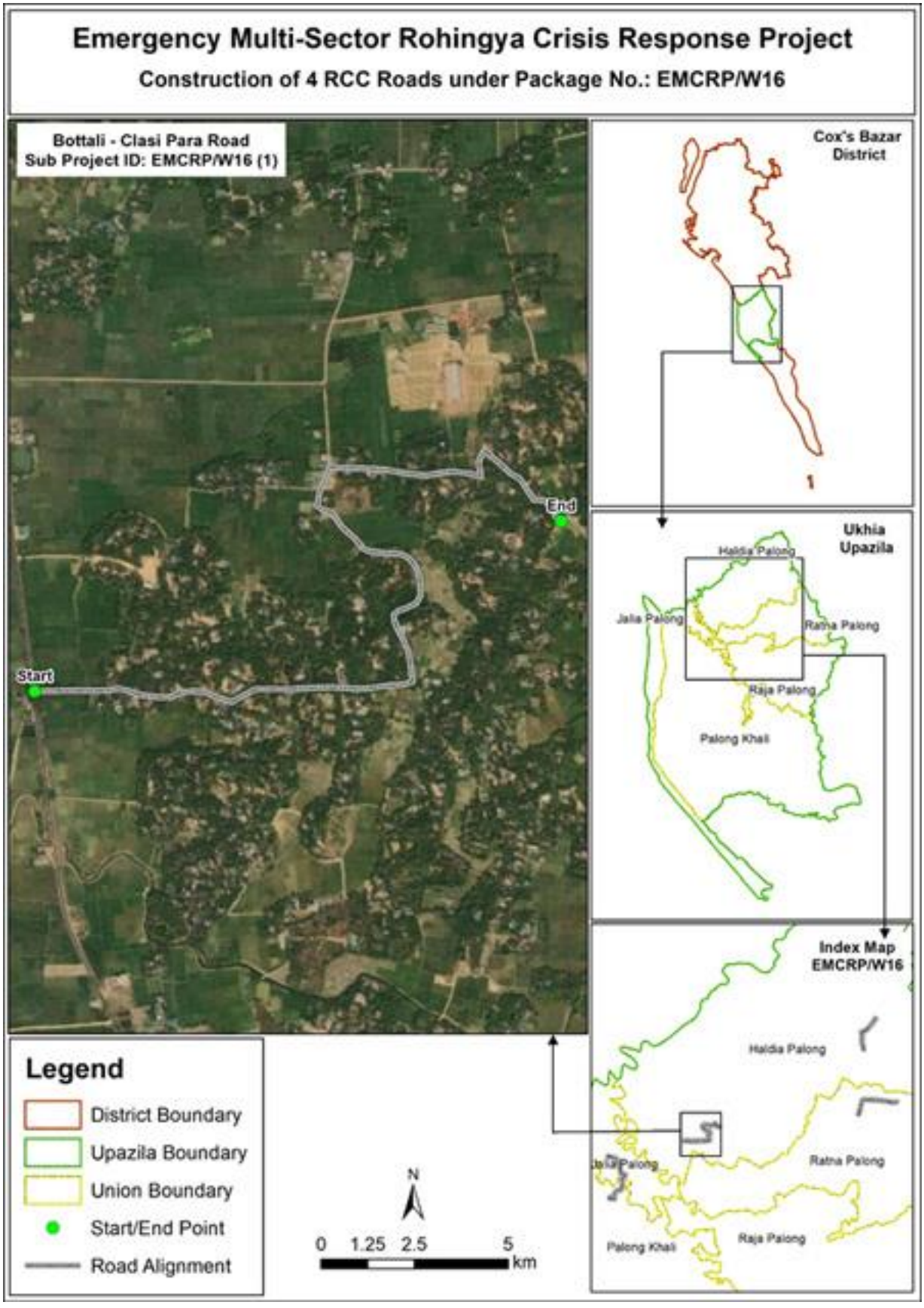


Figure 5: Upazila Map with Sub-project location

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road-A. Based on field survey, this sub-project involves of Ch.00-515m HBB, Ch.515-943m BFS, Ch.943-1000m HBB and Ch.1000-1475m BFS. According to the design this sub-project will be developed with 250mm sand filling, improvement of BFS and RCC filling for 200 meters.

Sub-project Location:

Important Features	
ID	422944016
District	Cox's Bazar
Upazila	Ukhiya
Union	Haldiapalong
WARD	07
Total Chainage	3500m
Proposed Chainage	1475m
Road Type	Village Road-A
Proposed Intervention Type	RCC
Road Starting Point Coordinates	Latitude: 21˚17'7.37" N Longitude: 92˚6' 1.15" E
Road Ending Point Coordinates	Latitude: 21˚17'17.9" N Longitude: 92˚6' 34.3" E

Land ownership

Land is owned by Government.

Expected construction period: 6 (Six months)

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

i) The proposed Sub-project is located within Classipara village with existing local community. Some other villages named Moulovipara within half kilometer at North-eastern side, Borobil within two kilometers at east side and Janad Ali Para village within one and half kilometer at north side from the sub-project location.
ii) No historical sites were found
iii) 2 water bodies like ponds were identified.
iv) Not required to relocate local community.
v) Some trees, vegetation will be affected.
vi) Very low chance of loss of agricultural land.
vii) Some Household Boundary made of bamboo and tin may need adjustments.
viii) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

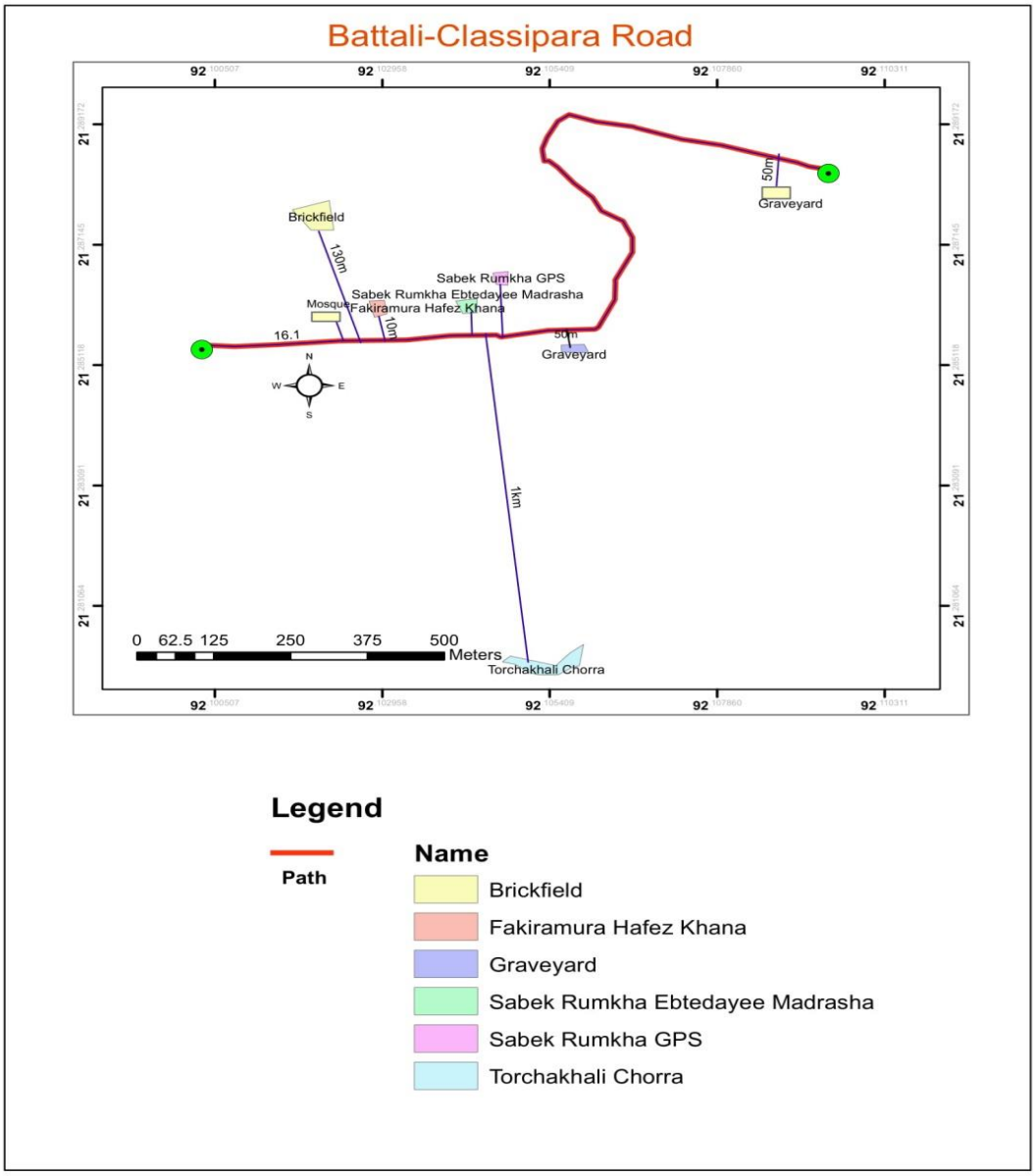
***B.1*: Environmental feature of sub-project location**

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

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

There are a Robi Chattar (5m), a high school named Sheed A.T.M Jafor Alom School & College (10m), Sabek Rumkha Mosque & Madrasha (30m), a primary school named Sabek Rumkha GPS (National Election Center) within 160m, two graveyards and another three mosques are within 50m from proposed sub-project, a brickfield is stand on Classipara within 130m at north side, Torchakhali Chorra and Baruapara village is situated about one kilometer distance at south side from sub-project location. There are no sensitive environmental, cultural, archaeological sites exists on the area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues rose.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise level also very low in the site area. Noise is originating from the commotion of locals. During construction period a rise in noise pollution may occur due to the transportation of equipment.

Baseline soil quality:

The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

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

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

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

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to

681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
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): Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply and electricity is available in the area for the workforce.
Possible location of labor camps: Labor camp can be prepared along the road since there are available private lands. However, this will have to be done with the consent of land owner with the supervision of the local committee and ward member.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. The brick soling road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where primary school and high school is located. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 50 kg daily and sludge may amount to 10 kg per day.

B.3: Construction Phase

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 150 kg.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes are the most common type of road materials 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: No dense vegetation is present in the right of way. However, a dense growth of shrubs and small trees alongside the road can be said to be in the detail chainage, Table 1. 2 to 3 points on the chainage where few undergrowth might need cutting but in very short amount. Soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. This area does not face water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel is found.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution.

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 road 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 existing drainage channels or surface water bodies found in the project area, 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:
Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

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)

Section D: Environmental Screening Summary

Please summarize the results of environmental screening conducted above. Mitigation measures need to be proposed in referenced to ESMP Guidelines relevant to the type of the sub-project, proposed in Section 8.2 of ESMF. This table needs to be completed by environmental specialists. Please add rows to the table as necessary.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
1: Sub-Project Interventions	**Air quality**	Under the subproject intervention the overall score is **low**.	• Limiting earthworks; • Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; • Requiring trucks delivering aggregates or bricks and cement to have tarpaulin cover and Limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Covering of trucks; • Records of air quality inspection;	Visual monitoring of air quality and if requires, air quality test (CO, $PM_{2.5,10}$) once in construction period in winter season.
	Soil impacts	Under the sub-project intervention the overall score is **low.**	• Precautions might be taken when rainstorms are likely, when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms. • 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	Construction Contractor monitored by Consultant and PIU	• No visible degradation to nearby drainages, • *khals* or water bodies due to soil erosion. • Rain storms in construction phase.	Monitoring as weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			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 construction yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.			
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is **low**.	• All precautions to store chemicals/oil/fuel properly so that no chance of spill. • Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. • Monitor water quality according to the environmental management plan.	Construction Contractor and monitored by Consultant and PIU	• Areas for stockpiles, storage of fuels and lubricants and waste materials; • Records of water quality inspection; Water Quality Test • (National Drinking Water Quality Standard Parameters)if requires; • No visible degradation to nearby drainages, *khals* or water	Water quality test (mainly GW) twice during the construction period in six months interval.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	**Frequency**
					bodies due to construction activities. • Records should be kept and logged.	
2: Pre-construction Phase	**Sanitation, water supply**	Under the subproject intervention the overall score is **low**.	• Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer. • Provide means for disposing of wastewater from toilets, baths and food preparation areas either through a septic tank and soak away, or holding tank with removal by vacuum truck. • Records for any type of training or awareness building sessions must be kept at site.	Construction Contractor and monitored by Consultant and PIU	• Site-specific H&S Plan; • Records of supply of uncontaminated water; • Record of Health &Safety orientation trainings; • Condition of sanitation facilities for workers	Visual inspection by PIU and supervision consultants on monthly basis
	Transportation	Under the subproject intervention the overall score is **low.**	• Contractor should verify vehicles for the suitability of carrying, loading and unloading of materials	Construction Contractor and monitored by Consultant and PIU	• Record of regular inspection. • Record of accidents/incidents	Monthly monitoring.
	Storage of construction materials	Under the subproject	• Orienting concerned person and team assigned for the construction work.	Construction Contractor and monitored by	• List of materials and sources of materials	During implementation phase, as

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
		intervention the overall score is **low**.		Consultant and PIU		necessary with discussion with PIU, Consultant
3: Construction Phase	**Wastes**	Under the sub-project intervention the overall score is **low.**	• Prepare and implement on-site waste water runoff and labor camp waste management plan approved by PIU and consultants. • Wastes must be placed in the designated bins which must be regularly emptied. These shall remain within demarcated areas and shall be designed to prevent wastes from being blown out by wind. • All waste must be removed from the site and transported to a disposal site.	Construction Contractor and monitored by Consultant and PIU	• Complaints from community; • Regular inspection of waste management activity; • Waste disposal record.	As work weekly progresses
	Cut and fill Activities (Cutting of hill slope and earth removal from borrow areas caused for soil erosion and landslides)	Under the sub-project intervention, the overall score is low.	• During construction cut and fill will be balanced as far as is possible. Designs shall ensure that as far as possible all cut and fill activities are balanced • Proper care will be taken during cutting and filling so that slope or toe of the road embankment remain within the right of way and does not disturb the crop.	Contractor, environmental specialist of D&SC	• Location of road alignment and slope.	Daily as work progresses

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Storage of materials	Protected and safety storage to be needed for construction materials storage. Not interrupt natural land contours, disturbance in natural drainage patterns and logging of water and the overall score is **low.**	• With the assistance from site management committee in Camp to identify the storage site and other requirements, which will be approved by PIU and consultants.	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials; • Storage areas for materials and equipment.	Monthly basis during implementation phase, as necessary with discussion with PIU, Consultant
	Removal of Vegetation (May cause soil erosion and their deposition on nearby crop field, affecting soil quality and productivity)	Under the sub-project intervention, the overall score is **low.**	• 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.	Contractor, environmental specialist of D&SC	• Complaints from community	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Noise pollution	Under the subproject intervention the overall score is **low.**	• Consultation with affected people; not to operate noisy equipment during working period; • No noisy work after 5.00 pm. • Sound suppression for equipment; • Ear protection for workers. • Conduct noise quality monitoring as per EMP.	Construction Contractor and monitored by Consultant and PIU	• Number of complaints from stakeholders; • Use of silencers in noise-producing equipment and sound barriers; • Noise Level following decibel meter (dB)	Inspection by PIU and supervision consultants on monthly basis;
	Air pollution	Under the subproject intervention the overall score is **low.**	• Water spraying for dust control; construction materials with potential for significant dust generation shall be covered; no smoke emitting equipment; and limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor and monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Records of air quality inspection.	Visual observation and monitoring of air quality during construction period.
	Road Safety and Accidents	Under the subproject intervention the overall score is **low.**	• Erection of suitable signage at construction sites • Direct observation and discussion with local people • Restrict the transport of oversize loads. • Operate construction vehicles to non-peak periods (night) to minimize the traffic disruption. • Enforce on-site and access road speed limits.	Construction Contractor, environmental specialist of D&S.	• Complaints from communities, pedestrians	Day basis during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			• The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&S. • Local residents should be kept informed about planned Works			
4. Post Construction	**Road Safety**	Under the issue the overall score is **low**.	• Install traffic signs for speed limit, speed breaker where needed, Mile post and create adequate **traffic** detours, and sufficient **signage** & **warning** signs, Post speed limits and suitable bending on the road. • The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&S.	Construction Contractor, environmental specialist of D&SC.	• Road signage and safety instruments at suitable locations and chainage.	Immediately after the construction work is over.
	Tree re plantation	Under the issue the overall score is **low**.	• Replantation of trees during monsoon period • Maintain of trees properly • Check survival of trees and replant the dead trees	Construction Contractor, environmental specialist of D&S.	• Number of complaints from stakeholders; • Records of trees number and tree plantation inspection.	Immediately after the construction work is over.
5. Operatio	**Maintenance of road and**	Under the issue	• No advertisement/boardings shall be allowed within the Right of Way	LGED	• Number of complaints from	During Operation under

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
nal Phase	**assets** (Road accidents may increase due to higher number of vehicles using the roads at increased speeds)	the overall score is **low**.	limits of the project road. • Regular maintenance and cleaning of assets such as sign boards, road safety sign etc. shall be undertaken. • Clear smooth speed breaker/rough surfaces should be clear in views. • Regular maintenance of road surface and shoulders.		stakeholders	LGED's regular maintenance program in each 3 years.

* 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.* Mention some recommendation on E&S assessment …. ESMP

If site specific environmental and social management plan (ESMP) is followed the impacts can be mitigated and monitored. ESMP is attached.

Appendix-2: Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Access and evacuation Roads: Battali-Classipara Road

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
Pre-Construction Stage	Loss of land / and other physical assets	• No land acquisition is allowed within this sub-project activities So, there are no any mitigation measures according to this impact.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact of adjacent livelihoods	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • Consultation meeting with host communities about the project objectives and scope of works	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of right to access	• Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact. • In case of unavoidable circumstances, alternative access will be provided.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection & implementing interventions: Human-elephant	• Selection of sub-project sites and all implementing interventions must take place outside of the	PIU	Environmental Consultant of PIU,

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
	conflict	elephant corridor/influence area.		PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Our selected sites avoided the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff. • Tubewell location within the construction site is not near to any kinds of latrine and soaks well which could be contaminated by those. • After completing the development we restored the place as like before to avoid the cut and fill operational problems. • This site is in the local community, so we discussed with the local community to avoid any conflicts related local habitation, culture. • Sub project intervention mustavoid of natural disturbance of existing slop and natural drainage. • The contractor ensuring sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities mostly will finish at day time within 05 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipments (PPEs) must be ensured in sites before starting any kinds of construction works.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	• Acceptable range of emission of CO, particulate matter [SPM (**Suspended particulate matter)**, PM2.5, 10] and Hydrocarbons must be maintained	Contractor	Environmental Consultant of PIU, PSC

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		through good construction work practices • Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes. • Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level		
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in our site and take necessary measures for preventing this problem • Before works started Contractor must provide proper training and guidelines on health and safety issues to the labors and associated staffs. • Records of every training must be kept at site. • All kinds of Child labour are completely prohibited in every site. • Every construction materials storage site will be well fenced by Tin and safety caution tape.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the Executive Engineer of Cox's Bazar.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• 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.	PIU & Contractor	Social Development Specialist and Gender Specialist

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		• If ground water is withdrawn, adequate approvals from the appropriate department need to be undertaken 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 works starts.		of PIU, PSC
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be 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. • 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 labour camps will be put in place • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: • Residual waste from the temporary accommodation facilities for labor Waste and from equipment maintenance/vehicles on-site • After completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • 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	• All construction equipment will be properly inspected timely. • The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. • Preparation of proper walkways and clearly designation as a walkway has to be ensured; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • 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 has Proper communicative	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
	hearing loss, heat stress, and dermatitis.	emergency response plan (ERP) with all parties, the ERP 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. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), 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 the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of this awareness training shall be kept on site.		

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		• Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure 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.		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Solid organic wastes should be stored in bins and/ or skips and emptied regularly at a designated waste disposal area away from the camp site. If no designated site is available within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.	PIU	Environmental Consultant of PIU, PSC. Union Member
Decommissioning during the project implementation period (including site clearance after the construction)	The impacts are similar to those listed in construction stage: ✓ Pollution from waste materials ✓ Health & Safety risks to workers and local community	• Contractor must prepare a demolition and waste management plan including following directive aspects given hereunder.	PIU / Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures. • Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.	UE-LGED (under the guidance of Executive Engineer, LGED)	PSC, UNO.

Prepared by: Harogopal Kabiraj, Environmental Focal Person, +8801714980171
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Sadia Azad, IC, Disaster Risk and Climate Change Consultant
Reviewed by: Md. Saiful Islam, Field Level Environmental Specialist, +8801913442006

Appendix-3: Cost of Environmental Enhancement Works in BOQ

In consideration to the above mentioned environmental 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	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	4873.68Sq. m	@38.15 Tk. Per sqm	185,930.89
2.	**Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	1 no.	@5000 Tk. Per box	5,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	1635.0m	Lump sum @ 2.56 BDT	4185.60
4.	**Environmental management** Environmental management costs of the Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C. (one fourth part of the entire cost).	12 months	Monthly basis @Tk. 35,000.00 for 12 months. One person for each package. (Net payment excluding Tax &VAT).	105,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's	LS	Lump sum @ 15000	15,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.			
6.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.		10,000
7.	**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, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles.	LS		30,000
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	140 nos.	@ Tk. 1000 for each tree.	140,000

Sl no.	Description of item	Quantity	Unit price	Total amount
9.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@12822.86 per toilet	25,645.72
10.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS		5,000
11.	**Drinking Water facilities** Supplying of best quality **Water Filter** (30 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	1nos.	@30000 tk for each filter	30,000
12.	**Test (Drinking Water samples)** **Water samples** are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@5,000tk	5,000
13	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1	50,000	30,000
	Subtotal Bill: Environmental facilities			**590,762.21**

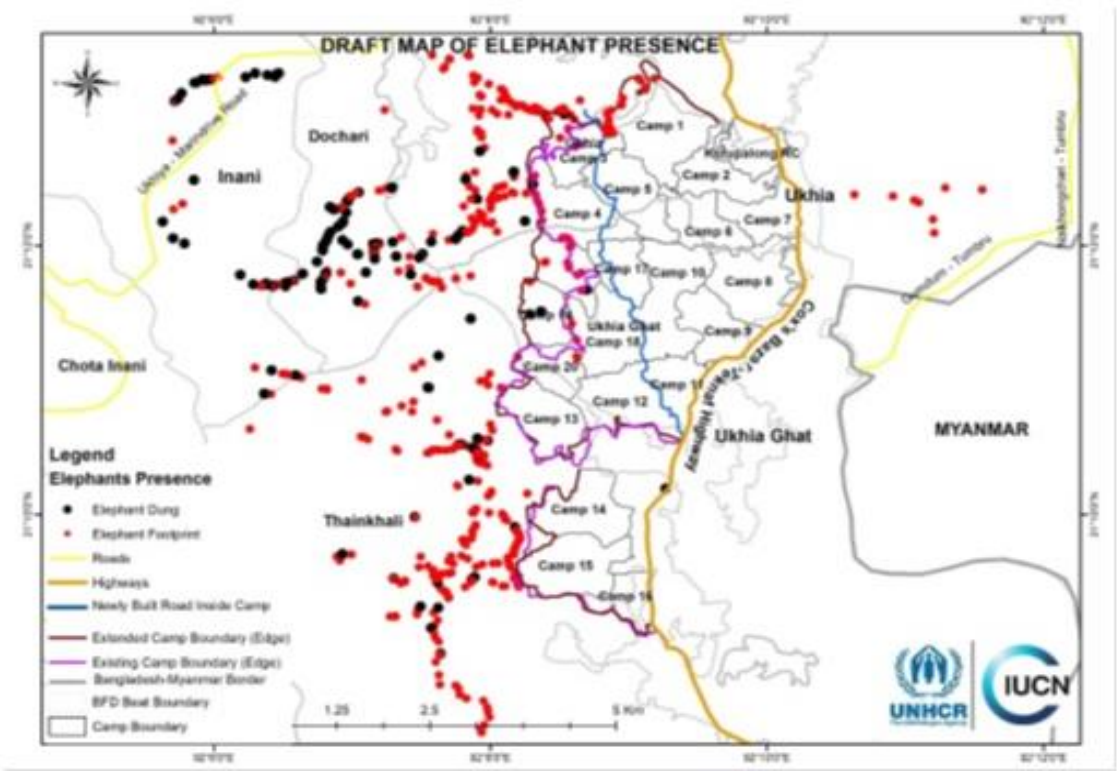
Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 30 workers 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-16.1).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	81		101	50.00	182	9,100.00	To be placed in a case/holder on the basin, for washing hands for max. 35 people a day and showering of 30 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	18 nos. for each site		N/A	400.00	18	7,200.00	For labors who work in close contact, 18 in each site

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	30 nos. for each labor camp		35.00	540	18,900.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1.5 kg in each camp/month		400.00	13.5	5,400.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**107,775.00**	

Appendix-4: Elephant Presence Map



Elephant presence map (latest information published on 24 May 2018)

Appendix-5: List of Participants in the Consultation Meeting

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time:...11.00AM............. Date..20/12/2017

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নাম: Bouldclash Para Road
মত বিনিময়ের স্থান: টি এম জায়েদ আলম স্কুল এন্ড কলেজ

ইউনিয়ন: হলদিয়া পালং
ডাকঘর: রুমখা পালং
উপজেলা: উখিয়া
জেলা: কক্সবাজার

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
০১	[illegible]	33	M	[illegible]	[illegible]
০২	মুনীর আহমদ	46	M	[illegible]	[illegible]
০৩	[illegible]	52	M	- "	[illegible]
০৪	[illegible]	57	M	"	[illegible]
০৫	[illegible]	69	M	"	[illegible]
০৬	[illegible]	34.	M.	"	[illegible]
০৭	মো: [illegible]	৩৭		"	[illegible]
০৮	আল মামুন	২১	M	"	[illegible]
৯	মো: [illegible]	১৮	M	"	[illegible]
১০	মো: নুরুল ইসলাম	20	M	"	[illegible]
১১	মো: শামসুল আলম	৩৫	M	"	[illegible]
১২	[illegible]	20	M	"	[illegible]
১৩	[illegible]	২২	M	"	[illegible]
১৪	[illegible]	52	M	[illegible]	[illegible]
১৫	মো: [illegible]	১৪	M	" "	[illegible]
১৬	মো: [illegible]	৬০	M	//	[illegible]
১৭	মো: ইউনুস	25	M	"	[illegible]
১৮	মো: [illegible]	25	M	"	[illegible]
১৯	[illegible]	১৮	M	"	[illegible]
২০	[illegible]	১২	M	"	[illegible]

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time: 10:00 AM   Date: 29/12/2019

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নাম: Boulighash Para Road
মত বিনিময়ের স্থান: [illegible]

ইউনিয়ন: [illegible]
ডাকঘর: [illegible]
উপজেলা: [illegible]
জেলা: কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর
২১	কফিল উদ্দীন	[illegible]	M	[illegible]	[illegible]
২২	রিয়াদ আলম	[illegible]	M	〃 〃	[illegible]
২৩	ইমন	২৯	M	〃 〃	[illegible]
২৪	আব্দুল [illegible]	20	M	〃 〃	[illegible]
২৫	মামুন	২১	M	〃 〃	[illegible]
২৬	আনোয়ার	20	M	〃 〃	[illegible]
২৭	রায়হান	২৯	M	〃 〃	[illegible]
২৮	আরিফ	20	M	〃 〃	[illegible]
২৯	তুহিন	২৯	〃	〃 〃	[illegible]
৩০	মনজুর	২২	M	〃 〃	মনজুর
৩১	আরফাত	২১	M	〃 〃	আরফাত
৩২	বাবুল	২৫	M	〃 〃	[illegible]
৩৩	রবিন	20	M	〃 〃	[illegible]
৩৪	বাদশা মিয়া	৩০	M	〃 〃	বাদশা
৩৫	মুবিন	২৫	M	〃 〃	মুবিন
৩৬	আবছার	২৯	M	〃 〃	আবছার
৩৭	রেজা	২৫	M	〃 〃	রেজা
৩৮	সাব্বির মিয়া	২৮	M	〃 〃	[illegible]
৩৯	ইয়াছিন	২১	M	〃 〃	ইয়াছিন
৪০	বাবু	২৫	M	〃 〃	[illegible]

Public Consultation Participants' List

Appendix-6: Pictorial View of the surroundings of the proposed sites

Tila and Social forestation on the way to Sub-project

Existing u drain and bamboo fence on the road side

Man-made drainage channel on right way

Existing box culvert on the way to sub-project

Tin shed household boundary along with sub-project

Household boundary wall made of brick

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762 **IDA Credit No. 5561-BD**




Design and Supervision Consultancy

Environmental Screening Report

For Ratnapalong hill tract Road with culverts and side drains

Under the package no. EMCRP/W16

December-2020

Development Design Consultants Ltd.

ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
EMP	Environmental Management Plan
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
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
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
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
UNO	Upazila Nirbahi Officer
VAT	Value-Added Tax
WB	World Band

Contents

Executive Summary

Rohingya influx in Bangladesh has been one of the highlighted issues of this decade. This has definitely modified our way of thinking for the future development of the country. This forcefully displaced population has posed challenges for the district of Cox's bazar in terms of livelihood improvement and environmental protection and services. Nevertheless, to aid into the condition and improve the symbiotic relationship between the Hosting Community and the Displaced Rohingya Population (DRP), many forms of interventions are taking place. One of those is Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) which is aided by World Bank holding one of the objectives to provide improved communication network for Upazila of Teknaf and Ukhiya. Among all different components of this project such as preparation of school cum cyclone shelters, facilitating growth centers and RCC Bridge development, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agency with D&SC (Development Design Consultants Limited-DDC) identifies the project beneficiary as Displaced Rohingya Population (DRP) and Hosting Community or in other words, local population. From many of the project's purposes, identification of environmental and social components which might fall into bargain for improvement works and ensuring the safeguards of those components are very basic or fundamental motives. In order to take these matters into consideration, screening and assessment of these elements has been carried out in accordance with guidelines from World Bank; as a result environmental and social screening reports has been produced along with worked out impact factors which are introduced with mitigation and management measures. In order to present a quick picturesque of the proposed component, an overview is given hereunder.

This proposed sub-project Ratnapalong hill tract Road belongs to Thimchori village at Ratnapalong union, under Ukhiya Upazila. This road has started from Upazila connecting road of Valukia and betel leaf yard of Hazi Mir Ahmed at Thimchori village and this road stretches further 1530 meters from north to south-east side, important interventions are adjacent to the sub-project, such as Abdullah Baperpara mosque & hefjakhana, Thimchori Baitus Salam Jame Mosque, ponds, Tulatoli-Thimchori connecting road, thimchori station connecting road, Thimchori rubber dam connecting road, Thimchori khal, shops etc. This sub-project also linked with Ratnapalong hill tract. Apart from this feature some dispersed human settlement along the road, though at sufficient distance from the alignment, there are some important socio-cultural and religious components along the road length. Valukia to Ukhiya Upazila connecting road is on adjacent north side of the sub-project location. Protected forest area (500m) and Purbokul Mountain (1km) at north eastern side from the sub-project location. Thimchori GPS (200m) is on north from the project area. Thimchori rubber dam (100m), Thimchori Khal(10m) away on south side from the sub-project location. Seven mosques are situated at different sides within one kilometer i.e. Thimchori Baytus Salam Jame Mosque (25m) & Tulatoli jame mosque (70m) at south side, 3 mosques in Thimchori Purbokul at east side of 200m, 400m and 500m, another two mosques named Thimchori jame mosque (800m) and Felamiajir jame (200m) are in Thimchori village. The proposed road is not passing through any sensitive environmental components or reserved areas. However, the construction works will generate significant amount of dust and air pollutants, create noise, and have a potential to pollute water resources and affect some trees. All these impacts are site-specific and adjustable by mitigation or

offsetting measures. Good management practices in labor camps, material storage areas, borrow pits, and in the areas of occupational health safety, road safety, and hazardous material management would suffice in curbing the potential pollution, hazards and any further risks related to construction works. Appendix 02 of this report has detailed out the mitigation measures within the scope of interventions associated with this component of the sub-project.

This component of the sub-project has been proposed to ameliorate the socio-economic condition of the people living in the surrounding and connecting areas through providing climate resilient roadways and associated safeguard facilities. Since the road will not pass through any sensitive areas of any kind and necessary environmental conservative, mitigation and offsetting measures will be adopted with due care and diligence during the construction period, the component should be taken undoubtedly in further consideration for development.

1 INTRODUCTION

1.1 Project Background

An estimated 730,000[1] people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033[2]. This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained social service delivery system even before the crisis evolved and the mass exodus of FDMN has worsened the situation further. Almost all of these displaced people are hosted in Ukhiya and Teknaf Upazila of Cox's Bazar, in extremely congested settlements in areas having very minimal access to basic infrastructure and services and is prone to natural disasters. The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of Forcibly Displaced Myanmar National (FDMN) along with people from the host communities in Teknaf and Ukhiya Upazila under Cox's Bazar District, to different disasters and improve the social service delivery system and disaster resilience to both the communities. This project will follow a sustainable development pathway that is resilient to disaster and climate change effects.

The project is jointly being implemented by Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE) and Ministry of Disaster Management and Relief (MoDMR) under their respective mandate and scope of works. Given the project interventions, sensitivity of the areas and volume of people in or around the sites, the project is more likely to trigger certain Operational Policies and Bank Procedures, namely Environmental Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Forest (OP/BP 4.36) and Physical Cultural Resources (OP /BP 4.11).

1.2 Objective of the Sub-Project

In order to uplift the hosting community of Ukhiya & Teknaf Upazila along with the displaced community from Myanmar, Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been initiated which will improve the communication status as such. This project is designed to improve the road communication network of overall Teknaf & Ukhiya Upazila. Since this surge of

[1] ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)
[2] IOM Needs and Population Monitoring round 12 as of October 10, 2018

displaced community from Myanmar has invited more commute and caused more traffic in this area, this project will surely aid in the betterment of the target location and moreover initiate the growth potential of the area.

The sub-project has the primary target to improve the communication facilities of the area. This intervention, without a doubt facilitates the following: it will

- ✓ Support to rural development along with education, business, agriculture, farming etc.
- ✓ Improve the local planning, coordination and work execution capacity
- ✓ Facilitate emergency route in case of emergency situation
- ✓ Decrease road accidents & promote efficient use of existing facilities
- ✓ Make a crucial contribution to economic development and growth and bring important social benefits

This document represents the Findings from Environmental Screening of the sub-projects under 'Construction of 4 RCC roads under Cox's Bazar District'; **with a package name EMCRP/W16.**

Table 1.2.1: Significant features of the Sub-project

<table>
<tr><td colspan="4">Package Name: EMCRP/W16: Construction of 4 RCC roads under Cox's Bazar District.</td></tr>
<tr><td colspan="4">Sub-project Component no. (2) Ratnapalong hill tract Road</td></tr>
<tr><td colspan="4">Component Location:
<table>
<tr><td>i. ID-422944017</td><td>ii. Ward No.: 3</td><td>iii. Mouza: Ratnapalong</td></tr>
<tr><td>iv.Village : Thimchori</td><td colspan="2">v. Name of Union: Ratnapalong</td></tr>
<tr><td colspan="3">vi. Name of the Upazila: Ukhiya</td></tr>
<tr><td>vii. Construction Year: 2020-2021</td><td>viii. Length (m): 1530</td><td>ix. Width (m): 4</td></tr>
<tr><td colspan="3">Distance from UZHQ: 5 Km.</td></tr>
<tr><td>GPS Coordinates</td><td colspan="2">Latitude Value: 21˚17′28.8492″ N (Starting Point)
Longitude Value: 92˚8′ 33.3096″ E (Starting Point)</td></tr>
<tr><td></td><td colspan="2">Latitude Value: 21˚17′41.2764″ N (Ending Point)
Longitude Value: 92˚9′ 10.1916″ E (Ending Point)</td></tr>
<tr><td>Condition of Road</td><td colspan="2">HBB & BFS</td></tr>
<tr><td colspan="2">Communication Source</td><td>Radio & Mobile Network</td></tr>
</table></td></tr>
<tr><td colspan="4">Subproject interventions:
• RCC
• 4 nos. Cross Drain (dimension: 975mmX 975mm) at different chainage
• 2nos. Box Culverts (dimension: 2.00mX1.6m) at 375m and 895m of chainage
• For road safety 2nos. Km Post,
• 30nos. Guide post,
• 2nos. Traffic sign &
• 1no.Name Plate</td></tr>
<tr><td colspan="4">Implementing Agency: Local Government Engineering Department (LGED)</td></tr>
<tr><td colspan="4">Expected construction period: 2020-2021</td></tr>
<tr><td colspan="4">Estimated total cost of component: 30,912,826.56 (Tk.)</td></tr>
</table>

2 PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation have been taken up as an integral part of environmental assessment process of the project. Several events of consultation meetings were carried out in different dates and times with different types of stakeholders. D&SC conducted the consultation meeting with local community during from 11:15 AM to 12:50 PM on 21 December, 2019 at the shop of Mohammad Alam of Thimchori (Chainage: 1200m-1500m) which is adjacent of the sub-project location, Refer to **Figure 2.1.1** and Public Consultation Participants List are attached in **Appendix-5.** The local individuals, chairman and/or member of Union Parishad, teachers from different school and colleges participated in those consultation events. A questionnaire was kept ready and responses were elicited during the FGD. During these consultations, the communities were explained about the project, its benefits, associated social and environmental aspects.

Figure 2.1.1: Consultation Meeting (FGD) with local community

2.2 Summary of Public Consultation Meeting

In the consultation meeting, environmental issues and their relevant impacts for the infrastructure development work such as road maintenance were discussed. The advantages and disadvantages regarding the sub-project activities were also revealed. A successful public consultation programme requires the following three elements to be effectively executed (i) dissemination of information to the stakeholders (ii) solicitation of information from affected parties and inhabitants on environmental issues. (iii) Consultation with interest groups and the public.

Every consultation event presents a useful channel for the collection of specific social information through the local people. Affected parties and inhabitants should be informed in advance so that they can make the necessary arrangements to avoid or minimize adverse impacts upon them. Information should be disseminated to all interested parties, professionals and the general public so that they can develop informed opinions and provide useful input. Effective communication with the

affected parties and individuals helps resolve any adversary to the road project concerned. Cooperation from informed residents and groups can lead to substantial savings in costs and time.

The participants were spontaneous and expressed that the sub- project will provide them various benefits including communication and transportation facilities. They also expressed that at present they are facing various types of problems due to this unimproved condition of the road.

Discussion was also made on various environmental issues like dust/air pollution, water pollution etc. which are potential environmental hazards during road construction. The participants expected that none of the interventions would worsen their living conditions or surrounding environment and they requested for adopting all measures to reduce/avoid the environmental hazards during the implementation phase.

2.3 Suggestions and recommendations of the participants

The significant suggestions that came out during the meeting are given below:

- Slope protection should properly be established on the side of the proposed road at different chainages.
- Best available measures should be adopted to avoid potential negative environmental impacts and enhance positive impacts.
- Participants' suggestions and expectations that came out through the different forms of consultation meetings are taken into consideration to reflect their wishes and minimize the adverse impacts of construction works.
- Steps should be taken for minimizing the air pollution by spraying water at the construction sites.
- Noise pollution should be effectively minimized to a tolerable limit.

3 ENVIRONMENTAL SCREENING

3.1 General

Environmental Screening is the preliminary process of Environmental Assessment for the identification of significant impacts on important environmental components, depending on the nature and size of the project, its interventions and technology, location and time; and evaluation of screening findings will decide whether any further comprehensive assessment study is required or not. This assessment procedure will follow a definite scope of interventions, for example, this particular study will be based on the qualitative assessment of the surrounding environment of the particular site before any physical intervention starts, and maximum project impact area is considered to be half a kilometer of the radial distance around the site.

3.2 Major Findings

The proposed sub-project is not located within any environmentally sensitive area and has no chance to create adverse impacts to important environmental components. The project road crosses several community, agricultural lands and community level forest. During construction period several trees may need to cut down. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials. Noise emission from construction machineries and equipment can cause nuisance to local residents and workers. Thus, the ambient noise level

might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.

Valukia to Ukhiya Upazila connecting road is on adjacent north side of the sub-project location. Protected forest area (500m) and Purbokul Mountain (1km) at north eastern side from the sub-project location. Thimchori GPS (200m) is on north from the project area. Thimchori rubber dam (100m), Thimchori Khal(10m) away on south side from the sub-project location. Seven mosques are situated at different sides within one kilometer i.e. Thimchori Baytus Salam Jame Mosque (25m) & Tulatoli jame mosque (70m) at south side, 3 mosques in Thimchori Purbokul at east side of 200m, 400m and 500m, another two mosques named Thimchori jame mosque (800m) and Felamiajir jame (200m) are in Thimchori village. No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc. Construction equipment may generate vibration at the properties immediately adjacent to the road alignment. Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties. During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage.

There is no evidence of presence of elephants in the subproject area. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

In order to offset the loss or attenuating the environmental degradation, a set of mitigation measures will be adopted, on top of general practice of standard construction procedure or following the relevant codes of practices.

3.3 Climate Change Impact

3.3.1 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 geomorphological 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 Bank[3] 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.

[3] https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf

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 150 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 700 feet in some places may cause salt water to contaminate freshwater resources, which could be disastrous for both refugees and local 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 planation in sub-project areas, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Consideration

The thunder storm has been found to have the highest impact in the area, casualties were reported. Intensity of precipitation has been seen to have increased in the past few years. Salinity was found in the subproject area and occurrence of cyclonic storm surge was not reported. Temperature was reported to have increased over the past few years.

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. Tree planation along the road slope is suggested wherever possible, among others, to sooth the temperature effect and increase the water retaining capacity of soil, at the same time.

4 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

Considering the environmental settings of the sub-project area, it can be assumed that possible impacts would be largely construction-related, and could be addressed through adoption of good engineering practices; good housekeeping; better *in-situ* construction materials management; and observance of health and safety protocols during the implementation period.

The proposed road is on a plain land. A number of trees of road side will be cut down during construction period and as a mitigation measure, 5 nos. trees will be replanted for each tree in the periphery of the subproject. Important interventions are adjacent to the sub-project, such as Abdullah Baperpara mosque & hefjakhana, Thimchori Baitus Salam Jame Mosque, ponds, Tulatoli-Thimchori connecting road, thimchori station connecting road, Thimchori rubber dam connecting road, Thimchori khal, shops etc. This sub-project also linked with Ratnapalong hill tract. Further, some settlements located adjacent to the sub-project area might get affected during the

construction period with the generated debris and dust, though for the time being. Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the level best. Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand some part of the proposed road is passing by the agricultural land. So, 4 nos. Cross Drain (Size: 975mmX 975mm) at different chainage and 2 nos. Box Culverts (Size:2.00mX1.6m) at 375m and 895m of chainage will be constructed at the subproject area for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. Small hills or high land is not found beside the road. So, as a mitigation measure, L-Drain and U-Drain at different chainage will not be constructed for drainage mountain eel water during rainy season.

Further construction related activities which 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. Once the effects are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.The subproject specific environmental management plan has been outlined in Appendix-2. The mitigation measures as well as monitoring program of ESMP have also been incorporated in the management plan.

Environmental quality enhancement: Under the additional financing to the EMCRP project, Forest Department of the Government of Bangladesh will afforest along 200 km of road length area, primarily under the Ukhiya and Teknaf upazilas of Cox's Bazar district in order to offset the environmental and ecological devastation, that had been occurred due to the evolution of Rohingya Crisis, to an achievable level. Many of these road lengths will go through and by the Rohingya Camps, up on the hill and are already denuded of trees or vegetation. Local Government Engineering Department (LGED) will allocate and channelize the finance to the Forest Department under the said additional financing component and oversee the progress of works with due diligence. However, this enhancement work will improve the environmental quality of the area and reinstate some parts of the ecosystem services to those areas, though primarily.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed guideline containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices.
However, among many other relevant issues, the guidelines emphasize on following line of directives:

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.
c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement is to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols has to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

Following the additional health and safety measures presented in that guideline, sub-project specific BOQ items have been inserted to supplement the budget considering the country-specific situation, capacities, and scope of interventions. The additional cost to Health and Safety Measures under COVID 19 situation is shown in Appendix-3.

4.3 Cost of Environmental Enhancement Works in BOQ

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

5 LIMITATIONS OF THIS STUDY

With the countrywide spread of coronavirus and its huge detrimental including fatal effects on people and livelihood had made the government of Bangladesh to impose a nationwide lockdown from March 26, 2020 onward coupled with banning on passenger traveling across the districts. This development was accompanied by all office works to be suspended or postponed. However, in the backdrop of continued fragile economic and human plight being observed across the country which has primarily been caused by this COVID situation, Government of Bangladesh has had no other option but to reopen all the economic and official activities by early June, with strong guidance on limiting movement to the least. This neo-normal situation is still limiting the movement of consultants and supervising staffs to the proposed working sites for undertaking the screening survey along with conducting effective consultation meetings, which is in turn affecting the overall progress of the project and there might have a likely chance to remain the gaps in overall screening process and outcomes.

6 CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are implemented in full, there will be no significant negative environmental impacts in regards to the

selection of location, design, construction, and/or operation procedure of the proposed Sub-project. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

The conclusions of the Screening study can be summarized as follows:

- The communities will receive large benefits through improved infrastructural facilities, transportation & communication etc.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety 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.
- The green belt development, if necessary for the road site, with large-growing trees at the periphery of the site will give the places a more natural and pleasing appearance.
- A comprehensive Environmental and Social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities.

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.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: (Construction of 4 RCC roads under Cox's Bazar District; EMCRP/W16).

Name of the component: Ratnapalong hill tract Road, Id-422944017

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

Estimated total cost of sub-project (in Taka): 138,183,518.24

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 30,912,826.56

Estimated Operation and Maintenance period (life of sub-project): Project design life more than 15 (Fifteen) years but Government policies on how long projects can operate in the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Ratnapalong

Name of Community/Local Area: Thimchori

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road-A and construction with RCC selections. For drainage of rain water 4 nos. **Cross Drain** (Size: 975mmX 975mm) at different chainage and 2 nos. **Box Culverts** (Size:2.00mX1.6m) at 375m and 895m of chainage as well as for road safety 2nos. Km Post, 30nos. Guide post, 2nos. Traffic sign & 1no.Name Plate has been included in the estimation (Technical Report, EMCRP)

Estimated footprint / land area for this sub-project is 6120 sqm.

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

This proposed sub-project Ratnapalong hill tract Road belongs to Thimchori village at Ratnapalong union, under Ukhiya Upazila. This road has started from Upazila connecting road of Valukia and betel leaf yard of Hazi Mir Ahmed at Thimchori village and stretching 1530 meters from north to south-east side, important interventions are adjacent to the sub-project, such as Abdullah Baperpara mosque & hefjakhana, Thimchori Baitus Salam Jame Mosque, ponds, Tulatoli-Thimchori connecting road, thimchori station connecting road, Thimchori rubber dam connecting road, Thimchori khal, shops etc. This sub-project also linked with Ratnapalong hill tract.

Important Environmental features of the Sub-Project

Detail Chainage Length of the sub-project: 1530m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Chainage	Left	Right	Environmental Impact
"0" Point	L		Paddy land, Households connecting road
000-300		R	Start from betel leaf yard of Hazi Mir Ahmed, electric pole, Paddy land,

			Households connecting road, homestead garden of banana and betel nut
300-600	L		Households connecting road, Paddy land, electric pole
		R	Paddy land, Abdullah Baperpara mosque & hefjakhana, Households connecting road
600-900	L		Paddy land, Households connecting road, pond, wire fencing, u drain
		R	Paddy land, pond
900-1200	L		Paddy land, shop, betel leaf yard
		R	Paddy land, betel leaf yard, brick boundary wall, permanent households, Tulatoli-Thimchori connecting road, household connecting road, shop, bamboo fencibg, vegetables land, Thimchori Rubber Dam connecting road
1200-1500	L		betel leaf yard, vegetable land, paddy land, electric pole, Mosque, brick boundary wall, shop, Thimchori station connecting road, retaining wall
		R	Pond, paddy land, Households connecting road, betel leaf yard, tin shed fencing, bamboo fencing
1500-1800	L		Vegetables land, Thimchori Khal, bamboo bushes
		R	Vegetables land

Figure: Starting Point of Ratnapalong hill tract Road

Overall Comments

The proposed sub-project (Road construction) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate

offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation. 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 construction activities. The types of wastes are brick pit, unused sand, wood, gravels, steels etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Thimchori village under Ratnapalong union under Ukhiya upazila, Cox's Bazar. Valukia to Ukhiya Upazila connecting road is on adjacent north side of the sub-project location. Protected forest area (500m) and Purbokul Mountain (1km) at north eastern side from the sub-project location. Thimchori GPS (200m) is on north from the project area. Thimchori rubber dam (100m), Thimchori Khal(10m) away on south side from the sub-project location. Seven mosques are situated at different sides within one kilometer i.e. Thimchori Baytus Salam Jame Mosque (25m) & Tulatoli jame mosque (70m) at south side, 3 mosques in Thimchori Purbokul at east side of 200m, 400m and 500m, another two mosques named Thimchori jame mosque (800m) and Felamiajir jame (200m) are in Thimchori village. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people. No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 8-10 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

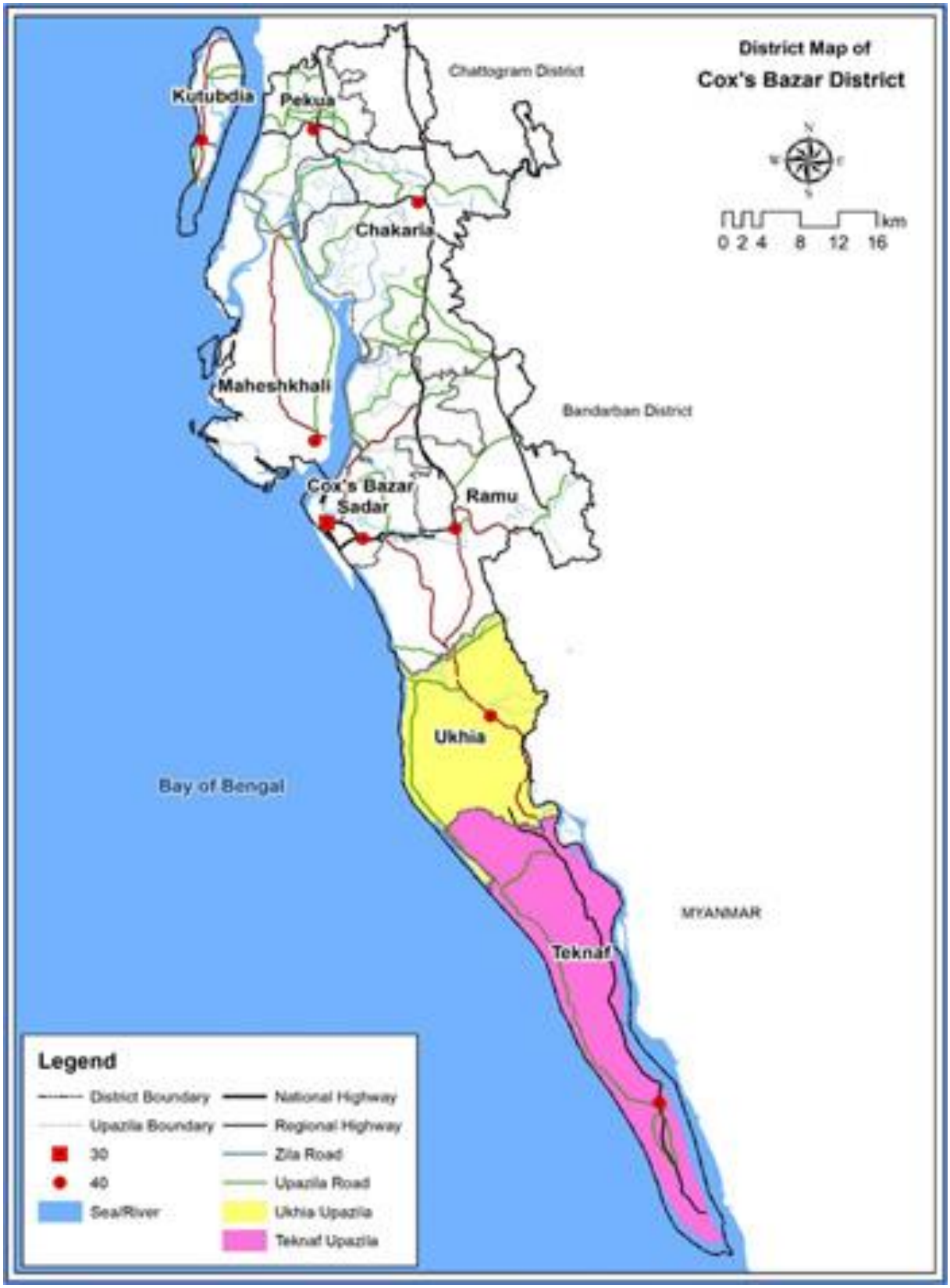


Figure 3: District Map with project location

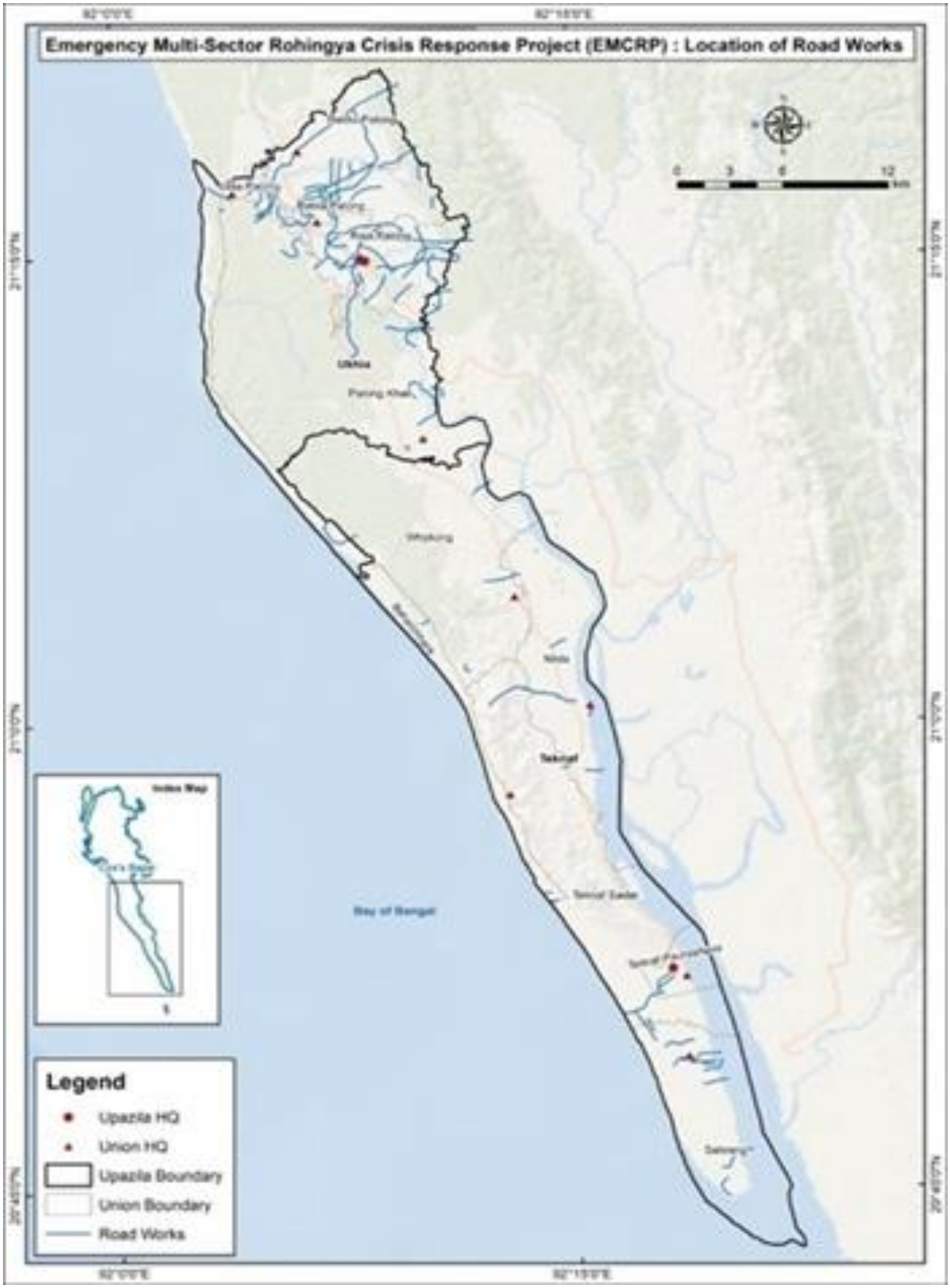


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

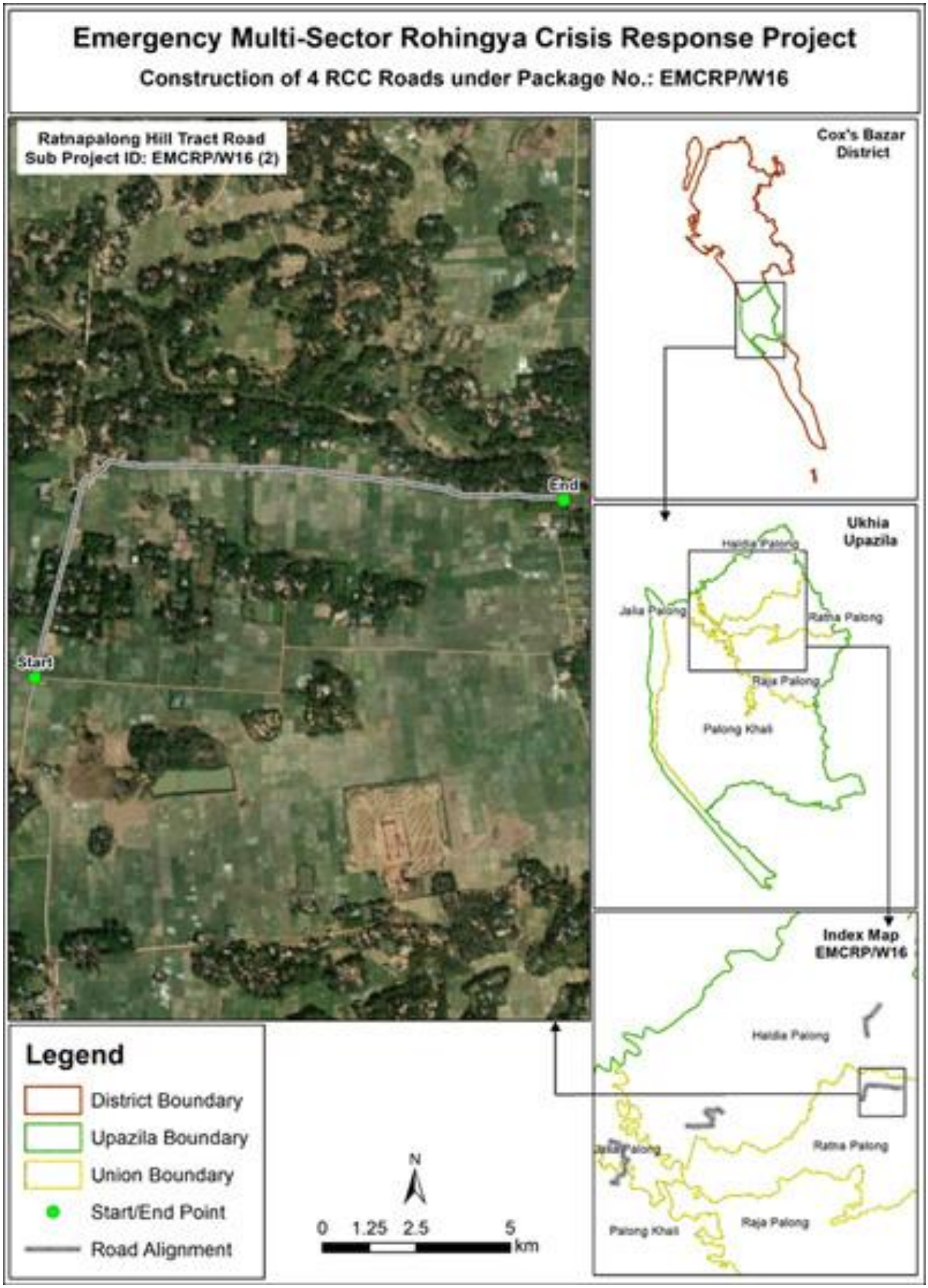


Figure 5: Upazila Map with Sub-project location

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road-A. Based on field survey, this sub-project encompasses of Ch.00-1230m HBB, Ch.1230-3000m BFS. According to the design this sub-project will be developed with 250mm sand filling, improvement of BFS and RCC filling for 200mm.

Sub-project Location:

Important Features	
ID	422944017
District	Cox's Bazar
Upazila	Ukhiya
Union	Ratnapalong
WARD	03
Total Chainage	3000m
Proposed Chainage	1530m
Road Type	Village Road-A
Proposed Intervention Type	RCC
Road Starting Point Coordinates	Latitude: 21˚17'28.8492" N Longitude: 92˚8' 33.3096" E
Road Ending Point Coordinates	Latitude: 21˚17'41.2764" N Longitude: 92˚9' 10.1916" E

Land ownership

Land is owned by Government.

Expected construction period: 6 (Six months)

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

i) The proposed Sub-project is located within Thimchori village with existing local community. Some other villages named Haludia-Khepachori is one and half kilometer away at North side, monjoypara, Boroitola, Rengurpara are 2.5-3.0km away at west side, Afchar baper para, Kalarpara are about 3km away at west side from the sub-project location.

ii) No historical sites, socio cultural aspects were identified.

iii) Not required to relocate local community and their livelihood.

iv) Three ponds were identified but will not be affected. These ponds are only using fish farming activities.

v) Very low chance of loss agricultural land.

vi) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

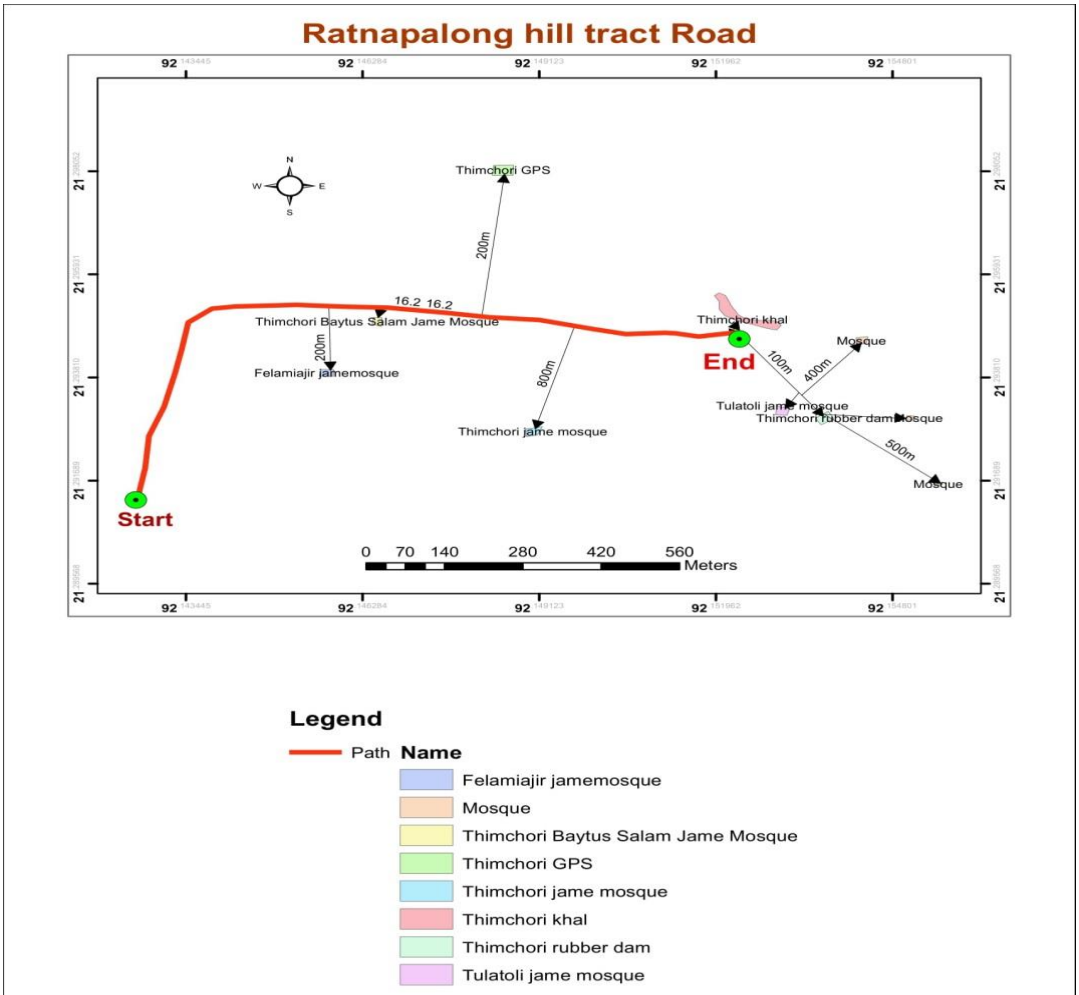
***B.1*: Environmental feature of sub-project location**

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

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

This sub-project is belonging to Thimchori village and stretching 1530 meters from north to south-east side, important interventions are adjacent to the sub-project, such as Abdullah Baperpara mosque & hefjakhana, Thimchori Baitus Salam Jame Mosque, ponds, Tulatoli-Thimchori connecting road, Thimchori station connecting road, Thimchori rubber dam connecting road, Thimchori khal, shops etc. This sub-project also linked with Ratnapalong hill tract.There are no sensitive environmental, cultural, archaeological sites exists on the area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

This sub-project location is not environmentally important and sensitive for protected forest.

During construction period some solid waste will be generated due to demolishing an existing road of salvage materials and fecal sludge will be generated due to presence of labor camp. The impact

from this waste is small scale, site-specific within a relatively small area and adjustable by mitigation measures.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No

No. This activity will be ensured by existing local community. During construction period produced dust will be impacted on existing vegetations.

(3) Other issues:

No more mentionable issues raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise level also very low in the site area. Noise is originating from the commotion of locals. During construction period a rise in noise pollution may occur due to the transportation of equipment.

Baseline soil quality:

The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

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

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

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

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 200 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
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): Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. Tulatoli-Thimchori connecting road and Thimchori station connection road are used as access road for transportation. The brick soling road can offer space adjacent labor camp to facilitate material unloading. The pickup, dumper trucks are as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 45 kg daily and sludge may amount to 10 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 150 kg.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes are the most common type of road materials 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: No dense vegetation is present in the right of way. Soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. This area does not face water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel is found.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low. Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution.

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 road 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 existing drainage channels or surface water bodies found in the project area, 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: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

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)

Section D: Environmental Screening Summary

Please summarize the results of environmental screening conducted above. Mitigation measures need to be proposed in referenced to ESMP Guidelines relevant to the type of the sub-project, proposed in Section 8.2 of ESMF. This table needs to be completed by environmental specialists. Please add rows to the table as necessary.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
1: Sub-Project Interventions	**Air quality**	Under the subproject intervention the overall score is **low**.	• Limiting earthworks; • Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; • Requiring trucks delivering aggregates or bricks and cement to have tarpaulin cover and Limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Covering of trucks; • Records of air quality inspection.	Visual monitoring of air quality and if requires, air quality test (CO, $PM_{2.5,10}$) once in construction period in winter season.
	Soil impacts	Under the sub-project intervention the overall score is **low.**	• Precautions might be taken when rainstorms are likely, when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms. • 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.	Construction Contractor monitored by Consultant and PIU	• No visible degradation to nearby drainages, • *khals* or water bodies due to soil erosion. • Rain storms in construction phase.	Monitoring as weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			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 construction yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.			
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is **low**.	• All precautions to store chemicals/oil/fuel properly so that no chance of spill. • Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. • Monitor water quality according to the environmental management plan.	Construction Contractor and monitored by Consultant and PIU	• Areas for stockpiles, storage of fuels and lubricants and waste materials; • Records of water quality inspection; Water Quality Test • (National Drinking Water Quality Standard Parameters)if requires; • No visible degradation to nearby drainages,	Water quality test (mainly GW) twice during the construction period in six months interval.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	**Frequency**
					khals or water bodies due to construction activities. • Records should be kept and logged.	
2: Pre-construction Phase	**Sanitation, water supply**	Under the subproject intervention the overall score is **low**.	• Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer. • Provide means for disposing of wastewater from toilets, baths and food preparation areas either through a septic tank and soak away, or holding tank with removal by vacuum truck. • Records for any type of training or awareness building sessions must be kept at site.	Construction Contractor and monitored by Consultant and PIU	• Site-specific H&S Plan; • Records of supply of uncontaminated water; • Record of Health &Safety orientation trainings; • Condition of sanitation facilities for workers	Visual inspection by PIU and supervision consultants on monthly basis
	Transportation	Under the subproject intervention the overall score is **low.**	• Contractor should verify vehicles for the suitability of carrying, loading and unloading of materials	Construction Contractor and monitored by Consultant and PIU	2. Record of regular inspection. 3. Record of accidents/incidents	Monthly monitoring.
	Storage of construction	Under the	• Orienting concerned person and	Construction Contractor and	• List of materials	During implementation

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	materials	subproject intervention the overall score is **low**.	team assigned for the construction work.	monitored by Consultant and PIU	and sources of materials;	phase, as necessary with discussion with PIU, Consultant
3: Construction Phase	**Wastes**	Under the sub-project intervention the overall score is **low.**	• Prepare and implement on-site waste water runoff and labor camp waste management plan approved by PIU and consultants. • Wastes must be placed in the designated bins which must be regularly emptied. These shall remain within demarcated areas and shall be designed to prevent wastes from being blown out by wind. • All waste must be removed from the site and transported to a disposal site.	Construction Contractor and monitored by Consultant and PIU	• Complaints from community; • Regular inspection of waste management activity; • Waste disposal record.	As work weekly progresses
	Cut and fill Activities (Cutting of hill slope and earth removal from borrow areas caused for soil erosion and landslides)	Under the sub-project intervention, the overall score is low.	• During construction cut and fill will be balanced as far as is possible. Designs shall ensure that as far as possible all cut and fill activities are balanced • Proper care will be taken during cutting and filling so that slope or toe of the road embankment remain within the right of way and does not disturb the crop.	Contractor, environmental specialist of D&SC	• Location of road alignment and slope.	Daily as work progresses

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Storage of materials	Protected and safety storage to be needed for construction materials storage. Not interrupt natural land contours, disturbance in natural drainage patterns and logging of water and the overall score is **low.**	• With the assistance from site management committee in Camp to identify the storage site and other requirements, which will be approved by PIU and consultants.	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials; • Storage areas for materials and equipment.	Monthly basis during implementation phase, as necessary with discussion with PIU, Consultant
	Removal of Vegetation (May cause soil erosion and their deposition on nearby crop field, affecting soil quality and productivity)	Under the sub-project intervention, the overall score is **low.**	• 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.	Contractor, environmental specialist of D&SC	• Complaints from community;	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Noise pollution	Under the subproject intervention the overall score is **low.**	• Consultation with affected people; not to operate noisy equipment during working period; • No noisy work after 5.00 pm. • Sound suppression for equipment; • Ear protection for workers. • Conduct noise quality monitoring as per EMP.	Construction Contractor and monitored by Consultant and PIU	• Number of complaints from stakeholders; • Use of silencers in noise-producing equipment and sound barriers; • Noise Level following decibel meter (dB)	Inspection by PIU and supervision consultants on monthly basis;
	Air pollution	Under the subproject intervention the overall score is **low.**	• Water spraying for dust control; construction materials with potential for significant dust generation shall be covered; no smoke emitting equipment; and limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor and monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Records of air quality inspection.	Visual observation and monitoring of air quality during construction period.
	Road Safety and Accidents	Under the subproject intervention the overall score is **low.**	• Erection of suitable signage at construction sites • Direct observation and discussion with local people • Restrict the transport of oversize loads. • Operate construction vehicles to non-peak periods (night) to minimize the traffic disruption. • Enforce on-site and access road speed limits.	Construction Contractor, environmental specialist of D&Sc.	• Complaints from communities, pedestrians	Day basis during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			• The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&Sc. • Local residents should be kept informed about planned Works			
4. Post Construction	**Road Safety**	Under the issue the overall score is **low**.	• Install traffic signs for speed limit, speed breaker where needed, Mile post and create adequate **traffic** detours, and sufficient **signage** & **warning** signs, Post speed limits and suitable bending on the road. • The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&Sc.	Construction Contractor, environmental specialist of D&S.	• Road signage and safety instruments at suitable locations and chainage	Immediately after the construction work is over.
	Tree re plantation	Under the issue the overall score is **low**.	• Replantation of trees during monsoon period • Maintain of trees properly • Check survival of trees and replant the dead trees	Construction Contractor, environmental specialist of D&S.	• Number of complaints from stakeholders; • Records of trees number and tree plantation inspection	Immediately after the construction work is over.
5. Operatio	**Maintenance of road and**	Under the issue	• No advertisement/boardings shall be allowed within the Right of Way	LGED	• Number of complaints from	During Operation under

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
nal Phase	**assets** (Road accidents may increase due to higher number of vehicles using the roads at increased speeds)	the overall score is **low**.	limits of the project road. • Regular maintenance and cleaning of assets such as sign boards, road safety sign etc. shall be undertaken. • Clear smooth speed breaker/rough surfaces should be clear in views. • Regular maintenance of road surface and shoulders.		stakeholders;	LGED's regular maintenance program in each 3 years.

* 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.* Mention some recommendation on E&S assessment …. ESMP

If site specific environmental and social management plan (ESMP) is followed the impacts can be mitigated and monitored. ESMP is attached.

Appendix-2: Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Access and evacuation Roads: Ratnapalong hill tract Road

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• No land acquisition is allowed within this sub-project activities So, there are no any mitigation measures according to this impact.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact of adjacent livelihoods	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • Consultation meeting with host communities about the project objectives and scope of works	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of right to access	• Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact. • In case of unavoidable circumstances, alternative access will be provided.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection & implementing interventions: Human-elephant	• Selection of sub-project sites and all implementing interventions must take place outside of the	PIU	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	conflict	elephant corridor/influence area.		PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Our selected sites avoided the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff. • Tubewell location within the construction site is not near to any kinds of latrine and soaks well which could be contaminated by those. • After completing the development we restored the place as like before to avoid the cut and fill operational problems. • This site is in the local community, so we discussed with the local community to avoid any conflicts related local habitation, culture. • Sub project intervention mustavoid of natural disturbance of existing slop and natural drainage. • The contractor ensuring sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities mostly will finish at day time within 05 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipments (PPEs) must be ensured in sites before starting any kinds of construction works.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	• Acceptable range of emission of CO, particulate matter [SPM (**Suspended particulate matter)**,	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices • Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes. • Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level		PSC
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in our site and take necessary measures for preventing this problem • Before works started Contractor must provide proper training and guidelines on health and safety issues to the labors and associated staffs. • Records of every training must be kept at site. • All kinds of Child labour are completely prohibited in every site. • Every construction materials storage site will be well fenced by Tin and safety caution tape.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the Executive Engineer of Cox's Bazar.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water	PIU & Contractor	Social Development Specialist and

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		sources shall be taken. • If ground water is withdrawn, adequate approvals from the appropriate department need to be undertaken 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 works starts.		Gender Specialist of PIU, PSC
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be 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. • 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 labour camps will be put in place • Treated water will be made available at site for drinking purpose.	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: • Residual waste from the temporary accommodation facilities for labor Waste and from equipment maintenance/vehicles on-site • After completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • 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,	• All construction equipment will be properly inspected timely. • The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. • Preparation of proper walkways and clearly designation as a walkway has to be ensured; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • 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.	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	temporary or permanent hearing loss, heat stress, and dermatitis.	• This sub project has Proper communicative emergency response plan (ERP) with all parties, the ERP 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. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), 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 the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		this awareness training shall be kept on site. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure 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.		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Solid organic wastes should be stored in bins and/ or skips and emptied regularly at a designated waste disposal area away from the camp site. If no designated site is available within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.	PIU	Environmental Consultant of PIU, PSC. Union Member
Decommissioning during the project implementation period (including site clearance after the	The impacts are similar to those listed in construction stage: ✓ Pollution from waste materials ✓ Health & Safety risks to	• Contractor must prepare a demolition and waste management plan including following directive aspects given hereunder.	PIU / Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
construction)	workers and local community			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures. • Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.	UE-LGED (under the guidance of Executive Engineer, LGED)	PSC, UNO.

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Appendix-3: Cost of Environmental Enhancement Works in BOQ

In consideration to the above mentioned environmental 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	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	4578.0 Sq.m	@38.15 Tk. Per sqm	174,650.70
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1530.0m	@ 2.56 BDT	3,916.80
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **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.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	**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.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**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, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	140 nos.	@ Tk. 1000	140,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
13.	**Environmental management** Environmental management costs of the Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation	12 months	Monthly basis @Tk. 35,000.00 for 12 months.	105,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C. (one fourth part of the entire cost).		One person for each package. (Net payment excluding Tax &VAT).	
	Subtotal Bill: Environmental Enhancement Works			**579,213.22**

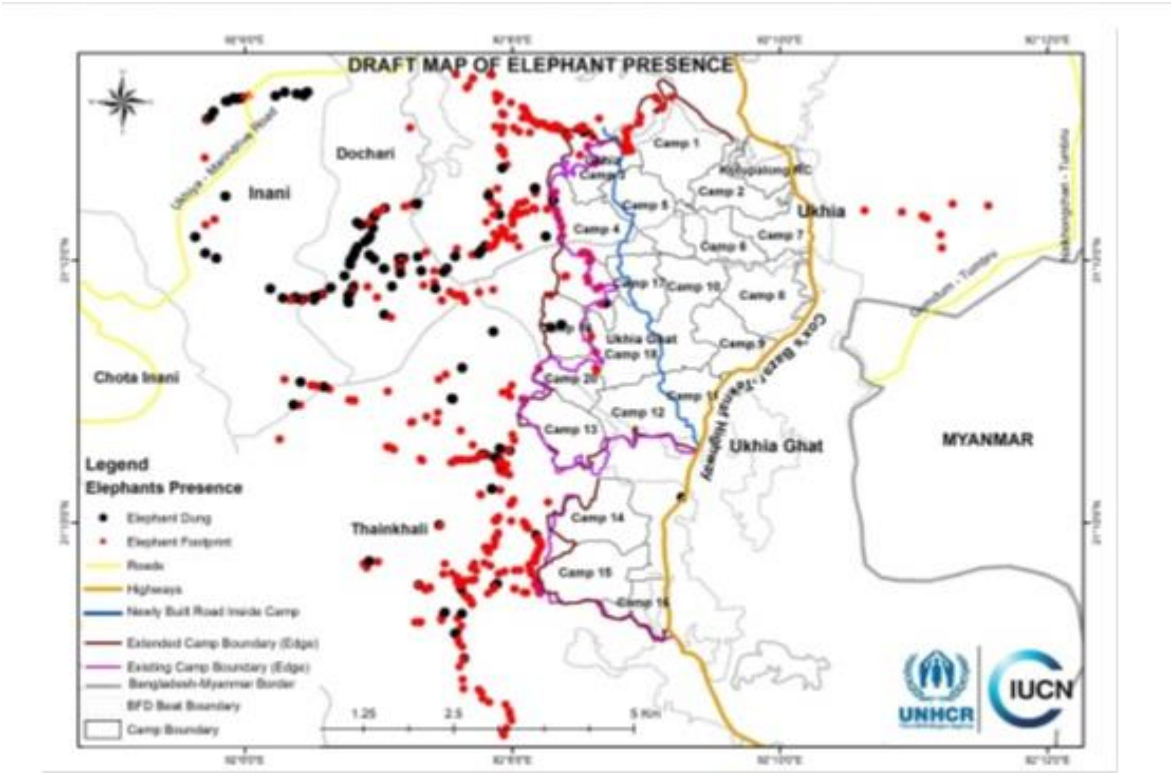
Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 30 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-16.2).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
4.	Bar Soaps (150 gm each)	81		101	50.00	182	9,100.00	To be placed in a case/holder on the basin, for washing hands for max. 35 people a day and showering of 30 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	18 nos. for each site		N/A	400.00	18	7,200.00	For labors who work in close contact, 18 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	30 nos. for each labor camp		35.00	540	18,900.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1.5 kg in each camp/month		400.00	13.5	5,400.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**107,775.00**	

Appendix-4: Elephant Presence Map



Elephant presence map (latest information published on 24 May 2018)

Appendix-5: List of Participants in the Consultation Meeting

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Public Consultation Participants List

Time: 11:15 AM .... Date. 21/12/2019

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নাম: রত্নাপালং ফিস ঘাট সড়ক
মত বিনিময়ের স্থান: [illegible] মোহাম্মদ আলমের দোকান

ইউনিয়ন: ২নং রত্নাপালং
ডাকঘর: চাকবৈটা
উপজেলা: উখিয়া
জেলা: কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
০১	মো: [illegible] উদ্দিন	৪৪	পুরুষ	ফিসঘাট	[illegible]
০২	নুরুল আলম	৩৮	"	"	নুরুল আলম
০৩	[illegible] রহমান	৬০	"	"	[illegible]
০৪	[illegible]	১৮	"	"	[illegible]
০৫	হামিদুল হক	৩০	"	"	হামিদ
০৬	[illegible] রহমান	৪৫	"	"	[illegible]
০৭	শহিদ আলম	৪০	"	"	শহিদ
০৮	আবদুল হক	৬০	"	"	আবদুল হক
০৯	নুরুল আলম	৩৪	"	"	নুরুল আলম
১০	আমির হোসেন	৬২	"	"	আমির হোসেন
১১	শাহজাহান	৩৮	"	"	[illegible]
১২	আলি আকবর	৬৬	"	"	[illegible]
১৩	[illegible]	২২	"	"	[illegible]
১৪	বুলু মিয়া	২৬	"	"	[illegible]
১৫	মো: আলম	৩২	"	"	মোহা: আলম
১৬	কাদের	৪০	"	"	কাদের
১৭	জামাল উদ্দিন	৩৬	"	"	জামাল উদ্দিন
১৮	জাহাঙ্গির আলম	২৮	"	"	[illegible]
১৯	মাহবুবুল আলম	৩২	"	"	মাহবুবুল আলম
২০	[illegible] আলী	৪৬	"	"	[illegible]

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time:..11:15 AM............... Date. 21/12/2019

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নামঃ রত্নাপালং হিল রোড সড়ক
মত বিনিময়ের স্থানঃ থিমছড়ি মোহাম্মদ আলমের দোকান

ইউনিয়নঃ ২নং রত্নাপালং
ডাকঘরঃ চাকবৈঠা
উপজেলাঃ উখিয়া
জেলাঃ কক্সবাজার

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
২১	হামিদ করিম	৬৮	পুরুষ	থিমছড়ি	করিম
২২	জাফর উদ্দিন	৬৮	"	"	মোহাম্মদ উদ্দিন
২৩	শফি আলম	৩২	"	"	শফিউল আলম

Public Consultation Participants' List

Appendix-6: Pictorial View of the surroundings of the proposed sites

Paddy land on the way to sub-project

Brick boundary wall on the left side of road

Household connecting road on the sides of Sub-project

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762 **IDA Credit No. 5561-BD**




Design and Supervision Consultancy

Environmental Screening Report

For Patabari-Headman Road with culverts and side drains

Under the package no. EMCRP/W16

December-2020

Development Design Consultants Ltd.

ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
EMP	Environmental Management Plan
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
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
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
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
UNO	Upazila Nirbahi Officer
VAT	Value-Added Tax
WB	World Band

Contents

Executive Summary

Rohingya influx in Bangladesh has been one of the highlighted issues of this decade. This has definitely modified our way of thinking for the future development of the country. This forcefully displaced population has posed challenges for the district of Cox's bazar in terms of livelihood improvement and environmental protection and services. Nevertheless, to aid into the condition and improve the symbiotic relationship between the Hosting Community and the Displaced Rohingya Population (DRP), many forms of interventions are taking place. One of those is Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) which is aided by World Bank holding one of the objectives to provide improved communication network for Upazila of Teknaf and Ukhiya. Among all different components of this project such as preparation of school cum cyclone shelters, facilitating growth centers and RCC Bridge development, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agency with D&SC (Development Design Consultants Limited-DDC) identifies the project beneficiary as Displaced Rohingya Population (DRP) and Hosting Community or in other words, local population. From many of the project's purposes, identification of environmental and social components which might fall into bargain for improvement works and ensuring the safeguards of those components are very basic or fundamental motives. In order to take these matters into consideration, screening and assessment of these elements has been carried out in accordance with guidelines from World Bank; as a result environmental and social screening reports has been produced along with worked out impact factors which are introduced with mitigation and management measures. In order to present a quick picturesque of the proposed component, an overview is given hereunder.

This proposed Patabari Headman Road belongs to Patabari and west Haldia villages at Haldiapalong union, under Ukhiya Upazila. This road has started from Jebor Mullock Saodagor mosque (10m) at east Patabari village and this road stretches further 1125 meters from South to North side, important environmental interventions are adjacent to the sub-project are Haldia Patabari Model High School (600m), Gubisson chorra (150m), existing in the right way and a 35m bridge on chorra etc. no other important environmental features are present near sub-project. Apart from some dispersed human settlement along the road, though at sufficient distance from the alignment, there are some important socio-cultural and religious components along the road length, Jhornamukh Mountain are within two kilometers at north side from the sub-project location. Another catchment village of this sub-project area are Lambabil, Kheowachori, Gabtoliapara, Valucara, Gunapara Baliswara and Headmanpara. There are various interventions located from the sub-project site such as at south side a Primary School (300m), within half kilometer 3nos. Madrashas (one Madrasha is North side, one is west side and another one is North side), 5nos. Mosques are within half kilometer (one is east side, 2 is north side, one is south and another is west side), 2 nos. graveyards are within half kilometer (one is west and another is south side). No scope to disturbance by this sub-project which bring religious and cultural values to the community people. The proposed road is not passing through any sensitive environmental components or reserved areas. However, the construction works will generate significant amount of dust and air pollutants, create noise, and have a potential to pollute water resources and affect some trees. All these impacts are site-specific and adjustable by mitigation or offsetting measures. Good management practices in labor camps, material storage

areas, borrow pits, and in the areas of occupational health safety, road safety, and hazardous material management would suffice in curbing the potential pollution, hazards and any further risks related to construction works. Appendix 02 of this report has detailed out the mitigation measures within the scope of interventions associated with this component of the sub-project.

This component of the sub-project has been proposed to ameliorate the socio-economic condition of the people living in the surrounding and connecting areas through providing climate resilient roadways and associated safeguard facilities. Since the road will not pass through any sensitive areas of any kind and necessary environmental conservative, mitigation and offsetting measures will be adopted with due care and diligence during the construction period, the component should be taken undoubtedly in further consideration for development.

1 INTRODUCTION

1.1 Project Background

An estimated 730,000[1] people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033[2]. This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained social service delivery system even before the crisis evolved and the mass exodus of FDMN has worsened the situation further. Almost all of these displaced people are hosted in Ukhiya and Teknaf Upazila of Cox's Bazar, in extremely congested settlements in areas having very minimal access to basic infrastructure and services and is prone to natural disasters. The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of Forcibly Displaced Myanmar National (FDMN) along with people from the host communities in Teknaf and Ukhiya Upazila under Cox's Bazar District, to different disasters and improve the social service delivery system and disaster resilience to both the communities. This project is will follow a sustainable development pathway that is resilient to disaster and climate change effects.

The project is jointly being implemented by Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE) and Ministry of Disaster Management and Relief (MoDMR) under their respective mandate and scope of works. Given the project interventions, sensitivity of the areas and volume of people in or around the sites, the project is more likely to trigger certain Operational Policies and Bank Procedures, namely Environmental Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Forest (OP/BP 4.36) and Physical Cultural Resources (OP /BP 4.11).

1.2 Objective of the Sub-Project

In order to uplift the hosting community of Ukhiya & Teknaf Upazila along with the displaced community from Myanmar, Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been initiated which will improve the communication status as such. This project is designed to improve the road communication network of overall Teknaf & Ukhiya Upazila. Since this surge of displaced community from Myanmar has invited more commute and caused more traffic in this

[1] ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)
[2] IOM Needs and Population Monitoring round 12 as of October 10, 2018

area, this project will surely aid in the betterment of the target location and moreover initiate the growth potential of the area.

The sub-project has the primary target to improve the communication facilities of the area. This intervention, without a doubt facilitates the following: it will

- ✓ Support to rural development along with education, business, agriculture, farming etc.
- ✓ Improve the local planning, coordination and work execution capacity
- ✓ Facilitate emergency route in case of emergency situation
- ✓ Decrease road accidents & promote efficient use of existing facilities
- ✓ Make a crucial contribution to economic development and growth and bring important social benefits

This document represents the Findings from Environmental Screening of the sub-projects under **'Construction of 4 RCC roads under Cox's Bazar District'; with a package name-EMCRP/W16.**

Table 1.2.1: Significant features of the Sub-project

Package Name: EMCRP/W16: Construction of 4 RCC roads under Cox's Bazar District.

Sub-project Component no. (3) Patabari-Headman Road

Component Location:

i. ID-422944019	ii. Ward No.: 4	iii. Mouza: Chagoli
iv.Village: Patabari	v. Name of Union: Haldiapalong	
vi. Name of the Upazila: Ukhiya		
vii. Construction Year: 2020-2021	viii. Length (m): 1125	ix. Width (m): 4
Distance from UZHQ: 5 Km.		
GPS Coordinates	Latitude Value: 21˚18'24.9516" N (Starting Point) Longitude Value: 92˚8' 37.5252" E (Starting Point)	
	Latitude Value: 21˚18'55.4" N (Ending Point) Longitude Value: 92˚8' 49.2" E (Ending Point)	
Condition of Road	HBB	
Communication Source	Radio & Mobile Network	

Subproject interventions

- **RCC** selections
- one **Cross Drain** (dimension: 975mmX 975mm)
- **211m L-Drain** at different chainage
- **3** nos. **Box Culverts** (dimension: 2.00mX1.6m) at 115m, 815m and 1057of chainage,
- 68m Guide wall with 2.0m height
- 35.0m U-drain at different chainage
- for road safety 2nos. Km Post,
- 30nos. Guide post,
- 2nos. Traffic sign &
- 1no.Name Plate

Implementing Agency: Local Government Engineering Department (LGED)

Expected construction period: 2020-2021

Estimated total cost of component: **25,395,942.27** (Tk.)

2 PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation have been taken up as an integral part of environmental assessment process of the project. D&SC conducted the consultation meeting with local community during 03:35 PM to 04:45 PM on 22 December, 2019 at the shop of Abdul Gafur of North Parabari which is near to the sub-project location, Refer to **Figure 2.1.1,** Public Consultation Participants List are attached in **Appendix 5.** The local individuals, chairman and/or member of Union Parishad, teachers from different school and colleges participated in those consultation events. A questionnaire was kept ready and responses were elicited during the FGD. During these consultations, the communities were explained about the project, its benefits, associated social and environmental aspects.

Figure 1.1.1: Consultation Meeting (FGD) with local community

2.2 Summary of Public Consultation Meeting

In the consultation meeting, environmental issues and their relevant impacts for the infrastructure development work such as road maintenance were discussed. The advantages and disadvantages regarding the sub-project activities were also revealed. A successful public consultation programme requires the following three elements to be effectively executed (i) dissemination of information to the stakeholders (ii) solicitation of information from affected parties and inhabitants by environmental issues. (iii) Consultation with interest groups and the public.

Every consultation event presents a useful channel for the collection of specific social information through the local people. Affected parties and inhabitants should be informed in advance so that they can make the necessary arrangements to avoid minimize adverse impacts upon them. Information should be disseminated to all interested parties, professionals and the general public so that they can develop informed opinions and provide useful input. Effective communication with the affected parties and individuals helps to resolve any adversary to the road project concerned. Cooperation from informed residents and groups can lead to substantial savings in costs and time.

The participants were spontaneous and expressed that the sub- project will provide them various benefits including communication and transportation facilities. They also expressed that at present they are facing various types of problems due to this unimproved condition of the road.

Discussion was also made on various environmental issues like dust/air pollution, water pollution etc. which are potential environmental hazards during road construction. The participants expected that none of the interventions would worsen their living conditions or surrounding environment and they requested for adopting all measures to reduce/avoid the environmental hazards during the implementation phase.

2.3 Suggestions and recommendations of the participants

The significant suggestions that came out during the meeting are given below:

- Slope protection should properly be established on the side of the proposed road at different chainages.
- Best available measures should be adopted to avoid potential negative environmental impacts and enhance positive impacts.
- Participants' suggestions and expectations that came out through the different forms of consultation meetings are taken into consideration to reflect their wishes and minimize the adverse impacts of construction works.
- Steps should be taken for minimizing the air pollution by spraying water at the construction sites.
- Noise pollution should be effectively minimized to a tolerable limit.

3 ENVIRONMENTAL SCREENING

3.1 General

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures. Environmental Screening form, as adopted in **Appendix 2** of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents. The screening data and information for this Sub-project and details screening summary have been formulated and shown in **Appendix-1**

3.2 Major Findings

The proposed sub-project is not located within any environmentally sensitive area and has no chance to create adverse impacts to important environmental components. The project road crosses several community, agricultural lands and community level forest. During construction period several trees may need to cut down. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the

transportation of all types of construction materials. Noise emission from construction machineries and equipment can cause nuisance to local residents and workers. Thus, the ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.

This road has started from Jebor Mullock Saodagor mosque at east Patabari village and this road stretches further 1125 meters from South to North side, important environmental interventions are adjacent to the sub-project are Haldia Patabari Model High School (600m), Gubisson chorra (150m), existing in the right way and a 35m bridge on chorra etc. no other important environmental features are present near sub-project. Apart from some dispersed human settlement along the road, though at sufficient distance from the alignment, there are some important socio-cultural and religious components along the road length, Jhornamukh Mountain are within two kilometers at north side from the sub-project location. Another catchment village of this sub-project area are Lambabil, Kheowachori, Gabtoliapara, Valucara, Gunapara Baliswara and Headmanpara. There are various interventions located from the sub-project site such as at south side a Primary School (300m), within half kilometer 3nos. Madrashas (one Madrasha is North side, one is west side and another one is North side), 5nos. Mosques are within half kilometer (one is east side, 2 is north side, one is south and another is west side), 2 nos. graveyards are within half kilometer (one is west and another is south side). No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc. Construction equipment may generate vibration at the properties immediately adjacent to the road alignment. Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties. During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage.

There is no evidence of presence of elephants in the subproject area. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

In order to offset the loss or attenuating the environmental degradation, a set of mitigation measures will be adopted, on top of general practice of standard construction procedure or following the relevant codes of practices.

3.3 Climate change impact

3.3.1 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 geomorphological 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 Bank[3] 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 150 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 700 feet in some places may cause salt water to contaminate freshwater resources, which could be disastrous for both refugees and local 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 planation in sub-project areas, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Consideration

Intensity of precipitation has been seen to have increased in the past few years. The impact of cyclone has increased as per the report. Salinity and the occurrence of cyclonic storm surge was not reported. Temperature increase was not reported. Thunder storm has been seen create more damage than before and casualty was reported.

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. Tree planation along the road slope is suggested wherever possible, among others, to sooth the temperature effect and increase the water retaining capacity of soil, at the same time.

[3] https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf

4 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

Considering the environmental settings of the sub-project area, it can be assumed that possible impacts would be largely construction-related, and could be addressed through adoption of good engineering practices; good housekeeping; better *in-situ* construction materials management; and observance of health and safety protocols during the implementation period.

The proposed road is on a plain land. A number of trees of road side will be cut down during construction period and as a mitigation measure, 5 nos. trees will be replanted for each tree in the periphery of the subproject. There are various interventions located from the sub-project site such as at south side a Primary School, within half kilometer 3nos. Madrashas (one Madrasha is North side one is west side and another one is North side), 5nos. Mosques are within half kilometer (one is east side, 2 is north side, one is south and another is west side), 2 nos. graveyards are within half kilometer (one is west and another is south side). Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being. Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the level best. Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. So, one Cross Drain (Size: 975mmX 975mm) and 3 nos. Box Culverts (Size:2.00mX1.6m) at 115m, 815m and 1057m of chainage will be constructed at the subproject area for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. Some small hills or high land is found beside the road. As a mitigation measure, 211m L-Drain at different chainage and 35.0m U-drain at different chainage will be constructed for drainage mountain eel water during rainy season. Due to the low land in different chainage of the road 68m Guide wall with 2.0m height will be constructed for mitigation measure.

Further construction related activities which 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. Once the effects are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities. The subproject specific environmental management plan has been outlined in **Appendix-2**. The mitigation measures as well as monitoring program of ESMP have also been incorporated in the management plan.

Environmental quality enhancement: Under the additional financing to the EMCRP project, Forest Department of the Government of Bangladesh will afforest along 200 km of road length area, primarily under the Ukhiya and Teknaf upazilas of Cox's Bazar district in order to offset the environmental and ecological devastation, that had been occurred due to the evolution of Rohingya Crisis, to an achievable level. Many of these road lengths will go through and by the Rohingya Camps, up on the hill and are already denuded of trees or vegetation. Local Government Engineering Department (LGED) will allocate and channelize the finance to the Forest Department under the said additional financing component and oversee the progress of works with due diligence. However, this

enhancement work will improve the environmental quality of the area and reinstate some parts of the ecosystem services to those areas, though primarily.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed guideline containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices.
However, among many other relevant issues, the guidelines emphasize on following line of directives:

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.
c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement is to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols has to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

Following the additional health and safety measures presented in that guideline, sub-project specific BOQ items have been inserted to supplement the budget considering the country-specific situation, capacities, and scope of interventions. The additional cost to Health and Safety Measures under COVID 19 situation is shown in Appendix-3.

4.3 Cost of Environmental Enhancement Works in BOQ

In consideration to the above mentioned environmental impacts and their mitigation measures for this sub-project, a set of items are included in the BOQ of this sub-project. The estimated cost to

implement the ESMP is shown in Appendix-3, which is nearly three lakh eighty five thousand Bangladeshi taka.

5 LIMITATIONS OF THIS STUDY

With the countrywide spread of coronavirus and its huge detrimental including fatal effects on people and livelihood had made the government of Bangladesh to impose a nationwide lockdown from March 26, 2020 onward coupled with banning on passenger traveling across the districts. This development was accompanied by all office works to be suspended or postponed. However, in the backdrop of continued fragile economic and human plight being observed across the country which has primarily been caused by this COVID situation, Government of Bangladesh has had no other option but to reopen all the economic and official activities by early June, with strong guidance on limiting movement to the least. This neo-normal situation is still limiting the movement of consultants and supervising staffs to the proposed working sites for undertaking the screening survey along with conducting effective consultation meetings, which is in turn affecting the overall progress of the project and there might have a likely chance to remain the gaps in overall screening process and outcomes.

6 CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are implemented in full, there will be no significant negative environmental impacts in regards to the selection of location, design, construction, and/or operation procedure of the proposed Sub-project. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

The conclusions of the Screening study can be summarized as follows:

- The communities will receive large benefits in terms of quality of life, and improved the infrastructure facilities, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety 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.
- The green belt development, if necessary for the road site, with large-growing trees at the periphery of the site will give the places a more natural and pleasing appearance.
- A comprehensive Environmental and Social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities.

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.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: (Construction of 4 RCC roads under Cox's Bazar District; EMCRP/W16).

Name of the component: Patabari-Headman Road, Id-422944019

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

Estimated total cost of sub-project (in Taka): 138,183,518.24

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 25,395,942.27

Estimated Operation and Maintenance period (life of sub-project): Project design life more than 15 (Fifteen) years but Government policies on how long projects can operate in the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Haldiapalong

Name of Community/Local Area: Patabari

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road-A and construction with RCC selections. For drainage of rain water one **Cross Drain** (Size: 975mmX 975mm) and for mountain eel water drainage during rainy season **211m L-Drain** at different chainage, **35.0m U-drain** at different chainage and 3 nos. **Box Culverts** (Size:2.00mX1.6m) at 115m, 815m and 1057of chainage, due to existing of high and low land on different chainage 68m Guide wall with 2.0m height as well as for road safety 2nos. Km Post, 30nos. Guide post, 2nos. Traffic sign & 1no.Name Plate has been included in the estimation (Technical Report 2019, EMCRP).

Estimated footprint / land area for this sub-project is 4500 sqm

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

This proposed sub-project Patabari Headman Road belongs to Patabari and west Haldia villages at Haldiapalong union, under Ukhiya Upazila. This road has started from Jebor Mullock Saodagor mosque at east Patabari village and stretching 1125 meters from South to North side, important environmental interventions are adjacent to the sub-project are Haldia Patabari Model High School, Gubisson chorra, existing on the right way a 35m bridge on chorra etc. no other important environmental features are present near sub-project.

Important Environmental features of the Sub-Project

Detail Chainage Length of the sub-project: 1125m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Chainage	Left	Right	Environmental Impact
"0" Point 000-300	L		Start from Jebor Mullock Saodagor mosque, brick boundary wall, tin should households, homestead garden, Paddy land, Kalamia connecting

			road, permanent household
		R	Pond, bamboo fencing, paddy land, market building under construction, betel leaf plot, betel nut garden, tin shed fence, Households connecting road
300-600	L		Paddy land, electric pole, Moricca connecting road, tin shed household, tin shed fencing
		R	Paddy land, homestead garden, Gubisson chorra, u drain, tin shed fence, tin shed household, bamboo fencing, paddy land, pond
600-900	L		Paddy land, earthen households, brick boundary wall
		R	Paddy land,
900-1200	L		Paddy land, shop, household connecting road
		R	Paddy land

Figure: Starting Point of Patabari-Headman Road

Overall Comments

The proposed sub-project (Road construction) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought

to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation. 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 construction activities. The types of wastes are brick pit, unused sand, wood, gravels, steels etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Patabari and west Haldia village under Haldiapalong union Ukhiya upazila, Cox's Bazar. Jhornamukh Mountain are within two kilometers at north side from the sub-project location. Another catchment village of this sub-project area are Lambabil, Kheowachori, Gabtoliapara, Valucara, Gunapara Baliswara and Headmanpara. There are various interventions located from the sub-project site such as at south side a Primary School (300m), within half kilometer 3nos. Madrashas (one Madrasha is North side, one is west side and another one is North side), 5nos. Mosques are within half kilometer (one is east side, 2 is north side, one is south and another is west side), 2 nos. graveyards are within half kilometer (one is west and another is south side). Haldia Patabari Model High School (600m), Gubisson chorra (150m), existing in the right way and a 35m bridge on chorra etc. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people. No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 7-9 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

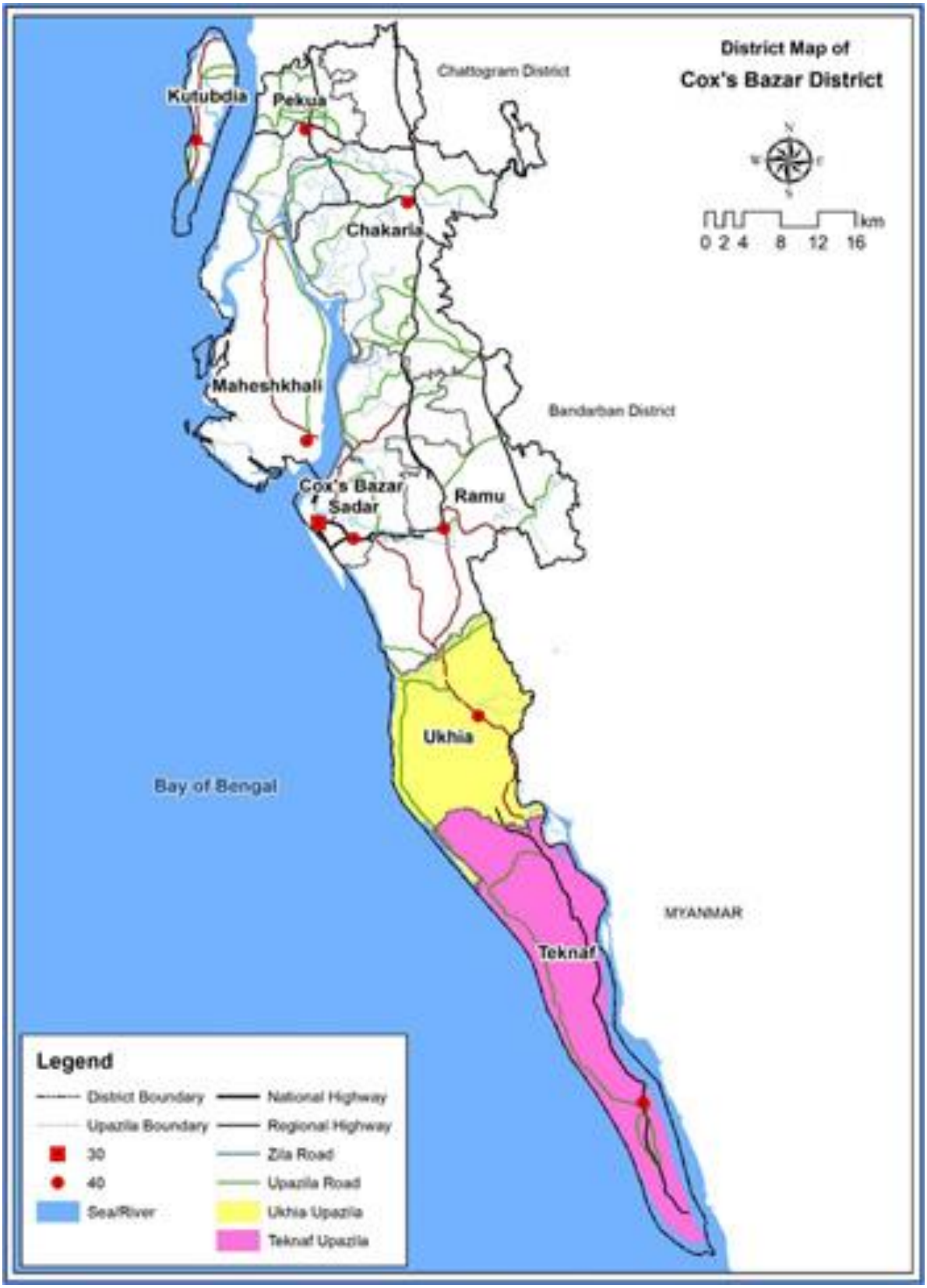


Figure 3: District Map with project location

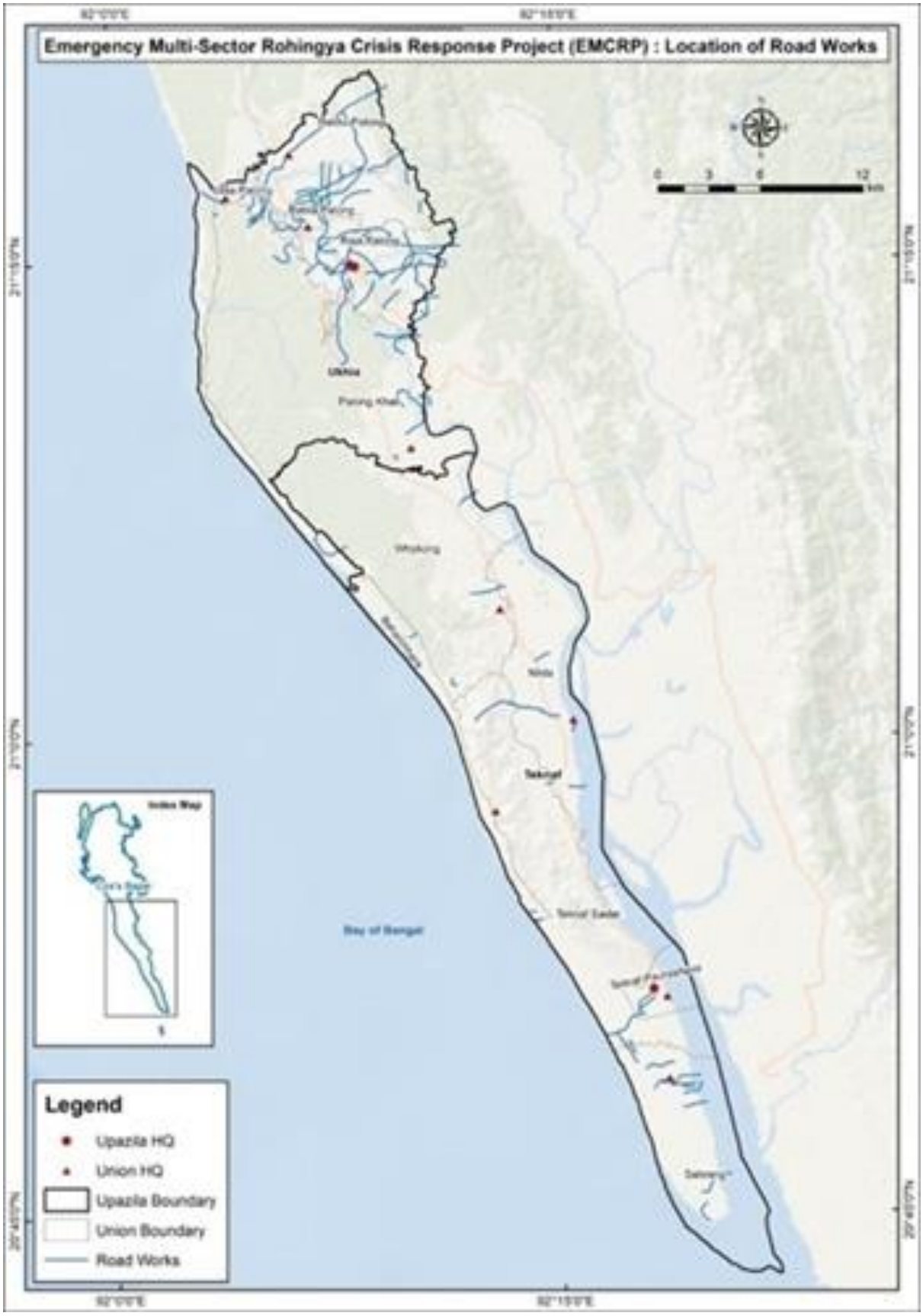


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

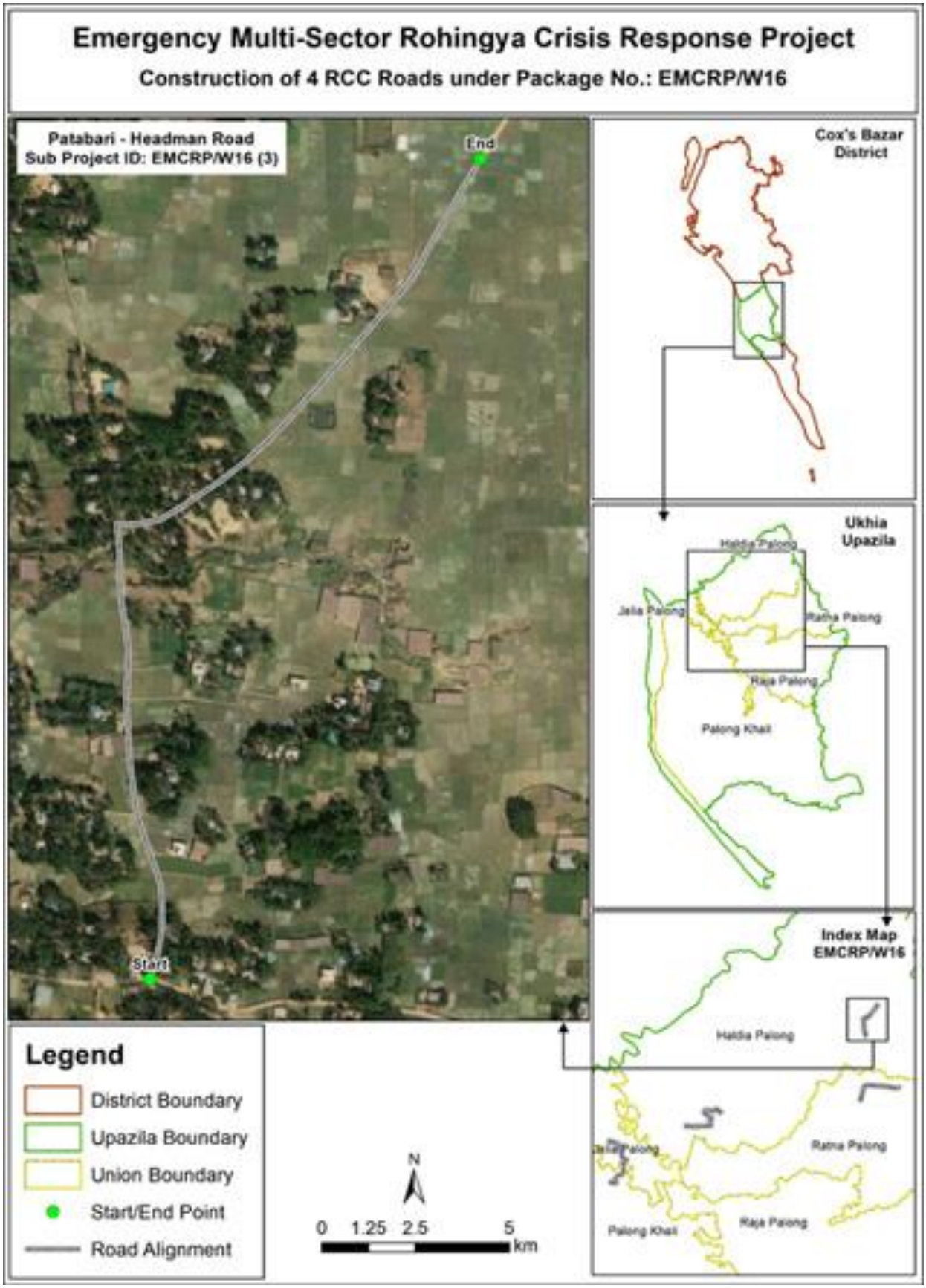


Figure 5: Upazila Map with Sub-project location

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road-A. Based on field survey, this sub-project encompasses of Ch.00-1125m HBB. According to the design this sub-project will be developed with 250mm sand filling, improvement of BFS and RCC filling for 200mm.

Sub-project Location:

Important Features	
ID	422944019
District	Cox's Bazar
Upazila	Ukhiya
Union	Haldiapalong
WARD	04
Total Chainage	2350m
Proposed Chainage	1125m
Road Type	Village Road-A
Proposed Intervention Type	RCC
Road Starting Point Coordinates	Latitude: 21˚18'24.9516" N Longitude: 92˚8' 37.5252" E
Road Ending Point Coordinates	Latitude: 21˚18'55.4" N Longitude: 92˚8' 49.2" E

Land ownership

Land is owned by Government.

Expected construction period: 8 (Eight months)

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

i) The proposed Sub-project is located within Patabari and headman villages with existing local community. Some other villages named Lambabil, Kheowachori, Gabtoliapara, Valucara, Gunapara Baliswara and Headmanpara are near with sub-project location. There are various interventions located from the sub-project site such as at south side a Primary School, within half kilometer 3nos. Madrashas (one Madrasha is North side one is west side and another one is North side), 5nos. Mosques are within half kilometer (one is east side, 2 is north side, one is south and another is west side), 2 nos. graveyards are within half kilometer (one is west and another is south side), Jharnamukh hill is about 2km away at North side from the sub-project location.

ii) No historical sites, socio cultural aspects were identified adjacent to the sub-project.

iii) Not required to relocate local community and their livelihood.

iv) Two ponds were identified but will not be affected. These ponds are only using fish farming activities.

v) Very low chance of loss agricultural land.

vi) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

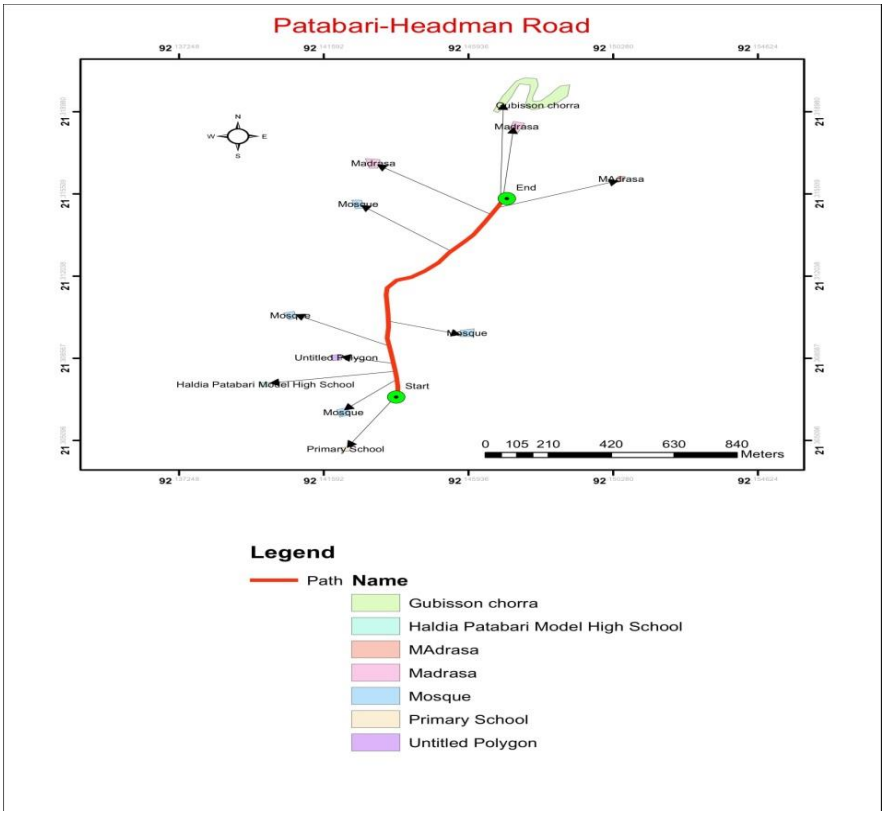
***B.1*: Environmental feature of sub-project location**

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

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

This proposed sub-project Patabari Headman Road belongs to Patabari and west Haldia villages at Haldiapalong union, under Ukhiya Upazila. This road has started from Jebor Mullock Saodagor mosque at east Patabari village and stretching 1125 meters from South to North side. There are various interventions located from the sub-project site such as at south side a Primary School, within half kilometer 3nos. Madrashas (one Madrasha is North side one is west side and another one is North side), 5nos. Mosques are within half kilometer (one is east side, 2 is north side, one is south and another is west side), 2 nos. graveyards are within half kilometer (one is west and another is south side). There are no sensitive environmental, cultural, archaeological sites exists on the area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*   No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).   **(2) Potential impacts on remaining forests in/around camps Yes/No**   N/A (This activity will be confined within the existing subproject boundary)   **(3) Other issues:**   No more mentionable issues raised.   *This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN
Baseline air quality and noise levels: **Dust:**   Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.   **Noise:**Noise level also very low in the site area. Noise is originating from the commotion of locals. During construction period a rise in noise pollution may occur due to the transportation of equipment.
Baseline soil quality: The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.   **Landslide potential (high/medium/low, with explanation):**   Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.
Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):   Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 200 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.   Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.

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): Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply and electricity is available in the area for the workforce.
Possible location of labor camps: Labor camp can be prepared along the road since there are available private lands. However, this will have to be done with the consent of land owner with the supervision of the local committee and ward member.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. Kalamiah connecting road and Moriccha connecting road are used as access road for transportation. The brick soling road can offer space adjacent labor camp to facilitate material unloading. The pickup, dumper trucks are as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 50 kg daily and sludge may amount to 8-10 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 150 kg.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes are the most common type

of road materials 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: No dense vegetation is present in the right of way. Soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. This area does not face water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel is found.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low. Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution.

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 road 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 existing drainage channels or surface water bodies found in the project area, 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: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

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)

Section D: Environmental Screening Summary

Please summarize the results of environmental screening conducted above. Mitigation measures need to be proposed in referenced to ESMP Guidelines relevant to the type of the sub-project, proposed in Section 8.2 of ESMF. This table needs to be completed by environmental specialists. Please add rows to the table as necessary.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
1: Sub-Project Interventions	**Air quality**	Under the subproject intervention the overall score is **low**.	• Limiting earthworks; • Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; • Requiring trucks delivering aggregates or bricks and cement to have tarpaulin cover and Limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Covering of trucks; • Records of air quality inspection;	Visual monitoring of air quality and if requires, air quality test (CO, $PM_{2.5,10}$) once in construction period in winter season.
	Soil impacts	Under the sub-project intervention the overall score is **low.**	3. Precautions might be taken when rainstorms are likely, when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms. 4. The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered. 5. The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged	Construction Contractor monitored by Consultant and PIU	• No visible degradation to nearby drainages, • *khals* or water bodies due to soil erosion. • Rain storms in construction phase.	Monitoring as weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			and covered. 6. Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. 7. The overall slope of the work areas and construction yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.			
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is **low**.	• All precautions to store chemicals/oil/fuel properly so that no chance of spill. • Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. • Monitor water quality according to the environmental management plan.	Construction Contractor and monitored by Consultant and PIU	• Areas for stockpiles, storage of fuels and lubricants and waste materials; • Records of water quality inspection; Water Quality Test • (National Drinking Water Quality Standard Parameters)if requires; • No visible degradation to nearby drainages, *khals* or water	Water quality test (mainly GW) twice during the construction period in six months interval.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
					bodies due to construction activities. • Records should be kept and logged.	
2: Pre-construction Phase	**Sanitation, water supply**	Under the subproject intervention the overall score is **low**.	• Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer. • Provide means for disposing of wastewater from toilets, baths and food preparation areas either through a septic tank and soak away, or holding tank with removal by vacuum truck. • Records for any type of training or awareness building sessions must be kept at site.	Construction Contractor and monitored by Consultant and PIU	• Site-specific H&S Plan; • Records of supply of uncontaminated water; • Record of Health &Safety orientation trainings; • Condition of sanitation facilities for workers	Visual inspection by PIU and supervision consultants on monthly basis
	Transportation	Under the subproject intervention the overall score is **low.**	• Contractor should verify vehicles for the suitability of carrying, loading and unloading of materials	Construction Contractor and monitored by Consultant and PIU	• Record of regular inspection. • Record of accidents/incidents	Monthly monitoring.
	Storage of construction materials	Under the subproject	• Orienting concerned person and team assigned for the construction work.	Construction Contractor and monitored by	• List of materials and sources of materials;	During implementation phase, as

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
		intervention the overall score is **low**.		Consultant and PIU		necessary with discussion with PIU, Consultant
3: Construction Phase	**Wastes**	Under the sub-project intervention the overall score is **low.**	• Prepare and implement on-site waste water runoff and labor camp waste management plan approved by PIU and consultants. • Wastes must be placed in the designated bins which must be regularly emptied. These shall remain within demarcated areas and shall be designed to prevent wastes from being blown out by wind. • All waste must be removed from the site and transported to a disposal site.	Construction Contractor and monitored by Consultant and PIU	• Complaints from community; • Regular inspection of waste management activity; • Waste disposal record.	As work weekly progresses
	Cut and fill Activities (Cutting of hill slope and earth removal from borrow areas caused for soil erosion and landslides)	Under the sub-project intervention, the overall score is low.	• During construction cut and fill will be balanced as far as is possible. Designs shall ensure that as far as possible all cut and fill activities are balanced • Proper care will be taken during cutting and filling so that slope or toe of the road embankment remain within the right of way and does not disturb the crop.	Contractor, environmental specialist of D&SC	• Location of road alignment and slope.	Daily as work progresses

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Storage of materials	Protected and safety storage to be needed for construction materials storage. Not interrupt natural land contours, disturbance in natural drainage patterns and logging of water and the overall score is **low.**	• With the assistance from site management committee in Camp to identify the storage site and other requirements, which will be approved by PIU and consultants.	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials; • Storage areas for materials and equipment.	Monthly basis during implementation phase, as necessary with discussion with PIU, Consultant
	Removal of Vegetation (May cause soil erosion and their deposition on nearby crop field, affecting soil quality and productivity)	Under the sub-project intervention, the overall score is **low.**	• 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.	Contractor, environmental specialist of D&SC	• Complaints from community;	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Noise pollution	Under the subproject intervention the overall score is **low.**	• Consultation with affected people; not to operate noisy equipment during working period; • No noisy work after 5.00 pm. • Sound suppression for equipment; • Ear protection for workers. • Conduct noise quality monitoring as per EMP.	Construction Contractor and monitored by Consultant and PIU	• Number of complaints from stakeholders; • Use of silencers in noise-producing equipment and sound barriers; • Noise Level following decibel meter (dB)	Inspection by PIU and supervision consultants on monthly basis;
	Air pollution	Under the subproject intervention the overall score is **low.**	• Water spraying for dust control; construction materials with potential for significant dust generation shall be covered; no smoke emitting equipment; and limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor and monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Records of air quality inspection.	Visual observation and monitoring of air quality during construction period.
	Road Safety and Accidents	Under the subproject intervention the overall score is **low.**	• Erection of suitable signage at construction sites • Direct observation and discussion with local people • Restrict the transport of oversize loads. • Operate construction vehicles to non-peak periods (night) to minimize the traffic disruption. • Enforce on-site and access road speed limits.	Construction Contractor, environmental specialist of D&SC.	• Complaints from communities, pedestrians	Day basis during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			• The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&Sc. • Local residents should be kept informed about planned Works			
4. Post Construction	**Road Safety**	Under the issue the overall score is **low**.	• Install traffic signs for speed limit, speed breaker where needed, Mile post and create adequate **traffic** detours, and sufficient **signage** & **warning** signs, Post speed limits and suitable bending on the road. • The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&Sc.	Construction Contractor, environmental specialist of D&SC.	• Road signage and safety instruments at suitable locations and chainage	Immediately after the construction work is over.
	Tree re plantation	Under the issue the overall score is **low**.	• Replantation of trees during monsoon period • Maintain of trees properly • Check survival of trees and replant the dead trees	Construction Contractor, environmental specialist of D&SC.	• Number of complaints from stakeholders; • Records of trees number and tree plantation inspection.	Immediately after the construction work is over.
5. Operatio	**Maintenance of road and**	Under the issue	• No advertisement/boardings shall be allowed within the Right of Way	LGED	• Number of complaints from	During Operation under

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
nal Phase	**assets** (Road accidents may increase due to higher number of vehicles using the roads at increased speeds)	the overall score is **low**.	limits of the project road. • Regular maintenance and cleaning of assets such as sign boards, road safety sign etc. shall be undertaken. • Clear smooth speed breaker/rough surfaces should be clear in views. • Regular maintenance of road surface and shoulders.		stakeholders.	LGED's regular maintenance program in each 3 years.

* 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.* Mention some recommendation on E&S assessment …. ESMP

If site specific environmental and social management plan (ESMP) is followed the impacts can be mitigated and monitored. ESMP is attached.

Appendix -2: Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Access and evacuation Roads: Patabari-Headman Road

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
Pre-Construction Stage	Loss of land / and other physical assets	• No land acquisition is allowed within this sub-project activities So, there are no any mitigation measures according to this impact.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact of adjacent livelihoods	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • Consultation meeting with host communities about the project objectives and scope of works	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of right to access	• Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact. • In case of unavoidable circumstances, alternative access will be provided.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection & implementing interventions: Human-elephant	• Selection of sub-project sites and all implementing interventions must take place outside of the	PIU	Environmental Consultant of PIU,

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
	conflict	elephant corridor/influence area.		PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Our selected sites avoided the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff. • Tubewell location within the construction site is not near to any kinds of latrine and soaks well which could be contaminated by those. • After completing the development we restored the place as like before to avoid the cut and fill operational problems. • This site is in the local community, so we discussed with the local community to avoid any conflicts related local habitation, culture. • Sub project intervention mustavoid of natural disturbance of existing slop and natural drainage. • The contractor ensuring sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities mostly will finish at day time within 05 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipments (PPEs) must be ensured in sites before starting any kinds of construction works.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	• Acceptable range of emission of CO, particulate matter [SPM (**Suspended particulate matter)**,	Contractor	Environmental Consultant of PIU,

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices • Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes. • Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level		PSC
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in our site and take necessary measures for preventing this problem • Before works started Contractor must provide proper training and guidelines on health and safety issues to the labors and associated staffs. • Records of every training must be kept at site. • All kinds of Child labour are completely prohibited in every site. • Every construction materials storage site will be well fenced by Tin and safety caution tape.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the Executive Engineer of Cox's Bazar.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water	PIU & Contractor	Social Development Specialist and

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		sources shall be taken. • If ground water is withdrawn, adequate approvals from the appropriate department need to be undertaken 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 works starts.		Gender Specialist of PIU, PSC
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be 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. • 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 labour camps will be put in place • Treated water will be made available at site for drinking purpose.	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		• Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: • Residual waste from the temporary accommodation facilities for labor Waste and from equipment maintenance/vehicles on-site • After completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • 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,	• All construction equipment will be properly inspected timely. • The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. • Preparation of proper walkways and clearly designation as a walkway has to be ensured; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • 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.	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
	temporary or permanent hearing loss, heat stress, and dermatitis.	• This sub project has Proper communicative emergency response plan (ERP) with all parties, the ERP 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. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), 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 the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of		

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		this awareness training shall be kept on site. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure 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.		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Solid organic wastes should be stored in bins and/ or skips and emptied regularly at a designated waste disposal area away from the camp site. If no designated site is available within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.	PIU	Environmental Consultant of PIU, PSC. Union Member
Decommissioning during the project implementation period (including site clearance after the	The impacts are similar to those listed in construction stage: ✓ Pollution from waste materials ✓ Health & Safety risks to	• Contractor must prepare a demolition and waste management plan including following directive aspects given hereunder.	PIU / Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
construction)	workers and local community			
Operation &Maintenance	Noise disturbances to fauna	• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures. • Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.	UE-LGED (Under the guidance of Executive Engineer, Cox's Bazar)	PSC, UNO.

Prepared by: Harogopal Kabiraj, Environmental Focal Person, +8801714980171
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Sadia Azad, IC, Disaster Risk and Climate Change Consultant
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Appendix-3: Cost of Environmental Enhancement Works in BOQ

In consideration to the above mentioned environmental 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	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	3321.0Sq.m	@38.15 Tk. Per sqm	126,696.15
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C.	1125.0m	@ 2.56 BDT	2,880.00
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **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.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	**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.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**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, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	100 nos.	@ Tk. 1000	100,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**385,221.87**

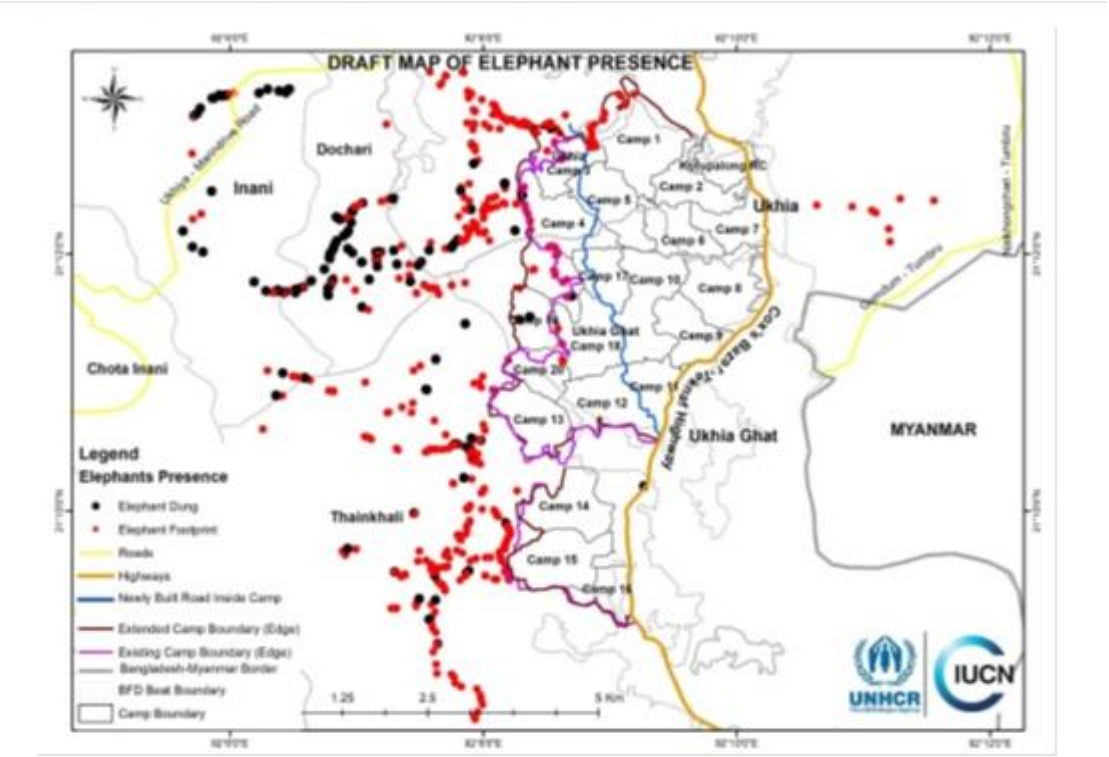
Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 22 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-16.3).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	60		74	50.00	134	6,700.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 22 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	13 nos. for each site		N/A	400.00	13	5,200.00	For labors who work in close contact, 12 in each site

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	22 nos. for each labor camp		35.00	396	13,860.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	9	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**96,535.00**	

Appendix-4: Elephant Presence Map



Elephant presence map (latest information published on 24 May 2018)

Appendix-5: List of Participants in the Consultation Meeting

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time: 03:35 PM Date. 22/12/2019

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নাম: পাতাবাড়ী [illegible] রোড
মত বিনিময়ের স্থান: উত্তর পাতাবাড়ী আব্দুল গফুরের দোকান

ইউনিয়ন: হলদিয়াপালং
ডাকঘর: মরিচ্যা
উপজেলা: উখিয়া
জেলা: কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর
০১	মো: ফজলে করিম		পুরুষ	পাতাবাড়ী	[illegible]
০২	জয়নাব বেগম লিপি		নারী	পশ্চিম হলদিয়া	[illegible]
০৩	মাহবুব আলম	২৮	পুরুষ	পাতাবাড়ী	মাহবুব আলম
০৪	আমজু মিয়া	৪০	পুরুষ	পাতাবাড়ী	আমজু মিয়া
০৫	আবদু ছলাম	৫০	ঐ	পাতাবাড়ী	[illegible]
০৬	আব্দুল কাদের	২৯	ঐ	ঐ	[illegible]
০৭	নুরুল আলম	৬৮	ঐ	ঐ	[illegible]
০৮	দিল মোহাং	৬০	ঐ	ঐ	[illegible]
০৯	দলিলুর রহমান	৫৭	ঐ	ঐ	[illegible]
১০	ফরিদ আলম	৫২	ঐ	ঐ	[illegible]
১১	আবদুল মাবুদ	২০	ঐ	ঐ	[illegible]
১২	মো: আবদুল্লাহ	৪০	ঐ	ঐ	[illegible]
১৩	ছৈয়দ আলম	৬২	ঐ	ঐ	[illegible]
১৪	আবদুল হক	৪২	ঐ	ঐ	আবদুল হক
১৫	হাকিম আলী	৬৬	ঐ	ঐ	[illegible]
১৬	আবুল কালাম	৬৫	ঐ	ঐ	[illegible]
১৭	মো: মাসুদ	২২	ঐ	ঐ	[illegible]
১৮	শাহজাহান মিয়া	২৬	ঐ	ঐ	শাহজাহান
১৯	[illegible]	৩৪	ঐ	ঐ	[illegible]
২০	আবদুল হক	৪৮	ঐ	ঐ	[illegible]

Public Consultation Participants' List

Appendix-6: Pictorial View of the surroundings of the proposed sites

Existing drainage channel and bridge on the way to Sub-project

Agriculture land on the side of Sub-project

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762 **IDA Credit No. 5561-BD**




Design and Supervision Consultancy

Environmental Screening Report

For Panishia Graveyard Road with culverts and side drains

Under the package no. EMCRP/W16

December-2020

Development Design Consultants Ltd.

ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
EMP	Environmental Management Plan
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
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
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
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
UNO	Upazila Nirbahi Officer
VAT	Value-Added Tax
WB	World Band

Contents

Executive Summary

Rohingya influx in Bangladesh has been one of the highlighted issues of this decade. This has definitely modified our way of thinking for the future development of the country. This forcefully displaced population has posed challenges for the district of Cox's bazar in terms of livelihood improvement and environmental protection and services. Nevertheless, to aid into the condition and improve the symbiotic relationship between the Hosting Community and the Displaced Rohingya Population (DRP), many forms of interventions are taking place. One of those is Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) which is aided by World Bank holding one of the objectives to provide improved communication network for Upazila of Teknaf and Ukhiya. Among all different components of this project such as preparation of school cum cyclone shelters, facilitating growth centers and RCC Bridge development, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agency with D&SC (Development Design Consultants Limited-DDC) identifies the project beneficiary as Displaced Rohingya Population (DRP) and Hosting Community or in other words, local population. From many of the project's purposes, identification of environmental and social components which might fall into bargain for improvement works and ensuring the safeguards of those components are very basic or fundamental motives. In order to take these matters into consideration, screening and assessment of these elements has been carried out in accordance with guidelines from World Bank; as a result environmental and social screening reports has been produced along with worked out impact factors which are introduced with mitigation and management measures. In order to present a quick picturesque of the proposed component, an overview is given hereunder.

This proposed Panishiya Graveyard Road belongs to Panishiya village Jaliapalong union, under Ukhiya Upazila. This road stretches further 1650 meters of two sections from North to South side (section 1) and south to north-west side (section 2). This sub-project has started from Saodagorpara Shah Alom Shop along with paddyland, homestead garden, panishiya chorra, betelnut garden etc. important environmental interventions are adjacent to the sub-project are Hazipara hill, Miajipara hill, ponds, culverts etc., Otherwise no other important environmental features are present near sub-project. Apart from some dispersed human settlement along the road, though at sufficient distance from the alignment, there are some important socio-cultural and religious components along the road length. Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Panishiya village. Hazipara hill(150m) is on west and Miajipara hill (200m) is on east side from the the sub-project, Jaliapalong GPS (15m, west), two mosques (10m) and two graveyard (40m), Cherang bus stand (15m, west) also near to this sub-project. Another catchment village of this sub-project area are Lamboripara, Saodagorpara, Anarpara, Hazipara, Miajipara, Middle Panishiya and Jummapara. No scope to disturbance by this sub-project which bring religious and cultural values to the community people. The proposed road is not passing through any sensitive environmental components or reserved areas. However, the construction works will generate significant amount of dust and air pollutants, create noise, and have a potential to pollute water resources and affect some trees. All these impacts are site-specific and adjustable by mitigation or offsetting measures. Good management practices in labor camps, material storage areas, borrow pits, and in the areas of occupational health safety, road safety, and hazardous

material management would suffice in curbing the potential pollution, hazards and any further risks related to construction works. Appendix 02 of this report has detailed out the mitigation measures within the scope of interventions associated with this component of the sub-project.
This component of the sub-project has been proposed to ameliorate the socio-economic condition of the people living in the surrounding and connecting areas through providing climate resilient roadways and associated safeguard facilities. Since the road will not pass through any sensitive areas of any kind and necessary environmental conservative, mitigation and offsetting measures will be adopted with due care and diligence during the construction period, the component should be taken undoubtedly in further consideration for development.

1 INTRODUCTION

1.1 Project Background

An estimated 730,000[1] people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033[2]. This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained social service delivery system even before the crisis evolved and the mass exodus of FDMN has worsened the situation further. Almost all of these displaced people are hosted in Ukhiya and Teknaf Upazila of Cox's Bazar, in extremely congested settlements in areas having very minimal access to basic infrastructure and services and is prone to natural disasters. The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of Forcibly Displaced Myanmar National (FDMN) along with people from the host communities in Teknaf and Ukhiya Upazila under Cox's Bazar District, to different disasters and improve the social service delivery system and disaster resilience to both the communities. This project will follow a sustainable development pathway that is resilient to disaster and climate change effects.

The project is jointly being implemented by Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE) and Ministry of Disaster Management and Relief (MoDMR) under their respective mandate and scope of works. Given the project interventions, sensitivity of the areas and volume of people in or around the sites, the project is more likely to trigger certain Operational Policies and Bank Procedures, namely Environmental Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Forest (OP/BP 4.36) and Physical Cultural Resources (OP /BP 4.11).

1.2 Objective of the Sub-Project

In order to uplift the hosting community of Ukhiya & Teknaf Upazila along with the displaced community from Myanmar, Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been initiated which will improve the communication status as such. This project is designed to improve the road communication network of overall Teknaf & Ukhiya Upazila. Since this surge of displaced community from Myanmar has invited more commute and caused more traffic in this

[1] ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)
[2] IOM Needs and Population Monitoring round 12 as of October 10, 2018

area, this project will surely aid in the betterment of the target location and moreover initiate the growth potential of the area.

The sub-project has the primary target to improve the communication facilities of the area. This intervention, without a doubt facilitates the following: it will

- ✓ Support to rural development along with education, business, agriculture, farming etc.
- ✓ Improve the local planning, coordination and work execution capacity
- ✓ Facilitate emergency route in case of emergency situation
- ✓ Decrease road accidents & promote efficient use of existing facilities
- ✓ Make a crucial contribution to economic development and growth and bring important social benefits

This document represents the Findings from Environmental Screening of the sub-projects under **'Construction of 4 RCC roads under Cox's Bazar District'; with a package name-EMCRP/W16.**

Table 1.2.1: Significant features of the Sub-project

Package Name: EMCRP/W16: Construction of 4 RCC roads under Cox's Bazar District.

Sub-project Component no. (4) Panishia Graveyard Road

Component Location:

i. ID-422944020	ii. Ward No.: 01	iii. Mouza: Jaliapalong
iv.Village: Panishiya	v. Name of Union: Jaliapalong	
vi. Name of the Upazila: Ukhiya		
vii. Construction Year: 2020-2021	viii. Length (m): 1650	ix. Width (m): 4
Distance from UZHQ: 7 Km.		

GPS Coordinates	Latitude Value: 21˚16'55" N (Starting Point) Longitude Value: 92˚4' 56" E (Starting Point)
	Latitude Value: 21˚16'18" N (Ending Point) Longitude Value: 92˚4'56.7" E (Ending Point)
Condition of Road	BFS, HBB
Communication Source	Radio & Mobile Network

Subproject interventions

- **RCC** selections
- 4nos. **Cross Drain** (dimension: 975mmX 975mm)
- **133m L-Drain**
- **3** nos. **Box Culverts** (dimension: 2.00mX2.00m) at 92m, 915m and 1540m of chainage,
- Due to existing of high and low land on different chainage 163.0m 1.50m height and 115.0m at 2.0m height Guide wall
- 34m brick palisading wall
- 2nos. Km Post,
- 50nos. Guide post,
- 3nos. Traffic sign &

Implementing Agency: Local Government Engineering Department (LGED)

Expected construction period: 2020-2021
Estimated total cost of component: 40,603,534.58 (Tk.)

2 PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation have been taken up as an integral part of environmental assessment process of the project. D&SC conducted consultation meeting with local community during 12:20 PM to 01:30 PM on 22 December, 2019 at Jummapara Kamal Store which is near to the sub-project location, Refer to **Figure 2.1.1,** Public Consultation Participants List are attached in **Appendix-5.** The local individuals, chairman and/or member of Union Parishad, teachers from different school and colleges participated in those consultation events. A questionnaire was kept ready and responses were elicited during the FGD. During these consultations, the communities were explained about the project, its benefits, associated social and environmental aspects.

Figure 1.1.1: Consultation Meeting (FGD) with local community

2.2 Summary of Public Consultation Meeting

In the consultation meeting, environmental issues and their relevant impacts for the infrastructure development work such as road maintenance were discussed. The advantages and disadvantages regarding the sub-project activities were also revealed. A successful public consultation programme requires the following three elements to be effectively executed (i) dissemination of information to the stakeholders (ii) solicitation of information from affected parties and inhabitants by environmental issues. (iii) Consultation with interest groups and the public.

Every consultation event presents a useful channel for the collection of specific social information through the local people. Affected parties and inhabitants should be informed in advance so that they can make the necessary arrangements to avoid minimize adverse impacts upon them. Information should be disseminated to all interested parties, professionals and the general public so that they can develop informed opinions and provide useful input. Effective communication with the affected parties and individuals helps to resolve any adversary to the road project concerned. Cooperation from informed residents and groups can lead to substantial savings in costs and time.

The participants were spontaneous and expressed that the sub- project will provide them various benefits including communication and transportation facilities. They also expressed that at present they are facing various types of problems due to this unimproved condition of the road.

Discussion was also made on various environmental issues like dust/air pollution, water pollution etc. which are potential environmental hazards during road construction. The participants expected that none of the interventions would worsen their living conditions or surrounding environment and they requested for adopting all measures to reduce/avoid the environmental hazards during the implementation phase.

2.3 Suggestions and recommendations of the participants

The significant suggestions that came out during the meeting are given below:

- Slope protection should properly be established on the side of the proposed road at different chainages.
- Best available measures should be adopted to avoid potential negative environmental impacts and enhance positive impacts.
- Participants' suggestions and expectations that came out through the different forms of consultation meetings are taken into consideration to reflect their wishes and minimize the adverse impacts of construction works.
- Steps should be taken for minimizing the air pollution by spraying water at the construction sites.
- Noise pollution should be effectively minimized to a tolerable limit.

3 ENVIRONMENTAL SCREENING

3.1 General

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures. Environmental Screening form, as adopted in **Appendix 2** of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents. The screening data and information for this Sub-project and details screening summary have been formulated and shown in **Appendix-1**

3.2 Major Findings

The proposed sub-project is not located within any environmentally sensitive area and has no chance to create adverse impacts to important environmental components. The project road crosses several community, agricultural lands and community level forest. During construction period several trees may need to cut down. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the

transportation of all types of construction materials. Noise emission from construction machineries and equipment can cause nuisance to local residents and workers. Thus, the ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.

This sub-project is situated within Panishiya village. Hazipara hill(150m) is on west and Miajipara hill (200m) is on east side from the the sub-project, Jaliapalong GPS (15m, west), two mosques (10m) and two graveyard (40m), Cherang bus stand (15m, west) also near to this sub-project. Another catchment village of this sub-project area are Lamboripara, Saodagorpara, Anarpara, Hazipara, Miajipara, Middle Panishiya and Jummapara. No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc. Construction equipment may generate vibration at the properties immediately adjacent to the road alignment. Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties. During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage.

There is no evidence of presence of elephants in the subproject area. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

In order to offset the loss or attenuating the environmental degradation, a set of mitigation measures will be adopted, on top of general practice of standard construction procedure or following the relevant codes of practices.

3.3 Climate Change Impact

3.3.1 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 geomorphological 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 Bank[3] 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.

[3] https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf

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 150 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 700 feet in some places may cause salt water to contaminate freshwater resources, which could be disastrous for both refugees and local 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 planation in sub-project areas, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Consideration

The sub-project area is not adjacent to the sea. The cyclone has higher impact in the area and water stagnation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and the occurrence of cyclonic storm surge was not reported in the vicinity of the subproject. Temperature was reported to be increased and Thunder storm is found to have highest impact in the area. Thunder storm has been seen create more damage than before but no casualty was reported.

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. Tree planation along the road slope is suggested wherever possible, among others, to sooth the temperature effect and increase the water retaining capacity of soil, at the same time.

4 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

Considering the environmental settings of the sub-project area, it can be assumed that possible impacts would be largely construction-related, and could be addressed through adoption of good engineering practices; good housekeeping; better *in-situ* construction materials management; and observance of health and safety protocols during the implementation period.

The proposed road is on a plain land. A number of trees of road side will be cut down during construction period and as a mitigation measure, 5 nos. trees will be replanted for each tree in the periphery of the subproject. This sub-project is situated within Panishiya village. Hazipara hill and Miajipara hill are adjacent to the sub-project, Jaliapalong GPS, two mosques and two graveyard, Cherang bus stand also near to this sub-project. Another catchment village of this sub-project area is Lamboripara, Saodagorpara, Anarpara, Hazipara, Miajipara, Middle Panishiya and Jummapara.

Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being. Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the level best. Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. So, 4 nos. Cross Drain (Size: 975mmX 975mm) at different chainage and 3 nos. Box Culverts (Size:2.00mX2.00m) at 92m, 915m and 1540m of chainage will be constructed at the subproject area for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. Some small hills or high land is found beside the road. As a mitigation measure, 133m L-Drain at different chainage will be constructed for drainage mountain eel water during rainy season. Due to the low land in different chainage of the road 163m 1.50m height, 115m at 2.0m height Guide wall and 34m brick palisading wall will be constructed for mitigation measure.

Further construction related activities which 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. Once the effects are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

The subproject specific environmental management plan has been outlined in **Appendix-2**. The mitigation measures as well as monitoring program of ESMP have also been incorporated in the management plan.

Environmental quality enhancement: Under the additional financing to the EMCRP project, Forest Department of the Government of Bangladesh will afforest along 200 km of road length area, primarily under the Ukhiya and Teknaf upazilas of Cox's Bazar district in order to offset the environmental and ecological devastation, that had been occurred due to the evolution of Rohingya Crisis, to an achievable level. Many of these road lengths will go through and by the Rohingya Camps, up on the hill and are already denuded of trees or vegetation. Local Government Engineering Department (LGED) will allocate and channelize the finance to the Forest Department under the said additional financing component and oversee the progress of works with due diligence. However, this enhancement work will improve the environmental quality of the area and reinstate some parts of the ecosystem services to those areas, though primarily.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed guideline containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of

this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices.
However, among many other relevant issues, the guidelines emphasize on following line of directives:

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.
c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement is to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols has to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

Following the additional health and safety measures presented in that guideline, sub-project specific BOQ items have been inserted to supplement the budget considering the country-specific situation, capacities, and scope of interventions. The additional cost to Health and Safety Measures under COVID 19 situation is shown in Appendix-3.

4.3 Cost of Environmental Enhancement Works in BOQ

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

5 LIMITATIONS OF THIS STUDY

With the countrywide spread of coronavirus and its huge detrimental including fatal effects on people and livelihood had made the government of Bangladesh to impose a nationwide lockdown from March 26, 2020 onward coupled with banning on passenger traveling across the districts. This development was accompanied by all office works to be suspended or postponed. However, in the backdrop of continued fragile economic and human plight being observed across the country which has primarily been caused by this COVID situation, Government of Bangladesh has had no other option but to reopen all the economic and official activities by early June, with strong guidance on limiting movement to the least. This neo-normal situation is still limiting the movement of consultants and supervising staffs to the proposed working sites for undertaking the screening survey along with conducting effective consultation meetings, which is in turn affecting the overall

progress of the project and there might have a likely chance to remain the gaps in overall screening process and outcomes.

6 CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are implemented in full, there will be no significant negative environmental impacts in regards to the selection of location, design, construction, and/or operation procedure of the proposed Sub-project. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

The conclusions of the Screening study can be summarized as follows:

- The communities will receive large benefits in terms of quality of life, and improved the infrastructure facilities, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety 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.
- The green belt development, if necessary for the road site, with large-growing trees at the periphery of the site will give the places a more natural and pleasing appearance.
- A comprehensive Environmental and Social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities.

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.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: (Construction of 4 RCC roads under Cox's Bazar District; EMCRP/W16).

Name of the component: Panishiya Graveyard Road, Id-422944020

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

Estimated total cost of sub-project (in Taka): 138,183,518.24

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 40,603,534.58

Estimated Operation and Maintenance period (life of sub-project): Project design life more than 15 (Fifteen) years but Government policies on how long projects can operate in the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Jaliapalong

Name of Community/Local Area: Panishiya

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road-A and construction with RCC selections. For drainage of rain water 4nos. **Cross Drain** (Size: 975mmX 975mm) and for mountain eel water drainage during rainy season **133m L-Drain** and **73m U-drain** at different chainage and 3 nos. **Box Culverts** (Size:2.00mX2.00m) at 92m, 915m and 1540m of chainage, due to existing of high and low land on different chainage 163m 1.50m height and 115m at 2.0m height Guide wall and 34m brick palisading wall as well as for road safety 2nos. Km Post, 50nos. Guide post, 3nos. Traffic sign & 1no.Name Plate has been included in the estimation (Technical Report 2019, EMCRP).

Estimated footprint / land area for this sub-project is 6600sqm.

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

This proposed sub-project Panishiya Graveyard Road belongs to Panishiya village Jaliapalong union, under Ukhiya Upazila. stretching 1650 meters of two sections from North to South side (section 1) and south to north-west side (section 2). This sub-project has started from Saodagorpara Shah Alom Shop along with paddyland, homestead garden, panishiya chorra, betelnut garden etc. important environmental interventions are adjacent to the sub-project are Hazipara hill, Miajipara hill, ponds, culverts etc., Otherwise no other important environmental features are present near sub-project.

Important Environmental features of the Sub-Project

Detail Chainage Length of the sub-project: 1650m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Chainage	Left	Right	Environmental Impact
"0" Point	L		Start from Saodagorpara Shah Alom Shop, Mosque and graveyard, bamboo

000-300			fencing, ditch, paddy land, household connecting road, brick boundary wall
		R	Paddy land, Households connecting road
300-600	L		Brick boundary wall, Paddy land, tin shed household, tin shed fencing, permanent household(building)
		R	Paddy land, Panishiya chorra, bamboo bushes, tin shed fencing
600-900	L		Betelnut garden, bamboo fencing, graveyard, Paddy land, Jaliapalong GPS, pond, tin shed fencing,
		R	Betelnut garden, pond, Paddy land, mosque, Miajipara connecting road
900-1200	L		Paddy land, Betelnut garden, bamboo fencing, agricultural land, electric pole, hill
		R	Betelnut garden, brick boundary wall, u drain, permanent household(building), bamboo fencing, agricultural land, hill, betel leaf yard
1200-1500	L		Agricultural land, Paddy land, Mobile tower, hill
		R	Betelnut garden, banana garden, bamboo bushes, hill
1500-1800	L		Households
		R	Paddy land, electric pole

Figure: Starting point of Panishiya Graveyard Road

Overall Comments

The proposed sub-project (Road construction) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate

offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation. 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 construction activities. The types of wastes are brick pit, unused sand, wood, gravels, steels etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
This sub-project is situated within Panishiya village. Hazipara hill(150m) is on west and Miajipara hill (200m) is on east side from the the sub-project, Jaliapalong GPS (15m, west), two mosques (10m) and two graveyard (40m), Cherang bus stand (15m, west) also near to this sub-project. Another catchment village of this sub-project area are Lamboripara, Saodagorpara, Anarpara, Hazipara, Miajipara, Middle Panishiya and Jummapara. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people. No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 13-14 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

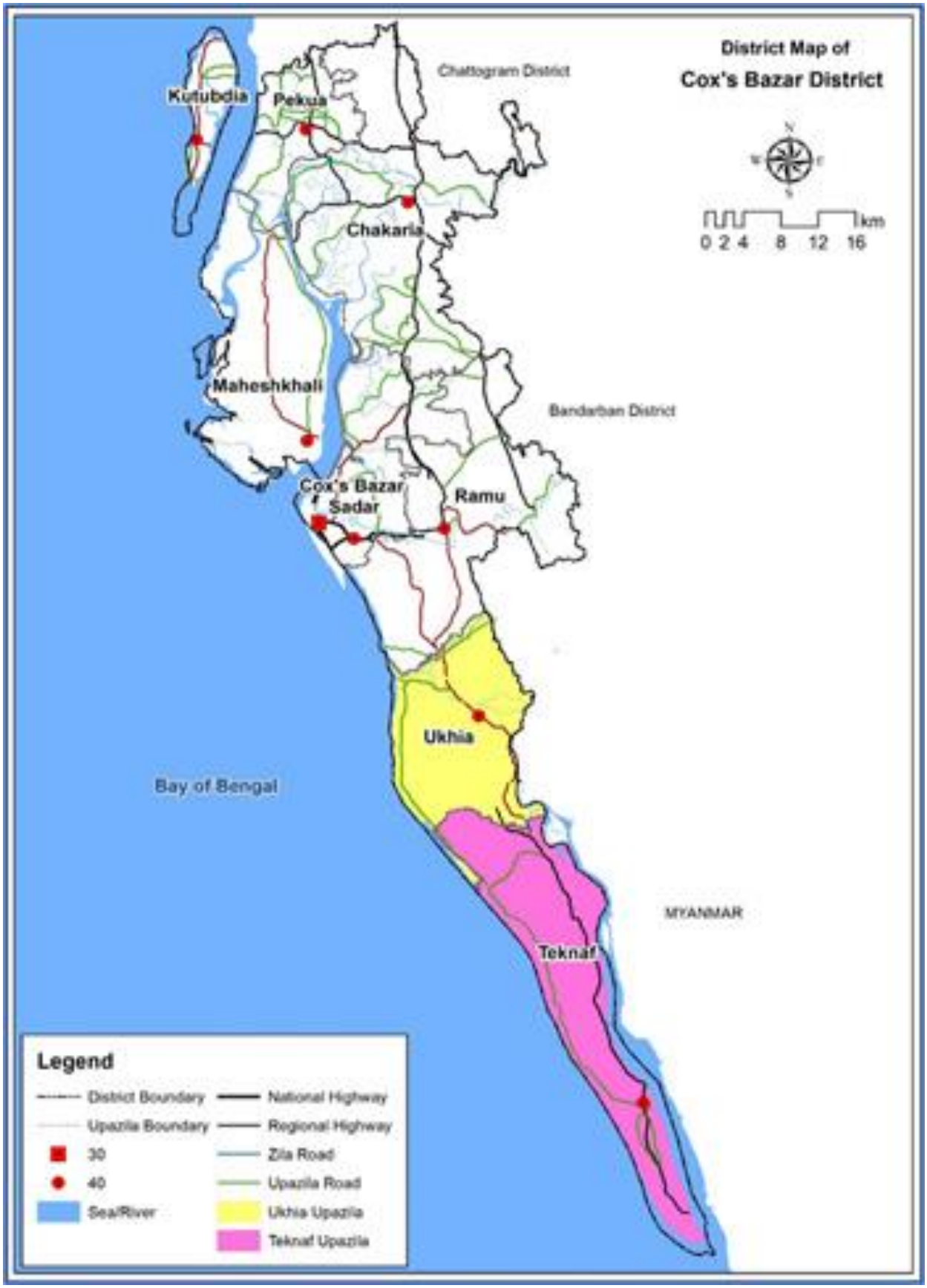


Figure 3: District Map with project location

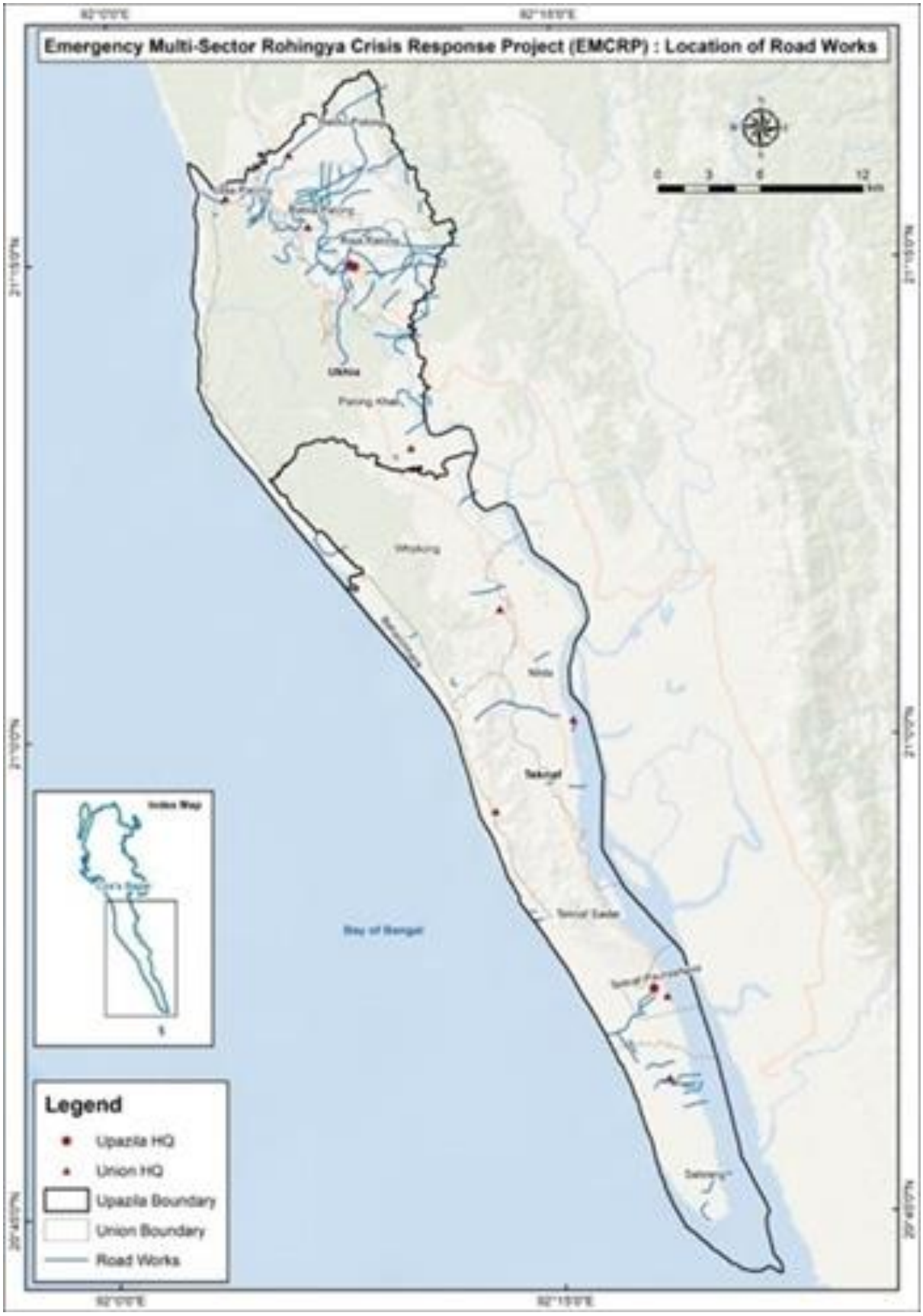


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

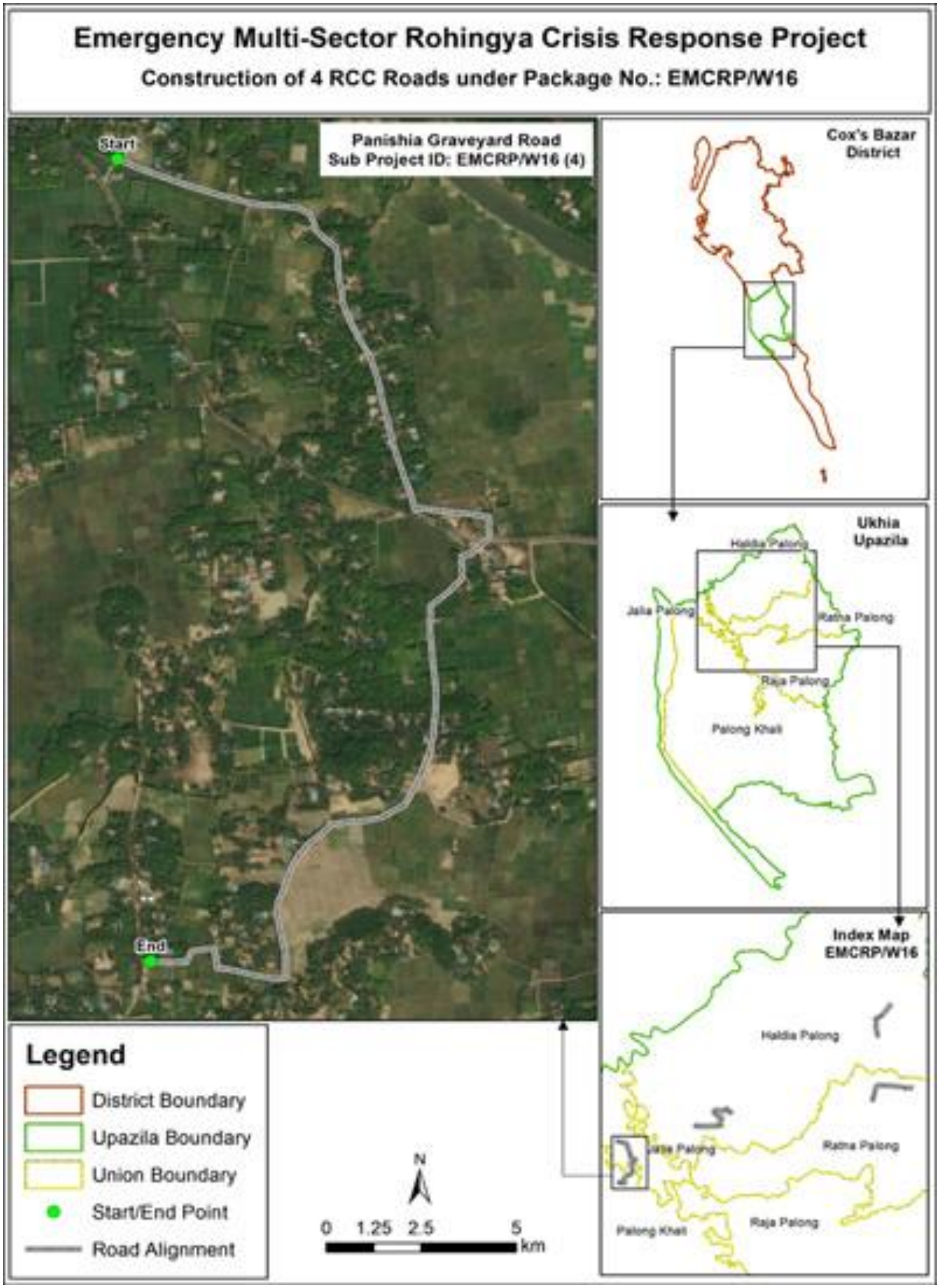


Figure 5: Upazila Map with Sub-project location

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road-A. Based on field survey; this sub-project encompasses of Ch:00-150m BFS and Ch:223-327m BFS, Ch: 327-750m HBB and Ch: 800-1160m BFS. According to the design this sub-project will be developed with 250mm sand filling, improvement by BFS and RCC filling for 200mm.

Sub-project Location:

Important Features	
ID	422944020
District	Cox's Bazar
Upazila	Ukhiya
Union	Jaliapalong
WARD	01
Total Chainage	1600m
Proposed Chainage	1650m
Road Type	Village Road-A
Proposed Intervention Type	RCC
Road Starting Point Coordinates	Latitude: 21˚16'55" N Longitude: 92˚4' 56" E
Road Ending Point Coordinates	Latitude: 21˚16'18" N Longitude: 92˚4'56.7" E

Land ownership

Land is owned by Government.

Expected construction period: 10 (Ten) months

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

i) The proposed Sub-project is located within Panishiya village with existing local community. Some other villages named Lamboripara, Saodagorpara, Anarpara, Hazipara, Miajipara, Jummapara, Jaliapalong GPS, one ditch, one pond, two graveyards are situated within one and half kilometer from the sub-project location.

ii) No historical sites, socio cultural aspects were identified adjacent to the sub-project.

iii) Little number of trees, vegetations may be impacted with small scale and short term.

iv) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

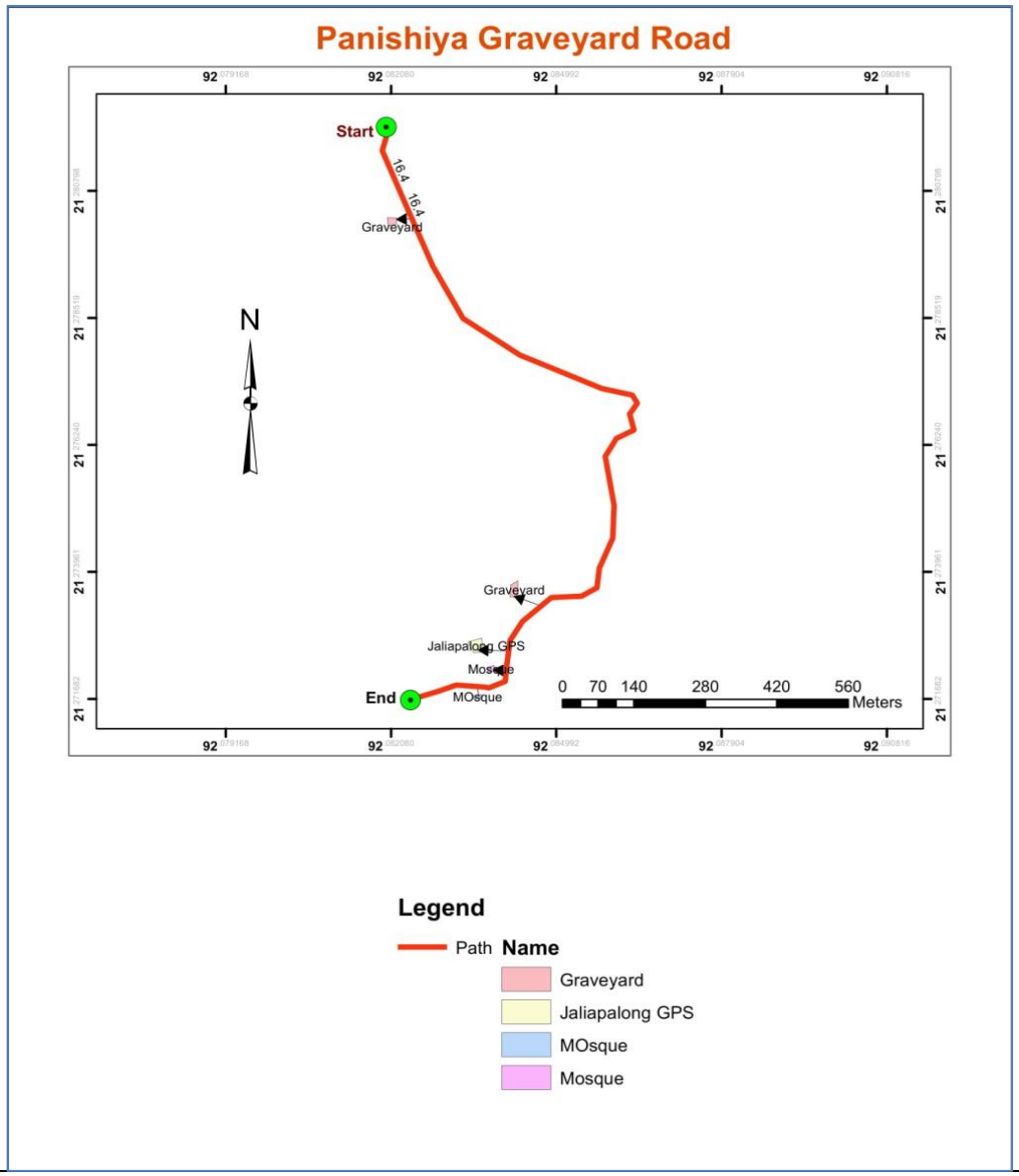
***B.1*: Environmental feature of sub-project location**

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

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

This sub-project is situated within Panishiya village. Hazipara hill (200m) and Miajipara hill (150) are near to the sub-project, Jaliapalong GPS (besides road), two mosques (within 8-10m) and two graveyards (3-5m), Cherang bus stand (10m) also near to this sub-project. Another catchment village of this sub-project area are Lamboripara (half km.), Saodagorpara (half km.), Anarpara (1Km), Hazipara (1.5 Km), Miajipara (1.4Km), Middle Panishiya (along with road) and Jummapara (1.5Km.).
There are no sensitive environmental, cultural, archaeological sites exists on the area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*: No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018). **(2) Potential impacts on remaining forests in/around camps Yes/No:** N/A (This activity will be confined within the existing subproject boundary) **(3) Other issues:** No more mentionable issues raised. *This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN
Baseline air quality and noise levels: **Dust:** Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution. **Noise:** Noise level also very low in the site area. Noise is originating from the commotion of locals. During construction period a rise in noise pollution may occur due to the transportation of equipment.
Baseline soil quality: The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams. **Landslide potential (high/medium/low, with explanation):** Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.
Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH): Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 200 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Since this sub-project falls under a local village area and no major forest resides near or around the

target area, there are no practice of deforestation or loss of vegetation. This area is mostly covered with homestead gardening and backyard tree coverage.
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): Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply and electricity is available in the area for the workforce.
Possible location of labor camps: Labor camp can be prepared along the road since there are available private lands. However, this will have to be done with the consent of land owner with the supervision of the local committee and ward member.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. Miajipara connecting road, Cox's Bazar- Ukhiya highway are used as access road for transportation. The brick soling road can offer space adjacent labor camp to facilitate material unloading. The pickup, dumper trucks are as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 45/50 kg daily and sludge may amount to 8-10 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which is mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And

the quantity will be tentatively 150 kg.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes are the most common type of road materials 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: No dense vegetation is present in the right of way. Soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. This area does not face water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel is found.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) **Low.** Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) **Low.** Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution.

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 road 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 existing drainage channels or surface water bodies found in the project area, 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: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

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)

Section D: Environmental Screening Summary

Please summarize the results of environmental screening conducted above. Mitigation measures need to be proposed in referenced to ESMP Guidelines relevant to the type of the sub-project, proposed in Section 8.2 of ESMF. This table needs to be completed by environmental specialists. Please add rows to the table as necessary.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
1: Sub-Project Interventions	**Air quality**	Under the subproject intervention the overall score is **low**.	• Limiting earthworks; • Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; • Requiring trucks delivering aggregates or bricks and cement to have tarpaulin cover and Limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Covering of trucks; • Records of air quality inspection	Visual monitoring of air quality and if requires, air quality test (CO, $PM_{2.5,10}$) once in construction period in winter season.
	Soil impacts	Under the sub-project intervention the overall score is **low.**	• Precautions might be taken when rainstorms are likely, when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms. • 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	Construction Contractor monitored by Consultant and PIU	• No visible degradation to nearby drainages, • *khals* or water bodies due to soil erosion. • Rain storms in construction phase.	Monitoring as weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			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 construction yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.			
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is **low**.	• All precautions to store chemicals/oil/fuel properly so that no chance of spill. • Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. • Monitor water quality according to the environmental management plan.	Construction Contractor and monitored by Consultant and PIU	• Areas for stockpiles, storage of fuels and lubricants and waste materials; • Records of water quality inspection; Water Quality Test • (National Drinking Water Quality Standard Parameters)if requires; • No visible degradation to nearby drainages, *khals* or water	Water quality test (mainly GW) twice during the construction period in six months interval.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	**Frequency**
					bodies due to construction activities. • Records should be kept and logged.	
2: Pre-construction Phase	**Sanitation, water supply**	Under the subproject intervention the overall score is **low**.	• Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer. • Provide means for disposing of wastewater from toilets, baths and food preparation areas either through a septic tank and soak away, or holding tank with removal by vacuum truck. • Records for any type of training or awareness building sessions must be kept at site.	Construction Contractor and monitored by Consultant and PIU	• Site-specific H&S Plan; • Records of supply of uncontaminated water; • Record of Health &Safety orientation trainings; • Condition of sanitation facilities for workers	Visual inspection by PIU and supervision consultants on monthly basis
	Transportation	Under the subproject intervention the overall score is **low.**	• Contractor should verify vehicles for the suitability of carrying, loading and unloading of materials	Construction Contractor and monitored by Consultant and PIU	• Record of regular inspection. • Record of accidents/incidents	Monthly monitoring.
	Storage of construction materials	Under the subproject	• Orienting concerned person and team assigned for the construction	Construction Contractor and monitored by	• List of materials and sources of	During implementation phase, as

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
		intervention the overall score is **low**.	work.	Consultant and PIU	materials;	necessary with discussion with PIU, Consultant
3: Construction Phase	**Wastes**	Under the sub-project intervention the overall score is **low.**	**1.** Prepare and implement on-site waste water runoff and labor camp waste management plan approved by PIU and consultants. **2.** Wastes must be placed in the designated bins which must be regularly emptied. These shall remain within demarcated areas and shall be designed to prevent wastes from being blown out by wind. **3.** All waste must be removed from the site and transported to a disposal site.	Construction Contractor and monitored by Consultant and PIU	• Complaints from community; • Regular inspection of waste management activity; • Waste disposal record.	As work weekly progresses
	Cut and fill Activities (Cutting of hill slope and earth removal from borrow areas caused for soil erosion and landslides)	Under the sub-project intervention, the overall score is low.	• During construction cut and fill will be balanced as far as is possible. Designs shall ensure that as far as possible all cut and fill activities are balanced • Proper care will be taken during cutting and filling so that slope or toe of the road embankment remain within the right of way and does not disturb the crop.	Contractor, environmental specialist of D&SC	• Location of road alignment and slope.	Daily as work progresses

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Storage of materials	Protected and safety storage to be needed for construction materials storage. Not interrupt natural land contours, disturbance in natural drainage patterns and logging of water and the overall score is **low.**	• With the assistance from site management committee in Camp to identify the storage site and other requirements, which will be approved by PIU and consultants.	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials; • Storage areas for materials and equipment.	Monthly basis during implementation phase, as necessary with discussion with PIU, Consultant
	Removal of Vegetation (May cause soil erosion and their deposition on nearby crop field, affecting soil quality and productivity)	Under the sub-project intervention, the overall score is **low.**	• 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.	Contractor, environmental specialist of D&SC	• Complaints from community;	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Noise pollution	Under the subproject intervention the overall score is **low.**	• Consultation with affected people; not to operate noisy equipment during working period; • No noisy work after 5.00 pm. • Sound suppression for equipment; • Ear protection for workers. • Conduct noise quality monitoring as per EMP.	Construction Contractor and monitored by Consultant and PIU	• Number of complaints from stakeholders; • Use of silencers in noise-producing equipment and sound barriers; • Noise Level following decibel meter (dB)	Inspection by PIU and supervision consultants on monthly basis;
	Air pollution	Under the subproject intervention the overall score is **low.**	• Water spraying for dust control; construction materials with potential for significant dust generation shall be covered; no smoke emitting equipment; and limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor and monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Records of air quality inspection.	Visual observation and monitoring of air quality during construction period.
	Road Safety and Accidents	Under the subproject intervention the overall score is **low.**	• Erection of suitable signage at construction sites • Direct observation and discussion with local people • Restrict the transport of oversize loads. • Operate construction vehicles to non-peak periods (night) to minimize the traffic disruption. • Enforce on-site and access road speed limits.	Construction Contractor, environmental specialist of D&SC.	• Complaints from communities, pedestrians	Day basis during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			• The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&Sc. • Local residents should be kept informed about planned Works			
4. Post Construction	**Road Safety**	Under the issue the overall score is **low**.	• Install traffic signs for speed limit, speed breaker where needed, Mile post and create adequate **traffic** detours, and sufficient **signage** & **warning** signs, Post speed limits and suitable bending on the road. • The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&Sc.	Construction Contractor, environmental specialist of D&SC.	• Road signage and safety instruments at suitable locations and chainage	Immediately after the construction work is over.
	Tree re plantation	Under the issue the overall score is **low**.	• Replantation of trees during monsoon period • Maintain of trees properly • Check survival of trees and replant the dead trees	Construction Contractor, environmental specialist of D&SC.	• Number of complaints from stakeholders; • Records of trees number and tree plantation inspection.	Immediately after the construction work is over.
5. Operatio	**Maintenance of road and**	Under the issue	(i) No advertisement/boardings shall be allowed within the Right of Way	LGED	• Number of complaints from	During Operation under

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
nal Phase	**assets** (Road accidents may increase due to higher number of vehicles using the roads at increased speeds)	the overall score is **low**.	limits of the project road. • Regular maintenance and cleaning of assets such as sign boards, road safety sign etc. shall be undertaken. • Clear smooth speed breaker/rough surfaces should be clear in views. • Regular maintenance of road surface and shoulders.		stakeholders;	LGED's regular maintenance program in each 3 years.

* 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.* Mention some recommendation on E&S assessment …. ESMP

If site specific environmental and social management plan (ESMP) is followed the impacts can be mitigated and monitored. ESMP is attached.

Appendix-2: Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Access and evacuation Roads: Panishia Graveyard Road

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
Pre-Construction Stage	Loss of land / and other physical assets	• No land acquisition is allowed within this sub-project activities So, there are no any mitigation measures according to this impact.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact of adjacent livelihoods	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • Consultation meeting with host communities about the project objectives and scope of works	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of right to access	• Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact. • In case of unavoidable circumstances, alternative access will be provided.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection & implementing interventions: Human-elephant	• Selection of sub-project sites and all implementing interventions must take place outside of the	PIU	Environmental Consultant of PIU,

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
	conflict	elephant corridor/influence area.		PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Our selected sites avoided the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff. • Tubewell location within the construction site is not near to any kinds of latrine and soaks well which could be contaminated by those. • After completing the development we restored the place as like before to avoid the cut and fill operational problems. • This site is in the local community, so we discussed with the local community to avoid any conflicts related local habitation, culture. • Sub project intervention mustavoid of natural disturbance of existing slop and natural drainage. • The contractor ensuring sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities mostly will finish at day time within 05 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipments (PPEs) must be ensured in sites before starting any kinds of construction works.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	• Acceptable range of emission of CO, particulate matter [SPM (**Suspended particulate matter)**,	Contractor	Environmental Consultant of PIU,

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices • Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes. • Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level		PSC
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in our site and take necessary measures for preventing this problem • Before works started Contractor must provide proper training and guidelines on health and safety issues to the labors and associated staffs. • Records of every training must be kept at site. • All kinds of Child labour are completely prohibited in every site. • Every construction materials storage site will be well fenced by Tin and safety caution tape.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will maintain proper route for traffic management which is to beconsulted with and confirmed by the Executive Engineer of Cox's Bazar.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water	PIU & Contractor	Social Development Specialist and

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		sources shall be taken. • If ground water is withdrawn, adequate approvals from the appropriate department need to be undertaken 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 works starts.		Gender Specialist of PIU, PSC
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be 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. • 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 labour camps will be put in place • Treated water will be made available at site for drinking purpose.	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		• Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: • Residual waste from the temporary accommodation facilities for labor Waste and from equipment maintenance/vehicles on-site • After completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • 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,	• All construction equipment will be properly inspected timely. • The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. • Preparation of proper walkways and clearly designation as a walkway has to be ensured; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • 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.	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
	temporary or permanent hearing loss, heat stress, and dermatitis.	• This sub project has Proper communicative emergency response plan (ERP) with all parties, the ERP 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. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), 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 the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of		

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
		this awareness training shall be kept on site. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure 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.		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Solid organic wastes should be stored in bins and/ or skips and emptied regularly at a designated waste disposal area away from the camp site. If no designated site is available within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.	PIU	Environmental Consultant of PIU, PSC. Union Member
Decommissioning during the project implementation period (including site clearance after the	The impacts are similar to those listed in construction stage: ✓ Pollution from waste materials ✓ Health & Safety risks to	• Contractor must prepare a demolition and waste management plan including following directive aspects given hereunder.	PIU / Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

Project Stage	*Potential Environmental & Social Impacts/Issues*	*Proposed Mitigation Measures*	*Institutional Responsibilities*	*Supervision Responsibility*
construction)	workers and local community			
Operation &Maintenance	Noise disturbances to fauna	• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures. • Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.	UE-LGED (under the guidance of Executive Engineer, LGED)	PSC, UNO.

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Appendix-3: Cost of Environmental Enhancement Works in BOQ

In consideration to the above-mentioned environmental 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	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	4917.0 Sq.m	@38.15 Tk. Per sqm	187,583.55
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1650.0m	@ 2.56 BDT	4,224.00
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **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.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
5.	**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.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**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, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	140 nos.	@ Tk. 1000	140,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
13.	**Environmental management** Environmental management costs of the Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C. (one fourth part of the entire cost).	12 months	Monthly basis @Tk. 35,000.00 for 12 months. One person for each package. (Net payment excluding Tax &VAT).	105,000
	Subtotal Bill: Environmental Enhancement Works			**592,453.27**

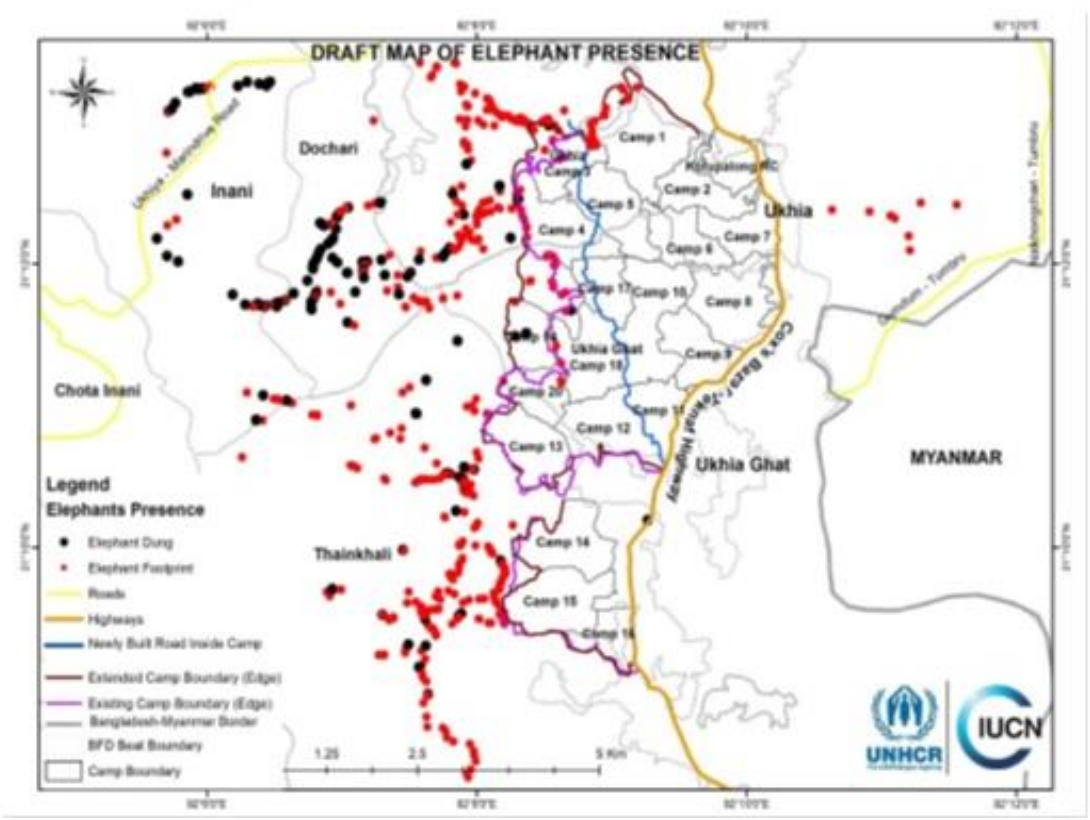
Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 32 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-16.4).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	86		108	50.00	194	9,700.00	To be placed in a case/holder on the basin, for washing hands for max. 37 people a day and showering of 32 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	19 nos. for each site		N/A	400.00	19	7,600.00	For labors who work in close contact, 19 in each site

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	32 nos. for each labor camp		35.00	576	20,160.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1.5 kg in each camp/month		400.00	13.5	5,400.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**110,035.00**	

Appendix-4: Elephant Presence Map



Elephant presence map (latest information published on 24 May 2018)

Appendix-5: List of Participants in the Consultation Meeting

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Public Consultation Participants List

Time: 12:20 PM

Date: 22/12/2019

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নামঃ পাইন্যাশিয়া কচুবনিয়া রোড

মত বিনিময়ের স্থানঃ জুম্মাপাড়া কামাল স্টোর

ইউনিয়নঃ জালিয়াপালং

ডাকঘরঃ ইনানী

উপজেলাঃ উখিয়া

জেলাঃ কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর
০১	মনিরুল আলম	৪২	পুরুষ	মধ্যম পাইন্যাশিয়া	[illegible]
০২	মোহাং আনোয়ার	৪৮	"	(মিনাজি) পাড়া	[illegible]
০৩	নুরুল ইসলাম		"	মধ্যম পাড়া	[illegible]
০৪	আনোয়ারুল ইসলাম	৪২	"	"	[illegible]
০৫	হোসনার উদ্দিন (মাঝি)	৫২	"	"	[illegible]
০৬	মৌলভী আহমদ	৪৮	"	মিনাবাজার	[illegible]
০৭	মোহাং নুরুল	৫০	"	"	[illegible]
০৮	কাসেম উদ্দিন	৬৯	"	"	[illegible]
০৯	মাহবুব আলম	৪০	"	মধ্যম পাড়া	[illegible]
১০	মোহাং আলী	৬২	"	কোনার পাড়া	[illegible]
১১	মো: মহিউদ্দিন	৫০	"	"	[illegible]
১২	রফিক আহমদ	৬৫	"	"	[illegible]
১৩	শফিং আলম	৪৬	"	পাইন্যাশিয়া	[illegible]
১৪	রফিক আহমদ	২৮	"	লম্বা পাড়া	[illegible]
১৫	মোহাং আলম	৬২	"	হাজি পাড়া	[illegible]
১৬	ফয়েজ আহমদ	৬০	"	"	[illegible]
১৭	মোহাম্মদ নুরুল	৬৮	"	"	[illegible]
১৮	জামাল উদ্দিন	২৯	"	মধ্যম পাইন্যাশিয়া	[illegible]
১৯	আবুল মিয়া	৪২	"	"	[illegible]
২০	শফি আলম	৬৯	"	"	[illegible]

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Public Consultation Participants List

Time: 12:20 PM............ Date: 22/12/2019

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নাম: পালংখালী কক্সবাজার রোড

মত বিনিময়ের স্থান: উখিয়াপাড়া কামাল স্টোর

ইউনিয়ন: জালিয়াপালং

ডাকঘর: উখিয়া

উপজেলা: উখিয়া

জেলা: কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর
২১	জাহিদ আহমদ	৪৮	পুরুষ	চিতাখোলা পাড়া	[signature]
২২	হাবিবুল আলম	৩৮	"	"	[signature]
২৩	ইউসুফ আলম	৫৬	"	"	[signature]
২৪	করিম আলম	৪৪	"	"	[signature]
২৫	হাবিবুল আলম	৪৮	"	পালংখালী	[signature]
২৬	রুহুল আলম	৫২	"	"	[signature]
২৭	মিজানুর রহমান	৩২	"	"	[signature]
২৮	নুরুল আলম	৫০	"	"	নুরুল আলম

Public Consultation Participants' List

Appendix-6: Pictorial View of the surroundings of the proposed sites

Pond and Culvert are on the way to Sub-project

Brick boundary wall and Tin & Bamboo fence besides the road