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

of

Drownkhali-Nabonia (Janab Ali Road) Road, ID: 422944001

Under package-EMCRP/W15

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 different 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 Drownkhali-Nabonia(Janab Ali Road) Road belongs in Holdiapalong union under Ukhia upazila. This road has a started from Cox's Bazar- Teknaf R&H Dhurumkhali point stretching 925 to Nolbonia Bazar. The Sub-Project is categorized as a village road-A with a proposed design of 250 mm sand layer, BFS 200 mm layer and RCC footing for 925 meters. 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, including 2 Mosques (50m and 10m away from different chainage), 7 ponds (20m, 30m, 30m, 20m, 30m, 10m, 15m away from different chainage) and several homestead garden along the road. Dhurumkhali khal is present at 80m north of the proposed site. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists. However, this area is lower in respect to surrounding village area. Water logging is an annual phenomenon and locals face difficulty during rainy seasons. 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 communication of overall Teknaf & Ukhiya Upazila. Since this surge of 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

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

- ✓ 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/W15.**

Table 1.2.1: Significant features of the Sub-project

<table>
<tr><td colspan="4">Package No. EMCRP/W15
Description of Sub-project :
Construction of 4 RCC roads under Cox's Bazar District:
Improvement of access roads to (1) Drownkhali-Nalbonia(Janab Ali Road) Road, ID:422944001, (2) Maricha G.C-Lambori Para via Gorirdip Road, Road ID: 422944003 (3)Gilatoli Maskaria,Modhur sora, Road ID: 422944010 (4) Dail Para Dagolia Chack Boita Road, ID: 422944015</td></tr>
<tr><td colspan="4">Sub-project Component no. (1) Drownkhali-Nabonia(Janab Ali Road) Road, ID:422944001</td></tr>
<tr><td colspan="4">Component's Location :
<table>
<tr><td>i. ID 422944001</td><td colspan="2">ii. Ward No. : 08</td><td>iii. Mouza : Rumka</td></tr>
<tr><td>iv.Village : Dhurumkhali</td><td colspan="3">v. Name of Union : Holdia palong</td></tr>
<tr><td colspan="2">vi. Upazila : Ukhiya</td><td colspan="2">vii. Sub-Project construction period: 6 Months</td></tr>
<tr><td>viii. Construction Year: 2020-2021</td><td>ix. Width (m) : 04 m</td><td colspan="2">x. Length (m) : 925</td></tr>
<tr><td colspan="4">xi. Distance from UZHQ : 4 Km.</td></tr>
<tr><td>GPS Coordinates</td><td colspan="3">Longitude Value 92˚5' 58.02" (Starting Point)
Latitude Value 21^0 17'31.11" (Starting Point)</td></tr>
<tr><td></td><td colspan="3">Longitude Value 92^0 6'21.27"(Ending Point)
Latitude Value 21^0 17'39.82" (Ending Point)</td></tr>
<tr><td>Condition of Road</td><td colspan="3">Brick Flat Soling</td></tr>
<tr><td>Communication Source</td><td colspan="3">Radio & Mobile Networks</td></tr>
</table></td></tr>
<tr><td colspan="4">Subproject Intervention:
Proposed safety structures are Earth Filling work in 0-925ch, Improvement of pavement by RCC works in 0-925ch, 2 numbers of cross drains with (0.975X 0.975) and (0.750X 0.750) dimensions, 92 meters of Toe wall of 1.5m height, 30.0 meters of Toe wall of 2 meters height, 102.0 meter of palisading work, 89.0-meter RCC U-drain (0.600mX 0.600), Road Safety work and Environmental mitigation Work.</td></tr>
<tr><td colspan="4">Implementing Agency : Local Government Engineering Department (LGED)</td></tr>
<tr><td colspan="4">Expected construction period (Component -1) :</td></tr>
<tr><td colspan="4">Estimated total cost of component: 22,902,514.09 (Tk.)</td></tr>
</table>

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. D&SC conducted the consultation meeting with local community on 21 December, 2019 at Dhurumkhali Bazar, 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 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 are come 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.

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including 2 Mosques (50m and 10m away from different chainage), 7 ponds (20m, 30m, 30m, 20m, 30m, 10m, 15m away from different chainage) and several homestead garden along the road. Dhurumkhali khal located at 80m north of the proposed 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 of the area

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

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

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 planted for each tree fell in the periphery of the subproject. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including 2 Mosques (50m and 10m away from different chainage), 7 ponds (20m, 30m, 30m, 20m, 30m, 10m, 15m away from different chainage) and several homestead garden along the road. Dhurumkhali khal located at 80m north of the proposed 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. On the other hand, some part of the proposed road is passing by the agricultural land. So, 2 no. of Cross Drain (Size: .950mmX .950mm) at different 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. Some small hills or high land is found beside the road. As a mitigation measure, 89m U-Drain at different chainage will be constructed for

drainage mountain eel water during rainy season. Due to the low land along different chainage of the road 102 meters of Brick Palisading wall at different chainage will be constructed as part of mitigation measures. Furthermore, 122 meters of Toe wall of different heights are included in design in order to withstand any potential impacts from landslide or mas movement.

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 has 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 Measure 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 CONCLUSION 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: (***Improvement of 4 Access Road to Cox's Bazar District:*** EMCRP/W15).

(1) Drownkhali-Nalbonia(Janab Ali Road) Road, ID:422944001, (2) Maricha G.C-Lambori Para via Gorirdip Road, Road ID: 422944003 (3)Gilatoli Maskaria, Modhur sora, Road ID: 422944010 (4) Dail Para Dagolia Chack Boita Road, ID: 422944015

Name of the component: Drownkhali-Nabonia(Janab Ali Road) Road, ID:422944001

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

Estimated total cost of sub-project (in Taka): 216,953,028.57

Estimated construction period duration: 9 (Nine) months

Estimated total cost of the component (in Taka): 22,902,514.09

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: Drownkhali-Nolbunia

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 with a proposed design of 250 mm sand layer, BFS 200 mm layer and RCC footing for 925 meters. Proposed safety structures are **Earth Filling** work in 0-925ch, Improvement of pavement by **RCC works** in 0-925ch, 2 numbers of **cross drains** with (0.975X 0.975) and (0.750X 0.750) dimensions, 92 meters of **Toe wall** of 1.5m height, 30.0 meters of **Toe wall** of 2 meters height, 102.0 meter of **palisading work**, 89.0-**meter RCC U-drain** (0.600mX 0.600), Road Safety work and Environmental mitigation Work.

Estimated footprint / land area for this sub-project is 3700 sqm.

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

This proposed Drownkhali-Nabonia (Janab Ali Road) Road belongs in Holdiapalong union under Ukhia upazila. This road has a started from Cox's Bazar- Teknaf R&H Dhurumkhali point stretching 925 to Nolbonia Bazar. Some connecting roads are present within the road chainage.

Detail Environmental features of the Sub-Project:

Detail Chainage Length of the sub-project: 925m. 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 (m)	Left	Right	Features
000-300	L		Electric Pole, Settlements (small restaurants), Culvert, paddy field, Trees, Electric Pole, Connecting House road to the left, tin shed

			boundary, pond, RCC pole boundary, Connecting House road to the left, Big Tree, Mosque.
		R	Local Shop, Settlement(restaurant), tin shed boundary, tree garden, wired fence, concrete building, connecting house road to the right, tin shed fence, connecting house road to the right, bamboo fence.
300-600	L		Paddy Field, Electric pole, Vegetable garden, tin shed fence, bamboo fence, Khal (dhurumkhali khal), areca palm tree garden, bamboo fence, connecting house road to the left, paddy field, half concrete house, connecting road to east Janab Ali Para to the left.
		R	Tin Shed fence, tin shed household, vegetable garden, half-concrete HH, Big Tree, bamboo fence, bamboo garden, pond, Connecting House Road, paddy field, Proposed culvert, bamboo fence, pond.
600-925	L		Paddy Field, Culvert, Tin shed HH, Mosque, Bamboo Fence, Pond, Big Tree, bamboo fence, Tree garden, Pond.
		R	Bamboo fence, wired fence, Pond, Tin boundary, Connecting House road to the right, Big tree, bamboo fence, Areca palm tree garden, concrete HH, bamboo fence, pond.

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 EMP 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 Doronkhali to nalbunia of 8no. Ward under Holdiapalong union of Ukhiya upazila, Cox's Bazar. 2 Mosques (50m and 10m away from different chainage), 7 ponds (20m, 30m, 30m, 20m, 30m, 10m, 15m away from different chainage) are situated near the road side. Dhurumkhali khal located at 80m north of the proposed site. The project road crosses several community, agricultural lands and community level forest. No scope to disturbance by this sub-project which bring religious and cultural values to the community people. Moreover, details important environmental features of the Sub-Project are included in Table 1.3.1

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 8 km away from this sub-project.

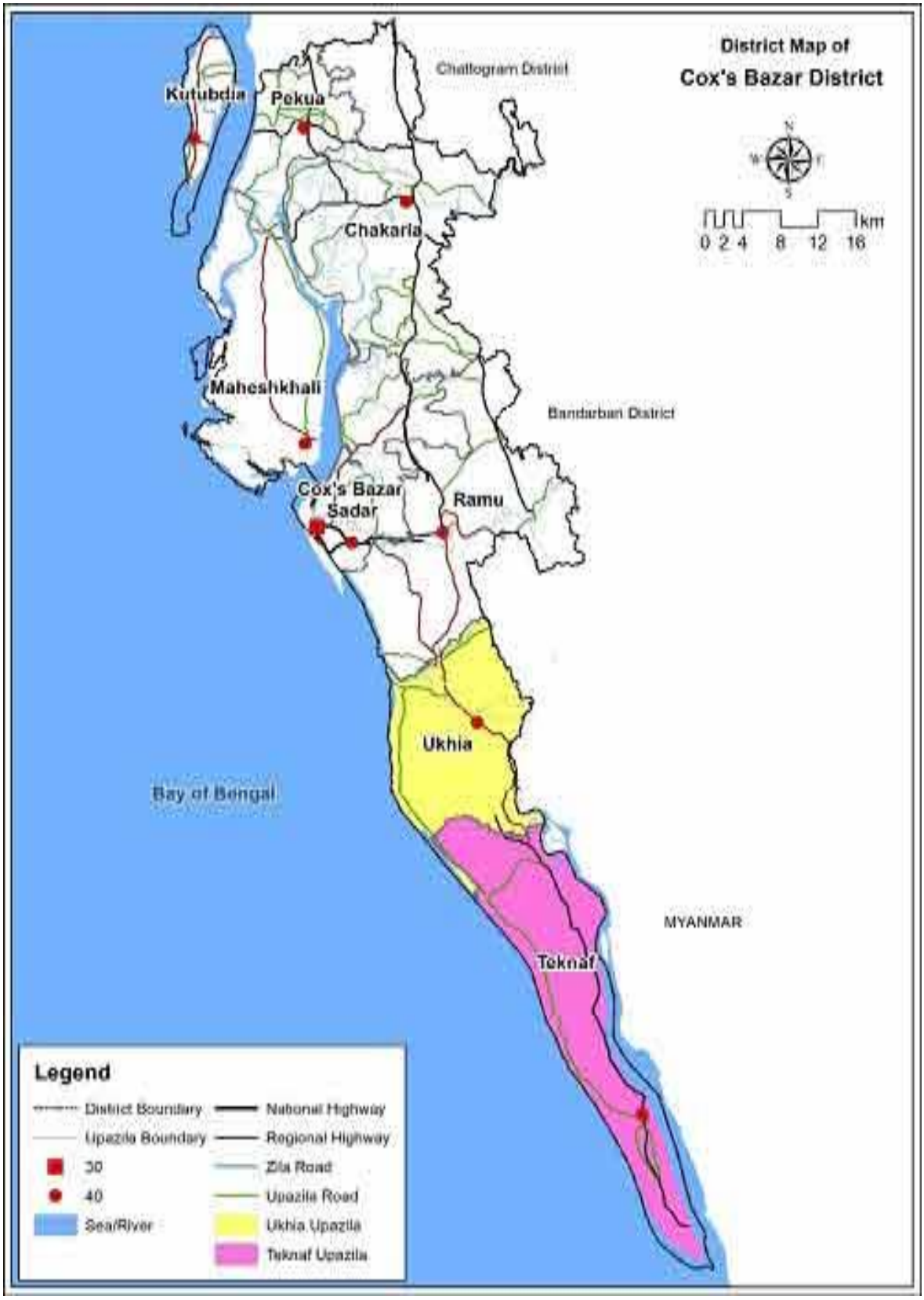


Figure 3: District Map with project location

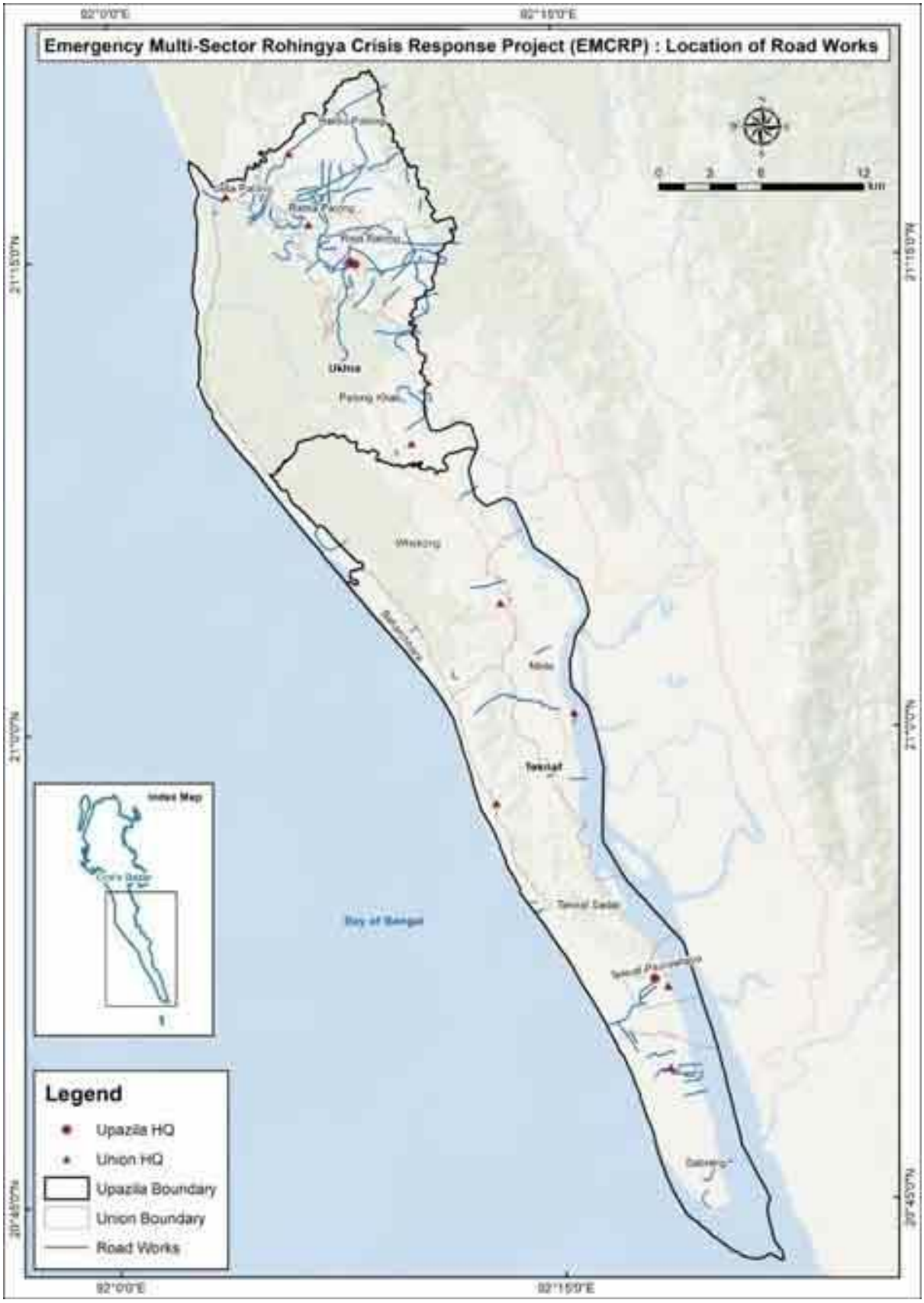


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

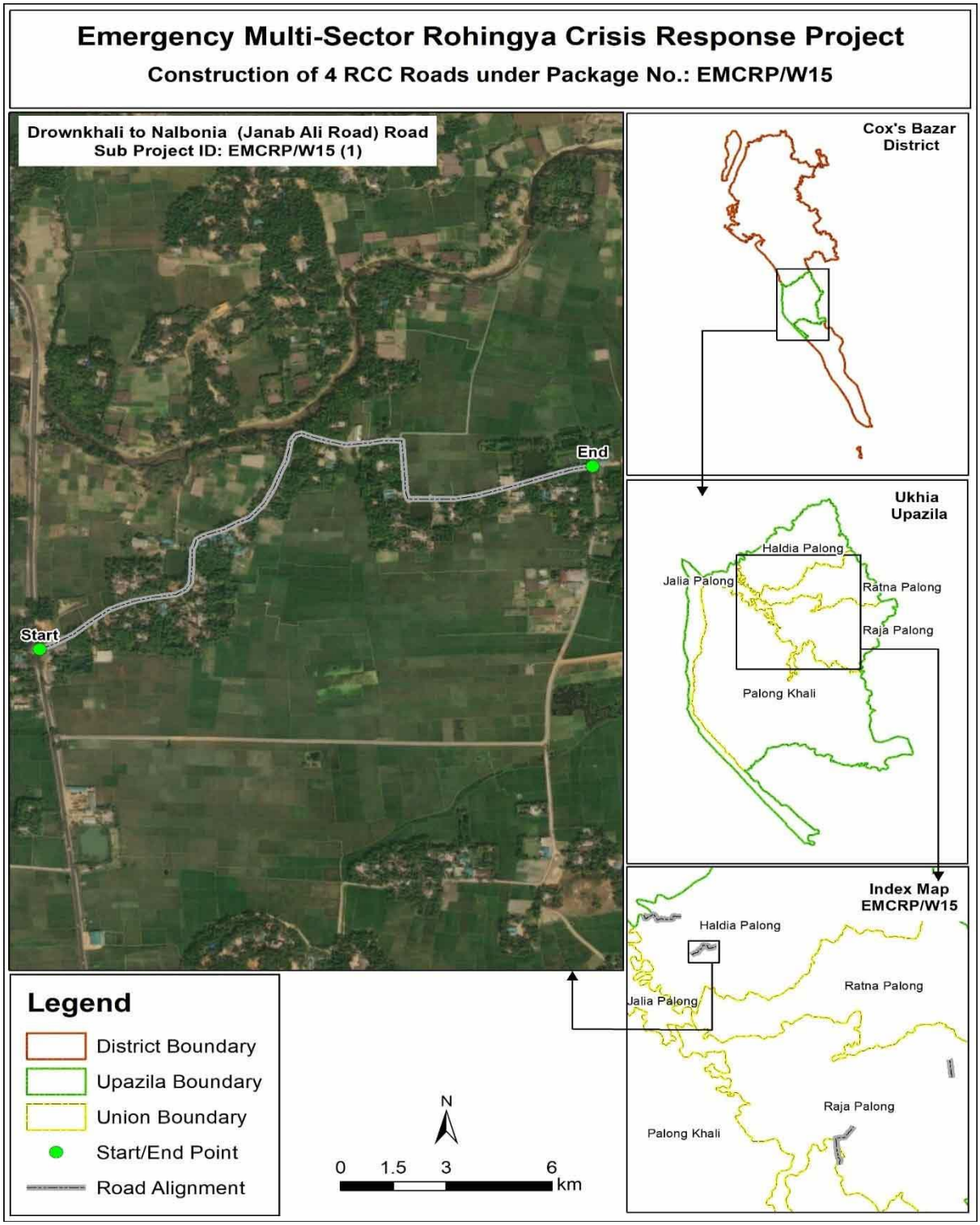


Figure 5: Upazila Map with Sub-project location

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 with a proposed design of 250 mm sand layer, BFS 200 mm layer and RCC footing for 925 meters.

Sub-project Location:

Important Features	
ID	422944001
District	Cox's Bazar
Upazila	Ukhiya
Union	Haldiapalong
WARD	08
Proposed Chainage	925m
Road Type	Village Road-A
Proposed Intervention Type	RCC
Road Starting Point Coordinates	Latitude: 21^0 17'31.11" N Longitude: 92˚5' 58.02" E
Road Ending Point Coordinates	Latitude: 21^0 17'39.82" N Longitude: 92^0 6'21.27" E

Land ownership
Land is owned by Government.

Expected construction period: 9 (Nine 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:

The Sub-Project is categorized as a village road-A with a proposed design of 250 mm sand layer, BFS 200 mm layer and RCC footing for 925 meters.

i) No historical sites,
ii) 7 ponds found adjacent the subproject area.
iii) Not required to relocate local community.
iv) Some trees and vegetation will be affected.
v) Very low chance of loss of agricultural land.
vi) Some Household Boundary made of bamboo and tin may need adjustments.
vii) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

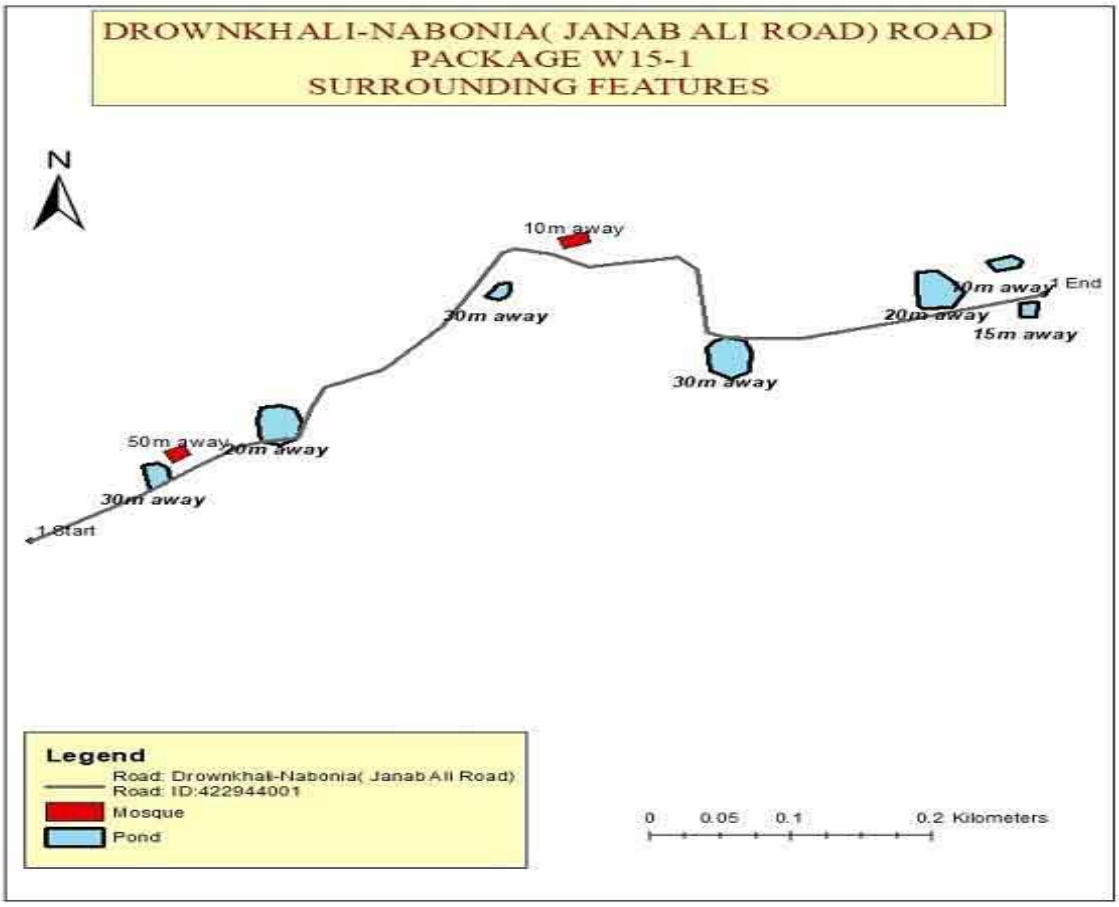
***B.1*: Environmental feature of sub-project location**

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:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including 2 Mosques (50m and 10m away from different chainage), 7 ponds (20m, 30m, 30m, 20m, 30m, 10m, 15m away from different chainage) and several homestead garden along the road. Dhurumkhali khal located at 80m north of the proposed site. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists. However, this area is lower in respect to surrounding village area. Water logging is an annual phenomenon and locals face difficulty during rainy seasons.

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, water bodies 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 were 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 in through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley, dumper etc. over the road surface which causes air pollution.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance level. Vehicles such as motor cycle, tempo, auto rickshaw, dumper, trailer, etc. move on the road surface adjacent to sub-project during day and night. These vehicles generate noise adjacent to the Sub-project area but within tolerable limit in most cases.

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 500 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 400-800ft (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.

Many shallow tube wells (70ft. to 90 ft.) are fitted in local area and most of the water usage is sufficed from these sources.

*Data source: 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): Cox's Bazar-Teknaf highway is the main way for transportation of construction materials. 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.
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 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 v) Reinforced Bar
Identification of access road for transportation (Yes/No): Yes. The brick soling road can offer space adjacent labor camp to facilitate material unloading. The material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done. Small carrying pickups can also be used.
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 5/6 kg per day.

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.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): **Solid wastes:** Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction works which are mostly solid wastes. And the quantity can be tentatively 15 kg daily. **Liquid wastes:** Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity can be tentatively 2/3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific 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) There are 7 ponds along sides the sub-project location. Water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities 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.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development:(High/Medium/Low with description) Low. Because under this interventions, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
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, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
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) There are 7 ponds and a khal found adjacent to 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 RCC 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&S	• 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&S	• 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&S.	• Road signage and safety instruments at suitable locations and chainage	Immediately after the construction work is over.
	Tree 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: Drownkhali-Nabonia (Janab Ali Road) Road, ID: 422944001

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 must avoid 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 Equipment (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.

Waste Management Plan Principles:

The contractor shall develop a waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food, and organic waste, etc.) prior to commencing of construction and submit to LGED for approval. The plans must include the following principles or series of actions, which will be carried out/followed by the contractor and supervised by the Field level Environmental Specialist and Social Development Specialist.

- Preventing waste from throwing, leaching, or getting access to water bodies has to be maintained strictly by the contractor. Material storage site or the primary storage of waste materials shall not be closer to any water body (running or stagnant); the distance of the water body should be at least 10m from the edging part of storage.
- The quantity of waste materials shall be minimized by 3R (Reduce, Recycle and Reuse) approach and wastes shall be segregated accordingly, wherever practical; and stored in designated places/facilities in the site.
- Labor camp and construction site shall be maintained in a cleaner, tidy and safe condition, and appropriate facilities shall be provided and maintained as temporary storage of all wastes before transportation and final disposal. Waste, irrespective of types, shall not be stored/ piled up in the middle of the road or on such a place which may obstruct traffic movement or water runoff or might be a source of an accident or public nuisance.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area and subsequently sold to authorized recyclers.
- Parts of construction debris (from demolishing of labor camp and toilets in the post-construction phase) can be recycled as filling materials on the ground or be sold for use as sub-base material or driveway bedding.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of the disposal site, so as to cause less environmental impact.
- Soil contaminated with petroleum/engine oil shall be removed from the site and stored in a specific place, and later disposed off in a designated dumping area. Careful handling of these hazardous substances in the site shall be maintained and supervised by the contractor.

- Organic wastes produced in the campsite during the construction period shall be collected and transported in vehicles covered with tarps or nets to prevent spilling waste along the route to the designated disposal site;
- Burning of any type of wastes in a labor camp or construction site shall be prohibited completely.

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 Needed	Unit price BDT	Total amount BDT
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)	2754.000 sqm	38.15	105,065.1
2	**First Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	LS	5000	5000
3	**Overall environmental management in addition to the clause 27 & 29 of GCC & 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.	925	2.56	2368.00
4	**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	10000	10000
5	**Personal Protective Equipment** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	LS	30000	30000
6	**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,	160	1000	160000

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
	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.			
7	**Portable water supply & 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	12822.86	25645.72
8	**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	5000	5000
9	**Camp site drinking water supply facilities** Preferably 1 no. of tube well at the labor camp site (Depending on the site condition, DSM consultant will assist the contractor for selecting the option) and providing adequate storage facility of water with filter of minimum capacity of 30 liters to the entire satisfaction of E-I-C.	1	30000	30000
10	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractors 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 providing necessary barricades, warning signs/lights, guide signs. Flagmen, maintaining diversion roads by cutting, filling, construction, etc. or by any other means in accordance with the full satisfaction of EIC.	1	15000	15000
11	Test (Drinking Water samples)	1	5000	5000

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
	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.			
12	**Environmental Management cost of the environment & social /Safeguard personal:** For environment and social Management and Monitoring during construction and operation phase for their salary and transport (one fourth part of the entire cost)	1 person for 12 months	35000.00	105,000.00
13	**CRS Plate** Providing, fitting and fixing of retro-reflectorized cautionary, mandatory and informatory sign as per standard drawing.	2	5803.79	11607.58
14	**Labor Shed** Providing shelter and resting place for labors near sub-project location	1	30,000	30,000
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				**539,686.4**

Cost of H&S Measures under COVID 19 Situations

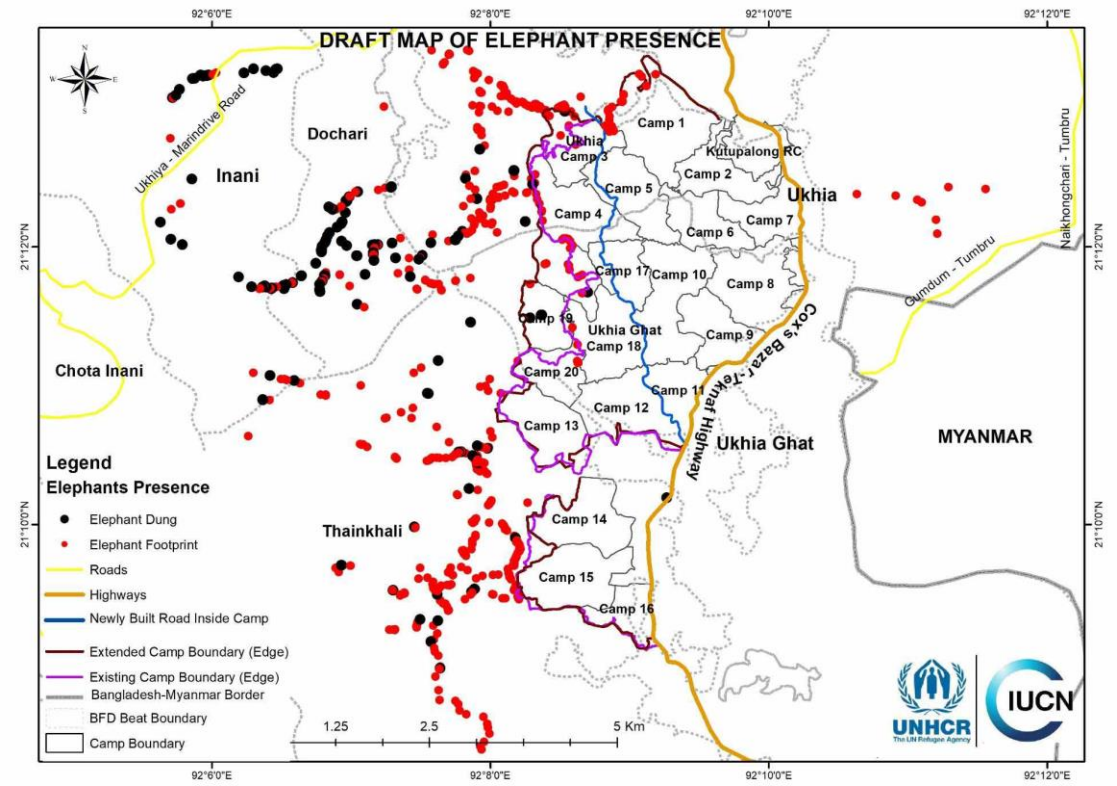
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 270 active working days (9 months) of one-year construction period for this sub- project (EMCRP/W-15-1).

Cost of H&S Measures under COVID 19 Situations

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)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 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 liter can for each Site office
6	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	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	05 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	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter 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	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				10,000.00	1	10,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**84,275.00**	

Appendix-4: Elephant Presence Map



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

Appendix-5: List of Participants in the Consultation Meetings

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

Time: 01:30PM .... 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 ধুরুমখালী - নলবুনিয়া (জেনারখালী) রোড
মত বিনিময়ের স্থানঃ ধুরুমখালী স্টেশন মোর্শেদ স্টোর

ইউনিয়নঃ হলদিয়াপালং
ডাকঘরঃ মরিচ্যা
উপজেলাঃ উখিয়া
জেলাঃ কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
০১	স্বপন শর্মা রনি	৪৮	পুরুষ	জনারখোলী পাড়া	[illegible]
০২	নূর মোহাম্মদ	৪৬	"	"	[illegible]
০৩	সিরাজুল ইসলাম	৫৬	"	"	[illegible]
০৪	ছৈয়দ নূর	৪৩	"	"	[illegible]
০৫	সাব্বির হোছন	২৮	"	"	সাব্বির হোছন
০৬	মোঃ তাহের	৪৪	"	"	মোঃ তাহের
০৭	মনির আহমদ	৪০	"	"	[illegible]
০৮	সুলতান আহাম্মদ	৪২	"	"	সুলতান
০৯	আবদু রহমান	২৫	"	"	আবদু রহমান
১০	শামসুল আলম	৫৫	"	"	[illegible]
১১	আবদুল মালেক	৩৫	"	"	আঃ মালেক
১২	ছৈয়দ হোছন	৩৬	"	"	ছৈয়দ হোছন
১৩	এহসানুল হক	২৬	"	"	এহসানুল হক
১৪	সাকিব	১৮	"	"	সাকিব
১৫	রহমত উল্লাহ	২৫	"	"	[illegible]
১৬	কবির আহমদ	৭৫	"	"	কবির আহমদ
১৭	আবদুল গনি	৬৫	"	"	আবদু গনি
১৮	মোঃ ইসলাম	৪৫	"	"	[illegible]
১৯	আরফাত হোসেন	২০	"	"	[illegible]
২০	সাইদ হোসেন	৫৪	"	"	সাইদ হোসেন

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Public Consultation Participants List

Time: 01:30 PM .... 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 ধুরুমখালী - নলবুনিয়া (গেনার খালী) রোড

মত বিনিময়ের স্থানঃ ধুরুমখালী স্টেশন মার্কেট রোড

ইউনিয়নঃ হলদিয়াপালং

ডাকঘরঃ মরিচ্যা

উপজেলাঃ উখিয়া

জেলাঃ কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
২১	রহমত উল্লাহ	৪০	পুরুষ	ধুরুমখালী পাড়া	রহমত উল্লাহ
২২	নুরুল ইসলাম	৪২	"	"	নুরুল ইসলাম
২৩	এরশাদ উল্লাহ	৪৫	"	"	এরশাদ
২৪	নুরুল ইসলাম	৩৫	"	"	নুরুল ইসলাম
২৫	মোঃ হুনাইন	১৯	"	"	মোঃ হুনাইন
২৬	জাফর আলম	৬০	"	"	জাফর
২৭	আব্দু রহিম	৪৫	"	"	আব্দু রহিম
২৮	আরিফ উদ্দিন	২৬	"	"	আরিফ
২৯	[illegible]	22	"	"	[illegible]
৩০	[illegible]	২৭	"	"	[illegible]
৩১	[illegible]	৩৮	"	"	[illegible]
৩২	রবিউল্লাহ	৫৪	"	"	Robimullah
৩৩	[illegible]	১৮	"	"	[illegible]
৩৪	মোঃ [illegible]	৪৫	"	"	[illegible]
৩৫	মোঃ [illegible]	৩৫	"	"	Kashem
৩৬	[illegible]	৪৮	"	"	[illegible]
৩৭	[illegible]	৩২	"	"	[illegible]
৩৮	[illegible]	৩৫	"	"	[illegible]
৩৯	[illegible]	২৭	"	"	[illegible]
৪০	[illegible]	৩৬	"	"	Akib

Public Consultation Participants' List

Appendix-6: Pictorial View of the surrounding of the proposed site

Trees along the Road along with Bamboo Fence

Mosque on the left of the road

Tin Fence and Bamboo Fence on both sides

Paddy Field on the side of the road

Overview of surrounding features of the 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

Of

Maricchha G.C-Lambori Para via Gorirdip Road, Road ID: 422944003

Under package-EMCRP/W15

December-2020

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 Brick
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
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 Maricha G.C-Lambori Para via Gorirdip Road belongs in Holdiapalong union under Ukhia upazila. This road has a started from Moricha Bazar (Cox'sBazar-Teknaf Road) stretching 1728 meters to Goriardip GPS,Rejur Khal. The Sub-Project is categorized as a village road-A with a proposed design of 250mm sand filling, BFS and 200mm RCC filling. Apart from some dispersed human settlement along the road, though at sufficient distance from the alignment, there is Sensitive environmental, cultural within 1 kilometer of site includes 2 Mosques (20m and 15m away at different chainage), 3 ponds (10m, 50m and 10m away at different chainage) and several homestead gardens and paddy field along the road. Rejur khal is present on the North and west side (100m and 150m respectively), Dhurumkhali rejur khal on the south (20m) of the proposed site.Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists. The drainage pattern of this area from East to West. 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 mprove 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 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 facilitate the following: it will

- ✓ Support to rural development along with education, business, agriculture, farming etc.
- ✓ Improve the local planning, coordination and work execution capacity

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

- ✓ 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/W15.**

Table 1.2.1: Significant features of the Sub-project

<table>
<tr><td colspan="3">Package Name: EMCRP/W15: Construction of 4 access roads under Cox's Bazar District:</td></tr>
<tr><td colspan="3">Sub-project Component no. (2) Maricca G.C-Lambori Para via Gorirdip Road, Road ID: 422944003</td></tr>
<tr><td colspan="3">Component Location :
<table>
<tr><td>i. ID-422944003</td><td>ii. Ward No.: 01</td><td>iii. Mouza : Moricha</td></tr>
<tr><td>iv.Village : Gorairdip</td><td colspan="2">v. Name of Union : Haldiapalong</td></tr>
<tr><td colspan="2">vi. Name of the Upazila : Ukhiya</td><td>Vii Road Width: 4m</td></tr>
<tr><td>viii. Construction Year: 2020-2021</td><td colspan="2">ix. Length (Km): 1728m</td></tr>
<tr><td colspan="3">x.Distance from UZHQ : 7 Km.</td></tr>
<tr><td>GPS Coordinates</td><td colspan="2">Longitude Value 92° 5' 44.71" (Starting Point)
Latitude Value 21^0 18'12.8" (Starting Point)</td></tr>
<tr><td></td><td colspan="2">Ending Point: Rejur Khal</td></tr>
<tr><td>Condition of Road</td><td colspan="2">Brick Flat Soiling (BFS)</td></tr>
<tr><td>Communication Source</td><td colspan="2">Radio & Mobile Network</td></tr>
</table></td></tr>
<tr><td colspan="3">Subproject interventions:
7 no. of Cross Drain (Size: .975mmX .975mm and .750mx.750m, 2 no. of Box Culverts at Ch: 1207 and at Ch: 2935m (Size: 2.50m x 2.50m) another (Size: 2.00mx2.00m). Toe Wall has been proposed at different chainage (Size: 1.05m height x 68 m, 1.05m height x 243m and 2.05m height x121m), L-Drain at different chainage for 1040 meters. Road Safety works and Environmental Mitigation work has also been proposed.</td></tr>
<tr><td colspan="3">Implementing Agency : Local Government Engineering Department (LGED)</td></tr>
<tr><td colspan="3">Expected construction period: 2020-2021</td></tr>
<tr><td colspan="3">Estimated total cost of component: 46,136,408.98 (Tk.)</td></tr>
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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 on 20 December in and around 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.

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.

Figure 2.1.1: Consultation meeting (FGD) with local community

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 are come 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.

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes 2 Mosques (20m and 15m away at different chainage), 3 ponds (10m, 50m and 10m away at different chainage) and several homestead gardens and paddy field along the road. Rejur khal is present on the North and west side (100m and 150m respectively), Dhurumkhali rejur khal on the south (20m)

of the proposed 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 of the area

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.

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

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 planted for each tree fell in the periphery of the subproject. Sensitive environmental, cultural within 1 kilometer of site includes 2 Mosques (20m and 15m away at different chainage), 3 ponds (10m, 50m and 10m away at different chainage) and several homestead gardens and paddy field along the road. Rejur khal is present on the North and west side (100m and 150m respectively), Dhurumkhali Rejur khal on the south (20m) of the proposed 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.

On the other hand, some part of the proposed road is passing by the agricultural land. So, 7 nos. Cross Drain (Size: 975mmX 975mm and 0.750mx 0.750m) at different chainage and 2 nos. Box Culverts at Ch:1257 (Size: 2.50m x 2.50m) and at Ch: 1391m (Size: 2.00mx2.00m) 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, 1040 m 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 Guide wall (Size: 1.05m height x 68 m, 1.05m height x 243m and 2.05m height x121m) 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 Measure 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 CONCLUSION 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/W15).

Name of the component: Mariccha G.C-Lambori Para via Gorirdip Road, Road ID: 422944003

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

Estimated total cost of sub-project (in Taka): 216,953,028.57

Estimated construction period duration: 9 (Nine) months

Estimated total cost of the component (in Taka): 46,136,408.98

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: Moriccha, Lmboripara, gourirdip

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 For drainage of rain 7 no. of **Cross Drain** (Size: .975mmX .975mm and .750mx.750m, 2 no. of **Box Culverts** at Ch: 1207 and at Ch: 2935m (Size: 2.50m x 2.50m) another (Size: 2.00mx2.00m). **Toe Wall** has been proposed at different chainage (Size: 1.05m height x 68 m, 1.05m height x 243m and 2.05m height x121m), **L-Drain** at different chainage for 1040 meters. Road Safety works and Environmental Mitigation work has also been proposed.

Estimated footprint / land area for this sub-project is 6912 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:
The Sub-Project is categorized as a village road-A with a proposed design of 250mm sand filling, BFS and 200mm RCC filling. This proposed Mariccha G.C-Lambori Para via Gorirdip Road belongs in Holdiapalong union under Ukhia upazila. This road has a started from Moricha Bazar (Cox'sBazar-Teknaf Road) stretching 1728 meters to Goriardip GPS, Rejur Khal.

Detail Environmental features of the Sub-Project:

Detail Chainage Length of the sub-project: 1728m. 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:

Detailed Features along the chainage length:

Chainage (m)	Left	Right	Features
000-300	L		Trees, Bamboo Fence, Brick Wall, Wire Fence, Paddy Land, Ditch, Pond, Drainage Channel
		R	Paddy Field, Box Culvert, Dipankor Budhya Bihar, Settlement, Ghoraidip Connecting Road
300-600	L		Ditch, Bamboo fence, trees, Drainage Channel, Bamboo fence, bamboo bush, Electric Pole, Chora, Hill, Electric Pole
		R	Electric Pole, Tin Fencing, Trees(Garden), High hill, Connecting Road, Bamboo Fence, Trees, Bamboo bush
600-900	L		Green Field, Electric Pole, Tin Fence, Tila(high), connecting road to lomboripara, Hill, Box Culvert, Drain
		R	Bamboo fence, trees, drainage, bamboo bush, mosque, garden, green field, drain, settlement
900-1200	L		Pond, Tin fence, Guraidip GPS, Tin Fence, Garden, Tin Household
		R	Bamboo Fence, Settlement, Tin fence, Bamboo fence, drain, chora, culvert, protection wall,
1200-1500	L		Tila, Graveyard, Mosque, Tila, Graveyard, Wire Fencing, Mosque, pond, Gunarpara connecting road, Paddy Field, Rejur Khal, Household, Paddy Field
		R	Chora, Retaining wall, bamboo fence, Connecting road to house, bamboo fence, tree, pond, paddy field
1500-1700	L		Garden paddy field
		R	Paddy field (close to rejur khal)

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:

Sensitive environmental, cultural within 1 kilometer of site includes 2 Mosques (20m and 15m away at different chainage), 3 ponds (10m, 50m and 10m away at different chainage) and several homestead gardens and paddy field along the road. Rejur khal is present on the North and west side (100m and 150m respectively), Dhurumkhali rejur khal on the south (20m) of the proposed site. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists. The drainage pattern of this area from East to West.

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.

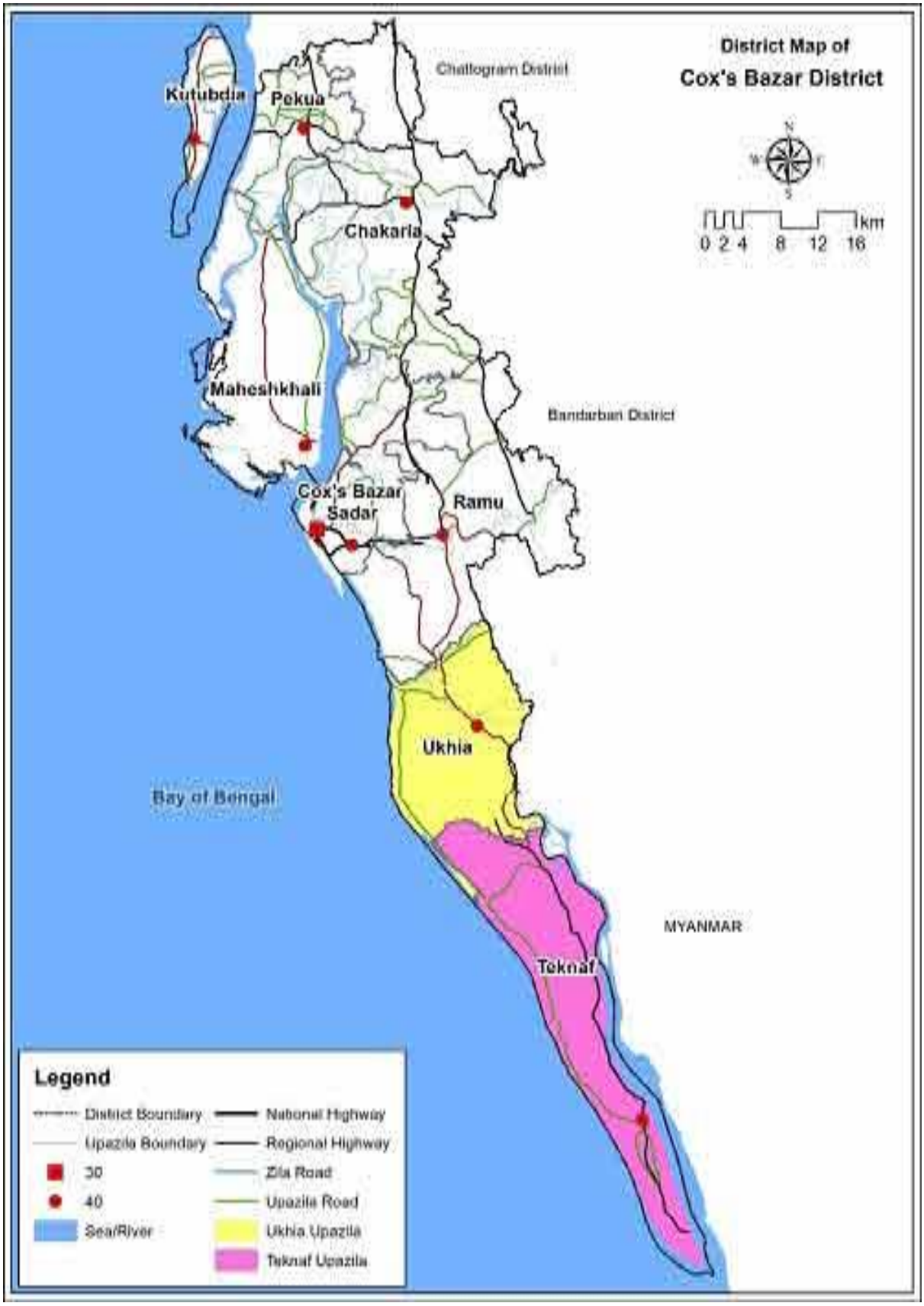

Figure 3: District Map with project location

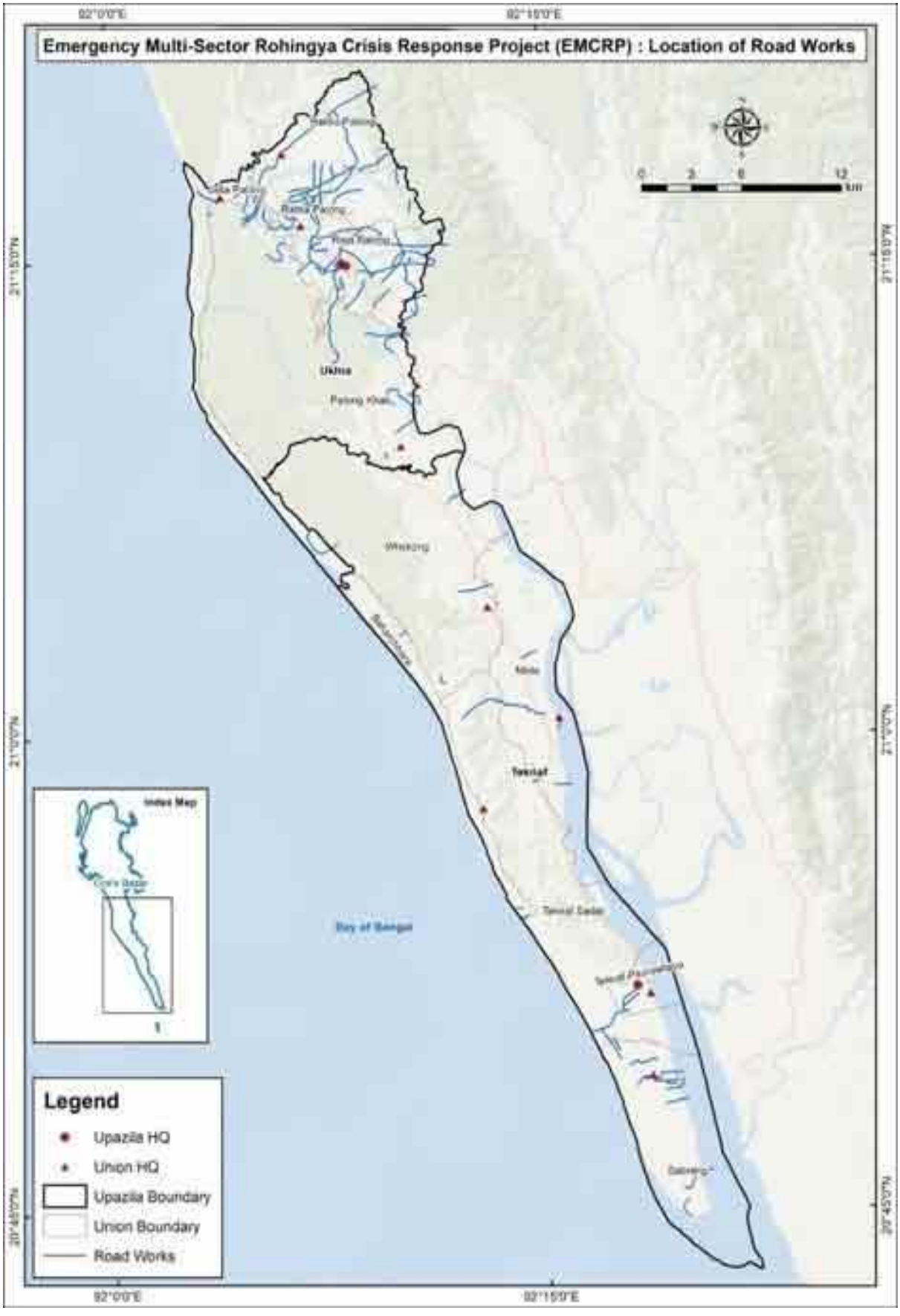

Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

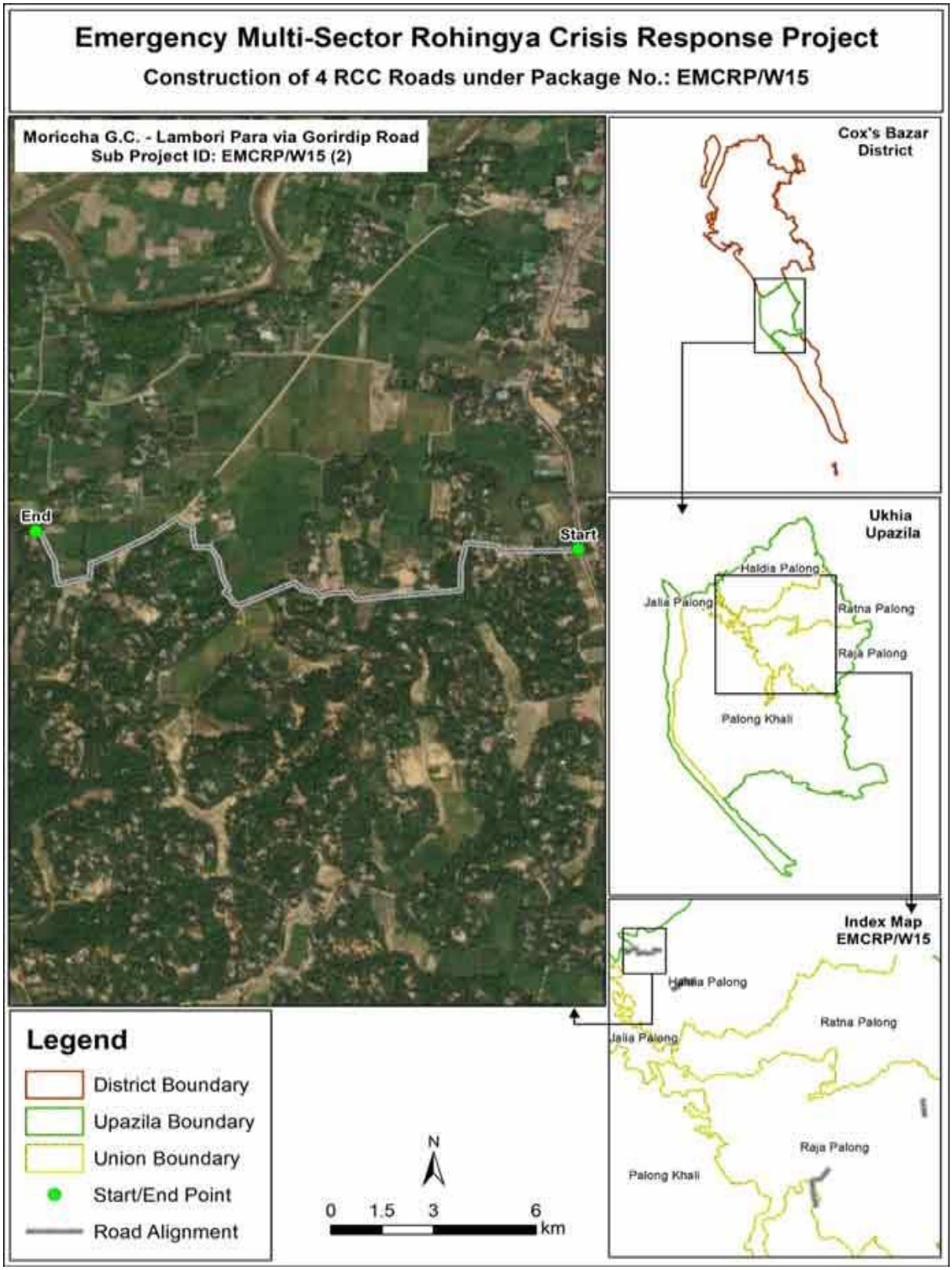

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Figure 5: Upazila Map with Sub-project location

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 with a proposed design of 250mm sand filling, BFS and 200mm RCC filling. This proposed Mariccha G.C-Lambori Para via Gorirdip Road belongs in Holdiapalong union under Ukhia upazila. This road has a started from Moricha Bazar (Cox'sBazar-Teknaf Road) stretching 1728 meters to Goriardip GPS, Rejur Khal.

Sub-project Location:

Important Features	
ID	422944003
District	Cox's Bazar
Upazila	Ukhiya
Union	Haldiapalong
WARD	01
Proposed Chainage	1728m
Road Type	Village Road-A
Proposed Intervention Type	RCC
Road Starting Point Coordinates	Longitude Value 92° 5' 44.71" (Starting Point) Latitude Value 21^0 18'12.8" (Starting Point)
Road Ending Point Coordinates	Brick Flat Soling

Land ownership
Land is owned by Government.

Expected construction period: 9(Nine 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) Not much trees need cutting but few shrub areas might need clearing along the road.
ii) No resettlement is required.
iii) Very low chance of loss of agricultural land. Some water bodies found.
iv) Some Household Boundary made of bamboo and tin may need adjustments.
v) Environmental sensitivity: There are some ponds on the left and right of the road which may face surface water pollution. No socio cultural site/ elephant corridor (checked with local IUCN representative).

Section B: Environmental Screening

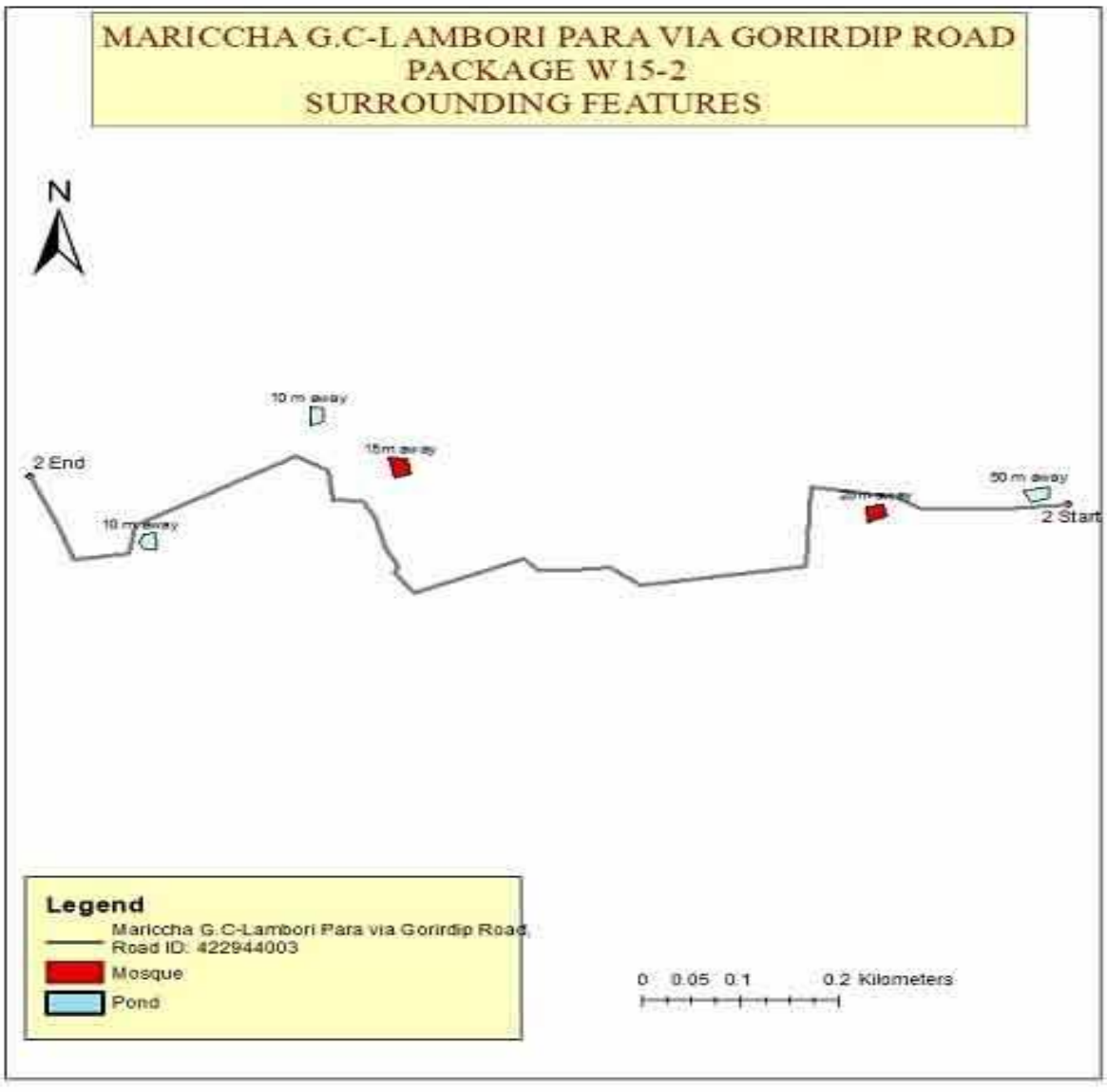
***B.1*: Environmental feature of sub-project location**

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:

Within 1 kilometer of site includes 2 Mosques (20m and 15m away at different chainage), 3 ponds (10m, 50m and 10m away at different chainage) and several homestead gardens and paddy field along the road. Rejur khal is present on the North and west side (100m and 150m respectively), Dhurumkhali rejur khal on the south (20m) of the proposed site. Apart from this structure no other sensitive environmental, cultural, archaeological, religious site exists. The drainage pattern of this area from East to West.

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, water bodies 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 were 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 in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.
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. Presence of Organic matter content in the soil is moderate. **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): Cox's Bazar-Teknaf is the main way for transportation of construction material. This subproject is connected to this road. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: 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 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 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.

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.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 can be tentatively 6 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates.
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. No such vegetation is present in the right of way. Specific 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) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities 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.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
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, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
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) Some ponds 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 RCC 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,	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	• Record of regular inspection. • Record of accidents/incidents	Monthly monitoring.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Storage of construction materials	Under the subproject intervention the overall score is **low**.	• Orienting concerned person and team assigned for the construction work.	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials;	During implementation 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	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	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
	erosion and landslides)		toe of the road embankment remain within the right of way and does not disturb the crop.			
	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&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&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: Mariccha G.C-Lambori Para via Gorirdip Road, Road ID: 422944003

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	Site Selection & implementing interventions: Human-elephant	• Selection of sub-project sites and all implementing interventions must take place	PIU	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Stage	conflict.	outside of the elephant corridor/influence area.		Consultant of PIU, 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	• A detailed assessment of the available resources	PIU & Contractor	Social

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	the scarcity of resource base.	and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. • If ground water is withdrawn, adequate approvals from the appropriate department need to be 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.		Development Specialist and 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	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation.		
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	• 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.	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
	musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	• 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 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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • 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	PIU	Environmental Consultant of PIU, PSC. Union Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		soil over time.		
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
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.

Waste Management Plan Principles:

The contractor shall develop a waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food, and organic waste, etc.) prior to commencing of construction and submit to LGED for approval. The plans must include the following principles or series of actions, which will be carried out/followed by the contractor and supervised by the Field level Environmental Specialist and Social Development Specialist.

- Preventing waste from throwing, leaching, or getting access to water bodies has to be maintained strictly by the contractor. Material storage site or the primary storage of waste materials shall not be closer to any water body (running or stagnant); the distance of the water body should be at least 10m from the edging part of storage.
- The quantity of waste materials shall be minimized by 3R (Reduce, Recycle and Reuse) approach and wastes shall be segregated accordingly, wherever practical; and stored in designated places/facilities in the site.

- Labor camp and construction site shall be maintained in a cleaner, tidy and safe condition, and appropriate facilities shall be provided and maintained as temporary storage of all wastes before transportation and final disposal. Waste, irrespective of types, shall not be stored/ piled up in the middle of the road or on such a place which may obstruct traffic movement or water runoff or might be a source of an accident or public nuisance.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area and subsequently sold to authorized recyclers.
- Parts of construction debris (from demolishing of labor camp and toilets in the post-construction phase) can be recycled as filling materials on the ground or be sold for use as sub-base material or driveway bedding.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of the disposal site, so as to cause less environmental impact.
- Soil contaminated with bitumen or petroleum/engine oil shall be removed from the site and stored in a specific place, and later disposed off in a designated dumping area. Careful handling of these hazardous substances in the site shall be maintained and supervised by the contractor.
- Organic wastes produced in the campsite during the construction period shall be collected and transported in vehicles covered with tarps or nets to prevent spilling waste along the route to the designated disposal site;
- Burning of any type of wastes in a labor camp or construction site shall be prohibited completely.

Prepared by: Harogopal Kabiraj, Environmental Focal Person, 01714980171
Tanvir Ahsan Haque, Environmental Specialist, 01688117059
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 Needed	Unit price BDT	Total amount BDT
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)	5167.200 sq. meter	38.15	197128.68
2	**First Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	1.0 LS	5000	5000
3	**Overall environmental management in addition to the clause 27 & 29 of GCC & 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.	1728	2.56	4423.68
4	**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.	20 persons	Approx. @ Tk. 500.per person(twice: before and after construction start)	10,000
5	**Personal Protective Equipment** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20	1 LS	30,000	30,000

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
	sets as per direction of E.I.C.			
6	**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.	200nos.	1000 for each tree.	100000.00
7	**Portable water supply & 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	25645.72
8	**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.	1 nos.	5,000 each	5,000
9	**Camp site drinking water supply facilities** Preferably 1 no. of tube well at the labor camp site (Depending on the site condition, DSM consultant will assist the contractor for selecting the option) and providing adequate storage facility of water with filter of minimum capacity of 30 liters to the entire	1 nos.	30,000.00	30,000.00

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
	satisfaction of E-I-C.			
10	**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 providing necessary barricades, warning signs/lights, guide signs. Flagmen, maintaining diversion roads by cutting, filling, construction, etc. or by any other means in accordance with the full satisfaction of EIC.	1 LS	15000	15000
11	**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.	1 LS	5000	5000
12	**Environmental Management cost of the environment & social /Safeguard personal:** For environment and social Management and Monitoring during construction and operation phase for their salary and transport (one fourth part of the entire cost)	1 person for 12 months	35000.00	105,000.00
13	**CRS Plate** Providing, fitting and fixing of retro-reflectorized cautionary, mandatory and informatory sign as per standard drawing.	2	5803.79	11607.58

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
14	**Labor Shed** Providing shelter for workers close to sub-project location	1 each	30,000.00	30,000.00
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				**573,805.66**

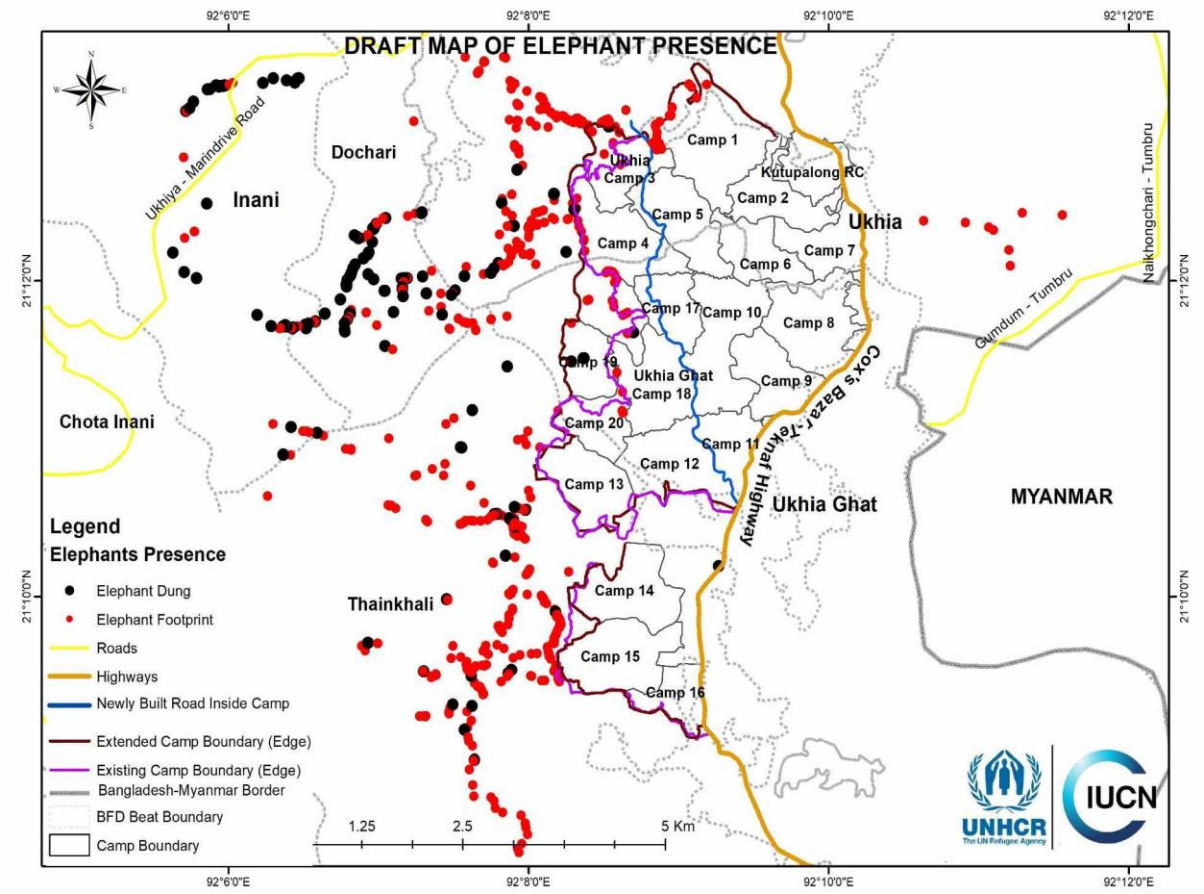
Cost of H&S Measures under COVID 19 Situations

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) of one-year construction period for this sub- project (EMCRP/W-15-2).

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	
4	Bar Soaps (150 gm each)	81		102	50.00	183	9,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.

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				
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 liter 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, 12 in each site
7	One-time Mask (Disposable) for Contractors' Staffs	05 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 liter 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	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				10,000.00	1	10,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**96,025.00**	

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: 03:50 PM Date. 20/12/2019

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

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

প্রকল্পের নামঃ Maccha G.C-Lamboripara via Gronidip

মত বিনিময়ের স্থানঃ জোরাইঝুর দ্বীপ সরকারী প্রাথ: বিদ্যা:

ইউনিয়নঃ Holudia

ডাকঘরঃ Moheccha

উপজেলাঃ Ukhiya

জেলাঃ Cox's Bazar

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
০১	আলতাফুল হোসাইন	৫৫		জোরাইঝুর দ্বীপ	
০২	মোঃ ইফতার আলম	৩৮		জোরাইঝুর দ্বীপ	
০৩	মোঃ হুরমুল হক	৪০		জোরাইঝুর দ্বীপ	
০৪	[illegible]	৫০		জোরাইঝুর দ্বীপ	
০৫	[illegible]	৬০		জোরাইঝুর দ্বীপ	
০৬	[illegible]	৬০		জোরাইঝুর দ্বীপ	
০৭	[illegible]	৩৫		জোরাইঝুর দ্বীপ	
০৮	[illegible]	৬০		জোরাইঝুর দ্বীপ	
০৯	[illegible]	৫২		জোরাইঝুর দ্বীপ	
১০	জয়নাল আবেদীন	৪২		জোরাইঝুর দ্বীপ	
১১	MD. HOSSAIN	৫৮		11 11	MD HOSSAIN
১২	[illegible]	৩৮		11 11	
১৩	[illegible]	২৫		11 11	
	[illegible]	৩০		11 11	
	[illegible]	২৬		11 11	
	[illegible]	২৯		11 11	
	[illegible]	৬৫		11 11	
	[illegible]	২৮		11 11	
	[illegible]	২৬		11 11	
	[illegible]	৫৮		11 11	

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Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Public Consultation Participants List

Time:.............................. Date...............

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

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

প্রকল্পের নামঃ
মত বিনিময়ের স্থানঃ

ইউনিয়নঃ ৩নং হলদিয়াপালং
ডাকঘরঃ
উপজেলাঃ
জেলাঃ

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
২১	মোঃ জমির উদ্দিন	২৫		জোয়ারিয়া নালা	[signature]
22	মফিজ উর রহমান	২৪		"	[signature]
২৩	মোবারক	৩০		"	মোবারক
২৪.	মোহাম্মদ আলী	৬২		"	MD. ALI
২৫.	মোঃ ফেরদৌস	২৩		"	মোঃ ফেরদৌস
	জাবেদ উল্লাহ	১৮.		"	জাবেদ উল্লাহ
	হারুন আলি	৬০		খোনারপাড়া	[signature]
	মোঃ কাসেম	১৭.		জোয়ারিয়া নালা	[signature]
	মোঃ হাসেম.	২১		" "	হাসেম

Scanned by CamScanner

Public Consultation Participants' List

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

Household Boundary made of Tin

Vegetation on sides of the Road

Hilly areas located on sides of the road

Pond on the side of the Road

Figure: Sub-project overview

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

of

Gilatoli Maskaria,Modhur sora, Road ID: 422944010

Under package- EMCRP/W15

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.

The Sub-Project is categorized as a village road-A with a proposed design of 250mm sand filling, BFS 200 mm layer and RCC filling. Gilatoli Maskaria, Modhur sora Road belongs in Rajapalong union under Ukhia upazila. The starting point of the road is from Upazila road (Khilatoli village) via Maskaria stretching 2676 meters to Modhurchora Rohingya Camp. The current condition of the road has Earthen filling for 2676 meters. 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. Fair number of trees need cutting as well as hill cutting most probably be needed. This target area is mostly covered with vegetation and locates itself in between hilly areas. Within 1 kilometer of site includes 03 mosques (30m, 20m and 10m away at different chainage) and mostly high land vegetation cover. Some paddy field along the road can be found. Maskaria khal is present 1.5km east of the proposed site. 2 ponds (20m and 40m away) located at different chainage of the subproject. WFP food distribution center located at 20m away from the subproject site. Apart from this feature no other sensitive environmental, cultural, archaeological, religious sites exists other than this. The drainage pattern of this area from East to West. During rainy season this area becomes muddy and slippery, in that case slips and accident is a possibility for labors to work. In many points, the road has low lying lands on to both left and right. This makes the current road prone to slump during heavy rainfall. 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 area, this project will surely aid in the betterment of the target location and moreover initiate the growth potential of the area.

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

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/W15.**

Table 1.2.1: Significant features of the Sub-project

<table>
<tr><td colspan="4">Package No. EMCRP/W15
Description of Sub-project :
Improvement of 4 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District:
Improvement of access roads to (1)Drownkhali-Nalbonia(Janab Ali Road) Road, ID:422944001, (2) Maricha G.C-Lambori Para via Gorirdip Road, Road ID: 422944003 (3)Gilatoli Maskaria,Modhur sora, Road ID: 422944010 (4) Dail Para Dagolia Chack Boita Road, ID: 422944015</td></tr>
<tr><td colspan="4">Sub-project Component no. (3) Gilatoli Maskaria,Modhur sora, Road ID: 422944010</td></tr>
<tr><td colspan="4">Component's Location:</td></tr>
<tr><td colspan="2">i. ID 422944010</td><td>ii. Ward No.: 06</td><td>iii. Mouza: Walapalong</td></tr>
<tr><td colspan="2">iv.Village : Dhurumkhali</td><td colspan="2">v. Name of Union: Rajapalong</td></tr>
<tr><td colspan="2">vi. Upazila: Ukhiya</td><td colspan="2">vii. Sub-Project construction period: 6 Months</td></tr>
<tr><td colspan="2">viii. Construction Year: 2020-2021</td><td colspan="2">ix. Length (m): 2676 m</td></tr>
<tr><td colspan="4">x. Width (m): 04 m</td></tr>
<tr><td colspan="4">Distance from UZHQ: 05 Km.</td></tr>
<tr><td rowspan="2">GPS Coordinates</td><td>Phase 1</td><td colspan="2">Longitude Value: 92.137218 (Starting Point)
Latitude Value: 21.231348 (Starting Point)
Longitude Value: 92.146828 (Ending point)
Latitude Value: 21.218635 (Ending Point)</td></tr>
<tr><td>Phase 2</td><td colspan="2">Longitude Value: 92.146716 (Starting Point)
Latitude Value: 21.221950 (Starting Point)
Longitude Value: 92.140783 (Ending point)
Latitude Value: 21.221701 (Ending Point)</td></tr>
<tr><td colspan="2">Condition of Road</td><td colspan="2">Earthen Road</td></tr>
<tr><td colspan="2">Communication Source</td><td colspan="2">Radio & Mobile Networks</td></tr>
<tr><td colspan="4">• Project interventions:
• no. of Cross Drain (Size: .975mmX .975mm)
• 1 no. Box Culvert (Size 2m x 2m)</td></tr>
</table>

• 6 no. Box Culvert (Size 3mx 2.5m) • 1no. RCC Box Culvert (Size 2.5mx 2.5m) • Brick Toe Wall at different chainage of 1.50m height x 21m and 2.05m height x 242m dimension. • RCC Retaining wall of 246m length X 3.0m height in different chainage • Pre cast RCC Pile of 6 meters in length at different chainage. • U-Drain at different chainage for 75 meters. • L-Drain at different chainage for 1214m. • Proposed Intervention Type is 250mm sand filling, BFS 200 mm layer and RCC filling.
Implementing Agency: Local Government Engineering Department (LGED)
Estimated total cost of component: 104,235,066.73 (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. Field visit has been carried out on 21 December 2019 in and around the Sub-project site. As part of the impact assessment, participatory public consultation was conducted in that area. The local individuals, elites, member of Union Parishad and elders of the location participated in that consultation meeting. 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 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 are come 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.

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes 03 mosques (30m, 20m and 10m away at different chainage) and mostly high land vegetation cover and several homestead gardens along the road. Some paddy field along the road can be found. Maskaria khal is present at 1.5km east of the proposed site. 2 ponds (20m and 40m away) located at different chainage of the subproject. WFP food distribution center located at 20m away from the subproject 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 of the area

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

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.

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

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. In order to avoid the devastation caused by the thunderstorm, state-of the-art thunder arrester (lightning protection system) has been suggested to install having a coverage area of 25,434 sq.m for a single arrester. In addition, tree planation on the road slope/ within the premises is also suggested 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 stretch on hilly 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, Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes 03 mosques (30m, 20m and 10m away at different chainage) and mostly high land vegetation cover and several homestead gardens along the road. Some paddy field along the road can be found. Maskaria khal is present at 1.5km east of the proposed site. 2 ponds (20m and 40m away) located at different chainage of the subproject. WFP food distribution center located at 20m away from the subproject 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.

On the other hand, some part of the proposed road is passing by the agricultural land. So, 3 no. of Cross Drain (Size: .975mmX .975mm) and 1 no. Culvert (Size 2m x 2.50m x 2.50m), 6 no. Culvert (Size 3mx 2.60m) and 1no. Culvert (Size 2mx 1.60m) at different 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, 75m 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 Guide Wall of 1.50m height x 21m and 2.05m height x 242m dimension will be constructed. Brick Pala Wall of 173m in total length and Cast-in-Situ wall for 246m will be constructed. Also RCC Retaining Wall for 246m 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 Measure 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: Gilatoli Maskaria,Modhur sora, Road ID: 422944010

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

Estimated total cost of sub-project (in Taka): 216,953,028.57

Estimated construction period duration: 9 (Nine) months

Estimated total cost of the component (in Taka): 104,235,066.73

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**: Rajapalong

Name of Community/Local Area: Gilatoli, Maskaria, Modhur chora

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 3 no. of **Cross Drain** (Size: .975mmX .975mm). 1 no. **Box Culvert** (Size 2m x 2m) 6 no. **Box Culvert** (Size 3mx 2.5m) and 1no. **RCC Box Culvert** (Size 2.5mx 2.5m) will be constructed. **Brick Toe Wall** at different chainage of 1.50m height x 21m and 2.05m height x 242m dimension. **RCC Retaining wall** of 246m length X 3.0m height in different chainage . **Pre cast RCC Pile** of 6 meters in length at different chainage. **U-Drain** at different chainage for 75 meters. **L-Drain** at different chainage for 1214m. Proposed Intervention Type is 250mm sand filling, BFS 200 mm layer and RCC filling.

Estimated footprint / land area for this sub-project is 10,704 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:
Gilatoli Maskaria, Modhur sora Road belongs in Rajapalong union under Ukhia upazila. This road has a started from Upazila road (Khilatoli village) via Maskaria stretching 2676 meters to Modhurchora Rohingya Camp. The current condition of the road has Earthen filling for 2676 meters.

Important Environmental Features (IEFs) near site:
Detail Chainage Length of the sub-project: 2676m. 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 (m)	Left	Right	Features
000-300	L		Paddy Land, Hill
		R	Paddy land, hill, Hill Slope, Modhurchora Connecting

			Road
300-600	L		Home, hill, Agri Land, House, Paddy Land, Shop
		R	Home, Hill, Box Culvert, Graveyard, Paddy Land, Hill
600-900	L		Paddy Land, Maskaria Khal, Hill, Ditch
		R	Paddy Land, Mosque, Hill, Bamboo, small sako of bamboo.
900-1200	L		House, Paddy Land, Electric pole, House, Ditch, Paddy Land, Slope, Paddy Land, Mosque
		R	Existing Drainage, Hill, House, Fish Project
1200-1500	L		Hill
		R	Hill, House, South Maskaria connecting road, Madrassa/Mosque
1500-1800	L		House, House on hill, Hill
		R	Amaranths Field, Hill
1800-2100	L		Hill, Paddy land
		R	Hill, Settlements
2100-2400	L		Hill, Tree garden
		R	House, Hill, Tree garden
2400-2676	L		House, hill, ditch
		R	Connecting road, hill, paddy land

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. Within 1 kilometer of site includes 03 mosques (30m, 20m and 10m away at different chainage) and mostly high land vegetation cover. 2 ponds (20m and 40m away) located at different chainage of the subproject. WFP food distribution center located at 20m away from the subproject site. 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:
Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes 03 mosques (30m, 20m and 10m away at different chainage) and mostly high land vegetation cover and several homestead gardens along the road. Some paddy field along the road can be found. Maskaria khal is present at 1.5km east of the proposed site. 2 ponds (20m and 40m away) located at different chainage of the subproject. WFP food distribution center located at 20m away from the subproject site. Apart from this feature no other sensitive environmental, cultural, archaeological, religious sites exists other than this. The drainage pattern of this area from East to West. 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 5 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

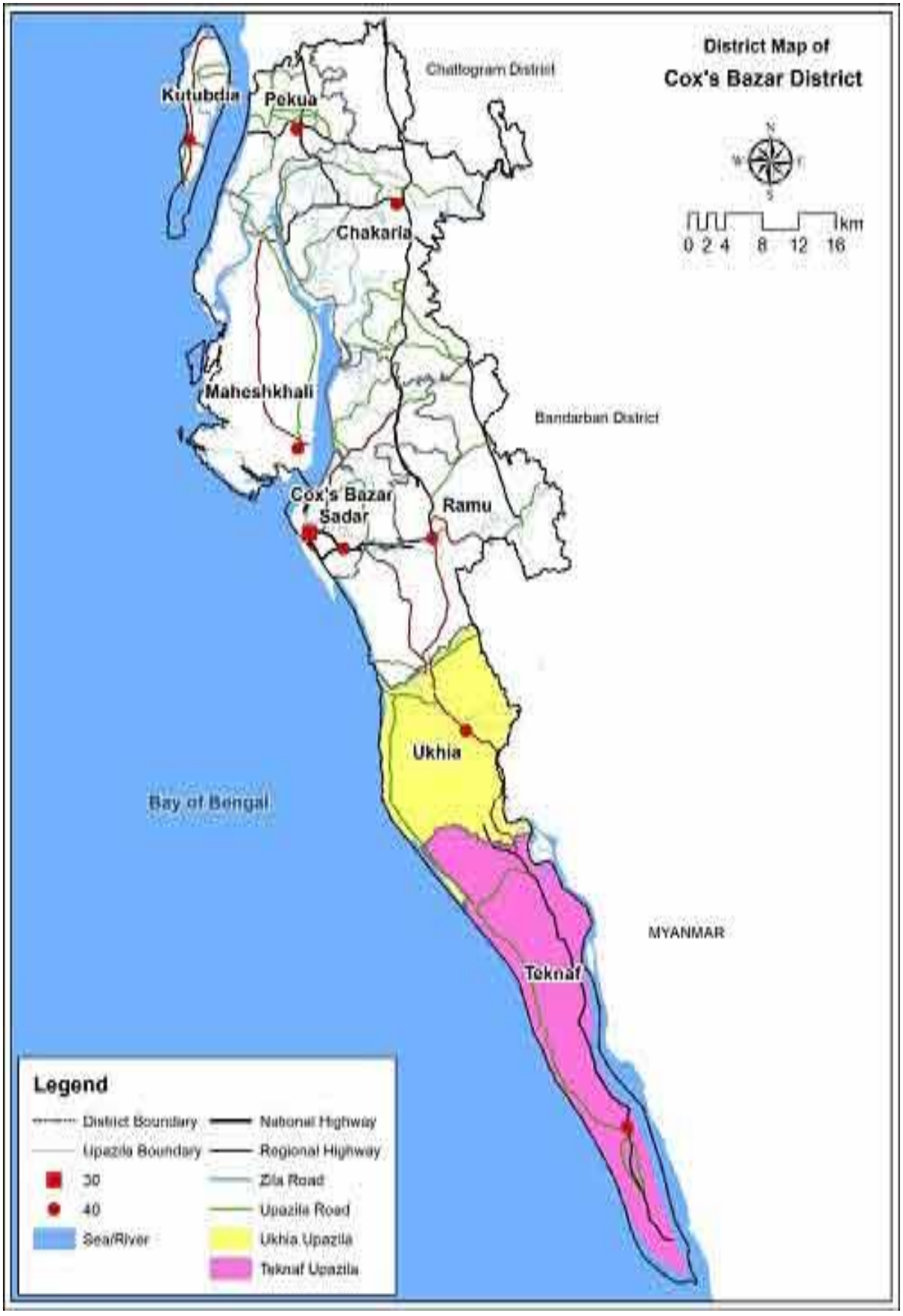


Figure 3: District Map with project location

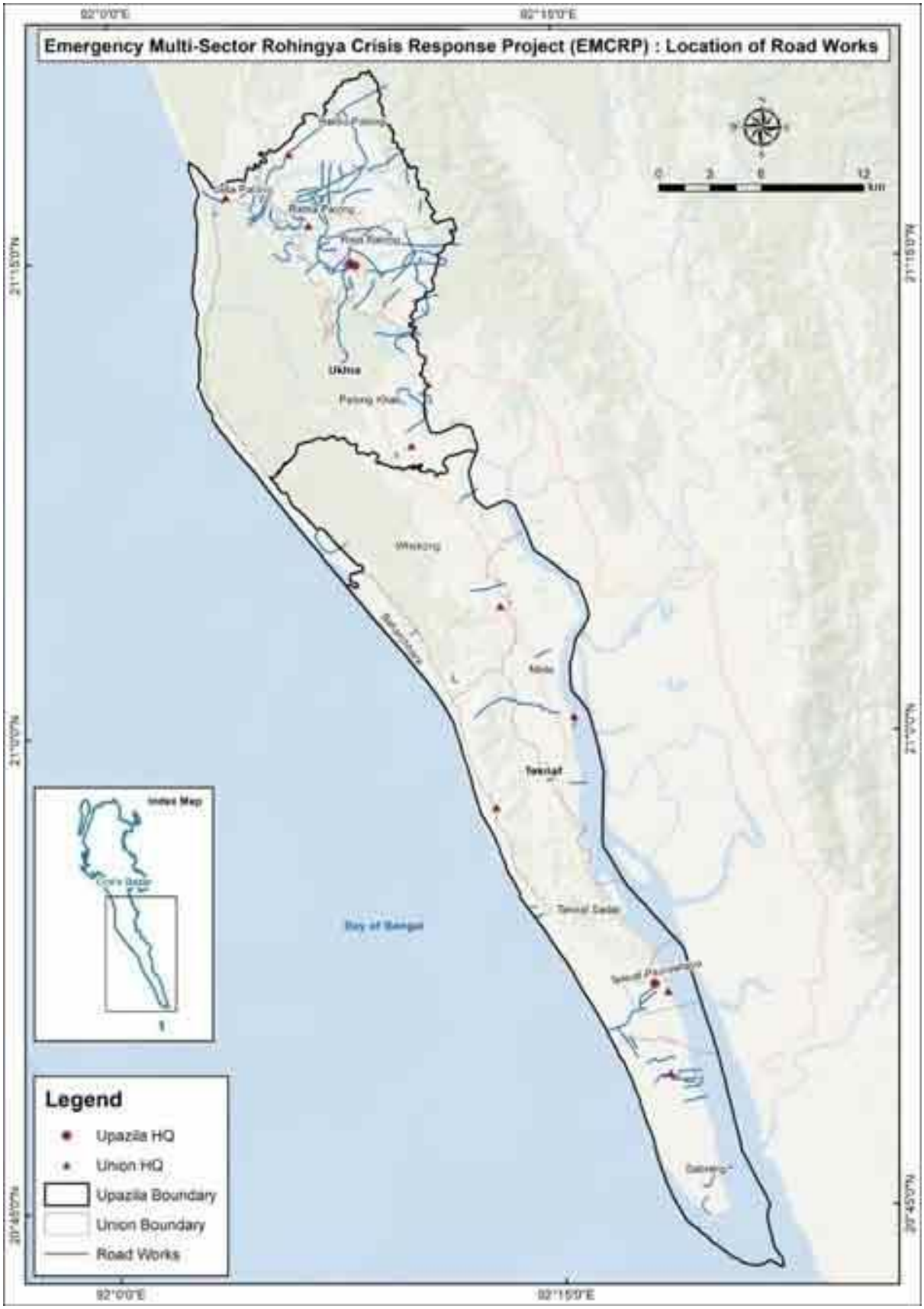


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

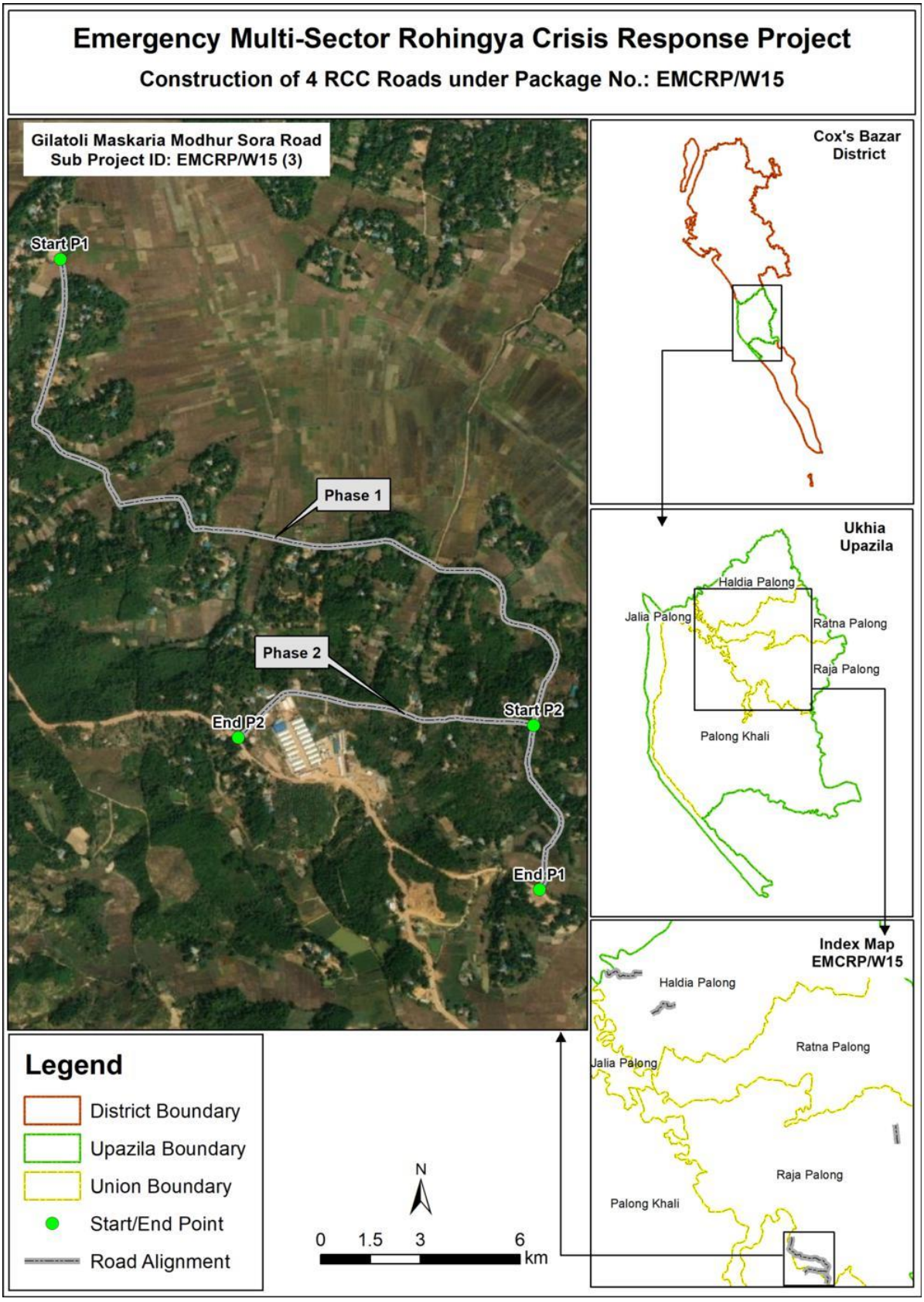


Figure 5: Upazila Map with Sub-project location

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 with a proposed design of 250mm sand filling, BFS 200 mm layer and RCC filling.

Sub-project Location:

Important Features	
ID	422944010
District	Cox's Bazar
Upazila	Ukhiya
Union	Rajapalong
WARD	06
Proposed Chainage	2676m
Road Type	Village Road-A
Proposed Intervention Type	RCC
Road Starting Point Coordinates	Longitude Value 92˚8′ 14.28″ (Starting Point) Latitude Value 21^0 13′53.24″ (Starting Point)

Land ownership
Land is owned by Government.

Expected construction period: 9 (nine 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) Fair number of trees need cutting as well as hill cutting most probably be needed.
ii) No resettlement is required.
iii) A water body located at 1.5km east
iv) Very low chance of loss of agricultural land.
v) Some Household Boundary made of bamboo and tin may need adjustments.
vi) Environmental sensitivity: This target area is mostly covered with vegetation and locates itself in between hilly areas. Elephant corridor is present but located 2 km to 3 km away from target area. (Checked with local IUCN representative).

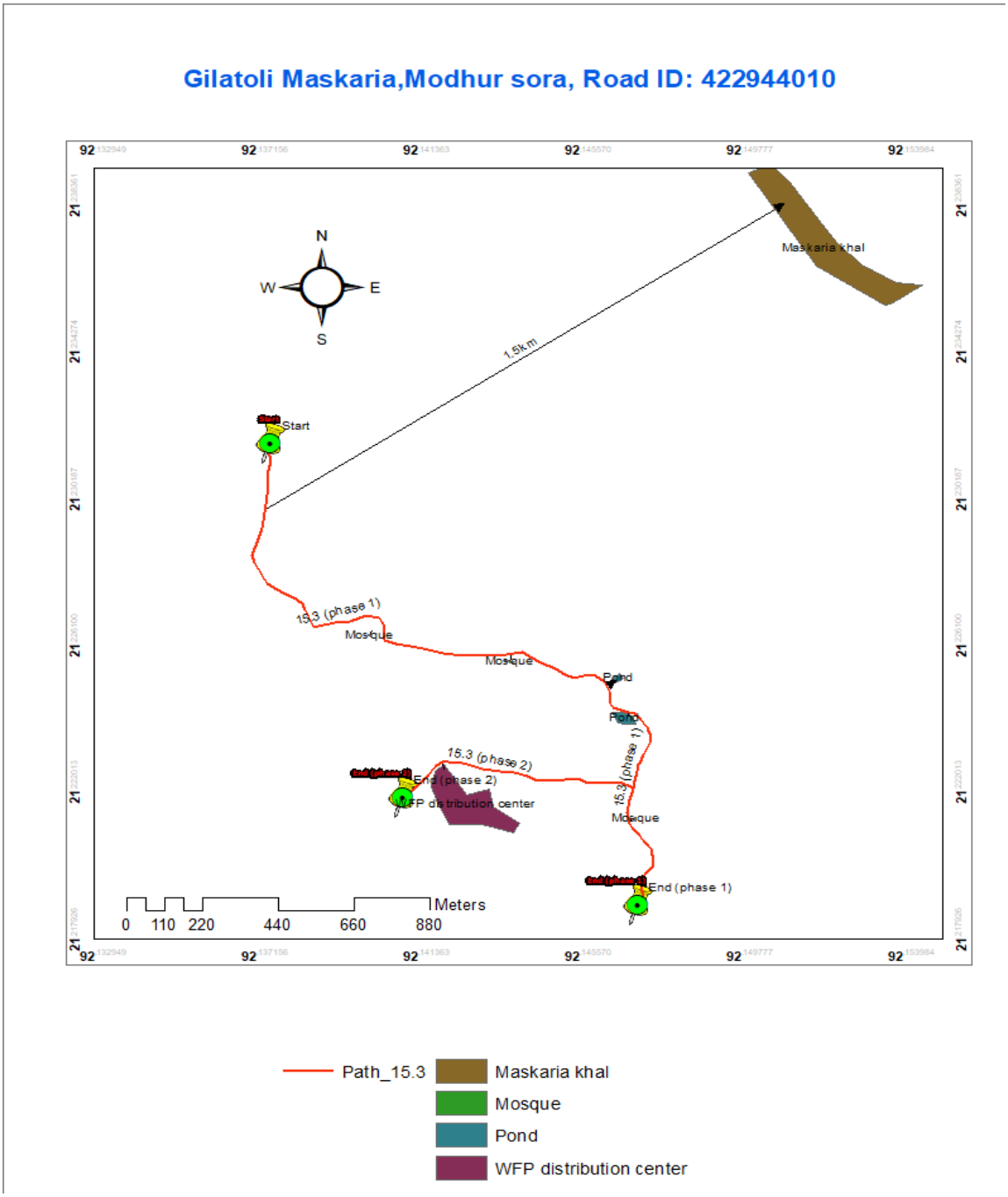
Section B: Environmental Screening

***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:
Within 1 kilometer of site includes 03 mosques (30m, 20m and 10m away at different chainage) and mostly high land vegetation cover and several homestead gardens along the road. Some paddy field along the road can be found. Maskaria khal is present at 1.5km east of the proposed site. 2 ponds

(20m and 40m away) located at different chainage of the subproject. WFP food distribution center located at 20m away from the subproject site. Apart from this feature no other sensitive environmental, cultural, archaeological, religious sites exists other than this. The drainage pattern of this area from East to West. No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

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

Fair number of trees and hills need cutting due to the intervention of this sub-project. During rainy season this area becomes muddy and slippery, in that case slips and accident is a possibility for labors to work. In many points, the road has low lying lands on to both left and right. This makes the current road prone to slump during heavy rainfall.

*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 in through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley, dumper 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 soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

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 600 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 400-800ft (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. Many shallow tube wells (70ft. to 90 ft.) are fitted in local area and most of the water usage is sufficed from these sources. *Data source: 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: This sub-project falls under a hilly area with moderate forests. Fair number of trees and undergrowth plants are present. The village is not directly dependent on these plants but their soil structure is dependent on it.
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): A BC road named Ukhiya - Foliapara - bypass camp road is the main way for transportation of construction materials. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: 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 v) rods
Identification of access road for transportation (Yes/No): Yes. For unloading point of materials BC road is the main way for transportation. Head load or mini vehicles like van or tractor from unloading point to project location manually by the assigned contractor.
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. 20% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 25 kg daily and sludge may amount to 20 kg per day.

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.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 can be tentatively 10 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates. **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 such vegetation is present in the right of way. Specific 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) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities 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.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
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, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise but no 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 found but 2 ponds located adjacent to the subproject area and are sufficient distances from the construction site.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. 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 RCC 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,	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	• Record of regular inspection. • Record of accidents/incidents	Monthly monitoring.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Storage of construction materials	Under the subproject intervention the overall score is **low**.	• Orienting concerned person and team assigned for the construction work.	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials;	During implementation 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	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	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
	landslides)		remain within the right of way and does not disturb the crop.			
	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: Gilatoli Maskaria,Modhur sora, Road ID: 422944010

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 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 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.

Waste Management Plan Principles:

The contractor shall develop a waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food, and organic waste, etc.) prior to commencing of construction and submit to LGED for approval. The plans must include the following principles or series of actions, which will be carried out/followed by the contractor and supervised by the Field level Environmental Specialist and Social Development Specialist.

- Preventing waste from throwing, leaching, or getting access to water bodies has to be maintained strictly by the contractor. Material storage site or the primary storage of waste materials shall not be closer to any water body (running or stagnant); the distance of the water body should be at least 10m from the edging part of storage.
- The quantity of waste materials shall be minimized by 3R (Reduce, Recycle and Reuse) approach and wastes shall be segregated accordingly, wherever practical; and stored in designated places/facilities in the site.
- Labor camp and construction site shall be maintained in a cleaner, tidy and safe condition, and appropriate facilities shall be provided and maintained as temporary storage of all wastes before transportation and final disposal. Waste, irrespective of types, shall not be stored/ piled up in the middle of the road or on such a place which may obstruct traffic movement or water runoff or might be a source of an accident or public nuisance.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area and subsequently sold to authorized recyclers.
- Parts of construction debris (from demolishing of labor camp and toilets in the post-construction phase) can be recycled as filling materials on the ground or be sold for use as sub-base material or driveway bedding.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of the disposal site, so as to cause less environmental impact.
- Soil contaminated with petroleum/engine oil shall be removed from the site and stored in a specific place, and later disposed off in a designated dumping area. Careful handling of these hazardous substances in the site shall be maintained and supervised by the contractor.

- Organic wastes produced in the campsite during the construction period shall be collected and transported in vehicles covered with tarps or nets to prevent spilling waste along the route to the designated disposal site;
- Burning of any type of wastes in a labor camp or construction site shall be prohibited completely.

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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 Needed	Unit price BDT	Total amount BDT
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)	7939.500 sqm	38.15	302891.93
2	**First Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	1 LS	5000	5000
3	**Overall environmental management in addition to the clause 27 & 29 of GCC & 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.	2676	2.56	6850.56
4	**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 LS	10000	10000
5	**Personal Protective Equipment** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	1 LS	30000	30000
6	**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	200	1000	200000

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
	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.			
7	**Portable water supply & 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 each	12822.86	25645.72
8	**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.	1 LS	5000	5000
9	**Camp site drinking water supply facilities** Preferably 1 no. of tube well at the labor camp site (Depending on the site condition, DSM consultant will assist the contractor for selecting the option) and providing adequate storage facility of water with filter of minimum capacity of 30 liters to the entire satisfaction of E-I-C.	2 LS	30000	60000
10	**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 providing necessary barricades, warning signs/lights, guide signs. Flagmen, maintaining diversion roads by cutting, filling, construction, etc. or by any other means in accordance with the full satisfaction of EIC.	1 LS	15000	15000
11	**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.	1 LS	5000	5000
12	**Environmental Management cost of the environment & social /Safeguard personal:** For environment and	1 person	35000.00	105,000.00

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
	social Management and Monitoring during construction and operation phase for their salary and transport (one fourth part of the entire cost)	for 12 months		
13	**CRS Plate** Providing, fitting and fixing of retro-reflectorized cautionary, mandatory and informatory sign as per standard drawing.	2	5803.79	11607.58
14	**Labor Shed** Providing living space for workers near construction site	1	30,000	30,000
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				**811,995.79**

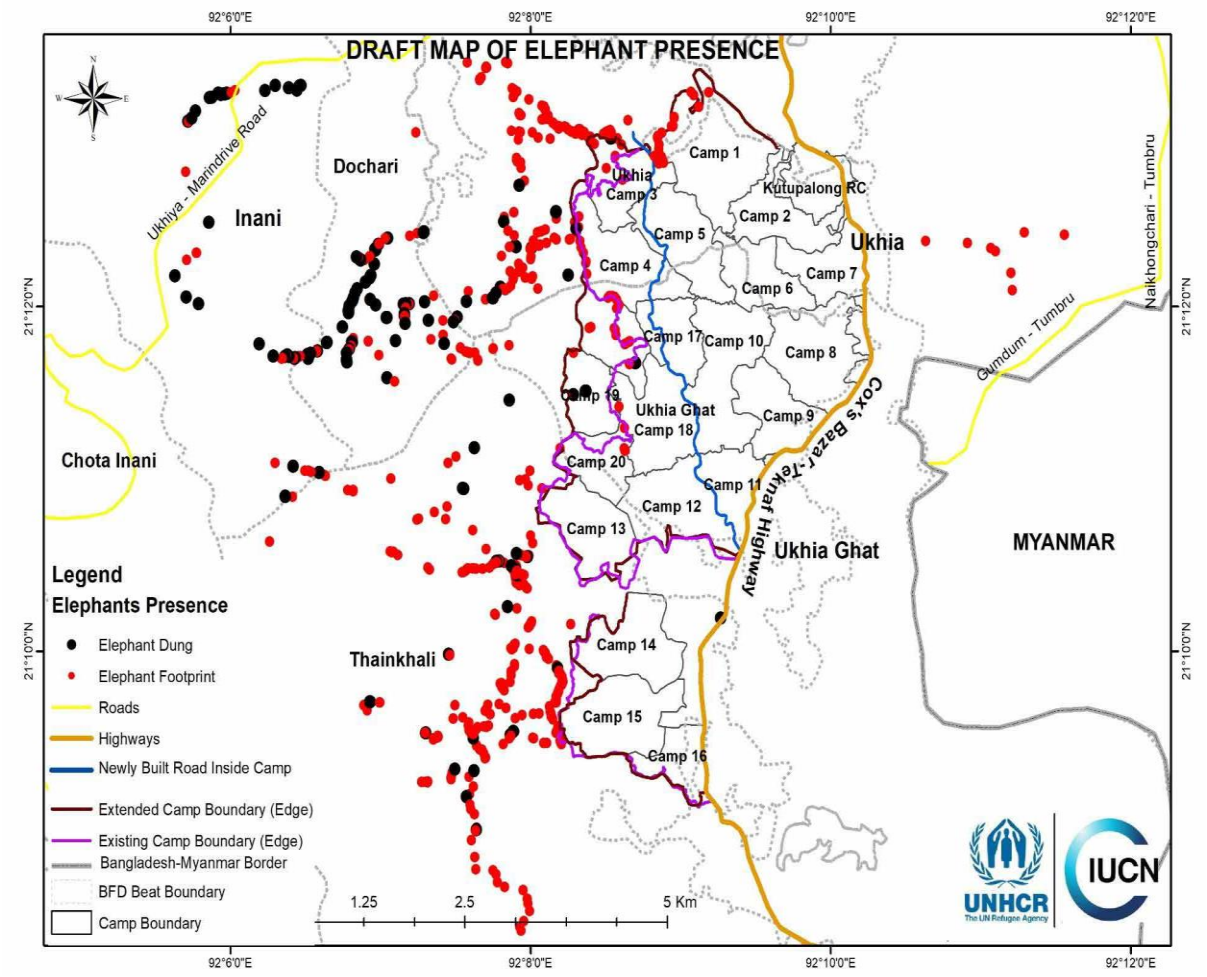
Cost of H&S Measures under COVID 19 Situations

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 50 workers for 270 active working days (9 months) of one-year construction period for this sub- project (EMCRP/W-15-3).

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)	135		169	50.00	304	15,200.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 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 liter can for each Site office
6	Face Shield/ Protective Safety Goggles	30 nos. for each site		N/A	400.00	30	12,000.00	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	5400	64,800.00	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	50 nos. for each labor camp		35.00	900	31,500.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter 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	09	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						**178,075.00**	

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: ১০:৩০ AM Date: ২৭/১২/১৯

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

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

প্রকল্পের নামঃ Gulatoli Mashkaria Modhupur sora road
মত বিনিময়ের স্থানঃ [illegible]

ইউনিয়নঃ
ডাকঘরঃ
উপজেলাঃ [illegible]
জেলাঃ [illegible]

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
১	[illegible]	৬৬	পুরুষ	[illegible]	[illegible]
২	[illegible]	৪২	[illegible]	[illegible]	[illegible]
৩।	[illegible]	৩৫	[illegible]	[illegible]	[illegible]
৪।	[illegible]	৫৫	[illegible]	[illegible]	[illegible]
৫।	[illegible]	২৮	[illegible]	[illegible]	[illegible]
৬।	[illegible]	২৯	[illegible]	[illegible]	[illegible]
৭।	[illegible]	৪৩	[illegible]	[illegible]	[illegible]
৮।	[illegible]	৫৫	[illegible]	[illegible]	[illegible]
৯।	[illegible]	৫৩	"	"	[illegible]
১০।	[illegible]	৫৫	"	"	[illegible]
১১।	[illegible]	৫০	"	"	[illegible]
১২।	[illegible]	৪৮	"	"	[illegible]

Public Consultation Participants' List

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

Household Boundary made of Bamboo & Shrubs (undergrowth) on the side of the road

Hilly slope, pond and paddy field on sides of the road

Road leading to dense vegetation area and narrow corners

Bamboo Bridge over a small stream on the pathway

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

of

Dail Para Dagolia Chack Boita Road, ID: 422944015

Under package-EMCRP/W15

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.

The Sub-Project is categorized as a village road-A with a proposed design of 220mm sand filling, BFS 200 mm layer and RCC filling for 580 meters. The works will take place from Dailpara Dagbanglow-Degolia Chack Boita Road stretching through 9 no. of Cross Drain (Size: .950mmX .950mm). Brick Palisading of different heights for 84m in total length. U-Drain at different chainage for 73 meters. L-Drain at different chainage for 496 meters. Proposed safety signage is 2 no. Km Post, 30no. Guide Post, and 1 no. Name Plate. 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 1 kilometer of site includes 09 Mosques (400m, 500m, 450m, 300m, 500m, 100m, 300m, 1km,10m away from different chainage), 3 ponds (10m, 20m, 12m away at different chainage), several homestead gardens and paddy field along the road. One high school (30m), one primary school (50m) and a madrasa (35m) are also found along with the rode side. Rejur khal is present at 100m south of the proposed site. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists. 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 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 area, this project will surely aid in the betterment of the target location and moreover initiate the growth potential of the area.

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

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/W15.**

Table 1.2.1: Significant features of the Sub-project

Package Name: EMCRP/W15: Construction of 4 RCC roads under Cox's Bazar District:
Improvement of access roads to (1) Drownkhali-Nalbonia(Janab Ali Road) Road, ID:422944001, (2) Maricha G.C-Lambori Para via Gorirdip Road, Road ID: 422944003 (3)Gilatoli Maskaria,Modhur sora, Road ID: 422944010 (4) Dail Para Dagolia Chack Boita Road, ID: 422944015

Sub-project Component no. (4) Dail Para Dagolia Chack Boita Road, ID: 422944015

Component Location:

i. ID 422944015	ii. Ward No.: 07	iii. Mouza: Walapalong
iv.Village: Dhurumkhali	v. Name of Union: Rajapalong	
vi. Upazila: Ukhiya	vii. Sub-Project construction period: 6 Months	
viii. Construction Year: 2020-2021		ix. Length (m): 580
x. Width (m): 04m		
xiii. Distance from UZHQ: 07 Km.		

GPS Coordinates	Longitude Value 92˚9' 54.99" (Starting Point) Latitude Value 21^0 15'42.69" (Starting Point)
	Longitude Value 92^0 9'57.28"(Ending Point) Latitude Value 21^0 15'24.24" (Ending Point)
Condition of Road	Brick Flat Soiling (BFS)
Communication Source	Radio & Mobile Network

Subproject interventions:

- **RCC** filling for 580 meters
- 220mm sand filling
- BFS 200 mm layer and
- 9 no. of **Cross Drain** (Size: .950mmX .950mm)
- **Brick Palisading** of different heights for 84m in total length
- **U-Drain** at different chainage for 73 meters
- **L-Drain** at different chainage for 496 meters
- Proposed safety signage is 2 no. Km Post
- 30no. Guide Post

• 1 no. Name Plate
Implementing Agency: Local Government Engineering Department (LGED)
Expected construction period: 2020-2021
Estimated total cost of component: 43,679,038.77 (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 22 December 2019 in and around the Sub-project site. The local individuals, elites, member of Union Parishad and elders of the location participated in that consultation meeting. 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 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 are come 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.

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes 09 Mosques (400m, 500m, 450m, 300m, 500m, 100m, 300m, 1km,10m away from different chainage), 3 ponds (10m, 20m, 12m away at different chainage), several homestead gardens and paddy field along the road. One high school (30m), one primary school (50m) and a madrasa (35m) are also found along with the rode side. Rejur khal is present at 100m south of the proposed 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

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

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

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 not 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 MANAGEMENTPLAN (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 stretch on hilly 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, Sensitive environmental, cultural, archaeological, religious sites

within1 kilometer of site includes 09 Mosques (400m, 500m, 450m, 300m, 500m, 100m, 300m, 1km,10m away from different chainage), 3 ponds (10m, 20m, 12m away at different chainage), several homestead gardens and paddy field along the road. One high school (30m), one primary school (50m) and a madrasa (35m) are also found along with the rode side. Rejur khal is present at 100m south of the proposed 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.

On the other hand, some part of the proposed road is passing by the agricultural land. So, 9 nos. Cross Drain (Size: 950mmX 950mm) at different 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. Some small hills or high land is found beside the road. As a mitigation measure, L-Drain at different chainage for 496 meters and U-Drain at different chainage for 73 meters will be constructed for drainage mountain eel water during rainy season. Due to the low land in different chainage of the road 84m 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 has 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 Measure 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/W15).

Name of the component: Dail Para Dagolia Chack Boita Road, ID: 422944015

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

Estimated total cost of sub-project (in Taka): 216,953,028.57

Estimated construction period duration: 9 (Nine) months

Estimated total cost of the component (in Taka): 43,679,038.77 (Tk.)

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**: Rajapalong

Name of Community/Local Area: Dail Para, Dagolia, Chack Boita

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 with a proposed design of 220mm sand filling, BFS 200 mm layer and RCC filling for 580 meters. The work will include 9 no. of **Cross Drain** (Size: .950mmX .950mm). **Brick Toe Wall** of different heights for 91m in total length. **U-Drain** at different chainage for 73 meters. **L-Drain** at different chainage for 496 meters. Road Safety works and Environmental Mitigation work has also been proposed.

Estimated footprint / land area for this sub-project is 2320 sqm.

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

This proposed road belongs to Dail para- Chakbaita- Dargabil village at Rajapalong union, Ward-07 under Ukhiya Upazila. This road has started from Dail para stretching 580 meters from north to south. The Sub-Project is categorized as a village road-A with a proposed design of 220mm sand filling, BFS 200 mm layer and RCC filling for 580 meters. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists. A madrasa is situated within 300m

Important Environmental Features (IEFs) near site:

Detail Chainage Length of the sub-project: 580m. 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 (m)	Left	Right	Features
000-300	L		Culvert, Green Field, Bamboo Fence, Shop (Rice Mill), Shop, Green Field, Tin shed boundary, concrete building, pond, tin shed boundary, connection house road to left, bamboo fence, Half-Paka HH, Tin shed boundary.

		R	Madrassa, Brick wall, bamboo fence, Big Tree, Tin shed Fencing, wired fencing, connecting huse road to the right, bamboo fence, connection house road to the right, bamboo fence, Bamboo tree garden, tree garden, paddy field.
300-600	L		Bamboo fence, pond, pond, paddy field, connecting house road to the left, paddy field, vegetable garden, shop, paddy field, connecting house road to the left, paddy field, Half-Paka HH.
		R	Paddy Field, Dailpara High School, Paddy Field, Electric Pole, Culvert, Dailpara Primary School. (South side has part of Reju Khal)

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.

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 Dagbanglow-DegoliaChack Boita village under 7no ward of Rajapalong Union. Cox's Bazar-Teknaf highway is passing north side of the sub-project area. within 1 kilometer of site includes 09 Mosques (400m, 500m, 450m, 300m, 500m, 100m, 300m, 1km,10m away from different chainage), 3 ponds (10m, 20m, 12m away at different chainage), several homestead gardens and

paddy field along the road. One high school (30m), one primary school (50m) and a madrasa (35m) are also found along with the rode side. Rejur khal is present at 100m south of the proposed site. 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 2 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

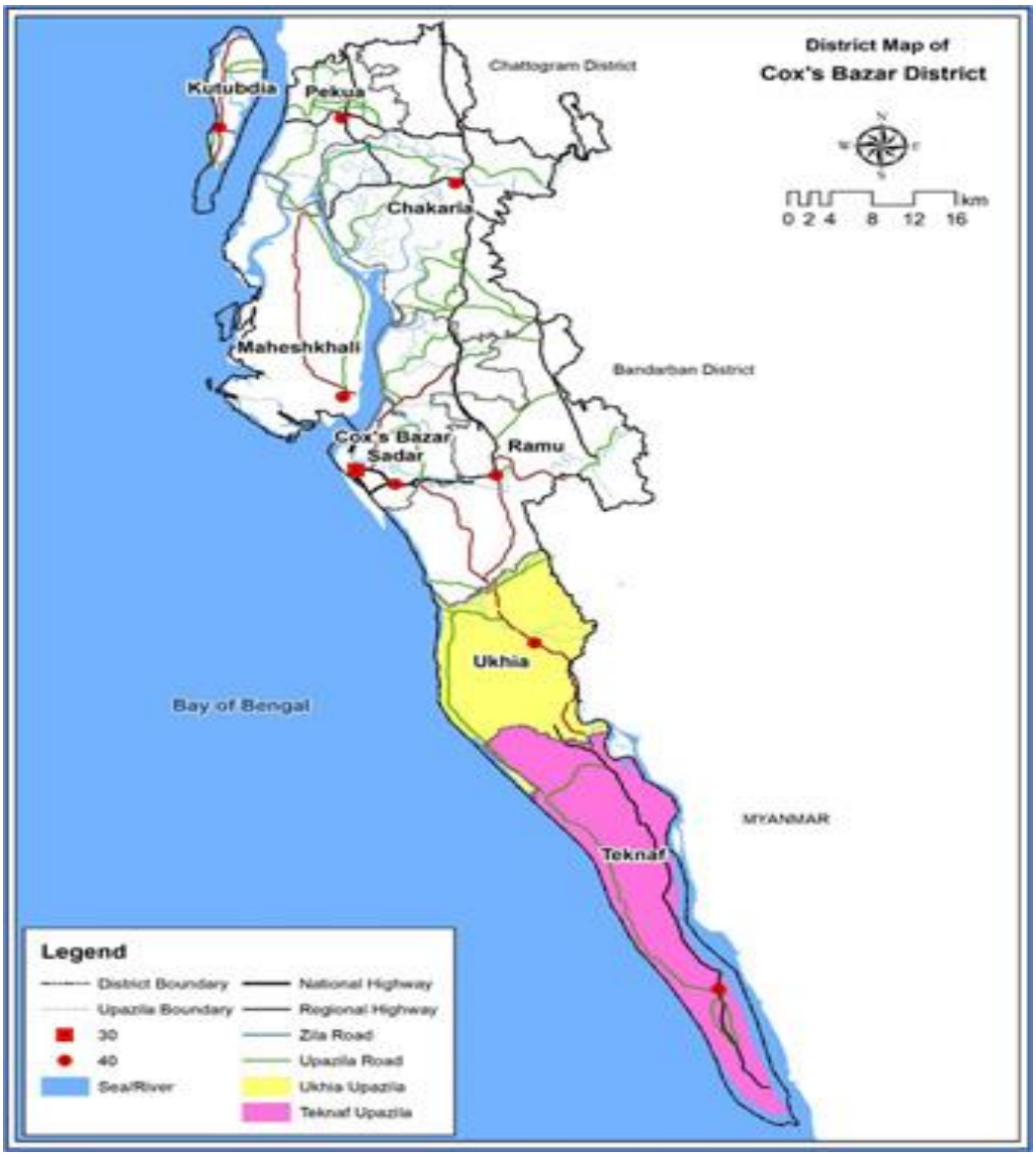


Figure 3: District Map with project location

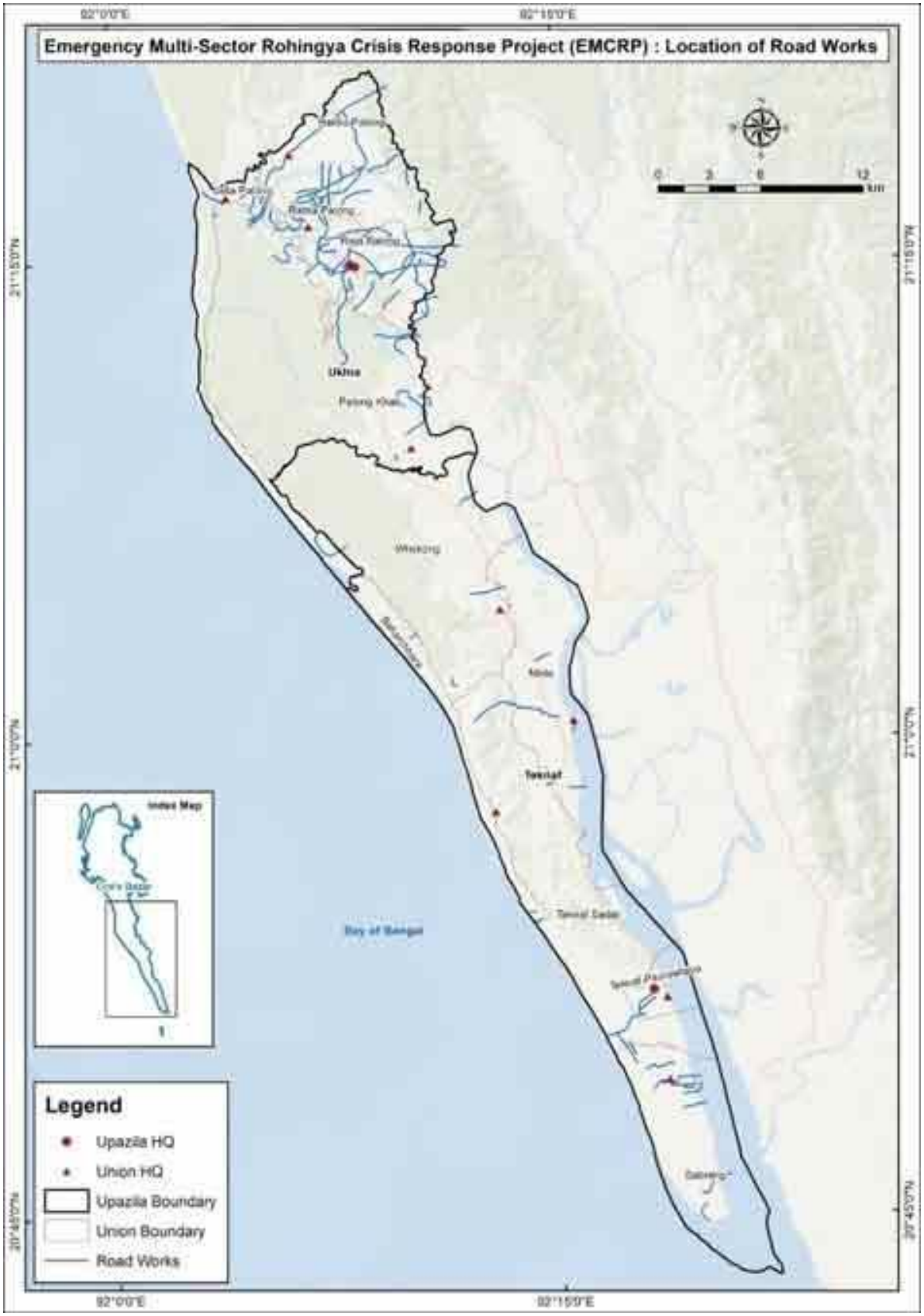


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

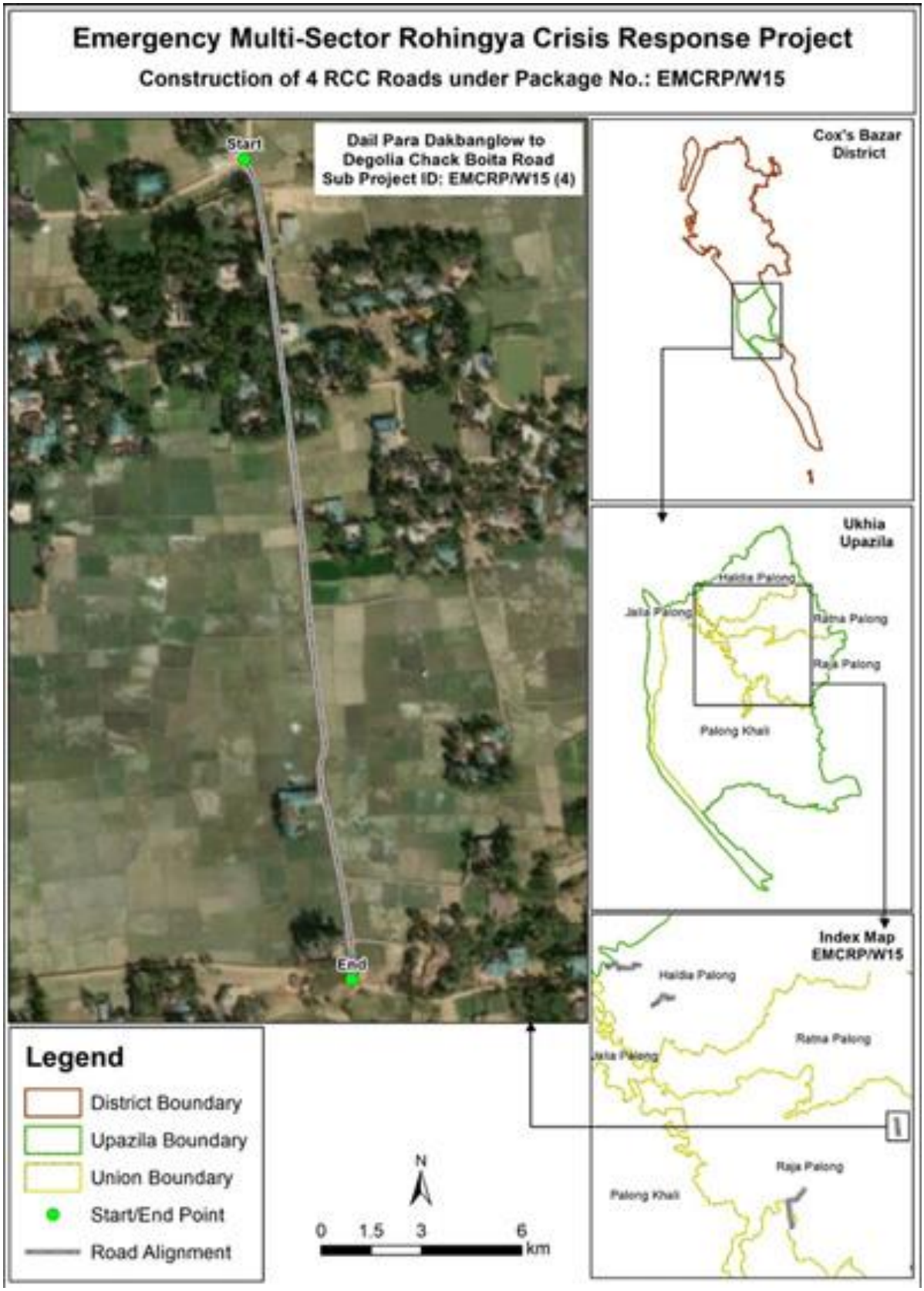


Figure 5: Upazila Map with Sub-project location

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 with a proposed design of 220mm sand filling, BFS 200 mm layer and RCC filling for 580 meters.

Sub-project Location:

Important Features	
ID	422944015
District	Cox's Bazar
Upazila	Ukhiya
Union	Rajapalong
WARD	07
Proposed Chainage	580m
Road Type	Village Road-A
Proposed Intervention Type	RCC
Road Starting Point Coordinates	Longitude Value 92˚9′ 54.99″ (Starting Point) Latitude Value 21^0 15′42.69″ (Starting Point)
Road Ending Point Coordinates	Longitude Value 92^0 9′57.28″ (Ending Point) Latitude Value 21^0 15′24.24″ (Ending Point)

Land ownership
Land is owned by Government.

Expected construction period: 9 (Nine 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) Not much trees need cutting but few shrub areas might need clearing along the road.
ii) No resettlement is required.
iii) Very low chance of loss of agricultural land.
iv) Some Household Boundary made of bamboo and tin may need adjustments.
v) Environmental sensitivity: There are some ponds alongside the road which may face surface water pollution. No socio cultural site/ elephant corridor (checked with local IUCN representative).
vi) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

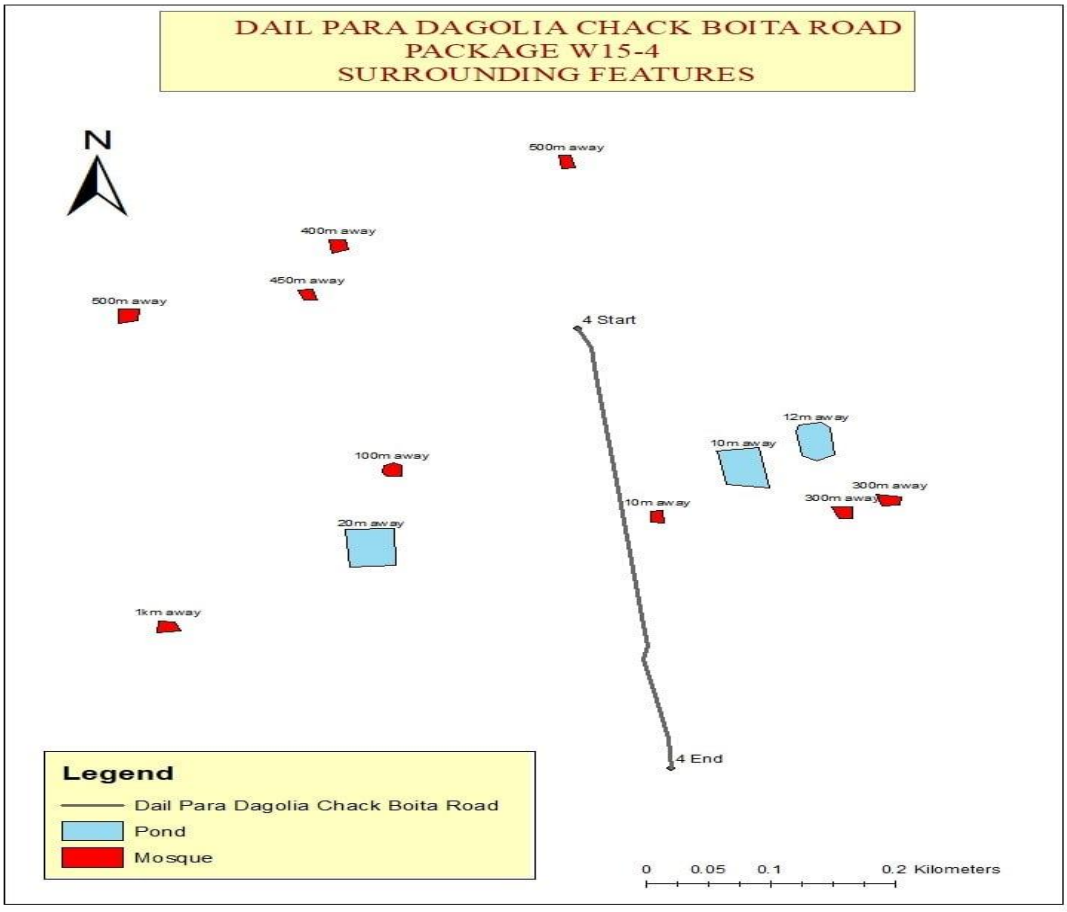
***B.1*: Environmental feature of sub-project location**

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:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes 09 Mosques (400m, 500m, 450m, 300m, 500m, 100m, 300m, 1km,10m away from different chainage), 3 ponds (10m, 20m, 12m away at different chainage), several homestead gardens and paddy field along the road. One high school (30m), one primary school (50m) and a madrasa (35m) are also found along with the rode side. Rejur khal is present at 100m south of the proposed site. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists. 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, water bodies 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 were 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 in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.
Baseline soil quality: The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate. **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 600 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 400-800ft (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) *Data source: 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): A HBB road named Ukhiya-Hatimora station road is the main way for transportation of construction material. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: 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 v) rods
Identification of access road for transportation (Yes/No): Yes. The brick soling road can offer space adjacent labor camp to facilitate material unloading. 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.

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.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 can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific 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) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities 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.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this interventions, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
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, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
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 found but 3 ponds located adjacent to the subproject 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) Low, 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 RCC 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&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 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: Dail Para Dagolia Chack Boita 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 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 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.

Waste Management Plan Principles:

The contractor shall develop a waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food, and organic waste, etc.) prior to commencing of construction and submit to LGED for approval. The plans must include the following principles or series of actions, which will be carried out/followed by the contractor and supervised by the Field level Environmental Specialist and Social Development Specialist.

- Preventing waste from throwing, leaching, or getting access to water bodies has to be maintained strictly by the contractor. Material storage site or the primary storage of waste materials shall not be closer to any water body (running or stagnant); the distance of the water body should be at least 10m from the edging part of storage.
- The quantity of waste materials shall be minimized by 3R (Reduce, Recycle and Reuse) approach and wastes shall be segregated accordingly, wherever practical; and stored in designated places/facilities in the site.
- Labor camp and construction site shall be maintained in a cleaner, tidy and safe condition, and appropriate facilities shall be provided and maintained as temporary storage of all wastes before transportation and final disposal. Waste, irrespective of types, shall not be stored/ piled up in the middle of the road or on such a place which may obstruct traffic movement or water runoff or might be a source of an accident or public nuisance.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area and subsequently sold to authorized recyclers.
- Parts of construction debris (from demolishing of labor camp and toilets in the post-construction phase) can be recycled as filling materials on the ground or be sold for use as sub-base material or driveway bedding.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of the disposal site, so as to cause less environmental impact.
- Soil contaminated with petroleum/engine oil shall be removed from the site and stored in a specific place, and later disposed off in a designated dumping area. Careful handling of these hazardous substances in the site shall be maintained and supervised by the contractor.

- Organic wastes produced in the campsite during the construction period shall be collected and transported in vehicles covered with tarps or nets to prevent spilling waste along the route to the designated disposal site;
- Burning of any type of wastes in a labor camp or construction site shall be prohibited completely.

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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 Needed	Unit price BDT	Total amount BDT
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)	3988.200 sqm	38.15	152149.83
2	**First Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	1 LS	5000	5000
3	**Overall environmental management in addition to the clause 27 & 29 of GCC & 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.	1915	2.56	4902.40
4	**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 LS	10000	10000
5	**Personal Protective Equipment** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	1 LS	30000	30000
6	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the	160	1000	160000

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
	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.			
7	**Portable water supply & 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 Each	12822.86	25645.72
8	**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.	1 LS	5000	5000
9	**Camp site drinking water supply facilities** Preferably 1 no. of tube well at the labor camp site (Depending on the site condition, DSM consultant will assist the contractor for selecting the option) and providing adequate storage facility of water with filter of minimum capacity of 30 liters to the entire satisfaction of E-I-C.	1 LS	30000	30000
10	**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	1 LS	15000	15000

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
	traffic providing necessary barricades, warning signs/lights, guide signs. Flagmen, maintaining diversion roads by cutting, filling, construction, etc. or by any other means in accordance with the full satisfaction of EIC.			
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.		5000	5000
13	**CRS Plate** Providing, fitting and fixing of retro-reflectorized cautionary, mandatory and informatory sign as per standard drawing.	2 each	5803.79	11607.58
14	**Labor Shed** Providing living space for workers near construction site	1	30,000	30,000
15	**Environmental Management cost of the environment & social /Safeguard personal:** For environment and social Management and Monitoring during construction and operation phase for their salary and transport (one fourth part of the entire cost)	1 person for 12 months	35000.00	105,000.00
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				**589,305.53**

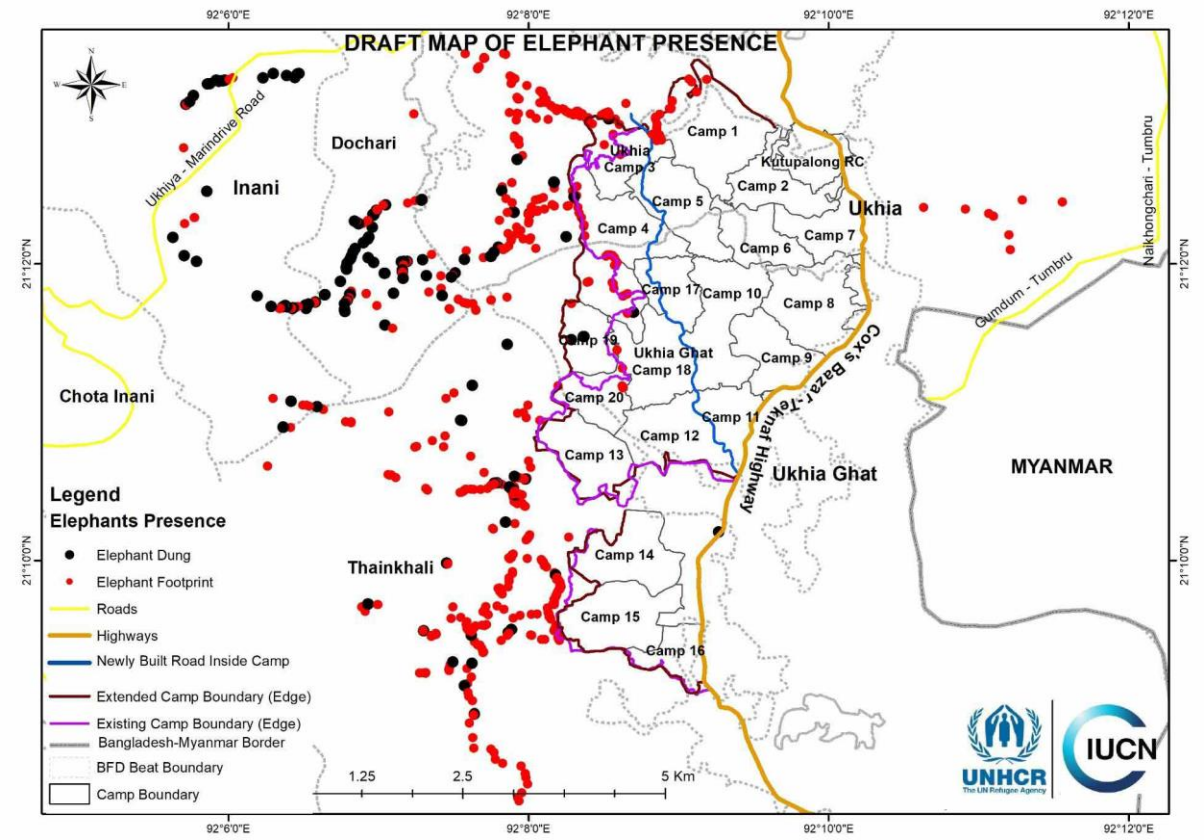
Cost of H&S Measures under COVID 19 Situations

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 20 workers for 270 active working days (9 months) of one-year construction period for this sub- project (EMCRP/W-15-4).

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)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 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 liter can for each Site office
6	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	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	05 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	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter 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	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				10,000.00	1	10,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**84,275.00**	

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: ২:৩০ মি: Date ২২/১১/২০২২

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

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

প্রকল্পের নাম: ডেইলপাড়া, [illegible] রোড উন্নয়ন [illegible] ইউনিয়ন: রত্নাপালং
মত বিনিময়ের স্থান: ডেইলপাড়া বাজার ডাকঘর:
উপজেলা: উখিয়া
জেলা: কক্সবাজার

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
০১	মো: রাশেদুল	২৭	পুরুষ	ডেইল পাড়া	[illegible]
০২	ওবায়দুল ইসলাম	৫০	"	"	[illegible]
০৩	মনির আহমদ	৪০	"	"	মনির
০৪	রহমত উল্লাহ	৪২	"	"	রহমত
০৫	মো: ইসলাম	৩৫	"	"	[illegible]
০৬	আব্দুল গফুর	২৮	"	"	গফুর
০৭	সাঈদ হোসেন	৪১	"	"	[illegible]
০৮	বাহাদুর উল্লাহ	৫২	"	"	বাহাদুর
০৯	মজিদ মিয়া	৩৭	"	"	মজিদ মিয়া
১০	সিদ্দিক	৫৫	"	"	[illegible]
১১	ইউনুস আলি	৩৬	"	"	[illegible]
১২	এনামুল হক	৩৩	"	"	[illegible]
১৩	আকবর	৪৩	"	"	[illegible]
১৪	দিলদার	৪০	"	"	দিলদার
১৫	মফিজ মিয়া	২৯	"	"	[illegible]
১৬	আমির হোসেন	৬০	"	"	[illegible]
১৭	নুরুল হক	৩৬	"	"	[illegible]
১৮	সাইফুল ইসলাম	৩৮	"	"	[illegible]
১৯	মনির হক	৪০	"	"	[illegible]
২০	আক্তার হোসেন	৪৮	"	"	[illegible]

Public Consultation Participants' List

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

Household Boundary made of Tin and Bamboo & Shrubs (undergrowth) on the side of the road

Household Boundary made of Tin and Bamboo

Small hilly areas are in low numbers have been located on sides of the road

Pond on the side of the Road