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Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

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Design and Supervision Consultancy

Environmental Screening Report

for Arakan road to Hakimpara to Hakimpara Rohingya Camp

UNDER THE PACKAGE NO: EMCRP/W14

APRIL-2020



ACRONYMS

ARAP	Abbreviated Resettlement Action Plan
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
ESMP	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
VAT	Value-Added Tax
WB	World Bank

Contents

Executive Summary	5
1 INTRODUCTION	7
1.1 Project Background	7
1.2 Objective of the Sub-Project.....	7
2 PUBLIC CONSULTATION AND PARTICIPATION	8
2.1 Methodology	8
2.2 Summary of Public Consultation Meeting	10
2.3 Suggestions and recommendations of the participants	11
3. ENVIRONMENTAL SCREENING	11
3.1 General.....	11
3.2 Assessment of Screening Findings	11
3.3 Climate Change Impact Screening	12
3.3.1 General Overview of the area	12
3.3.2 Site Specific Screening and outcome.....	13
4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS	13
4.1 Mitigation and Management Measures	13
4.2 Health and Safety Measures under COVID situations	14
5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION	15
6. LIMITATIONS OF THIS STUDY	16
7. CONCLUSIONS AND RECOMMENDATIONS	17
Appendix-1	18
Appendix-2	44
Appendix-3	54
Appendix-4	56
Appendix-5	57
Appendix-6	58
Appendix-7	59

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 Host 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 construction of school cum cyclone shelters and Multipurpose Community and Service Centers (MCSC), facilitating growth centers and RCC Bridge development, and so on, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agency along with D&SC (Development Design Consultants Limited-DDC) identifies the key project beneficiaries- Displaced Rohingya Population (DRP) and Host Community or in other words, the 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 have been carried out in accordance with guidelines from World Bank; as a result environmental and social screening reports have 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 targeted camp road belongs to Palongkhali union, Ward no. 5 under Ukhiya Upazila, Cox's Bazar. The road starts from Arakan road and ends at Hakimpara rohingya camp road. A screening survey was taken place on 25th December 2019 by the consultants' team from D&S and the PIU. Apart from some dispersed human settlement along the road, though at sufficient distance from the alignment, the survey team found some important socio-cultural and religious components along the road length. One mosque was found along the sub-project area. CIC office of the respective camp, a learning center, several facilities owned by NGOs and an army camp/post are located within the close proximity to the sub-project site. There are no sensitive environmental, cultural, archaeological sites exists in the area of this sub-project. 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 may affect some trees. All these impacts are site-specific and manageable 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 730,000¹ 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 923,033². 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 socio-economic condition of the host 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 the 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
- ✓ Make a crucial contribution to economic development and growth and bring important social benefits

¹ ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)

² IOM Needs and Population Monitoring round 12 as of October 10, 2018

This document represents the Findings from Environmental Screening of the sub-projects under 'Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District'; with a package name-EMCRP/W14.

Table 1.2.1: Significant features of the Sub-project

Package No. EMCRP/W14	
Description of Sub-project :	
Improvement of 8 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District:	
(1) Tajnimarkhola football field west to Rohingya Camp 20, (2) Arakan road to Hakimpara to Hakimpara Rohingya Camp,(3)Tankhali Telkhola Road(BC) road Tajnimarkhola Rohingya camp, (4)Nhila R&H to Uttar Leda Lamonipara Dakkhin Ali Khall Doilla's house Road, (5) Nhila R&H Jadimura RNGPS to ahmed's house Road, (6) Nhila R&H to Moulavi para Muktul Hossain's house to Soronathi Camp Road, (7) Whykong R&H to Kerontoli Forest Road, (8) Unchi prang Bazar Raikhong Road with culverts in Ukhia Upazila of Cox's Bazar District.	
Sub-project Component no. (2) Arakan road to Hakimpara to Hakimpara Rohingya Camp	
Component Location :	
i. Ward No. : 05	ii. Mouza : Thainkhali
iii. Village :	iv. Name of Union : Palang Khali
v. Name of the Upazila : Ukhia	
vi. Construction Year 2020-21	vii. Length (m) : 790 m
viii. Width (m): 3.00 m	
ix. Distance from UZHQ : 5 km	
GPS Coordinates	Starting Point: Latitude: 21°09'31.57" N; Longitude: 92°9'39.7" E
	Ending point: Latitude: 21°10'03" N; Longitude: 92°9'09" E
Condition of Road	BFS
Implementing Agency : Local Government Engineering Department (LGED)	
Subproject intervention	
<ol style="list-style-type: none"> 1. HBB 2. ISG 125mm 3. 279m L-Drain 4. 65m RCC Palisading wall 5. 6 nos. 7.3m long Cross Drain (Size: 750mmx750mm) 6. Box Culvert 2nos. (Size: 1x3.5mx3.5m, at Ch. 156m; 2x1.5m at Ch.290m) 7. Road safety Guide Post & Name Plate 	
Implementing Agency : Local Government Engineering Department (LGED)	
Estimated total cost of component : 12484908.00(Tk.)	

2 PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Several events of consultation meetings were held in different dates and times with different types of stakeholders. D&SC conducted the first consultation meeting with local community during 11:00 AM on 25 December, 2019, refer to **Figure 2.1.1** , Participants' List of that consultation event are attached in **Appendix-5**. Several more

consultation meetings in different modes were carried out as well. The local individuals, chairman and/or member of Union Parishad, representatives from different agencies 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 and scope of a functional GRM under the project. The following table depicts details of several of those consultation meetings with outcomes.

Consultation Date	Time	Venue	Mode of Consultation	Stakeholder/ Participants	Outcomes
25 th December 2019	12:00 noon	At project site	Focus Group Discussion	List is attached in Appendix.	Participants were informed about the sub-project interventions, potential impacts and management options, their informed views and comments were taken into consideration and appropriately reflected into the ESMP.
18 th February 2020	6:00 pm	Office of the UE, LGED, Cox's Bazar	Direct conversation	UE, Resident Engineer, Field Engineers, LGED Staffs	Consulted about the survey plan and UE office assured of putting all efforts in enforcing ESMP in the field.
19 th February, 2020			Telephonic consultation	Md. Sultan Mahmud, Asst. Site planner of UNHCR	Consulted about the survey plan and the site was found free from any direct physical impacts associated with the proposed road works. Reciprocal assurance and commitment were rendered for the successful implementation of the component.
19 th February, 2020			Telephonic consultation	Shegufta Newaz, Coordinator of site management, UNHCR	
19 th February, 2020	3:00 pm	CiC office in Camp 7	Direct Conversation	Subash Chandra Sheel, Camp Mgt. Support-Dty Lead, BRAC, Cox's Bazar.	He assured of lending all hands from him and his organization in successful implementation of the project.



Figure 2.1.1: Consultation meeting (FGD) with local community

Public consultation is a living process as type of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution process must differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.

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 minimize adverse impacts. 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 dilute opposition 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 lack of improvement.

Discussion was also made on various environmental issues like dust/air pollution, water pollution etc. which are potential environmental hazards during road construction. The participants expected that none of the interventions would worsen their living conditions or surrounding environment and

they requested for adopting all measures to reduce/avoid the environmental hazards during the implementation phase.

2.3 Suggestions and recommendations of the participants

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

- Participants' agreed to recede their home boundary equally from the both sides of the road to accommodate the road width, and to remove the trees planted illegally on encroached land/shoulders of the road.
- 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 to minimize the air pollution by spraying water at the construction sites.
- Noise pollution should be effectively minimized to a tolerable limit.

3. ENVIRONMENTAL SCREENING

3.1 General

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

3.2 Assessment of Screening Findings

This section identifies the potential impacts that the various elements of the proposed Project may have on aspects of the physical, biological and socio-economic environment. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted with the purpose of fulfilling the requirements of GoB and World Bank. Assessment of potential impacts requires a multi-disciplinary approach in which a wide range of issues are taken into consideration to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation.

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**

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 communities including Rohingya settlements, agricultural lands and community level forest. High lands or tilas are also present in the road side areas, and presence of guide wall and road side drains (U-drain) at some chainage along the road length demonstrates the need for hill-side slope protection. The road area is also characterized by the presence of a CiC office, an Army Post, ACF office and YPSA ware house/relief distribution center. Homestead gardening and social forestation is very prevalent in the area. During the construction period several trees, planted illegally on the road shoulder may need to be removed. Impacts on air quality during the construction phase may be negative. However, 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 and camps. 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 were reported in 2018. The IUCN has conducted a study on such type of conflict. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

3.3 Climate Change Impact Screening

3.3.1 General Overview 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 Bank³ 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. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. 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 deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. In

³ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

fact, forests would protect those lands from high wind and storm surges, whereas demolishing the trees has made the area more vulnerable.

Together with the above mentioned hazardous situation and sudden extraction of huge amount of groundwater, availability of potable water from shallow tube wells that pump water up from about 150 feet below the ground 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 because of the mass arrival of Rohingya communities, several specific measures including tree plantation 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 Screening and outcome

The thunder storm has been found to have the highest impact in the area, casualties were not 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.

Mitigation: Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time. And the mass migration will lead to man-made disaster which also can aggravate the climate change impacts in that area. 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. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the road.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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.

Specific Environmental and Social Management Plan (ESMP) has been prepared to eliminate, reduce or regulate the adverse impacts for this subproject. The purpose of this Environmental and Social Management Plan (ESMP) is to formulate measures which will mitigate adverse impacts on various environmental components, which have been identified during observation, and protect environmental resources where possible and enhance the value of environmental and social components where possible.

Among the notable prioritized management measures, contractor must adhere to the best practice HSE (Health, Safety and Environment) management procedure and regular adoption of dust control procedures (spraying of water at least twice a day) to minimize the effect to the least level. This HSE management procedure targets both groups- the working staffs/labors directly employed by the contractor and the people living in the catchment area or simply the users of the road. Noise impacts must be controlled efficiently as the road has the presence of settlements, learning center, CiC office, and NGO offices/establishments along the road length and construction works must be limited in day time; and the time and duration of any potential noisy works should be communicated with the surrounding people fairly in advance. Special attention should be given to hill/tila-side slopes to protect from any potential landslide or mass movement to adjoining road surface. Construction of L-drain, cross drain, and protection wall are suggested at different chainages to avoid such catastrophe or nuisance. Further construction related activities which may result in adverse impacts in the surrounding environment of the sub project must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Once the effects are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

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

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

4.2 Health and Safety Measures under COVID situations

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 situations should be allocated in consultation with project PIU.

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. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

There will be several tiers in monitoring framework to ensure the proper implementation of ESMP. Contractors, throughout the construction or implementation period, must ensure that environmental and social risks and impacts are minimized effectively while working at sites and adequate health and safety measures are put in place not only for their workers but also for the surrounding communities and DRPs. Contractors' employed site managers and safeguard supervisors (or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties

belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive measures delineated in ESMP, on top of the best engineering practices at sites including Occupational Health and Safety (OHS). D&SC firm will prepare regular monitoring reports based on the findings of stringent supervision and monitoring on its part.

PIU will have safeguards specialists stationed in Cox's Bazar and will conduct field visits very frequently. Moreover, Executive Engineer's office in Cox's Bazar and Upazila Engineers' office in Ukhiya and Teknaf will play a vital role in upholding the proper monitoring and supervision of civil works and associated project activities, including social and environmental safeguards in and around the sub-project sites. Safeguards specialists of PIU will monitor that all staffs of the contractors and other counterparts who are involved in project implementation receive both initial and ongoing environmental and social safeguard awareness and training sufficient to ensure the best practices in the field. Local Engineers from LGED and PIU safeguards specialists shall ascertain that contractors cleaning and reclamation works after the decommissioning of sites/ end of construction works are perfectly done, and will also suggest for punitive measures against the contractors if any negligence or indifference is found in following the ESMP to the fullest effectiveness.

The highest tier in the monitoring system is bestowed upon the respective Ministerial Project Steering Committee (PSC) chaired by the Sr. Secretary/Secretary, LGD, MoLGRD&C. The PIU, in collaboration with the PSC, will also ensure that Environmental and social safeguards training are provided to all Project personnel.

Widespread COVID 19 situation prevailing across the country has put further intense necessity for all concerned parties to scale up their monitoring frequency and activities in line with the prescribed guidelines to be followed in the field, camp site, and project offices. Frequent and abrupt visit to the working sites and labor camps is quite necessary in this crisis period and is strongly suggested.

6. LIMITATIONS OF THIS STUDY

Bangladesh government has imposed a nationwide lockdown to curb the spread of the novel coronavirus in the wake of series of deaths and infections. Authorities declared a ban on passenger travel on all sector from March 24 while all public transport on roads have been suspended from March 26 to stem the spread of virus, officially known as COVID-19. All office works have been postponed and an intended visit to the sites for further consultation with the relevant stakeholders has had to cancel due to this crisis. Therefore, some relevant information and arrangement needs awaiting for recovering this pandemic crisis.

Further, during the consultation, people living in the area and along the site were primarily targeted, though local dialect and Burmese language sometimes posed difficulties in understanding peoples' views. The safeguards team put their best efforts in meeting local representatives and Camp in Charges (CiCs), different sector coordinators, responsible agencies for site development and management while went to any respective road to survey. However, difficulties in finding the meeting time during the stringent working hours in camp areas have been observed very common, therefore, telephonic consent or views were taken in many cases.

7. 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. These issues might be problematic if necessary mitigation measures, as suggested in ESMP, would not be properly taken into consideration.
- The project will create employment for the workforce 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 & Social Management and Monitoring Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities. The ESMP mainly focuses on managing, mitigating and reducing the impacts exhibited in design, construction and operation phases.

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

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 8 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District; EMCRP/W14).

Name of the component: (2) Arakan road to Hakimpara to Hakimpara Rohingya Camp

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

Estimated total cost of sub-project (in Taka): 13,00,63,178 Tk.

Estimated construction period duration: 6 (Six) months

Estimated total cost of the component (in Taka): 12484908.00(Tk.)

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

District: Cox's Bazar

Sub-District: Ukhiya

Union: Palongkhali

Name of Community/Local Area: Hakimpara

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 with a proposed design of ISG 125mm, HBB will be laid on an existing ROW. For drainage of rain/storm water 6 nos. Cross Drains (Size: 750mmX750mm), and 2 nos. Box Culverts (Size: 3.50mX3.50m, Ch: 156m and 2x1.5m at Ch.290m) will be constructed. Considering the potential slipping of soil mass to relatively lower land areas in different chainages of the road 65m RCC Palisading wall and for ease drainage of mountain eel water during the rainy season 279m L-Drain have been included in design. In addition, road safety Guide Post & Name Plate has been included in the estimation (Technical Report 2019, EMCRP).

Estimated footprint / land area for this sub-project is 2370 sqm.

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

The targeted camp road belongs to Palongkhali union, Ward no. 5 under Ukhiya Upazila, under the district of Cox's Bazar. This proposed Road starts from Arakan road and ends at Hakimpara rohingya camp road. Tree garden, hill slope, ACF office, a learning center, YPSA ware house and some dispersed Rohingya settlements are located within first 300m chainage, and adjacent to the road. CIC office is located at 700m chainage, an army post is also located nearby. There are no sensitive environmental, cultural, or archaeological sites exist in the area of this sub-project.

Important Environmental Features (IEFs) near site:

Chainage Length of the sub-project: 790m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Chainage	Left	Right	Environmental/Socioeconomic features
"0" Point	L		Start from Arakan road, rohingya settlement, chikon chora, proposed bridge, tila
000-300		R	Tree, hill slope, rohingya settlement, shop, learning center, ACF office, brick boundary wall, tila, YPSA ware house
300-790	L		Saw mill, tin fence, u drain, building, army camp, paddy land, brick wall, u drain, brick boundary
		R	Brick boundary wall, CIC office, Bamboo fence, Hakim para abdul kudduser more, bamboo fence, guide wall

Overall Comments

The proposed sub-project (Road construction) is not located within any remarkable environmentally sensitive area and will not cause any severe effect to the environmental settings 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. . Homestead gardening and social forestation is very prevalent in the area. During the construction period several trees, planted illegally on the road shoulder may need to be removed. No agricultural productive soil will be used for construction works. In order to minimize the risk of potential sliding or slipping of soil mass, earth will be compacted for stabilization and necessary cut and fill operation along the hill slope is to be ensured. All these inputs will be mainly at construction phase and limited within project boundary. Further 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. Several individuals from local communities participated in the consultation meeting and they do not have any objection to construction works under this sub-project. Rather, the community appreciated the initiative as they will have very good access to all the services and facilities provided by the government and different organizations, and they would be able to harness the full socio-economic benefits as well as have the passage during any emergency situation.

The proposed Sub-project area 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-project.

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. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

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 location was once environmentally important and sensitive for containing protected forest area but this location is now denuded of natural forest, though local community has planted a lot many trees as homestead gardening or social forestation. A road side mosque was found during the survey period. No cultural or archaeological sites were identified in the vicinity.

In this sub-project area, no elephant migration routes exist (ref. IUCN).

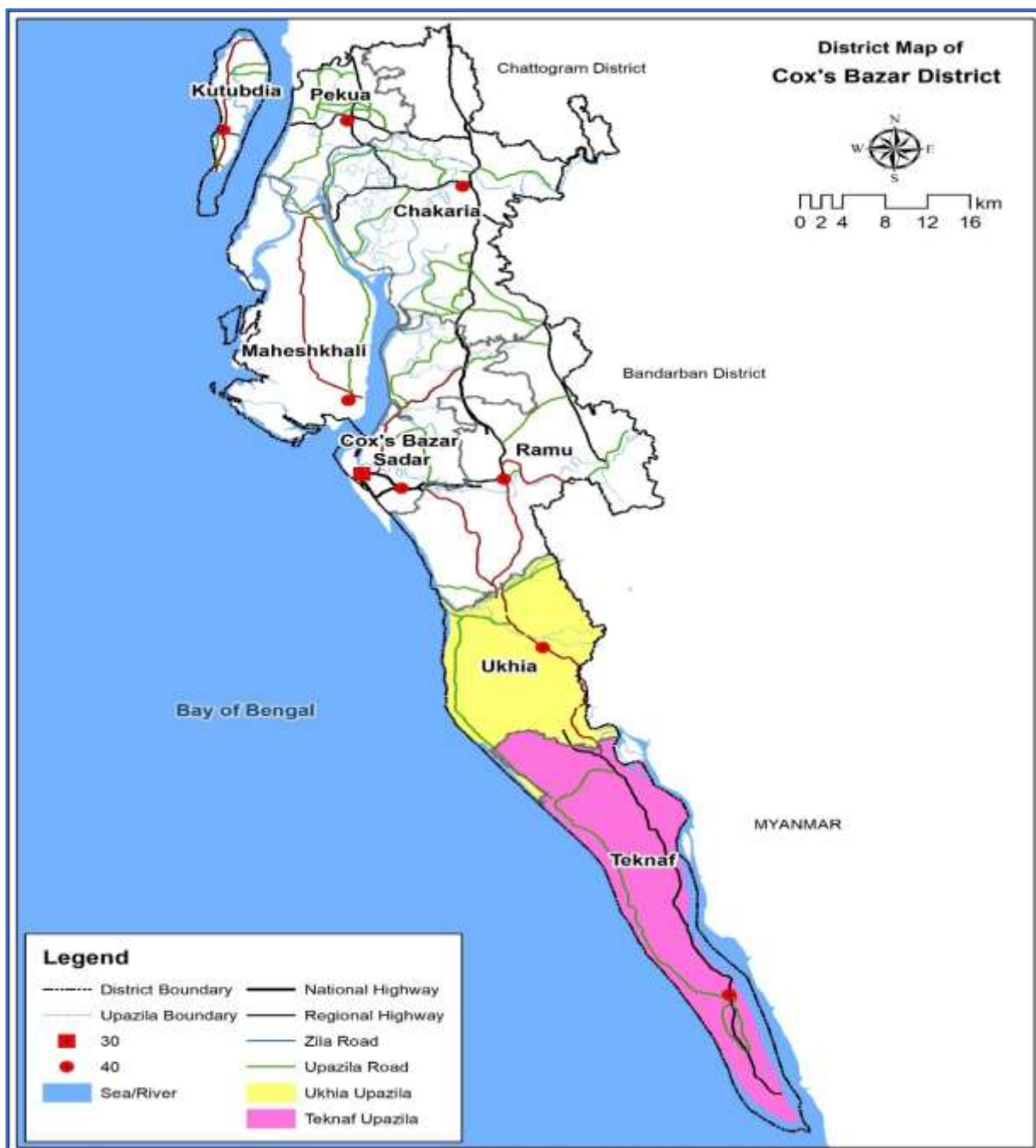


Figure 3: District Map with project location

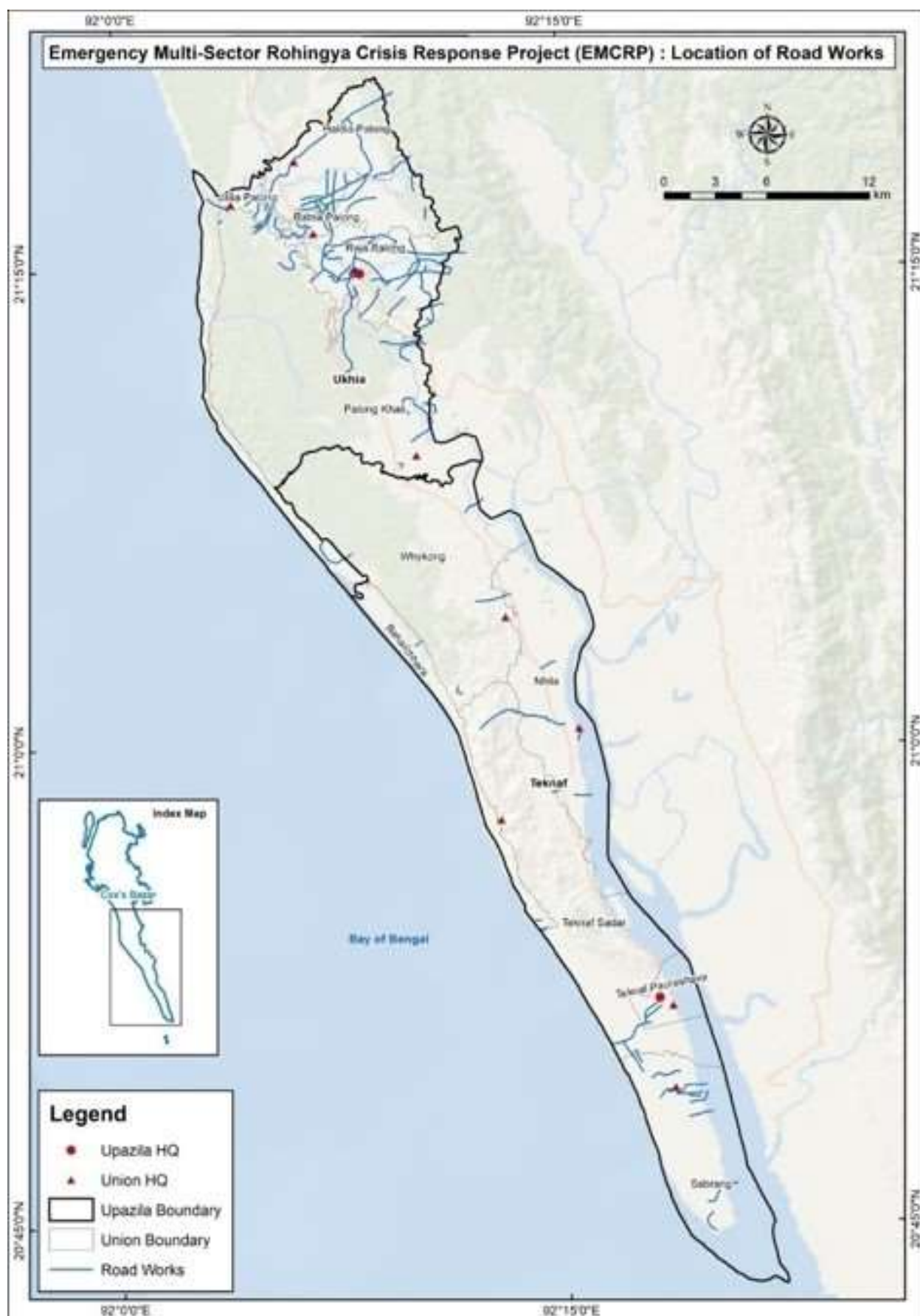


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

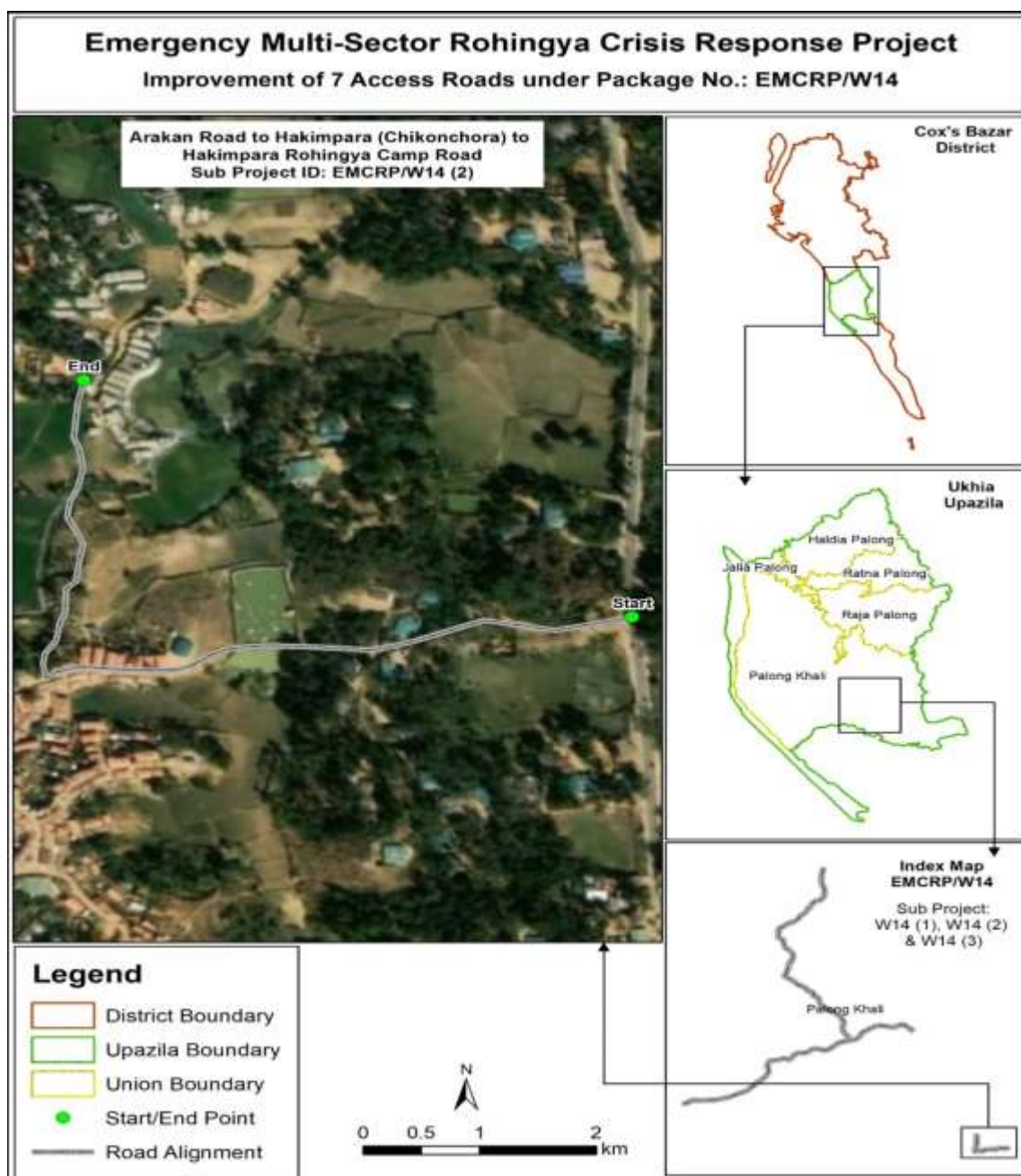


Figure 5: Upazila Map with Sub-project location

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 with a proposed design of ISG 125mm, HBB will be laid on an existing ROW. For drainage of rain/storm water 6 nos. Cross Drains (Size: 750mmX750mm), and 2 nos. Box Culverts (Size: 3.50mX3.50m, Ch: 156m and 2x1.5m at Ch.290m) will be constructed. Considering the potential slipping of soil mass to the adjoining low lying land areas in different chainages of the road 65m RCC Palisading wall and for ease drainage of mountain eel water during the rainy season 279m L-Drain have been included in design. In addition, road

safety Guide Post & Name Plate has been included in the estimation (Technical Report 2019, EMCRP).

Sub-project Location:

The targeted camp road belongs to Palongkhali union, Ward no. 5 under Ukhiya Upazila, Cox's Bazar. This proposed Road starts from Arakan road and ends at Hakimpara rohingya camp road.

Starting Point: Latitude: 21°09'31.57" N; Longitude: 92°9'39.7" E

Ending point: Latitude: 21°10'03" N; Longitude: 92°9'09" E

Land ownership

Land is owned by the Government of Bangladesh.

Expected construction period: 6 (Six months)

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

- i) The proposed Sub-project is located within Hakimpara Rohingya camp and existing local community.
- ii) No historical sites were identified.
- iii) Small relocation activities will be required and ARAP has been prepared accordingly.
- iv) 3/4 trees planted illegally on road shoulder need to be removed due to construction activities, but appropriate offsetting measures by planting additional 5 trees of similar type for each affected tree will be taken, under the road side tree plantation scheme of forest department under this project (additional financing).
- v) There are some low land areas along different sections of the road, and this difference in elevation has been created in the past for road improvement works. In order to keep running the natural movement or passage of water across the area, esp. during the rainy season, and to protect the road slope or embankment from potential slipping of soil mass, six cross drains, two box culverts and 65 m RCC Palisading wall have been included in design.
- vi) Environmental Sensitivity: No mentionable eco concerned establishment, no socio cultural site and elephant corridors are present in the area.

Section B: Environmental Screening

B.1: Environmental feature of sub-project location

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

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

This sub-project is situated within Palongkhali union of Ukhiya upazila, Cox's Bazar. Cox's Bazar-Teknaf highway is passing by the east side of the sub-project area. The area is characterized by the presence of a CIC office, a learning center, a road-side mosque, an army camp/post, patches of Rohingya settlements, tillas (high lands) and some agricultural lands within close proximity of the

ROW. However, there are no sensitive environmental, cultural, archaeological sites exist in the area of this sub-project, neither any elephant migration routes exist (ref. IUCN) in the vicinity.

Locations of sensitive institutions in the project surrounding areas (within 30m buffer zone) are shown in figure B.1.1. and list is shown in Appendix 7

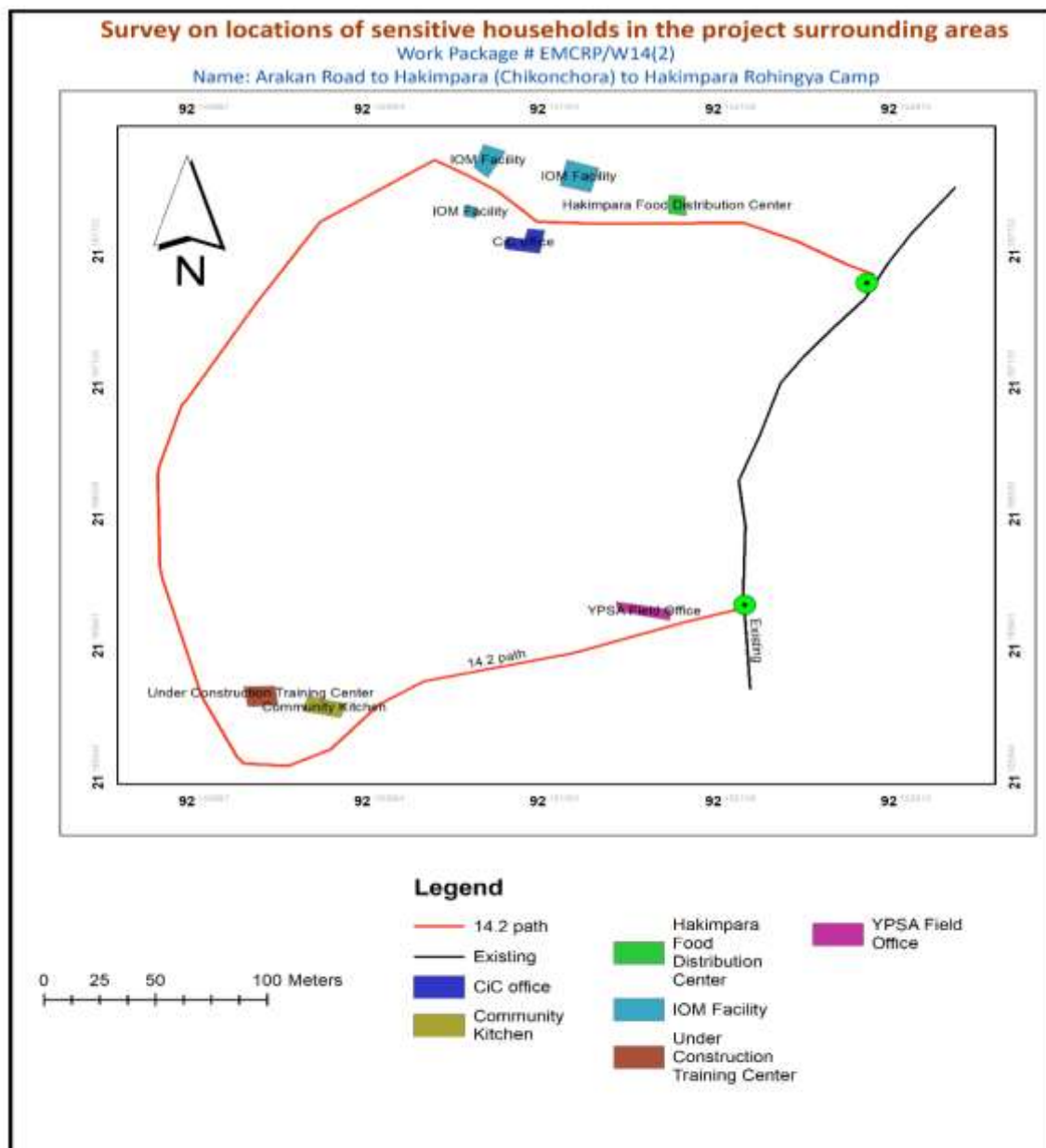


Figure B.1.1: Locations of sensitive institutions in the project surrounding areas (30m buffer zone)

Location of environmentally important and sensitive areas:

This sub-project location was once environmentally important and sensitive for containing protected forest areas but the location is now denuded of natural forest, though local community has planted a lot many trees as homestead gardening or social forestation. Popular tree species include Akashi,

Segun, Mango tree, jackfruits, pineapples etc.

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

No. Elephant migration routes or corridors were present near the sub-project area, about 8-9 years ago, but no presence of elephants or their migration routes are at this moment. This information is confirmed with maps established by UNHCR/IUCN and the consultation meeting with local stakeholders.

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

Yes. Local community is now practicing homestead gardening and social forestry across the sub-project area. Dust and emission generated during construction period might impact this community practice.

(3) Other issues:

No more mentionable issues raised.

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

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality was apparently good due to the appearance of rural vegetative settings around. But after arrival of Rohingya the number of vehicle movement on the road became too high. Dust is generated through movement of vehicles such as bus, truck, mini truck, motor cycle, auto rickshaw, tempo, trolley, tractor, etc. over the road surface which has caused deterioration of air quality.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerable limit. Vehicles such as motor cycle, bus, truck, mini truck, tempo, auto rickshaw, tractor, trailer, etc. move on the road surface throughout the day and night. These vehicles generate noise but still within the 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):

Medium. Presence of hilly terrain along some chainage of the road and in the vicinity poses the risk of landslide to a medium a scale, especially when slope stability and cut-and-fill operations are carried out, and torrential rains increases the potential. However, protective measures along some chainage are already included in the design and estimation.

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

Surface water quality: Surface water source were not found during the survey period, and also quality data is not available.

Groundwater quality: Groundwater is the main source of potable water in the Sub-project area. Local community use water from shallow tube well; shallow aquifers having depth of around 70-100 feet below the ground level, and the water contains high concentration of iron.

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
*Data source: IWM Study Report, 2019
Status of wildlife movement: There is no wildlife movement near/within the sub-project area due to settlement of Rohingya Displaced People (RDP).
State of forestation: In order to accommodate large numbers of Displaced Rohingya People (DRP), hills have been cleared of vegetation and cut indiscriminately for shelter and settlement establishment on top of small terrain areas. Stairs have been cut into the slope to facilitate access to these settlements. As a result, soil structure became loose to cause soil erosion. Weathering of valuable fertile top soil has made the hills unsuitable to support any vegetation cover which in turn will result in habitat loss, though local people have already planted a huge numbers of different types of tree species in the areas as homestead gardening and social forestation.
Summary of water balance analysis (For water supply scheme only): Not applicable

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option. Pickup trucks will be more suitable.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: An open space is required to set up a labor camp with associated facilities (toilet for male and female workers, kitchen for cooking, tube-well for water supply facility, and electricity connection) to support the workforce during construction. The space should have enough land area to accommodate a stack yard along with a site office, if possible. This open space should be selected in such a way that workers do not need to travel/walk through a longer distance to reach the sites and the place can be secured with proper fencing with a guard be posted at the entrance. The space or land area can be used on rental basis or under a mutual agreement between the owner and the contractor. The contract/consent document must be kept at the site office, whatsoever the mode of the contract is.
Possible location of labor camps: Next to the labor Camp area or the site office, and within walking distance from the sub-project location.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common

type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. The existing road seems to be the best option for transporting materials unto any unloading point in the area. Head load from unloading point to different working locations is easily possible by the assigned contractor.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.
Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): During the pre-construction period wastes will be generated from some preparatory activities, such as construction of labor camp, site office, material storage/stack yard and associated facilities, etc. and removal of road pavement. All these activities also will be carried out by numbers of local labors. So, around 45 kilograms of construction related wastes, such as bricks, aggregates, leftover cements, sands, etc. will be generated, which are typical solid wastes and a negligible quantity (nearly 5 kg) of bio and non-biodegradable wastes will be generated from the daily necessities of workers and construction staffs, such as food wastes, polythene, papers, plastics, etc. Some chemical waste, like paints, oils, etc. and small amount of solid and liquid wastes from the immediate use of constructed latrines by the workers may also be generated, such as feces and urines.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): Raw materials: i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates. Quantity: It is difficult to provide exact figures of raw materials on a typical pre-construction site at this level.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Vegetation from social forestry is present in the right of way, mostly within the boundaries of adjacent households and approx. area is nearly 948 sqm, but only 3/4 trees on the encroached road side area might get affected. No borrow pits were found in the area and the current condition shows that there is no aggregated soil on the right of way.

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

Low. There is very less likely chance of creating stagnant water bodies in borrow pits, quarries for inviting mosquito and other disease vectors to breed.

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

Low, there are no existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes) besides the sub-project location.

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

Low. There is very little scope of causing damage to terrestrial or aquatic ecosystems or endangered species directly in the pre-construction phase.

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

Only some preparatory physical works will be carried out in this phase which has very little scope to trigger landslide.

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 of similar elevation, and the soil is well compacted, the scale of erosion of lands is very minimum at this stage. Still the concentrated outflow, if any, will be managed through the drains included in design.

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

Dust impact can be high due to poor condition of the road, but other traffic movement impacts such as light or noise impact will not be significant in the pre-construction phase.

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 waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.

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

Type: i) Bricks, ii) Sand, iii) cement, iv) aggregates, v) water, vi) Reinforcing Steel Bars are the most common type of raw materials to be used in construction period.

Quantity: Anticipating the quantity of raw materials to be used needs detail calculation as per design, which is beyond the scope of this report, but presented in engineering design/estimates of the sub-project.

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

Vegetation is present in the right of way but measuring the approx. area is difficult to identify. Aggregated Soil is not present on the ROW. However, a temporary waste dump and equipment yards require approximately 650 square meters of area altogether.

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

Low: No borrow pit or quarries will be created by the construction works.

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

Pre-existing U-drains were found in two sections of the road. No natural drainage channels or surface water bodies are located alongside the road length. However, the existing drains can be disturbed by the construction works, especially from the dust, soil and oil spillage during this period. Proper mitigation and preventive measures must be put in place to reduce the impacts to the minimum level.

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

Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.

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

Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

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

<p>raised and blown by vehicles:</p> <p>During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.</p>
<p>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</p> <p>Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.</p>
<p>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</p> <p>Not applicable.</p>
<p>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</p> <p>There is no possibility of stagnant water bodies for encouraging mosquito breeding and other disease vectors, during the operation phase.</p>
<p>Likely direct and indirect impacts on economic development in the project areas by the sub-project:</p> <p>Construction or implementation of a 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.</p>
<p>Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</p> <p>No existing drainage channels or surface water bodies found in the project area, therefore, no such effect is anticipated</p>
<p>Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</p> <p>Low, Little effects on terrestrial ecosystem is anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around the sub-project component site, and no known areas of ecological interest.</p>
<p>Activities leading to landslides, slumps, slips and other mass movements in road cuts:</p> <p>Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.</p>
<p>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)</p> <p>Low. Box culverts are designed to avoid concentrated flow.</p>
<p>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</p> <p>Improved road communication will definitely increase the traffic/ vehicular movement, which must</p>

increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed HBB road will reduce the pollution generated from dust on the existing poor conditioned 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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
1: Sub-Project Interventions	Air Quality	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Soil impacts	Under the sub-project intervention the overall score is low .	<ul style="list-style-type: none"> • 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 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. • Cut-and-fill operations on the hill slope and slope stabilization shall be carried out step by step following proper operational procedures. 	Construction Contractor monitored by Consultant and PIU	<p>No visible degradation to nearby drainages, <i>khals</i> or water bodies due to soil erosion.</p> <p>Rain storms in construction phase.</p>	Monitoring on weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Vegetation Removal (May cause soil erosion and their deposition on nearby crop field, affecting soil quality and productivity)	Low. Only 3/4 trees may need to be removed.	<ul style="list-style-type: none"> Offsetting tree removal will be managed by providing trees of different species to the road side households to plant within their boundary, as the shoulder would not accommodate enough spaces to be used for tree plantation along major sections of the road. Ensure any trees cut are offset by planting additional 5 trees of similar type along ROW. Ensure no private trees are cut without compensation or prior consent from the owner. Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. 	Construction Contractor monitored by Consultant and PIU	Tree cuttings near ROW Complaints from Community	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is low .	<p>All precautions to store chemicals/oil/fuel properly so that no chance of spill.</p> <p>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</p> <p>Monitor water quality according to the environmental management plan.</p>	Construction Contractor and monitored by Consultant and PIU	<p>(i) Areas for stockpiles, storage of fuels and lubricants and waste materials;</p> <p>(ii) Records of water quality inspection; Water Quality Test (National Drinking Water Quality Standard Parameters) if requires;</p> <p>(iii) No visible degradation to nearby drainages, <i>khals</i> or water bodies due to construction activities.</p> <p>(iv) Records should be kept and logged.</p>	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	
					Indicators	Frequency
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	<ul style="list-style-type: none"> Record of regular inspection. Record of accidents/incidents 	Monthly monitoring.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Storage of construction materials	Under the subproject intervention the overall score is low .	Train concerned person and team assigned for the construction work to ensure items are stored properly and away from steep slopes.	Construction Contractor and monitored by Consultant and PIU	<ul style="list-style-type: none"> List of materials and sources of materials; Storage facility for construction 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 .	<ul style="list-style-type: none"> 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.	Weekly as work progresses



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	<ul style="list-style-type: none"> During construction cut and fill will be balanced as far as possible. Designs shall also ensure that all cut and fill activities are balanced to the best possible level. 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	
					Indicators	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 .	<p>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. However, following sets of requirements shall be taken into consideration :</p> <ul style="list-style-type: none"> Storage area will be sufficiently spacious so that unloading works can be performed inside the area and materials must not be rest on road side, near the water bodies, or trees and bushes, and will not be located in any crowded place. Storage area must be well fenced with guard posted at the entrance and at least 30 m distant from any water bodies. Construction materials must not interrupt land contours, natural drainage pattern, and create water logging or depression. Cement, sand, reinforced bars, stone chips, aggregates etc. must be covered with tarpaulins, and end of reinforced bars will be capped with plastic caps or covered with sacks/clothes to avoid any health injury. 	Construction Contractor and monitored by Consultant and PIU	<p>-List of materials and sources of materials; -Storage areas for materials and equipment.</p>	Monthly basis during implementation phase, as necessary with discussion with PIU, Consultant

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			<ul style="list-style-type: none"> Chemicals and hazardous materials including oil, grease, bitumen, etc. shall be kept in a Cement concrete bunded area or on wooden stage covered with polythene/tarpaulin. 			
	Noise pollution	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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 ESMP. 	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) if required at all.	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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Road Safety and Accidents	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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. 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. 	Construction Contractor, environmental specialist of D&SC.	Complaints from communities, pedestrians	Daily, during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
4. Post Construction	Road Safety		<ul style="list-style-type: none"> 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. Imposing barriers at several strategic places on the road to limit the movement of overloaded or heavy vehicles. 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.
	Afforestation	Under the issue the overall score is low .	<ul style="list-style-type: none"> Plantation of trees during monsoon period by the people living in roadside areas as homestead gardening. 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. Operational Phase	Maintenance of road and assets (Road accidents may increase due	Under the issue the overall score	<ul style="list-style-type: none"> No advertisement/ boardings shall be allowed within the Right of Way limits of the project road. 	LGED	Number of complaints from stakeholders;	During Operation under LGED's regular maintenance

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	to higher number of vehicles using the roads at increased speeds)	is low .	<ul style="list-style-type: none"> 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. 			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:

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is allowed within this sub-project activities <p>So, there are no any mitigation measures according to this impact.</p>	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Site Selection & implementing interventions: Human-elephant conflict	<ul style="list-style-type: none"> Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area. 	PIU	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	<ul style="list-style-type: none"> All sites must avoid the low land near the water bodies or natural flow paths to avoid the flash flood or any kind of surface runoff. Keeping 20 meters distance from water bodies or natural water flow paths should be maintained, if possible. Tubewell location within the construction site/camp should not near any kind of latrine and soak well which could be contaminated by those. Minimize cut & fill operations, the site clearing and grubbing operations should be limited to the locations wherever necessary. Avoid disruption to human settlement, and social, cultural and religiously sensitive areas. Avoid disturbance to existing slop and any natural drainage system. The contractor shall ensure that site preparation activities do not lead to any disruption to living or activities of the local residents. 	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> Construction activities shall be finished at day time within 05 PM. Further necessary measures to be taken for avoiding any disturbance. Contractor must provide personal protective 	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		equipment (PPE) such as ear plugs, earmuffs, helmets, etc. to the persons working in high-risk areas and wherever required.		
Construction Activity	Dust	<ul style="list-style-type: none"> Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), 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 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Safety Issues	<ul style="list-style-type: none"> Unauthorized entry is completely prohibited in the site and take necessary measures for preventing this problem Before works start 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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Traffic Management	<ul style="list-style-type: none"> Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the Executive Engineer of Cox's Bazar. Local traffic police department should be contacted, if traffic problem becomes more complex. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. If ground water is withdrawn, adequate approvals from the appropriate department need to be 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. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 	Contractor	Social Development Specialist and Gender Specialist

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>records of this awareness building session shall be kept on site.</p> <ul style="list-style-type: none"> • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labour camps will be put in place • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation. 		of PIU, PSC
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> • Residual waste from the temporary accommodation facilities for labor and Waste from equipment maintenance/vehicles on-site • After completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management from respective authority or Environmental Specialist at PIU in difficulties to reach that authority. 	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts. 	PIU & Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	<p>Health & Safety Risks:</p> <ul style="list-style-type: none"> The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<ul style="list-style-type: none"> All construction equipment at site will be properly inspected and timely repairing to be ensured. 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. Sub project will have a Proper emergency response plan (ERP) and be communicated with all parties, 	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
		<p>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 efficacy and coherence with the plan.</p> <ul style="list-style-type: none"> • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • Ensure all equipment is in working condition and suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Ensure all tools and other work equipment are serviced and maintained in accordance with maintenance schedules and manufacturer's instructions. • Awareness training will be given to all personnel 		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>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.</p> <ul style="list-style-type: none"> • 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. 		
Operation & Maintenance	Noise disturbances to fauna	<ul style="list-style-type: none"> • 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. 	PIU	Environmental Consultant of PIU, PSC. Union Member
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting	<ul style="list-style-type: none"> • Preventative maintenance schedule should be followed. • Solid organic wastes should be stored in bins and/ 	PIU	Environmental Consultant of PIU, PSC. Union

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	surrounding water bodies, flora and fauna	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.		Member
Decommissioning during the project implementation period (including site clearance after the construction)	The impacts are similar to those listed in construction stage: <ul style="list-style-type: none"> • Pollution from waste materials • Health & Safety risks to workers and local community 	<ul style="list-style-type: none"> • Contractor must prepare a waste management plan including following principles given hereunder. 	PIU / Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

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, 01686640284

Reviewed by: Md. Saiful Islam, IC, Field Level Environmental Specialist, +8801913442006

Appendix-3
Cost of Environmental Enhancement Works in BOQ

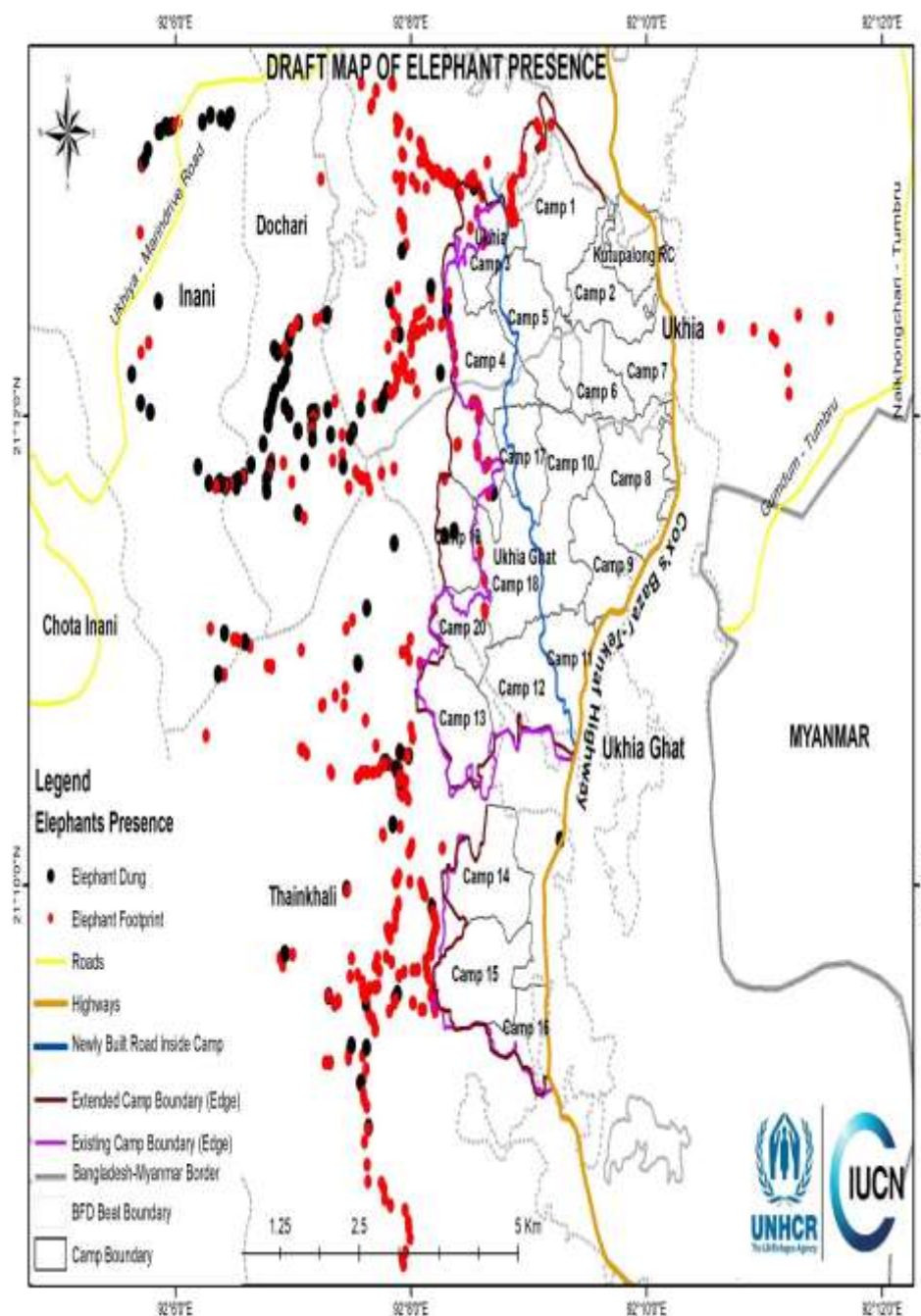
In consideration to the above mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
1	<u>Grass Turfing</u> 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)	1 LS	30000	30000
2	<u>First Aid Box, Labor camp establishment, pit establishment, water establishment including water filter</u> Supply of first aid box with standard contents and as per direction of the E.I.C.	1 LS	100000	100000
3	<u>Dust suppression measures</u> 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.	1	20000	20000
4	<u>Personal Protective Equipment</u> 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	20000	20000
5	<u>Tree plantation</u> 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 koro, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road	50	42.70	2135

	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.			
6	<u>Health and Safety Warning Signs</u> Signage postings and occupational safety management	1 LS	15000	15000
7	<u>Waste water and Waste disposal</u> 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	10000	10000
8	<u>Traffic Management</u> 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	10000	10000
9	<u>RN Plate</u> Providing, fitting and fixing rectangular Road Name Plate.	2 each	5962.87	11925.74
11	<u>Soil Erosion and Drainage Congestion monitoring</u>	1 LS	30000	30000
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				249,060.74

Appendix-4



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

Appendix-5

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

Time: 4.30 Date: 25.12.19

COMMUNICATION AND PARTICIPATION PROGRAMME
FOCUS GROUP DISCUSSION

Package W-14/2 ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)
প্রকল্পের নাম: হাফিম পাড়া - হাফিম পাড়া (চিকন চড়া) হাফিম পাড়া
মত বিনিময়ের স্থান: হাফিম পাড়া হাফিম পাড়া হাফিম পাড়া
ইউনিয়ন: নৈপানং খালী
ডাকঘর: হাফিম পাড়া
উপজেলা: উখিয়া
জেলা: কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও বয়স)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
1.	মোঃ আমিন	19	✓	হাফিম পাড়া	আমিন
2.	মোঃ হুমুন আমিন	24	✓	হাফিম পাড়া	হুমুন
3.	মোঃ জাহাঙ্গীর	20	✓	হাফিম পাড়া	জাহাঙ্গীর
4.	মোঃ দিমাহা আমিন	30	✓	হাফিম পাড়া	দিমাহা
5.	আনোয়ার হুমুন	44	✓	হাফিম পাড়া	আনোয়ার
6.	হাসান আমিন	44	✓	হাফিম পাড়া	হাসান
7.	আবুল কালাম	46	✓	হাফিম পাড়া	আবুল কালাম
8.	মোঃ দরবেশ আমিন	51	✓	"	দরবেশ
9.	নূরুল হাসান	21	✓	হাফিম পাড়া	নূরুল
10.	আঃ আমিন	32	✓	"	আমিন
11.	আঃ মাহাম্মদ	42	✓	"	মাহাম্মদ
12.	মোঃ ইব্রাহীম	26	✓	"	ইব্রাহীম
13.	মোঃ নূরুল হক	28	✓	"	নূরুল হক
14.	মোঃ নূরুল হক	82	✓	"	নূরুল হক
15.	মোঃ ইমদাদ	20	✓	"	ইমদাদ
16.	মোঃ হাফিজ উদ্দিন	20	✓	"	হাফিজ
17.					
18.					
19.					
20.					

Public Consultation Participants' List

Appendix-6



Paddy Field on the side of the road



Brick wall and trees on sides of the road



Existing concrete drain on both side



Mosque on the left side of the existing road

Appendix 7

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Local Government Engineering Department (LGED)
Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Work Package # EMCRP/W14(2)

Name: Arakan Road to Hakimpara (Chikonchora) to Hakimpara Rohingya Camp

Survey on locations of sensitive institutions in the project surrounding areas

Sl. No.	Available Sensitive Institution	Location of Institution			Distance from Sub Project Location	
		Chainage	Latitude	Longitude	Distance(m)	Orientation
1	YPSA Field Office	10	21.166000	92.152056	1	Right
2	Community Kitchen	180	21.165639	92.150639	7	Right
3	Under Construction Training Center	300	21.165806	92.150139	15	Right
4	IOM Facility	607	21.168028	92.151111	1	Left
5	IOM Facility	620	21.167972	92.151194	1	Left
6	Safe Space	635	21.167889	92.151306	25	Left
7	IOM Facility	635	21.167889	92.151306	2	Right
8	CiC office	635	21.167889	92.151306	30	Right
9	Hakimpara Food Distribution Center	707	21.167861	92.151972	7	Left

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



Design and Supervision Consultancy

Environmental Screening Report

for Tankhali Telkhola Road(BC) road Tajnimarkhola Rohingya camp

UNDER THE PACKAGE NO: EMCRP/W14

APRIL-2020



ACRONYMS

ARAP	Abbreviated Resettlement Action Plan
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 Bank



Contents

1	INTRODUCTION	7
1.1	Project Background	7
1.2	Objective of the Sub-Project.....	7
2	PUBLIC CONSULTATION AND PARTICIPATION	9
2.1	Methodology	9
2.2	Summary of Public Consultation Meeting	10
2.3	Suggestions and recommendations of the participants	11
3	ENVIRONMENTAL SCREENING	11
3.1	General.....	11
3.2	Assessment of Screening Findings	12
3.3	Climate Change Impact Screening	13
3.3.1	General Overview of the area	13
3.3.2	Site Specific Screening and outcome.....	13
4	ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS.....	14
4.1	Mitigation and Management Measures	14
4.2	Cost of Environmental Enhancement Works in BOQ	15
5.	LIMITATIONS OF THIS STUDY	15
6.	CONCLUSIONS AND RECOMMENDATIONS	15
	Appendix-1	17
	Appendix-2	43
	Appendix-3	52
	Appendix-4	54
	Appendix-5	55
	Appendix-6	56

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 Host Communities 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 construction of school cum cyclone shelters and Multipurpose Community and Service Centers (MCSC), facilitating growth centers and RCC Bridge development, and so on, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agencies with D&SC (Development Design Consultants Limited-DDC) identifies the key project beneficiaries- Displaced Rohingya Population (DRP) and Host Communities or in other words, the 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 have been carried out in accordance with guidelines from World Bank; and accordingly, environmental and social screening reports have 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 proposed improvement of Thainkhali-Talkhola (BC) Road Tajnimarkhola Rohingya Camp by BC from Ch. 1375m to Ch. 5340m with an effective length of 3765m to be completed as village road-A as well as this sub-project component is located on a hilly region where the land is owned by Government. The road has been heavily used by the local community and displaced Rohingya people and therefore, the pavement, earthen shoulder and slope in different sections have been damaged and need to rehabilitate within shortest time period. 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, such as mosque, Madrasa, graveyard, playground, hospital, relief center, child learning center, children play park, shops, multipurpose child and adolescent center within the catchment area.

The proposed road is not passing through any sensitive environmental components or reserved areas. Though several canals, a pond, a small marshland and a beel are located within the catchment area, those are sufficiently distant from the ROW or are protected by drainage structures. Thirteen box culverts or drainage structures will be constructed/ rehabilitated to protect all those natural water bodies and physiographic features of the area. 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 manageable 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 or affect any sensitive areas of any kind and sufficient numbers of structures are included in proposed implementation works for the enhancement of ecosystem services in the area, 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 730,000¹ 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 923,033². 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. Apart from the interventions in Addressing Gender and Social Inclusiveness and Preventing Gender Based Violence with the Support from UNFPA and building Communication and Awareness among all affected parties through an effective engagement of BCCP (Bangladesh Center for Communication Programs) in the areas, LGED is implementing a good number of infrastructural facilities, namely improvement of hat bazars, roads (both inside and outside of the camps), bridges, culverts, construction of School cum multi-purpose disaster shelters, Satellite Fire Stations, Relief Distribution Center, Community Service Center and many other different types of facilities. 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 socio-economic condition of 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.

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

¹ ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)

² IOM Needs and Population Monitoring round 12 as of October 10, 2018

- ✓ 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 'Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District'; **with a package name; EMCRP/W14.**

Table 1.2.1: Significant features of the Sub-project

Package No. EMCRP/W14	
Description of Sub-project :	
Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District:	
(1) Tajnimarkhola football field west to Rohingya Camp 20, (2) Arakan road to Hakimpara to Hakimpara Rohingya Camp,(3)Tankhali Telkhola Road(BC) road Tajnimarkhola Rohingya camp, (4)Nhila R&H to Uttar Leda Lamonipara Dakkhin Ali Khall Doilla's house Road, (5) Nhila R&H Jadimura RNGPS to ahmed's house Road, (6) Nhila R&H to Moulavi para Muktul Hossain's house to Soronathi Camp Road, (7) Whykong R&H to Kerontoli Forest Road, (8) Unchi prang Bazar Raikhong Road with culverts in Ukhiya Upazila of Cox's Bazar District.	
Sub-project Component no. (3)Tankhali Telkhola Road(BC) road Tajnimarkhola Rohingya camp	
Component Location :	
i. ID 422944002	
ii. Name of Union : Palang Khali	
iii.Name of the Upazila : Ukhiya	
iv. Construction Year 2020-2021	v. Length (m) : 1375m to 5340m (3765 m)
vi. Width (m): 3.00m	
vii.Distance from UZHQ : 5 km	
GPS Coordinates	Starting Point: Latitude: 21°10'30" N; Longitude: 92°8'39" E
	Ending point: Latitude: 21°10'4" N; Longitude: 92°7'37" E
Condition of Road	Brick Flat Soling (BFS) Road
Communication Source	Radio & Mobile Network
Subproject intervention	
1. 2405m HBB and 678m BFS . 2. ISG 250mm 3. Sub-base 150mm 4. Base course 150mm 5. 50mm Carpeting with 7mm Seal Coat 6. 13 nos. box culvert	
Implementing Agency : Local Government Engineering Department (LGED)	
Estimated total cost of component : 5,74,33,449.00(Tk.)	

2 PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Several events of consultation meetings were carried out in different dates and times with different types of stakeholders. D&SC conducted the first consultation meeting with local community from 03:50 PM to 05:05 PM on 25 December, 2019 at the Telkhola Bazar which is adjacent to the sub-project component location. As part of the impact assessment, participatory public consultation was conducted in that area. The locals, UP member 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** and sub-project pictorial overview are attached in **Appendix-6**. Several more consultation meetings in different modes were carried out as well. The local individuals, chairman and/or member of Union Parishad, representatives from different agencies 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. The following table depicts details of several of those consultation meetings with outcomes.

Consultation Date	Time	Venue	Mode of Consultation	Stakeholder/ Participants	Outcomes
25 th December 2019	03:50 PM	at the Telkhola Bazar	Focus Group Discussion	List is attached in Appendix.	Participants were informed about the sub-project interventions, potential impacts and management options, their informed views and comments were taken into consideration and appropriately reflected into the ESMP.
18 th February 2020	6:00 pm	Office of the UE, LGED, Cox's Bazar	Direct conversation	UE, Resident Engineer, Field Engineers, LGED Staffs	Consulted about the survey plan for the 2 nd detail survey and UE office assured of putting all efforts in enforcing ESMP in the field.
19 th February, 2020			Telephonic consultation	Md. Sultan Mahmud, Asst. Site planner of UNHCR	Consulted about the survey plan, and the site was found mostly free from any direct physical impacts

19 th February, 2020			Telephonic consultation	Shegufta Newaz, Coordinator of site management, UNHCR	associated with the proposed road works. Reciprocal assurance and commitment were rendered for the successful implementation of the component.
19 th February, 2020	3:00 pm	CiC office in Camp 7	Direct Conversation	Subash Chandra Sheel, Camp Mgt. Support-Dty Lead, BRAC, Cox's Bazar.	He assured of lending all hands from him and his organization in successful implementation of the project.



Figure 2.1.1: Consultation meeting (FGD) with local community

Public consultation is a living process as type of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution process must differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.

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 views and information from affected parties and inhabitants on environmental issues. (iii) Consultation with interest groups and the public.

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

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

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

2.3 Suggestions and recommendations of the participants

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

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

3 ENVIRONMENTAL SCREENING

3.1 General

Environmental Screening is the preliminary process of Environmental Assessment for the identification of significant impacts on important environmental components, depending on the nature and size of the project, its interventions and technology, location and time; and evaluation of screening findings will decide whether any further comprehensive assessment study is required or not. This assessment procedure will follow a definite scope of interventions, for example, this

particular study will be based on the qualitative assessment of the surrounding environment of the particular site before any physical intervention starts, and maximum project impact area is considered to be half a kilometer of the radial distance around the site.

3.2 Assessment of Screening Findings

This section identifies the potential impacts that the various elements of the proposed Project may have on aspects of the physical, biological and socio-economic environment. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted with the purpose of fulfilling the requirements of GoB and World Bank. Assessment of potential impacts requires a multi-disciplinary approach in which a wide range of issues are taken into consideration to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation.

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**

The proposed sub-project component 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 communities, institutions, public centers, agricultural lands, ponds and community level forest. Road side trees could be left unharmed during the construction period, if decisions are made prudently. 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 and camps. Presence of number of educational, religious and social institutions along the road length denotes the significance of potential risks from ambient air and noise pollution. 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 were reported in 2018. The IUCN has conducted a study on such type of conflict. Consultation meetings held at the site also revealed that there was no presence of elephants across the areas. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

3.3 Climate Change Impact Screening

3.3.1 General Overview 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 Bank³ 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 soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. 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 deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. In fact, forests would protect those lands from high wind and storm surges, whereas demolishing the trees has made the area more vulnerable.

Together with the above mentioned hazardous situation and sudden extraction of huge amount of groundwater, availability of potable water from shallow tube wells that pump water up from about 150 feet below the ground 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 because of the mass arrival of Rohingya communities, several specific measures including tree plantation 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 Screening and outcome

The thunder storm has been found to have the highest impact in the area, casualties were not 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.

Mitigation: Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time. And the mass migration will lead to man-made disaster which also can aggravate the climate change impacts in that area. 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

³ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

of 25,434 sq.m for a single arrester. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the road.

4 ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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.

Specific Environmental and Social Management Plan (ESMP) has been prepared to eliminate, reduce or regulate the adverse impacts for this subproject. The purpose of this ESMP) is to formulate measures which will mitigate adverse impacts on various environmental components, which have been identified during observation, and protect environmental resources where possible and enhance the value of environmental and social components where possible.

Among the notable prioritized management measures, contractor must adhere to the best practice HSE (Health, Safety and Environment) management procedure and regular adoption of dust control procedures (spraying of water at least twice a day) to minimize the effect to the least level. This HSE management procedure targets both groups- the working staffs/labors directly employed by the contractor and the people living in the catchment area or simply the users of the road. Noise impacts must be controlled efficiently due to the presence of numbers of educational, social and religious centers/institutions along the road length and construction works must be limited in day time; and the time and duration of any potential noisy works should be communicated with the surrounding people fairly in advance. 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. Moreover, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works 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 roads pass through and by the Rohingya Camps, up on the hills 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 Cost of Environmental Enhancement Works in BOQ

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

5. LIMITATIONS OF THIS STUDY

Bangladesh government has imposed a nationwide lockdown to curb the spread of the novel coronavirus in the wake of series of deaths and infections. Authorities declared a ban on passenger travel on all sector from March 24 while all public transport on roads have been suspended from March 26 to stem the spread of virus, officially known as COVID-19. All office works have been postponed and an intended visit to the sites for further consultation with the relevant stakeholders has had to cancel due to this crisis. Therefore, some relevant information and arrangement needs awaiting for recovering this pandemic crisis.

Further, during the consultation, people living in the area and along the site were primarily targeted, though local dialect and Burmese language sometimes posed difficulties in understanding peoples' views. The safeguards team put their best efforts in meeting local representatives and Camp in Charges (CiCs), different sector coordinators, responsible agencies for site development and management while went to any respective road to survey. However, difficulties in adherence to the meeting schedule during the stringent working hours in camp areas have been observed very common on different occasions, therefore, telephonic consent or views were taken in many cases.

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 component. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business and 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. These issues might be problematic if necessary mitigation measures, as suggested in ESMP, would not be properly taken into consideration.
- The project will create employment for the workforce 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 & Monitoring Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities. The ESMP mainly focuses on managing, mitigating and reducing the impacts exhibited in design, construction and operation phases.

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 component within shortest possible period of time, and with great care and efficiency.

Appendix-1

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: Improvement of 8 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District; EMCRP/W14.

Name of the component: Tankhali Telkhola Road(BC) road Tajnimarkhola Rohingya camp

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

Estimated total cost of sub-project (in Taka): 13,00,63,178 Tk

Estimated construction period duration: 6 (Six) months

Estimated total cost of the component (in Taka): 5,74,33,449.00(Tk.)

Estimated Operation and Maintenance period (life of sub-project) Project design life is more than 15 (Fifteen) years, but Government policies will determine here about the O&M period inside the camps.

District: Cox's Bazar

Sub-District: Ukhiya

Union: Palongkhali

Name of Community/Local Area: Tankhali, Telkhola, Tajnimarkhola

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project component is categorized as a village Road-A. This road starts from Palongkhali UP to connect Thainkhali-Telkhola road which is connected with Rohingya camp no. 13 & 14. Based on the field survey, this component involves construction of 2405m HBB and 678m BFS on an existing alignment. Additionally, 13 drainage structures, primarily box culverts of different dimensions at different strategic chainage are included in design and implementation works. Design shows that the road is to be improved with ISG 250mm, Sub-base 150mm, Base course 150mm, 50mm Carpeting with 7mm Seal Coat. This road will create an effective connectivity to Hatimura Kalabazar at chainage 5340m through a hospital and CiC office which are located at chainage 2065m (Technical Report 2019, EMCRP).

Estimated footprint / land area for this sub-project is 11295 sqm.

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

This sub-project is situated within Thainkhali, Talkhola and Battali villages under Palongkhali union of Ukhiya Upazila, Cox's Bazar. Mostly local community lives in the catchment area. This road starts from Rohingya camp 13 and stretching 3765 meters from north to south, passing by Thainkhali canal, Police camp, WFP relief center, Health care center, CiC office, Hospital, Multipurpose child and adolescent center, Armir Jara chora and Telkhola canal. There are also a small marshy land and a beel in the catchment area but at sufficiently distant from the road alignment. There are three existing box culverts on its length, which will be rehabilitated during this construction works

Important Environmental Features (IEFs) near site:

Chainage Length of the sub-project: 3765m. 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:

Table 1.3.1: Environmental Features along the Chainage length of the Sub-Project component

Chainage	Left	Right	Environmental Features
“1375m as 0” Point 000-300	L		Thainkhali canal (Khal), Hotel, Police camp, Tila (High land), Electric pole
		R	Start from Rohingya camp-13 connecting road, tin shed fencing, pond, marshland
300-600	L		Rohingya shop, tila, u drain, electric pole, children play park, WFP relief center, health center, wire fencing
		R	CiC office, tila, u drain, mosque, wash block, Rohingya settlement
600-900	L		Hospital, Rohingya shop, Multipurpose child & adolescent center, canal
		R	13 no. camp connecting road, playground, hill
900-1200	L		Patches of land with Social forestation, chaltatholi bridge, Armir jara chorra
		R	Patches of land with Social forestation,, Telkhola canal, local drain, Armir jara bridge
1200-1500	L		Telkhola canal, battali dokkhin kuler hill
		R	Hill, corn field, agricultural land
1500-1800	L		Mango garden, permanent households, bamboo fencing, Nurani madrasa
		R	Agricultural land, bamboo fencing, household connecting road, marshland
1800-2100	L		Poultry farm, Homestead garden, battali canal, agricultural land
		R	Battali hill, shop, graveyard, Gonar hill
2100-2400	L		Homestead garden, Telkhola canal, hill, betel leaf yard
		R	Abir jora chorra, paddy land, betel leaf yard
2400-2700	L		Hill slop, telkhola canal,
		R	Hill, hill slop, paddy land,
2700-3000	L		Telkhola canal, betel leaf yard, Marzar beel
		R	Betel leaf yard, agricultural land, households (Kaccha), shop
3000-3300	L		Agricultural land, telkhola canal, hill
		R	Agricultural land
3300-3600	L		Agricultural land, tubewell, tila
		R	Paddy land, shop, bamboo fencing, agricultural land, mosque
3600-3900	L		Telkhola bazar, shop
		R	Telkhola bazar mosque, shops

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 settings of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging has been observed in the road area. Nevertheless, considering the presence of several canals, chorras, a small marshland and a beel in the vicinity, thirteen drainage structures, primarily box culverts of different dimensions have been incorporated in design and for construction at different strategic locations on the road. Several local trees may need to clear out due to construction activities, with appropriate offsetting measures to be taken. Thainkhali canal, Police camp, WFP relief center, Health care center, CiC office, a hospital, multipurpose child and adolescent center, Armir Jara chora and Telkhola canal are located adjacent to this road. No agricultural productive soil will be used for construction works. Appropriate and best possible 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. Several local individuals participated in the consultation meeting and they do not have any objection to construction works under this sub-project.

The proposed component 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 construction of the road, if the guiding activities and principles delineated into the ESMP are followed with due care and vigilance.

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. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

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 road starts from Rohingya camp 13 stretching 3765 meters from north to south. The road crosses a chorra and passes by two canals- Thainkhali canal and Telkhola canal, and several social and administrative centres including a Police camp, WFP relief center, Health care center, CiC office, Hospital, Multipurpose child and adolescent center, within the reaches of several meters from its centre line. At least 3 mosques and a madrasa are also located within the vicinity. In this road project area, no elephant migration routes exist at all (ref. IUCN).

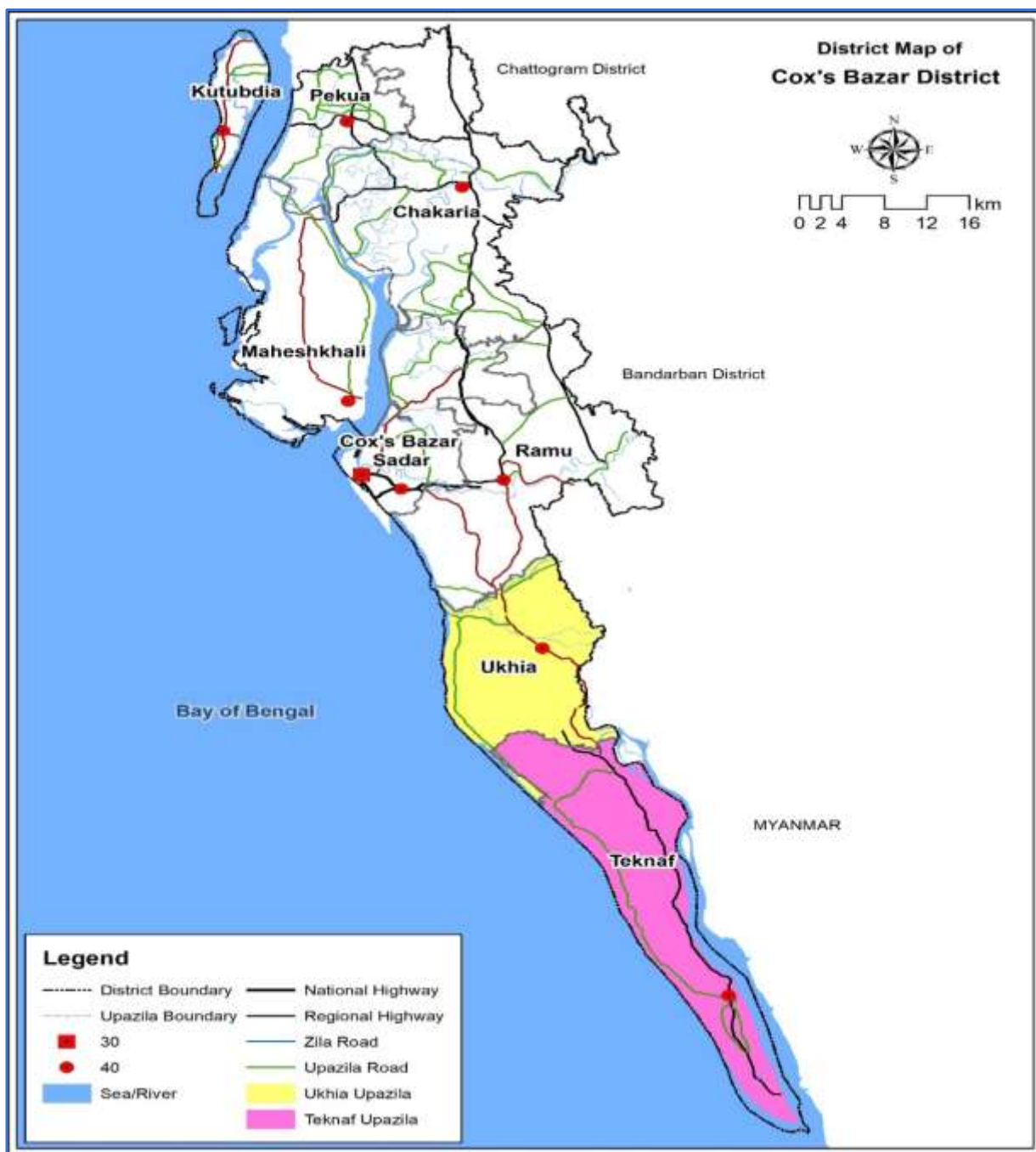


Figure 3: District Map with project location

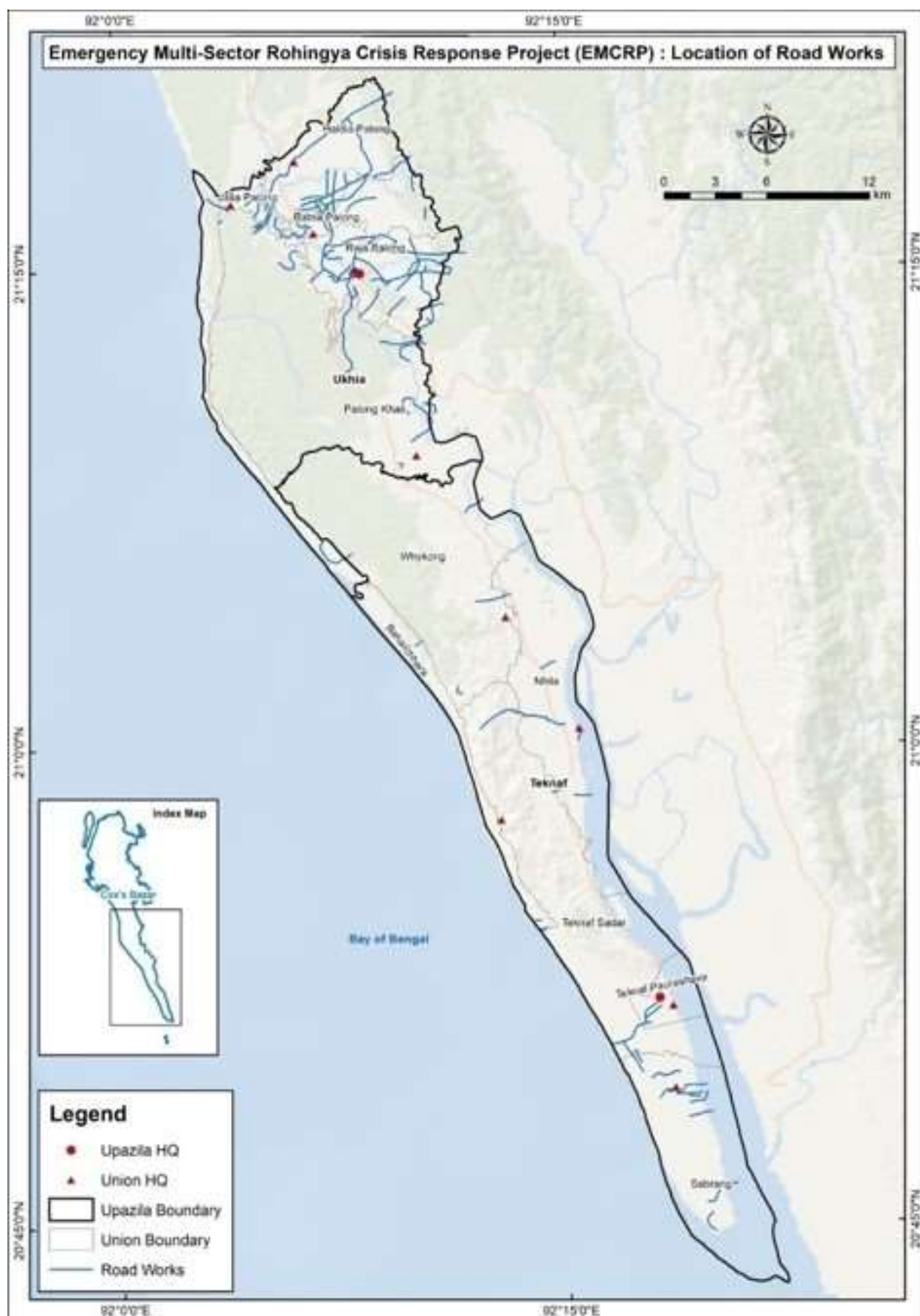


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

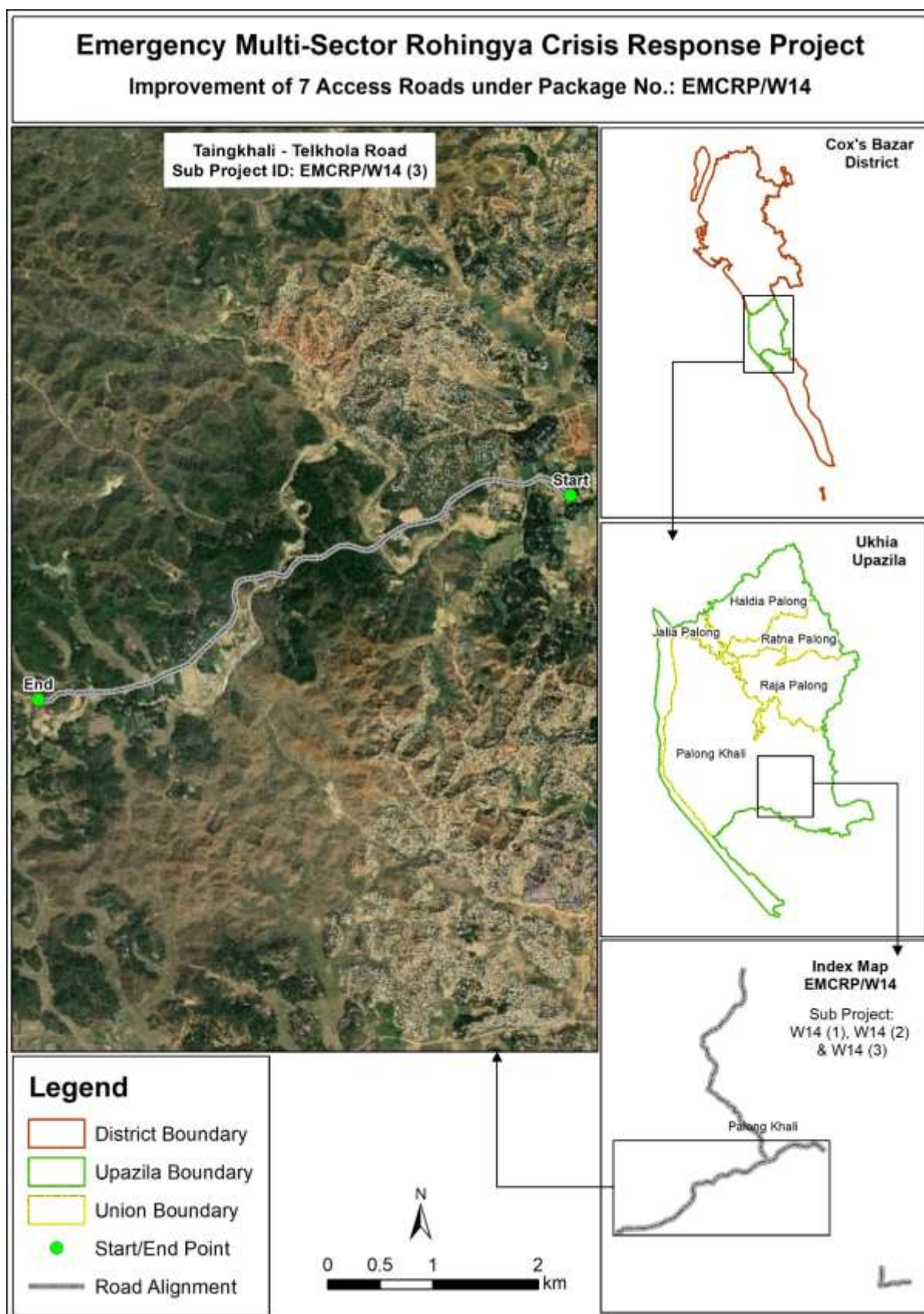


Figure 5: Upazila Map with Sub-project component location

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. This sub-project has started from Palongkhali UP to connect Thainkhali-Telkhola road which also is connected to Rohingya camp no. 13 & 14. Based on the field survey, among the proposed length of the road 2405m will be HBB and 678m will be BFS and the design specification notifies that the road will be improved with ISG 250mm, Sub-base 150mm, Base course 150mm, 50mm Carpeting with 7mm Seal Coat. Additionally, 13 drainage structures, primarily box culverts of different dimensions at different strategic chainage are included in interventions.

Sub-project Location:

This sub-project component is located within Thainkhali, Talkhola and Battali villages under Palongkhali union of Ukhiya upazila, under Cox's Bazar district. Mostly local community lives in this sub project component location.

GPS Coordinates of the component:

Starting Point: Latitude: 21°10'30" N; Longitude: 92°8'39" E

Ending point: Latitude: 21°10'4" N; Longitude: 92°7'37" E

Land ownership

Land is owned by Government.

Expected construction period: 10 (Ten) months

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

- i) The proposed road passes through the Thainkhali, Telkhola and Battoli villages and connects camp13 with camp 14.
- ii) Not required to relocate Displaced Rohingya People (DRP).
- iii) Some local people settlements are found alongside the component area.
- iv) Agriculture land, canal and chorra were identified within the catchment area.
- v) Some trees may be affected by this construction activity.
- vi) Within the influence area of the subproject no historical sites were identified, but at least 3 mosques and a madrasa are located within the influence area.
- vii) Environmental Sensitivity: Several canals, a pond, a small marshland and a beel are located within the catchment area, though those are sufficiently distant from the ROW or are protected by drainage structures.
- viii) There is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative) at the moment. Earlier elephants used to appear from Chanderkhola and Lalpainna forest to this sub-project area in search for foods like Banana trees, and destroy crops and vegetables, sometimes.

Section B: Environmental Screening

B.1: Environmental feature of sub-project location

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

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

There are some cultural, religious and environmental establishments/features found in the catchment area, like mosque, Madrasa, graveyard, playground, hospital, relief center, child learning center, children play park, shops, multipurpose child and adolescent center, canals and chora, and so on. In this sub-project area, no elephant migration routes exist (ref. IUCN) at present.

A sketch of the project site and surrounding features at relatively distant places are shown in figure B.1.1 and locations of sensitive institutions in the project surrounding areas (within 30m buffer zone)



Figure B.1.1 : A sketch of the project site and surrounding area

Location of environmentally important and sensitive areas:

The proposed road passes by the Thainkhali and Telkhola canals and crosses a Chora. The area is also characterized by the presence of Battali khal, a marshland, several hills/tillas with vegetation and faunal species, including fishes and birds. People from local community are practicing social forestry on the land leased from the forest department. Potential erosion or landslide may occur when moderate to steep sloping terrains are disturbed for the improvement of road. The impacts are negative but small scale, site-specific within a relatively small area and can be managed by mitigation measures.

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

No, there is no existence of Elephant corridor/ route at the moment.

Elephant migration route is being confirmed with maps established by UNHCR/IUCN and the consultation meeting with local stakeholders.

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

No. There is dense forest all around this sub-project area, but no significant impacts on forests is anticipated.

(3) Other issues:

No more mentionable issues raised.

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

Baseline air quality and noise levels:
Dust:

Ambient air quality data was not readily available, but quality was apparently good due to the appearance of rural vegetative settings around. But after arrival of Rohingya the number of vehicle movement on the road became too high. Dust is generated through movement of vehicles such as bus, truck, mini truck, motor cycle, auto rickshaw, tempo, trolley, tractor etc. over the road surface which has caused deterioration of air quality.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerable limit. Vehicles such as motor cycle, bus, truck, mini truck, tempo, auto rickshaw, tractor, trailer, etc. ply the road throughout the day and night. These vehicles generate noise but still within the tolerable limit in most cases.

Baseline soil quality:

The Sub-project component area is located mainly on 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):

Low. Potential erosion or landslide may occur when moderate to steep sloping terrains are disturbed for the improvement of road. The impacts are negative but in small scale, and are site-specific within a relatively small area and adjustable by mitigation measures.

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

Surface water quality: Water quality data from surface water bodies present in the vicinity were not readily available during the survey period. Further information to this end will be collected during the construction period and necessary safety measures will be adopted accordingly. 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 80 ft.) and deep tube wells (700ft. to 800ft.) are fitted in local and camp area and most of the water usage is sufficed from these sources.

*Data source: IWM Study Report, 2019

Status of wildlife movement:

No major land-dwelling wildlife movement is present in the targeted area

State of forestation:

This sub-project falls under a local village which connects Rohingya camp-13 & 14. Dense and mature forest has grown near or around the target area, though only social and homestead forestations were identified. So, there are no significant practices of deforestation or loss of vegetation by the local community. This area, in fact, is mostly covered with homestead gardening and backyard tree coverage.

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

N/A

B.2: Pre construction Phase

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

Concerning ancillary facilities, the access road for the sub-project component is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option and this may cause more dust in the air also. The route has narrow curves in some places, therefore small trucks and back loaded lorries seem to be more viable option for material transportation.

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

An open space is required to set up a labor camp with associated facilities (toilet for male and female workers, kitchen for cooking, tube-well for water supply facility, and electricity connection) to support the workforce during construction. The space should have enough land area to accommodate a stock yard along with a site office, if possible. This open space should be selected in such a way that workers do not need to travel/walk through a longer distance to reach

the sites and the place can be secured with proper fencing with a guard be posted at the entrance. The space or land area can be used on rental basis or under a mutual agreement between the owner and the contractor. The contract/consent document must be kept at the site office, whatsoever the mode of the contract is.

Possible location of labor camps:

Labor camps should be very close to the site location. In case of using a common labor camp area for the workers of different sites under this package, the camp should be located in such a place that workers don't need to walk through or travel long distances to reach their respective sites. In that case, special arrangement (mobile toilet or so) has to be ensured by the contractor in every working site.

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

i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates, etc. are required for the construction of labor camp, storage and associated facilities at this stage.

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

Yes. The adjoining areas of the connecting road between camp 13 & 14 can offer required spaces for labor camp and contiguous material stack yard with sufficient spaces for unloading works. So, the existing road can still be a good access to reach this connecting road for transportation of materials. Other option can be looked into, but crowded places like Telkhola Bazar area should be avoided, though there are open spaces around. Material transportation can be made by pickup trucks and manual head load from unloading point to different site locations is very much possible.

Location identification for raw material storage:

Best option for raw material storage is any sufficiently available space next to the labor camp or the site office, away from steep slopes and water bodies (must have at least 10m distance). However, this will need to arrange an open field and should be consulted with local communities.

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

Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in labor camp and associate facilities construction works. Altogether amount of those produced wastes in a single day is nearly 15 kg during the pre-construction phase.

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

During the pre-construction period wastes will be generated from some preparatory activities, such as construction of labor camp, site office, material storage/stack yard and associated

facilities, etc. All these activities also will be carried out by numbers of local labors. So, a small quantity (12 kg approx.) of construction related wastes, such as brick chips, leftover cements, sands, etc. will be generated, which are typical solid wastes and a negligible quantity (nearly 3 kg) of bio and non-biodegradable wastes will be generated from the daily necessities of workers and construction staffs, such as food wastes, polythene, papers, plastics, etc. Some chemical waste, like paints, oils, etc. and small amount of solid and liquid wastes from the immediate use of constructed latrines by the workers may also be generated, such as feces and urine.

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

Raw materials:

Type: i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vii) wood, etc. will be used for construction of labor camp, storage and associated facilities.

Quantity: It is difficult to provide exact figures of raw materials on a typical pre-construction site at this level.

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

Dense vegetation is present in the right of way, especially a dense growth of shrubs and small trees alongside the road can be said to be in ROW. Aggregated Soil is not present on the ROW. However, a temporary waste dump and equipment yards require approximately 650 square meters of area altogether, which also would accommodate construction wastes to be generated during the construction period and temporarily stationed.

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

Low. This area is not facing water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors in the area.

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

Low. Local drainage channels (canals only) or surface water bodies (mainly ponds) exist in some sections alongside the sub-project component. No possibility of disturbances may appear in this phase.

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

Low. There is very little scope of causing damage to terrestrial or aquatic ecosystems or endangered species directly in pre-construction phase.

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

Only some preparatory physical works will be carried out in this phase which has little scope to trigger landslide.

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 of similar elevation, and the soil is well compacted, the scale of erosion of lands is very minimum at this stage.

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/dust 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.3: Construction Phase

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

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 30 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.

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

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Quantity: Anticipating the quantity of raw materials to be used needs detail calculation as per design, which is beyond the scope of this report, but presented in engineering design/estimates of the sub-project.

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

Dense vegetation is present in the right of way, especially a dense growth of shrubs and small trees alongside the road can be said to be in ROW. A few number of undergrowth trees might need cutting. Aggregated Soil is not present on the ROW. However, a temporary waste dump and equipment yards require approximately 650 square meters of area altogether, for the wastes produced both during the pre-construction and construction period.

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

Low. This area is not facing water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.

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

Low. Local drainage channels (canals only) or surface water bodies (mainly ponds) exist in some sections alongside the sub-project component. Existing drainage channel or surface water bodies may be disturbed during construction period with the potential risk from dust, soil erosion and chemical spillage. However, proper mitigation measures must be in place to curb any sorts of impacts.

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

Low. The improvement works will be limited within the Right of Way of this road component. Since there are several canals and ponds exist, and also some floral species including trees and shrubs are present along the road length, more likely chances are there to trigger some impacts or damage to these terrestrial and aquatic ecosystems. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed. All these likely impacts are both site and time specific, and will be reduced to the least level with some protective measures delineated in the ESMP.

The area is not known for containing any endangered or threatened species of any kind.

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

Construction of the sub-project intervention may lead to low scale mass movement of soil near the hilly areas or side slope near canal/water bodies. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

Low. Potential erosion may occur when moderate to high sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.

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

No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

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:

During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute in health hazards and interference of plant growth.

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

Medium. Over use of road and frequent movement of heavy/overloaded vehicles may cause further

destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable
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 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) Existing drainage channels (canals only) and surface water bodies (ponds mainly) will not be modified during the operation phase, but little disturbance related to dust deposition and vehicular emission may occur and eroded sediments or dust deposited into the road side drains may empty to the canals, which should be monitored and removed periodically during the operation period.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low, Little effects on terrestrial or aquatic ecosystem is anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around the sub-project component site, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Box culverts are designed to avoid concentrated flow.
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 HBB/BFS road will reduce the pollution generated from dust on the previously 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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
1: Sub-Project Interventions	Air Quality	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Soil impacts	Under the sub-project intervention the overall score is low .	<ul style="list-style-type: none"> • 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 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. 	Construction Contractor monitored by Consultant and PIU	No visible degradation to nearby drainages, <i>khals</i> or water bodies due to soil erosion. Rain storms in construction phase.	Monitoring on weekly basis.
	Vegetation Removal	Low. Approx 650sqm may be affected	<ul style="list-style-type: none"> • Ensure any trees cut are offset by planting additional 5 trees of similar type along ROW. • Ensure no private trees are cut without compensation • Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. 	Construction Contractor monitored by Consultant and PIU	Tree cuttings near ROW Complaints from Community	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is low .	<p>All precautions to store chemicals/oil/fuel properly so that no chance of spill.</p> <p>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</p> <p>Monitor water quality according to the environmental management plan.</p>	Construction Contractor and monitored by Consultant and PIU	<p>(i) Areas for stockpiles, storage of fuels and lubricants and waste materials;</p> <p>(ii) Records of water quality inspection; Water Quality Test (National Drinking Water Quality Standard Parameters) if requires;</p> <p>(iii) No visible degradation to nearby drainages, <i>khals</i> or water bodies due to construction activities.</p> <p>(iv) Records should be kept and logged.</p>	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	
					Indicators	Frequency
2: Pre-construction Phase	Sanitation, water supply	Under the subproject intervention the overall score is low .	<p>Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer.</p> <p>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.</p> <p>Records for any type of training or awareness building sessions must be kept at site.</p>	Construction Contractor and monitored by Consultant and PIU	<p>Site-specific H&S Plan;</p> <p>Records of supply of uncontaminated water;</p> <p>Record of Health & Safety orientation trainings;</p> <p>Condition of sanitation facilities for workers</p>	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	<ul style="list-style-type: none"> Record of regular inspection. Record of accidents/incidents 	Monthly monitoring.
	Storage of construction materials	Under the subproject intervention the overall score is low .	Train concerned person and team assigned for the construction work to ensure items are stored properly and away from steep slopes.	Construction Contractor and monitored by Consultant and PIU	<ul style="list-style-type: none"> List of materials and sources of materials; Storage facility for construction materials. 	During implementation phase, as necessary with discussion with PIU, Consultant

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
3: Construction Phase	Wastes	Under the sub-project intervention the overall score is low .	<ul style="list-style-type: none"> • 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.	Weekly as work 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.	<ul style="list-style-type: none"> • During construction cut and fill will be balanced as far as possible. Designs shall also ensure that all cut and fill activities are balanced to the best possible level. • 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. • Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. 	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	
					Indicators	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 .	<ul style="list-style-type: none"> Storage area will be sufficiently spacious so that unloading works can be performed inside the area and materials must not be rest on road side, near the water bodies, or trees and bushes, and will not be located in any crowded place. Storage area must be well fenced with guard posted at the entrance and at least 30 m distant from any water bodies. Construction materials must not interrupt natural land contours, natural drainage pattern, and create water logging or depression. Cement, sand, reinforced bars, stone chips, aggregates etc. must be covered with tarpaulins, and end of reinforced bars will be capped with plastic caps or covered with sacks/clothes to avoid any health injury. Chemicals and hazardous materials including oil, grease, bitumen, etc. shall be kept in a Cement Concrete bunded area or on wooden stage covered with polythene/tarpaulin. 	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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 .	<ul style="list-style-type: none"> If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree cut. Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. 	Contractor, environmental specialist of D&SC	Complaints from community;	Daily
	Noise pollution	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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 ESMP. 	Construction Contractor and monitored by Consultant and PIU	Number of complaints from stakeholders; Use of silencers in noise-producing equipment and sound barriers; Level following decibel meter (dB), if required at all.	Inspection by PIU and supervision consultants on monthly basis;

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.
4. Post Construction	Road Safety and Accidents	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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. 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 	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	
					Indicators	Frequency
	Road Safety		<ul style="list-style-type: none"> 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. Imposing barriers at several strategic places on the road to limit the movement of overloaded or heavy vehicles. 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.
	Afforestation	Under the issue the overall score is low .	<ul style="list-style-type: none"> Plantation of trees during monsoon period, and distribute trees to the roadside households with guidance to plant in their homestead area, where the road width is too narrow to find sufficient spaces for tree plantation. Maintain of trees properly Check survival of trees and replant in the places of 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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
5. Operational Phase	Maintenance of road and assets (Road accidents may increase due to higher number of vehicles using the roads at increased speeds)	Under the issue the overall score is low .	<ul style="list-style-type: none"> No advertisement/boardings shall be allowed within the Right of Way 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. 	LGED	Number of complaints from stakeholders;	During Operation under 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

**Post-construction phase denotes the time period contractor use to clear and clean up the sites after the construction work is ended, perform tree plantation, grass turfing, and minor rectification till the official handing over the site to LGED, or owner of the site.

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 allowed 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:

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is allowed within this sub-project activities <p>So, there are no any mitigation measures according to this impact.</p>	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> All sites must avoid the low land near the water bodies or natural flow paths to avoid the flash flood or any kind of surface runoff. Keeping 20 meters distance from water bodies or natural water flow paths should be maintained, if possible. Tubewell location within the construction site/camp should not near any kind of latrine and soak well which could be contaminated by those. Minimize cut & fill operations, the site clearing and grubbing operations should be limited to the locations wherever necessary. Avoid disruption to human settlement, and social, cultural and religiously sensitive areas. Avoid disturbance to existing slop and any natural drainage system. The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> Construction activities shall be finished at day time within 05 PM. Further necessary measures to be taken for avoiding any disturbance. Contractor must provide personal protective equipment (PPE) such as ear plugs, earmuffs, helmets, etc. to the persons working in high-risk areas and wherever required. 	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Dust	<ul style="list-style-type: none"> Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), 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 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Safety Issues	<ul style="list-style-type: none"> Unauthorized entry is completely prohibited in our site and take necessary measures for preventing this problem Before works started proper training and guidelines on health and safety issues to the labours and associated staffs are to be provided. 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> A detailed assessment of the available resources 	PIU & Contractor	Social

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	to the scarcity of resource base.	<p>and consent of the local representative for withdrawal of water from existing surface water sources shall be taken.</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
		<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 from respective authority or Environmental Specialist at PIU in difficulties to reaches to that authority. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: <ul style="list-style-type: none"> The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. 	<ul style="list-style-type: none"> All construction equipment at site will be properly inspected and timely repairing to be ensured. The risk assessment shall be prepared and communicated prior to the commencement of work for all types of work activities on site. All provided walkways (if required and managed to provide) shall be provided with good conditions underfoot; signposted and with adequate lighting. Proper Signpost at any slippery areas will be 	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
	<ul style="list-style-type: none"> Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<p>ensured in construction site.</p> <ul style="list-style-type: none"> Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. Sub project will have a Proper emergency response plan (ERP) and be communicated 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 efficacy and 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project areas will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. Ensure all equipment is in working condition and suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. 		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> • Ensure all tools and other work equipment are serviced and maintained in accordance with maintenance schedules and manufacturer's instructions. • 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. • 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 that all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used. 		
Construction activity	Noise disturbances to fauna	<ul style="list-style-type: none"> • 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 	Contractor	Environmental Consultant of PIU, PSC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		works and necessary maintenance should be done in day light.		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge and other solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> 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 	Contractor	Environmental Consultant of PIU, PSC.
Decommissioning during the project implementation period (including site clearance after the construction)	The impacts are similar to those listed in construction stage: <ul style="list-style-type: none"> Pollution from waste materials Health & Safety risks to workers and local community 	<ul style="list-style-type: none"> Contractor must prepare a waste management plan including following principles given hereunder. 	PIU and Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

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, 01686640284

Reviewed by: Md. Saiful Islam, IC, Field Level Environmental Specialist, +8801913442006

Appendix-3

Cost of Environmental Enhancement Works in BOQ

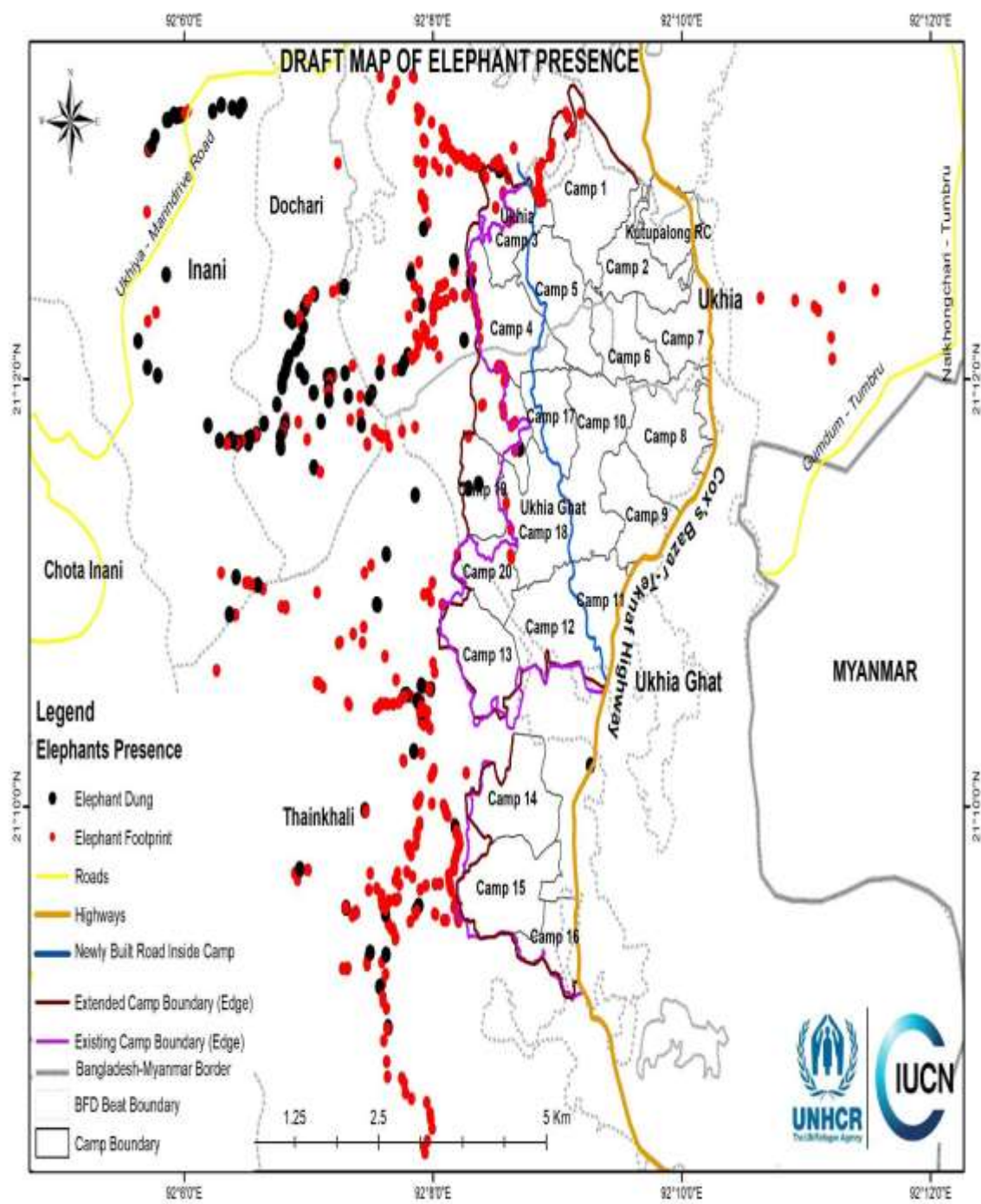
In consideration to the above mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity Needed	Unit price BDT	Total amount BDT
1	<u>Grass Turfing</u> 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)	1 LS	50000	50000
2	First Aid Box, Labor camp establishment, pit establishment, water establishment including water filter	1 LS	100000	100000
3	<u>Dust suppression measures</u> 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.	1	20000	20000
4	<u>Personal Protective Equipment</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 15 sets as per direction of E.I.C.	LS	75000	75000
5	<u>Tree plantation</u> 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,	300	42.70	12810

	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.			
6	<u>Health and Safety Warning Signs</u> Signage postings and occupational safety management	2 LS	5000	10000
7	<u>Waste water and Waste disposal</u> 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.	2 LS	5000	10000
8	<u>Traffic Management</u> 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	30000	30000
9	<u>Km Post</u> Providing, fitting and fixing rectangular Kilometer Post	5 each	3127.24	15636.20
9	<u>RN Plate</u> Providing, fitting and fixing rectangular Road Name Plate.	2 each	5962.87	11925.74
11	<u>Soil Erosion and Drainage Congestion monitoring</u>	1 LS	40000	40000
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				375,371.94

Appendix-4



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

Appendix-5

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

Time: 03:30 pm Date: 25/12/19

COMMUNICATION AND PARTICIPATION PROGRAMME
FOCUS GROUP DISCUSSION

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

প্রকল্পের নাম: Taingkhali Telkhola road
মহা বিনিময়ের স্থান: টাংখালী টেলখোলা রোড

ইউনিট: পানংখালী
ডাকঘর: পানংখালী
উপজেলা: কক্সবাজার
জেলা: কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও বয়স)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
১	প্রাক্তা রুম্মা	৩৫	পুরুষ	টানখালী	প্রাক্তা রুম্মা
২	নোয়াহা	৫০	৥	টানখালী	নোয়াহা
৩	আবদুল হক	৫৫	৥	৥	আবদুল হক
৪	মি: আবদুল আজিজ	৫৫	৥	আবদুল আজিজ	মি: আবদুল আজিজ
৫	আবদুল আজিজ	৫৫	৥	আবদুল আজিজ	আবদুল আজিজ
৬	আবদুল আজিজ	৫৭	৥	আবদুল আজিজ	আবদুল আজিজ
৭	জামাল হোসেন	২৫	৥	আবদুল আজিজ	জামাল
৮	মি: আবদুল আজিজ	২০	৥	আবদুল আজিজ	মি: আবদুল আজিজ
৯	আবদুল আজিজ	২০	৥	৥	আবদুল আজিজ
১০	আবদুল আজিজ	৫৫	৥	৥	আবদুল আজিজ
১১	আবদুল আজিজ	৩৫	৥	৥	আবদুল আজিজ
১২	আবদুল আজিজ	৫০	৥	৥	আবদুল আজিজ
১৩	আবদুল আজিজ	৪৭	৥	৥	আবদুল আজিজ
১৪	আবদুল আজিজ	৫০	৥	৥	আবদুল আজিজ
১৫	আবদুল আজিজ	৫৫	৥	আবদুল আজিজ	আবদুল আজিজ
১৬	আবদুল আজিজ	৪০	৥	আবদুল আজিজ	আবদুল আজিজ
১৭	আবদুল আজিজ	৪৫	৥	৥	আবদুল আজিজ
১৮	আবদুল আজিজ	৪৫	৥	৥	আবদুল আজিজ
১৯	আবদুল আজিজ	৪০	৥	৥	আবদুল আজিজ
২০	আবদুল আজিজ	৪২	৥	৥	আবদুল আজিজ

Public Consultation Participants' List

Appendix-6

	
<p>Pond on the side of the road</p>	<p>Shops and trees on both sides of the road</p>
	
<p>Existing drainage facility in hilly areas of the component site</p>	<p>A concrete bridge on the existing road</p>

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



Design and Supervision Consultancy

Environmental Screening Report

for Nhila R&H to Uttar Leda Lamonipara Dakkhin Ali Khall Doilla's house Road

UNDER THE PACKAGE NO: EMCRP/W14

APRIL-2020



ACRONYMS

ARAP	Abbreviated Resettlement Action Plan
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
VAT	Value-Added Tax
WB	World Bank

Contents

Executive Summary	4
1. INTRODUCTION	6
1.1 Project Background	6
1.2 Objective of the Sub-Project.....	6
2. PUBLIC CONSULTATION AND PARTICIPATION	7
2.1 Methodology	7
2.2 Summary of Public Consultation Meeting	9
2.3 Suggestions and recommendations of the participants	10
3. ENVIRONMENTAL SCREENING	10
3.1 General.....	10
3.2 Assessment of Screening Findings	11
3.3 Climate Change Impact Screening	11
3.3.1 General Overview of the area	11
3.3.2 Site Specific Screening and outcome.....	12
4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS.....	13
4.1 Mitigation and Management Measures	13
4.2 Health and Safety Measures under COVID situations	14
4.3 Cost of Environmental Enhancement Works in BOQ	15
5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION	15
6. LIMITATIONS OF THIS STUDY	16
7. CONCLUSIONS AND RECOMMENDATIONS	16
Appendix-1	18
Appendix-2	42
Appendix-3	52
Appendix-4	54
Appendix-5	55
Appendix-6	56

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 Host 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 construction of school cum cyclone shelters and Multipurpose Community and Service Centers (MCSC), facilitating growth centers and RCC Bridge development, and so on, 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 key project beneficiaries- Displaced Rohingya Population (DRP) and Host Community or in other words, the 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 have been carried out in accordance with guidelines from World Bank; as a result environmental and social screening reports have 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.

Proposed improvement of Nhila R&H to Uttar Leda Lamoni para Dakkhin Ali Khall Doilla's house Road stretching up to 645 meter to be completed as village road-B starts from R & H Lamoni para and ends at Nhila Daroga Ali Khali Road. The road passes through a local community and the land is owned by Government, and there are Leda Alikhali Rohingya camp and different social and religious institutions around the project. The road is currently a worse BFS road with broken parts in many sections and needs small earth works during the construction/rehabilitation.

Apart from some dispersed human settlement along the road, though at sufficient distances from the alignment, there are some important natural environmental features, and socio-cultural and religious establishments along the road length, including Alikhan Khal, two brick fields and a Mosque are situated adjacent to this the sub-project component site. 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. All these impacts are site-specific and manageable 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 730,000¹ 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 923,033². 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 socio-economic condition of the host 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 the 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
- ✓ Make a crucial contribution to economic development and growth and bring important social benefits

¹ ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)

² IOM Needs and Population Monitoring round 12 as of October 10, 2018

This document represents the Findings from Environmental Screening of the sub-projects under 'Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District'; with a package name-; **EMCRP/W14.**

Table 1.2.1: Significant features of the Sub-project

Package No. EMCRP/W14	
Description of Sub-project :	
Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District:	
(1) Tajnimarkhola football field west to Rohingya Camp 20, (2) Arakan road to Hakimpara to Hakimpara Rohingya Camp,(3)Tankhali Telkhola Road(BC) road Tajnimarkhola Rohingya camp, (4)Nhila R&H to Uttar Leda Lamonipara Dakkhin Ali Khall Doilla's house Road, (5) Nhila R&H Jadimura RNGPS to ahmed's house Road, (6) Nhila R&H to Moulavi para Muktul Hossain's house to Soronathi Camp Road, (7) Whykong R&H to Kerontoli Forest Road, (8) Unchi prang Bazar Raikhong Road with culverts in Ukhia Upazila of Cox's Bazar District.	
Sub-project Component no. (4) Nhila R&H to Uttar Leda Lamonipara Dakkhin Ali Khall Doilla's house Road	
Component Location :	
i. ID 422944012	
ii.Name of Union : Nhilla	
iii.Name of the Upazila : Teknaf	
iv. Construction Year 2020-21	v. Length (m) : 645m
vi. Width (m): 3.00 m	
vii.Distance from UZHQ : 5 km	
GPS Coordinates	Starting Point: Latitude: 20°58'31.35" N; Longitude: 92°14'58" E
	Ending point: Latitude: 20°58'49" N; Longitude: 92°14'50" E
Condition of Road	BFS
Implementing Agency : Local Government Engineering Department (LGED)	
Subproject intervention	
1. HBB Road	
2. 2no. Cross Drain (dimension: 450mm x 600mm)	
3. Surface drain(length:128m)	
4. 5 nos. RCC Box Culvert	
5. Road safety Guide Post & Name Plate	
Expected construction period (Component -1) :	
Estimated total cost of component : 4161399.00(Tk.)	

2. PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Several events of consultation meetings were carried out in different dates and times with different types of stakeholders. D&SC conducted the first consultation meeting with local community from 03:35 PM to 05:45 PM on 24 December, 2019 at (Chainage: 00m-175m) which is adjacent to the sub-project location. The locals, UP member and

elders of the location participated in that consultation meeting. Refer to **Figure 2.1.1**, Public Consultation Participants List is attached in **Appendix-5** and sub-project pictorial overview are attached in **Appendix-6**. Several more consultation meetings in different modes were carried out as well. The local individuals, chairman and/or member of Union Parishad, representatives from different agencies 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 and scope of a functional GRM under the project. The following table depicts details of several of those consultation meetings with outcomes.

Consultation Date	Time	Venue	Mode of Consultation	Stakeholder/ Participants	Outcomes
24 th December 2019	03:35 PM	at (Chainage: 00m-175m) which is adjacent to the sub-project location	Focus Group Discussion	List is attached in Appendix.	Participants were informed about the sub-project interventions, potential impacts and management options, their informed views and comments were taken into consideration and appropriately reflected into the ESMP.
18 th February 2020	6:00 pm	Office of the UE, LGED, Cox's Bazar	Direct conversation	UE, Resident Engineer, Field Engineers, LGED Staffs	Consulted about the survey plan for the 2 nd detail survey and UE office assured of putting all efforts in enforcing ESMP in the field.
19 th February, 2020			Telephonic consultation	Md. Sultan Mahmud, Asst. Site planner of UNHCR	Consulted about the survey plan and the site was found mostly free from any direct physical impacts associated with the proposed road works. Reciprocal assurance and commitment were rendered for the
19 th February, 2020			Telephonic consultation	Shegufta Newaz, Coordinator of site management, UNHCR	

					successful implementation of the component.
19 th February, 2020	3:00 pm	CiC office in Camp 7	Direct Conversation	Subash Chandra Sheel, Camp Mgt. Support-Dty Lead, BRAC, Cox's Bazar.	He assured of lending all hands from him and his organization in successful implementation of the project.



Figure 2.1.1: Photo taken after the consultation meeting (FGD) with local community

Public consultation is a living process as type of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution process must differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.

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 views and information from affected parties and inhabitants on environmental issues. (iii) Consultation with interest groups and the public.

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

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

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

2.3 Suggestions and recommendations of the participants

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

- Participants' agreed to recede their home boundary equally from the both sides of the road to accommodate the road width.
- 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 to minimize the air pollution by spraying water at the construction sites.
- Noise pollution should be effectively minimized to a tolerable limit.

3. ENVIRONMENTAL SCREENING

3.1 General

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

3.2 Assessment of Screening Findings

This section identifies the potential impacts that the various elements of the proposed Project may have on aspects of the physical, biological and socio-economic environment. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted with the purpose of fulfilling the requirements of GoB and World Bank. Assessment of potential impacts requires a multi-disciplinary approach in which a wide range of issues are taken into consideration to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation.

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**

The proposed sub-project is not located within any environmentally sensitive area; except a canal named 'Ali Khan Khal' is crossed over by the road within first 70 m chainage from the starting point. The project road crosses several community, agricultural lands and community level forest. Road side trees could be left unharmed during the construction period, if decisions are made prudently. Impacts on air quality during the construction phase may be 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 areas and camps. 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 were reported in 2018. The IUCN has conducted a study on such type of conflict. Consultation meetings held at the site also revealed that there was no presence of elephants across the areas. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

3.3 Climate Change Impact Screening

3.3.1 General Overview 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 Bank³ 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 soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. 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 deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. In fact, forests would protect those lands from high wind and storm surges, whereas demolishing the trees has made the area more vulnerable.

Together with the above mentioned hazardous situation and sudden extraction of huge amount of groundwater, availability of potable water from shallow tube wells that pump water up from about 150 feet below the ground 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 because of the mass arrival of Rohingya communities, several specific measures including tree plantation 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 Screening and outcome

The thunder storm has been found to have the highest impact in the area, casualties were not 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.

Mitigation: Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time. And the mass migration will lead to man-made disaster which also can aggravate the climate change impacts in that area. 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. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the road.

³ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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.

Specific Environmental and Social Management Plan (ESMP) has been prepared to eliminate, reduce or regulate the adverse impacts for this subproject. The purpose of this Environmental and Social Management Plan (ESMP) is to formulate measures which will mitigate adverse impacts on various environmental components, which have been identified during observation, and protect environmental resources where possible and enhance the value of environmental and social components where possible.

Among the notable prioritized management measures, contractor must adhere to the best practice HSE (Health, Safety and Environment) management procedure and regular adoption of dust control procedures (spraying of water at least twice a day) to minimize the effect to the least level. This HSE management procedure targets both groups- the working staffs/labors directly employed by the contractor and the people living in the catchment area or simply the users of the road. Noise impacts must be controlled efficiently due to the presence of numbers of educational, social and religious centers/institutions along the road length and construction works must be limited in day time; and the time and duration of any potential noisy works should be communicated with the surrounding people fairly in advance. Special attention should be given to the Ali Khan Khal to avoid any pollution or disturbance from this component end. 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. Moreover, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works 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 and Social 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 roads pass through and by the Rohingya Camps, up on the hill and are already denuded of trees or vegetation. Local Government Engineering Department (LGED) will allocate and channelize the finance to the Forest Department under the said additional

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

4.2 Health and Safety Measures under COVID situations

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 situations should be allocated in consultation with project PIU.

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**.

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

There will be several tiers in monitoring framework to ensure the proper implementation of ESMP. Contractors, throughout the construction or implementation period, must ensure that environmental and social risks and impacts are minimized effectively while working at sites and adequate health and safety measures are put in place not only for their workers but also for the surrounding communities and DRPs. Contractors' employed site managers and safeguard supervisors (or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive measures delineated in ESMP, on top of the best engineering practices at sites including Occupational Health and Safety (OHS). D&SC firm will prepare regular monitoring reports based on the findings of stringent supervision and monitoring on its part.

PIU will have safeguards specialists stationed in Cox's Bazar and will conduct field visits very frequently. Moreover, Executive Engineer's office in Cox's Bazar and Upazila Engineers' office in Ukhiya and Teknaf will play a vital role in upholding the proper monitoring and supervision of civil works and associated project activities, including social and environmental safeguards in and around the sub-project sites. Safeguards specialists of PIU will monitor that all staffs of the contractors and other counterparts who are involved in project implementation receive both initial and ongoing environmental and social safeguard awareness and training sufficient to ensure the best practices in the field. Local Engineers from LGED and PIU safeguards specialists shall ascertain that contractors cleaning and reclamation works after the decommissioning of sites/ end of construction works are

perfectly done, and will also suggest for punitive measures against the contractors if any negligence or indifference is found in following the ESMP to the fullest effectiveness.

The highest tier in the monitoring system is bestowed upon the respective Ministerial Project Steering Committee (PSC) chaired by the Sr. Secretary/Secretary, LGD, MoLGRD&C. The PIU, in collaboration with the PSC, will also ensure that Environmental and social safeguards training are provided to all Project personnel.

Widespread COVID 19 situation prevailing across the country has put further intense necessity for all concerned parties to scale up their monitoring frequency and activities in line with the prescribed guidelines to be followed in the field, camp site, and project offices. Frequent and abrupt visit to the working sites and labor camps is quite necessary in this crisis period and is strongly suggested.

6. LIMITATIONS OF THIS STUDY

Bangladesh government has imposed a nationwide lockdown to curb the spread of the novel coronavirus in the wake of series of deaths and infections. Authorities declared a ban on passenger travel on all sector from March 24 while all public transport on roads have been suspended from March 26 to stem the spread of virus, officially known as COVID-19. All office works have been postponed and an intended visit to the sites for further consultation with the relevant stakeholders has had to cancel due to this crisis. Therefore, some relevant information and arrangement needs awaiting for recovering this pandemic crisis.

Further, during the consultation, people living in the area and along the site were primarily targeted, though local dialect and Burmese language sometimes posed difficulties in understanding peoples' views. The safeguards team put their best efforts in meeting local representatives and Camp in Charges (CiCs), different sector coordinators, responsible agencies for site development and management while went to any respective road to survey. However, difficulties in adherence to the meeting schedule during the stringent working hours in camp areas have been observed very common on different occasions, therefore, telephonic consent or views were taken in many cases.

7. 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 component. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business and 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. These issues might be problematic if necessary mitigation measures, as suggested in ESMP, would not be properly taken into consideration.

- The project will create employment for the workforce 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 & Monitoring Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities. The ESMP mainly focuses on managing, mitigating and reducing the impacts exhibited in design, construction and operation phases.

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 component within shortest possible period of time, and with great care and efficiency.

Appendix-1**Environmental Screening Form**

Sub-Project Description Form:

Name of Sub-Project: Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District; EMCRP/W14.

Name of the component: Nhila R&H to Uttar Leda Lamonipara Dakkhin Ali Khali Doillas house Road; ID 422944012

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

Estimated total cost of sub-project (in Taka): 13,00,63,178 Tk

Estimated construction period duration: 6 (Six) months

Estimated total cost of the component (in Taka): 41,61,399.00(Tk.)

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years, but Government policies will determine here about the O&M period inside the camps.

District: Cox's Bazar

Sub-District: Teknaf

Union: Nhila

Name of Community/Local Area: Nhila R&H road area

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

The proposed road component starts from Nhila R&H LamboniPara and is connected to Dargah Alikhali Road, and total length is 645 meter, and being classified as village road-B. This is currently a BFS (Brick Filling Soling) road with some sections being earthen and in worse condition. Leda Alikhali Ronhingya camp is situated in the area. Several drainage structures have been proposed on the road, that include- 2nos. of **Cross Drain** (Size: 450mmx 600mm), Surface drain (length: 128m), and 5 Nos. RCC Box Culvert (Technical Report 2019, EMCRP)

Estimated footprint / land area for this sub-project is 1935 sqm.

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

This proposed Nhila R&H to Uttar Leda Lamonipara Dakkhin Ali Khali Doilla's house Road belongs to Nhila union, under Teknaf Upazila. This road has started from Nhilla R&H road stretching 645 meters, and passes by the Alikhan Khal. Two brick fields are found within 400m length of the subproject. The area is also characterized with agricultural field, a mosque and a graveyard.

Important Environmental Features (IEFs) near site:

A khal named Alikhan khal is located adjacent to the subproject area. Two brick fields are located within first 400m length of the subproject area. Agricultural land, pond and settlements are found around the subproject location. A mosque and a graveyard are also found around the area.

Chainage Length of the sub-project: 645m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Chainage	Left	Right	Environmental/Socioeconomic features
"0" Point	L		Start from utor leda Kashem's shop, bamboo fence, agricultural land, nala
000-300		R	Shop, Alikhan khal, brick field, building, brick boundary wall
300-645	L		Tin fence, bamboo fence, pond, drainage
		R	Brick field, mosque, graveyard, Doillas house, brick boundary wall

Overall Comments

The proposed sub-project (Road construction) is not located within any remarkable environmentally sensitive area and will not cause any severe effect to the environmental settings of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging has been observed in the road area. Homestead gardening/ plantation is very prevalent in the area, and all the houses on both sides of the road are embellished with dense presence of trees and gardens. Several trees along the road edging may be affected by the construction activities, though could be avoided by making decisions prudently in the field; otherwise appropriate offsetting measures have to be taken. Plantation along this road length, wherever spaces are available, is suggested under the additional financing part of EMCRP; thus no further budget is allocated in the BOQ in this regard. No agricultural productive soil will be used for construction works. Appropriate and best possible 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. Several individuals from local communities participated in the consultation meeting and they do not have any objection to construction works under this sub-project. Rather, the community appreciated the initiative as they will have very good access to the Nhila R&H road and the Marine Drive, and they would be able to harness the full socio-economic benefits as well as have the passage during any emergency situation.

The proposed road crosses a canal, named 'Ali Khan Khal' through appropriate drainage structure (culvert), and two brickfields, a mosque, a pond and a graveyard are located in the vicinity, but at a sufficient distance from the ROW. Considering the closer proximity of any of these features from the road construction boundaries, only the canal may receive adverse impacts, though not significantly, if the protective/mitigation measures articulated in the ESMP are followed properly by the contractor. 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 project.

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. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

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 Nhillia union under Teknaf Upazila. A khal, natural drainage system beside the road side and numbers of trees are found along the road length area. A mosque and a graveyard are also found in that area. In this road project area, no elephant migration routes exist at all (ref. IUCN). Elephant migration routes were about 2-3 km away from this sub-project

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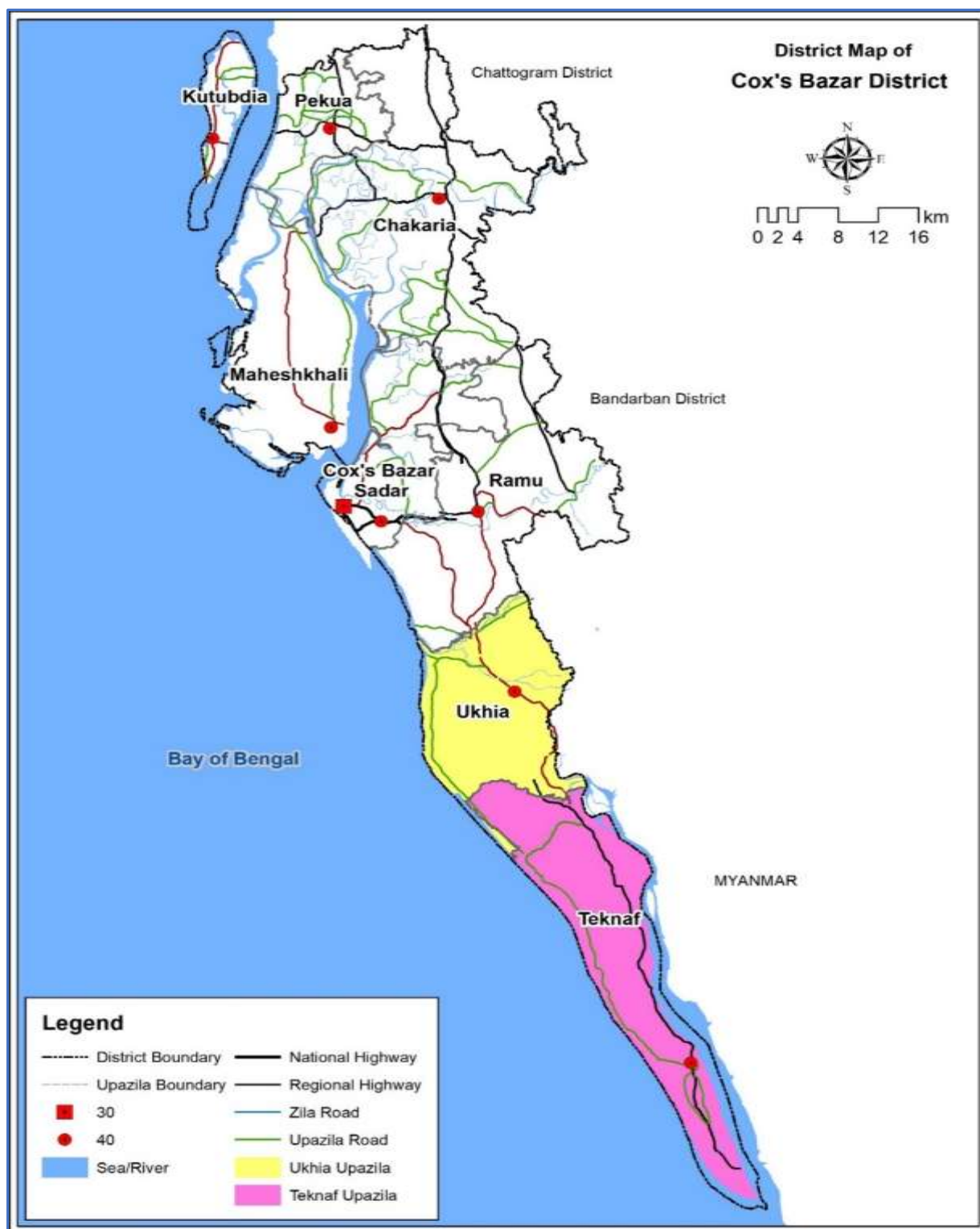


Figure 3: District Map with project location

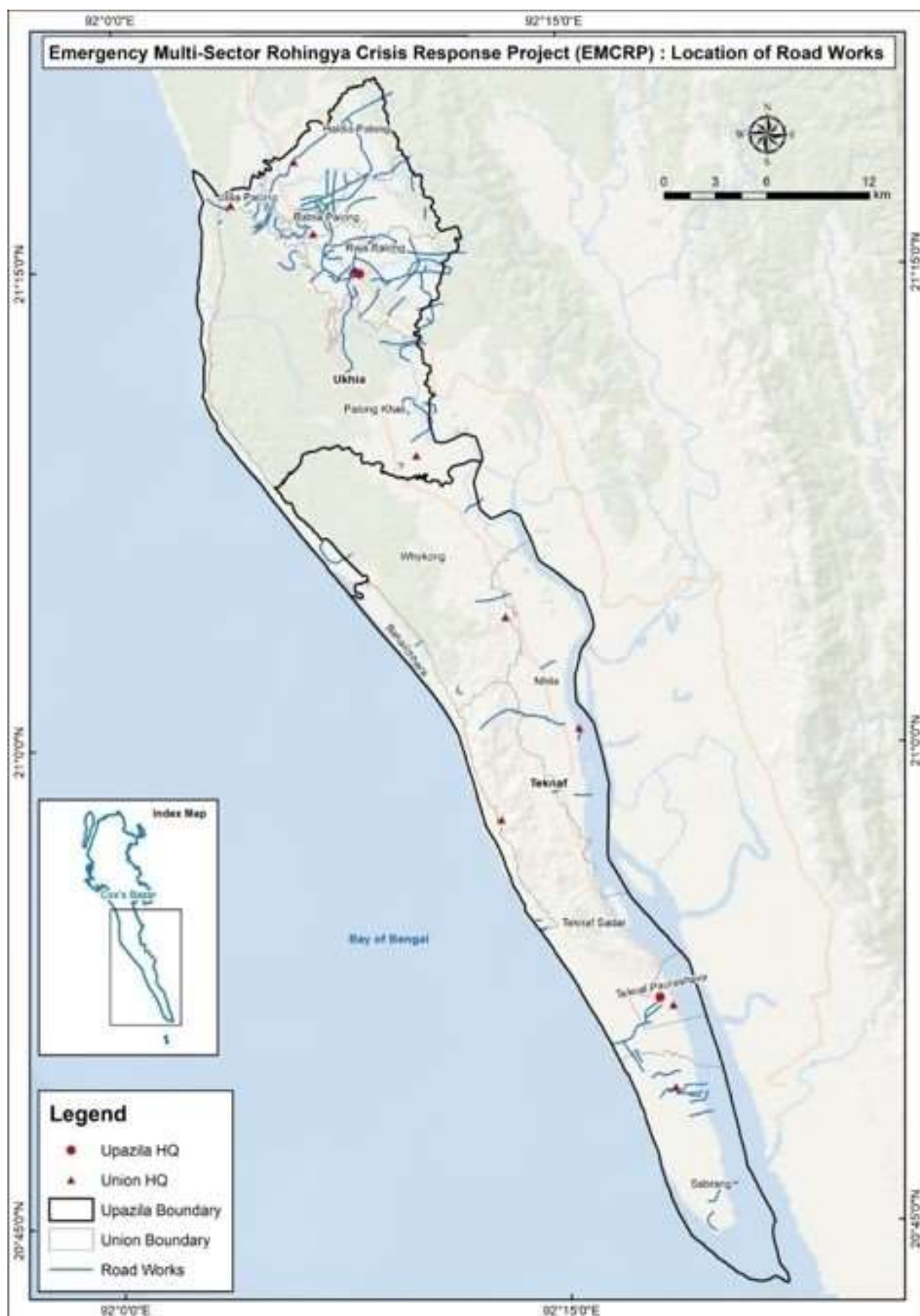


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

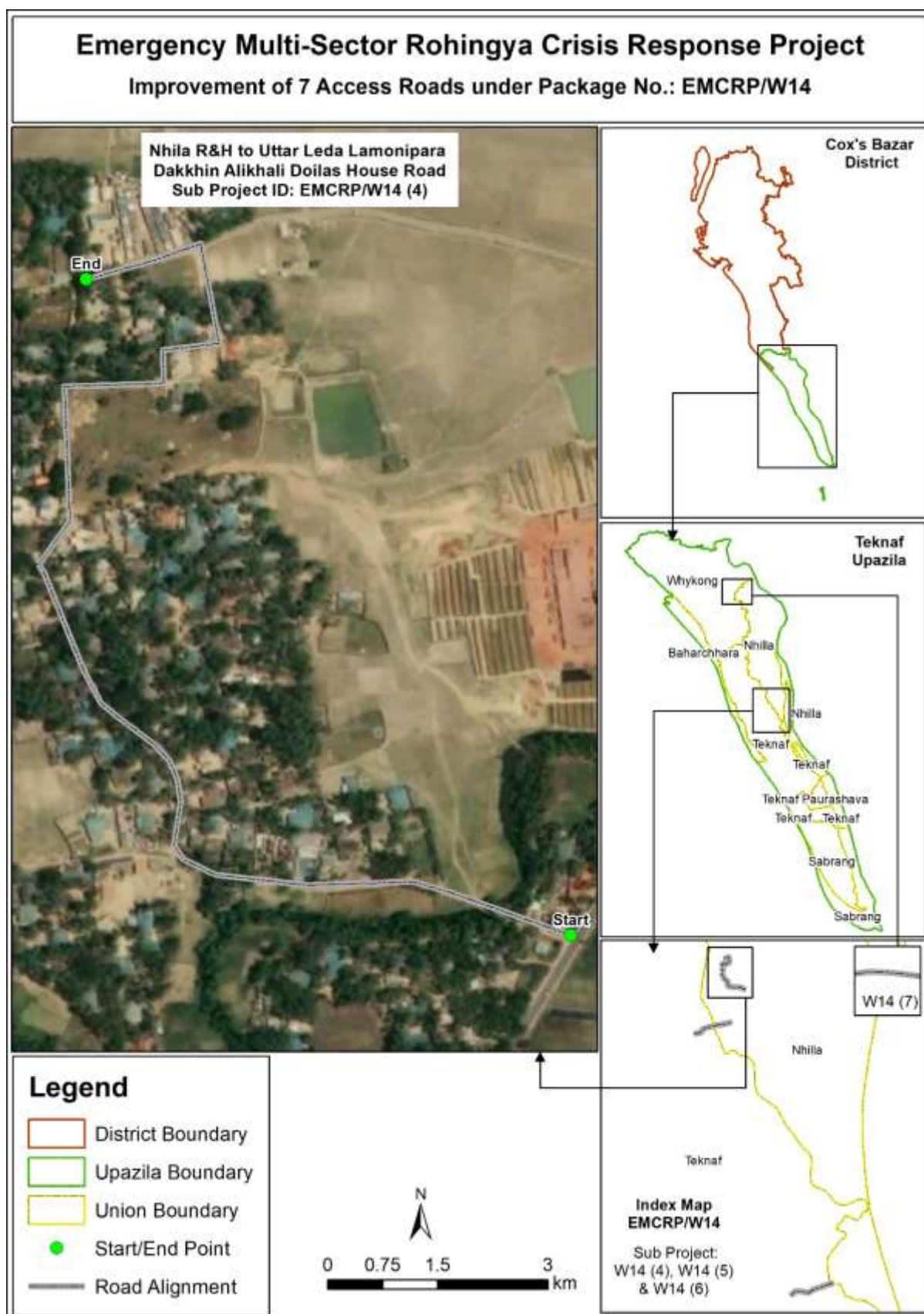


Figure 5: Upazila Map with Sub-project location

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 with a proposed design of 645m HBB will be laid on an existing road alignment. For drainage of rain/storm water 2 nos. Cross Drains (Size: 450mmX600mm, at Ch: 410m, 645m, surface drain (length 128m) at Chainage 257m to 385m and to keep running the natural water flows 5 nos. of RCC Box culverts have been included in the design and estimation.

Sub-project Location:

The targeted camp road is belongs to Nhila union, Ward no. 8 under Teknaf Upazila, Cox;s Bazar. This proposed Road has started from Nhila R&H road.

Starting Point: Latitude: 20°58'31.35" N; Longitude: 92°14'58" E

Ending point: Latitude: 20°58'49" N; Longitude: 92°14'50" E

Land ownership

Land is owned by the Government of Bangladesh.

Expected construction period: 6 (Six months)

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

- i) The proposed Sub-project is located within Nhila union and existing local community, but in close proximity with the Leda Alikhali Rohingya camp.
- ii) No historical sites were identified.
- iii) Not required to relocate Displaced Rohingya People (DRP) or any locals.
- iv) 3/4 roadside trees may be affected due to construction activities, but appropriate offsetting measures by planting additional 5 trees of similar type along the ROW for each affected tree will be taken, under the road side tree plantation scheme of forest department under this project (additional financing)
- v) Environmental Sensitivity: the proposed road crosses a canal, named 'Ali Khan Khal' through appropriate drainage structure (culvert), and two brickfields, a mosque, a pond and a graveyard are located in the vicinity, but at a sufficient distance from the ROW. Considering the closer proximity of any of these features from the road construction boundaries, only the canal may receive adverse impacts, though not significantly, if the protective/mitigation measures articulated in the ESMP are followed properly by the contractor. The site is sufficiently away from any elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

B.1: Environmental feature of sub-project location

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

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

This sub-project is situated within Nhila union of Teknaf upazila, Cox's Bazar. Cox's Bazar-Teknaf highway is passing by the west side of the sub-project area. One mosque and a graveyard are found along the sub-project area. Ali Khan Khal is crossed over by the proposed road component with proper drainage structure on the canal. There are no other sensitive environmental, cultural, archaeological sites exists on the area of this sub-project.

In this sub-project area, no elephant migration routes exist (ref. IUCN).

A sketch of the project site and surrounding features at relatively distant places are shown in figure B.1.1 .

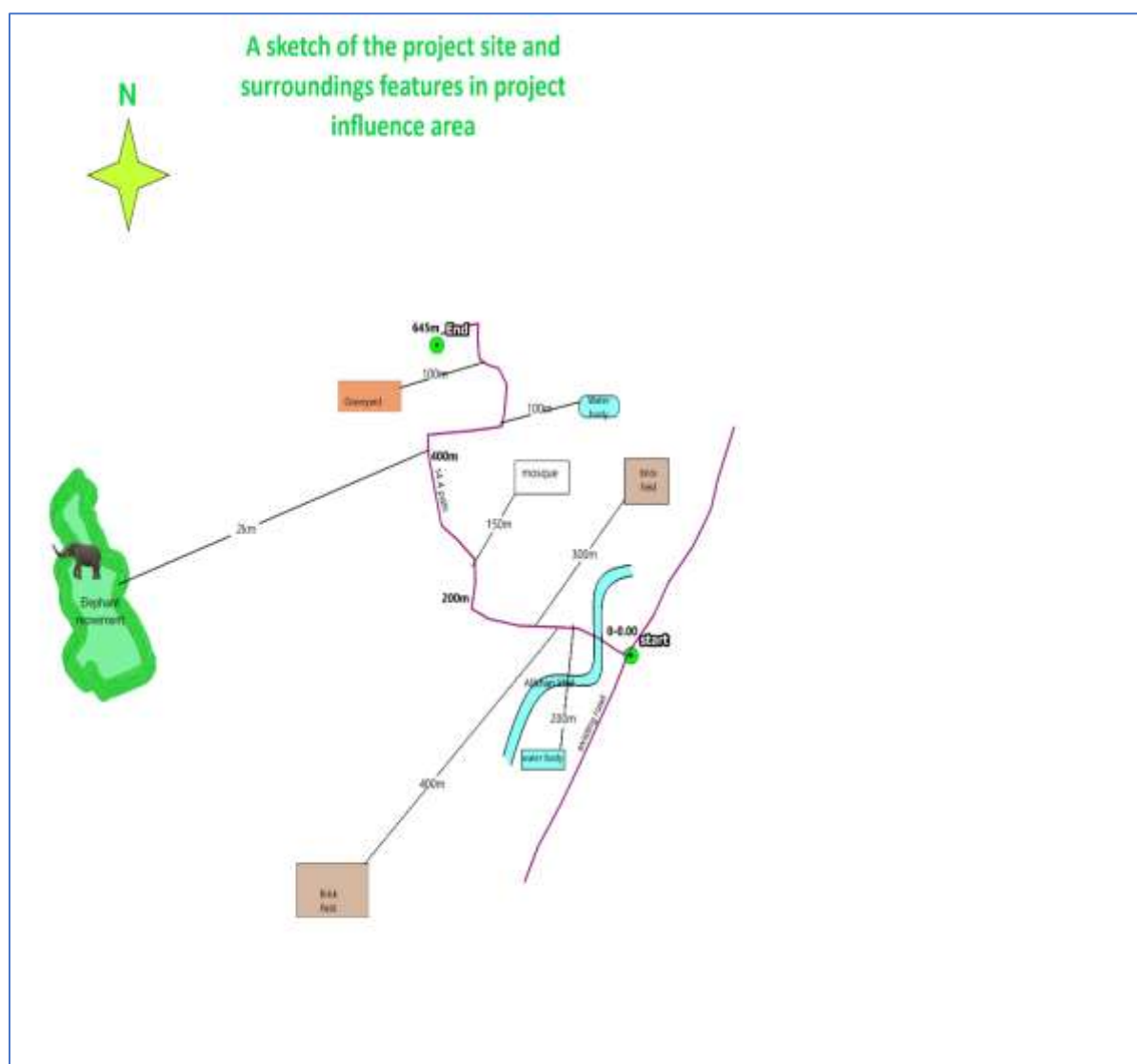


Figure B.1.1 : A sketch of the project site and surrounding area

Location of environmentally important and sensitive areas:

This sub-project location was once environmentally important and sensitive for being a protected forest area but after the evolution of Rohingya crisis, natural environment has been Changed drastically and forest or tree coverage is nor more there. Now there are only trees from social forestry program, planted and raised by local individuals. Popular species of trees are- Acacia, Segun, Mango tree, Jackfruits, Pineapples, etc.

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

Not at present. Elephant migration routes or corridors were present near the sub-project area but these have been disturbed due to the camps. This information is confirmed with maps established by UNHCR/IUCN and the consultation meeting with local stakeholders.

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

Yes. Local community is now practicing social forestry across the sub-project area. Dust and emission generated during construction period might impact this community practice.

(3) Other issues:

No more mentionable issues raised.

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

Baseline air quality and noise levels:
Dust:

Ambient air quality data was not readily available, but quality was apparently good due to the appearance of rural vegetative settings around. But after arrival of Rohingya the number of vehicle movement on the road became too high. Dust is generated through movement of vehicles such as bus, truck, mini truck, motor cycle, auto rickshaw, tempo, trolley, tractor, etc. over the road surface which has caused deterioration of air quality.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerable limit. Vehicles such as motor cycle, bus, truck, mini truck, tempo, auto rickshaw, tractor, trailer, etc. move on the road surface throughout the day and night. These vehicles generate noise but still within the tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on 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):

Low. There is very less likely chance of landslide to occur in the area.

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

Surface water quality: Surface water source were not found during the survey period, except a nearby canal (Alikhan Khal), but quality data is not available.

Groundwater quality: Groundwater is the main source of potable water in the Sub-project area. Local community use water from shallow tube well; shallow aquifers having depth of around 70-100 feet below the ground level, and the water contains high concentration of iron.

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

*Data source: IWM Study Report, 2019

Status of wildlife movement:

There is no wildlife movement near/within the sub-project area due to settlement of Rohingya Displaced People (RDP).

State of forestation:

In order to accommodate large numbers of Displaced Rohingya People (DRP), hills have been denuded and tree logs have been collected indiscriminately for shelter and settlement establishment on top of small terrain areas. Stairs have been cut into the slope to facilitate access to these settlements. As a result, soil structure became loose to cause soil erosion. Weathering of valuable fertile top soil has made the hills unsuitable to support any vegetation cover which in turn will result in habitat loss. New plantation is now being taken place at respective site areas by FAO and others organization.

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

N/A

B.2: Pre construction Phase
Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option. Pickup trucks will be more suitable.

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

An open space is required to set up a labor camp with associated facilities (toilet for male and female workers, kitchen for cooking, tube-well for water supply facility, and electricity connection) to support the workforce during construction. The space should have enough land area to accommodate a stack yard along with a site office, if possible. This open space should be selected in such a way that workers do not need to travel/walk through a longer distance to reach the sites and the place can be secured with proper fencing with a guard be posted at the entrance. The space or land area can be used on rental basis or under a mutual agreement between the owner and the contractor. The contract/consent document must be kept at the site office, whatsoever the mode of

the contract is.
Possible location of labor camps: Next to the labor Camp area or the site office, and within walking distance from the sub-project location.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. The existing earthen road seems to be the best option for transporting materials unto any unloading point in the area. Head load from unloading point to different working locations is easily possible by the assigned contractor.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.
Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): During the pre-construction period wastes will be generated from some preparatory activities, such as construction of labor camp, site office, material storage/stack yard and associated facilities, etc. and removal of road pavement. All these activities also will be carried out by numbers of local labors. So, around 45 kilograms of construction related wastes, such as bricks, aggregates, leftover cements, sands, etc. will be generated, which are typical solid wastes and a negligible quantity (nearly 5 kg) of bio and non-biodegradable wastes will be generated from the daily necessities of workers and construction staffs, such as food wastes, polythene, papers, plastics, etc. Some chemical waste, like paints, oils, etc. and small amount of solid and liquid wastes from the immediate use of constructed latrines by the workers may also be generated, such as feces and urines.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): Raw materials: i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates. Quantity: It is difficult to provide exact figures of raw materials on a typical pre-construction site at this level.

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

Vegetation from social forestry is present in the right of way and approx. area is nearly 1335 sqm, but only 3/4 trees at road-turning might get affected. Small amount of soil is needed for the road component, but no borrow pits were found in the area. The current condition shows that there is no aggregated soil on the right of way.

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

Low. There is very less likely chance of creating stagnant water bodies in borrow pits, quarries for inviting mosquito and other disease vectors to breed.

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

Low, there is a canal (Ali Khan Khal) crossed over by the road, which will not be disturbed or modified by the pre-construction activities.

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

Low. There is very little scope of causing damage to terrestrial or aquatic ecosystems or endangered species directly in the pre-construction phase..

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

Only some preparatory physical works will be carried out in this phase which has very little scope to trigger landslide.

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 of similar elevation, and the soil is well compacted, the scale of erosion of lands is very minimum at this stage. Still the concentrated outflow will be managed through the drains included in design.

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

Dust impact can be high due to poor condition of the road, but other traffic movement impacts such as light or noise impact will not be significant in the pre-construction phase.

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 waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.

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

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water are the most common type of road materials used in construction.

Quantity: Anticipating the quantity of raw materials to be used needs detail calculation as per design, which is beyond the scope of this report, but presented in engineering design/estimates of the sub-project.

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

Vegetation is present in the right of way but measuring the approx. area is difficult to identify. Aggregated Soil is not present on the ROW. However, a temporary waste dump and equipment yards require approximately 650 square meters of area altogether.

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

Low: No borrow pit or quarries will be created by the construction works.

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

Low. There is a canal named Ali Khan Khal, found flowing under the road with appropriate drainage structure near the starting point of the chainage length, which can be disturbed by the construction works, especially from the dust, soil and oil spillage during this period. However, proper mitigation and preventive measures must be in place to reduce the impacts to the minimum level.

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

Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities except for Ali Khan Khal. This canal can be affected, but the impacts are both site and time specific, and will be reduced to the minimum level with mitigation measures delineated in the ESMP.

The area is not known for containing any endangered or threatened species of any kind.

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

Construction of the sub-project intervention may lead to low scale of land slide/mass movement along the slope areas. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.

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

Low, Potential erosion may occur when moderate to steep sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

No traffic movement impacts in relation to light effects, but low effects of noise and air/dust pollution, and can mostly be mitigated by different management and protective options.

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:

During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute in health hazards and interference of plant growth.

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

Medium. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.

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

Not applicable

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

Low. There is low possibility of stagnant water bodies on the road surface as long as the road surface remains well-drained.

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

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

Low, Little effects on terrestrial and aquatic ecosystem is anticipated due to the dust pollution and vehicular emission as well as some local runoff, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around the sub-project component site, and no known areas of ecological interest.

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

During operation phase, some maintenance works can be done on ROW. These will be localized road surface repair type of works and will not change road grade and therefore there are no chances of landslides, slumps, slops and other mass movements.

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

Low. Surface drains, cross-drain and box-culvert designed to minimize concentrated outflows.

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

Improved road communication will definitely increase the traffic/ vehicular movement, which will increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed HBB road will reduce the pollution generated from dust on the previously muddy and semi-pucca 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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
1: Sub-Project Interventions	Air Quality	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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 .	<ul style="list-style-type: none"> 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 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 	Construction Contractor, monitored by Consultant and PIU	No visible degradation to nearby drainages, <i>khals</i> 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	
					Indicators	Frequency
			minimum to reduce the erosive potential of surface water flows elsewhere.			
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is low .	<p>All precautions to store chemicals/oil/fuel properly so that no chance of spill.</p> <p>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</p> <p>Monitor water quality according to the Environmental and Social Management plan.</p>	Construction Contractor, and monitored by Consultant and PIU	<p>(i) Areas for stockpiles, storage of fuels and lubricants and waste materials;</p> <p>(ii) Records of water quality inspection; Water Quality Test (National Drinking Water Quality Standard Parameters) if requires;</p> <p>(iii) No visible degradation to nearby drainages, <i>khals</i> or water bodies due to construction activities.</p> <p>(iv) Records should be kept and logged.</p>	Water quality test (mainly GW) twice during the construction period in six months interval.
	Vegetation	Low.	<ul style="list-style-type: none"> Tree plantation as part of offsetting 	Construction	Tree cuttings near	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Removal	Vegetation in ROW may be affected	<p>measures is suggested to carry out under the planation scheme of this project (additional financing part)</p> <ul style="list-style-type: none"> • Ensure any trees cut are offset by planting additional 5 trees of similar type along ROW. • Ensure no private trees are cut without compensation • Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. 	Contractor monitored by Consultant and PIU	ROW Complaints from Community	
2: Pre-construction Phase	Sanitation, water supply	Under the subproject intervention the overall score is low .	<p>Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer.</p> <p>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.</p> <p>Records for any type of training or awareness building sessions must be kept at site.</p>	Construction Contractor and Consultant monitored by 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	Contractor should verify vehicles for the	Construction	• Record of regular inspection.	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
		subproject intervention the overall score is low .	suitability of carrying, loading and unloading of materials	Contractor and monitored by Consultant and PIU	Record of accidents/incidents	monitoring.
	Storage of construction materials	Under the subproject intervention the overall score is low .	Train concerned person and team assigned for the construction work to ensure items are stored properly and away from steep slopes.	Construction Contractor and monitored by Consultant and PIU	<ul style="list-style-type: none"> List of materials and sources of materials; Storage facility for construction 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 .	<ul style="list-style-type: none"> 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.	Weekly as work progresses
	Cut and fill Activities (Cutting of hill slope and earth removal from borrow)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> 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 	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	
					Indicators	Frequency
	areas caused for soil erosion and landslides)		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 .	<ul style="list-style-type: none"> Storage area will be sufficiently spacious so that unloading works can be performed inside the area and materials must not be rest on road side, near the water bodies, or trees and bushes, and will not be located in any crowded place. Storage area must be well fenced with guard posted at the entrance and at least 30 m distant from any water bodies. Construction materials must not interrupt natural land contours, natural drainage pattern, and create water logging or depression. Cement, sand, reinforced bars, stone chips, aggregates etc. must be covered with tarpaulins, and end of reinforced bars will be capped with plastic caps or covered with sacks/clothes to avoid any health injury. Chemicals and hazardous materials 	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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			including oil, grease, bitumen, etc. shall be kept in an Cement Concrete bunded area or on wooden stage covered with polythene/tarpaulin.			
	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 .	<ul style="list-style-type: none"> If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree cut. Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. 	Contractor, environmental specialist of D&SC	Complaints from community;	Daily
	Noise pollution	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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 ESMP.	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	Water spraying for dust control;	Construction	Location of	Visual

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
		subproject intervention the overall score is low .	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.	Contractor and monitored by Consultant and PIU	stockpiles; Number of complaints from stakeholders; Records of air quality inspection.	observation and monitoring of air quality during construction period.
4. Post Construction	Road Safety and Accidents	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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. 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 	Construction Contractor, environmental specialist of D&SC	Complaints from communities, pedestrians	Day basis during work time
	Road Safety		<ul style="list-style-type: none"> Install traffic signs for speed limit, speed breaker where needed, Mile post and Create adequate traffic detours, and 	Construction Contractor, environmental specialist of D&SC	Road signage and safety instruments at suitable locations and	Immediately after the construction work is over.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			<p>sufficient signage & warning signs, Post speed limits and suitable bending on the road.</p> <ul style="list-style-type: none"> 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. 		chainage	
	Afforestation	Under the issue the overall score is low .	<ul style="list-style-type: none"> Afforestation will only be carried out if any existing trees are uprooted/damaged for this construction works, as the road will not have sufficient spaces after the shoulder for plantation, and if required, the plantation will be from the scheme of Forest Department under the additional financing to the EMCRP project. 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. Operational Phase	Maintenance of road and assets (Road accidents may increase due	Under the issue the overall score is low .	<ul style="list-style-type: none"> No advertisement/boardings shall be allowed within the Right of Way limits of the project road. Regular maintenance and cleaning of assets such as sign boards, road safety sign etc. shall be undertaken. 	LGED	Number of complaints from stakeholders; numbers of accidents occur.	During Operation under LGED's regular maintenance program in each 3 years.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	to higher number of vehicles using the roads at increased speeds)		<ul style="list-style-type: none"> • Clear smooth speed breaker/rough surfaces should be clear in views. • Regular maintenance of road surface and shoulders. 			

* 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

**Post-construction phase denotes the time period contractor use to clear and clean up the sites after the construction work is ended, perform tree plantation, grass turfing, and minor rectification till the official handing over the site to LGED, or owner of the site.

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:

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is allowed within this sub-project activities <p>So, there are no any mitigation measures according to this impact.</p>	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Selection of sub-project sites and all implementing interventions must take place outside of the 	PIU	Environmental Consultant of PIU,

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
	conflict	elephant corridor/influence area.		PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; alteration of natural drainage	<ul style="list-style-type: none"> • All sites must avoid the low land near the water bodies or natural flow paths to avoid the flash flood or any kind of surface runoff. Keeping 20 meters distance from water bodies or natural water flow paths should be maintained, if possible. • Tubewell location within the construction site/camp should not near any kind of latrine and soak well which could be contaminated by those. • Minimize cut & fill operations, the site clearing and grubbing operations should be limited to the locations wherever necessary. • Avoid disruption to human settlement, and social, cultural and religiously sensitive areas. • Avoid disturbance to existing slop and any natural drainage system. • The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Borrow pit construction and management: water stagnation, mosquito breeding ground, and soil fertility loss.	<ul style="list-style-type: none"> • Identify borrow pits/areas in consultation with the local LGED staff and D&S consultants, and priority should be given to barren land or land without tree cover outside the road reserve or by excavating land and creating new water tanks/ponds, or land acquired temporarily outside the road reserve or by excavation of proposed culverts. • Do not dug the borrow pits within 3m of the toe line 	Construction Activity	Borrow pit construction and management: water stagnation, mosquito breeding ground, and soil fertility

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>of the final section of the road embankment and dig the borrow pits continuously. Ridges of not less than 8 m widths shall be left at intervals, not exceeding 300 m in length and small drains should be cut through the ridges to facilitate drainage.</p> <ul style="list-style-type: none"> • Slope the bed level of the borrow pits, as far as possible, down progressively towards the nearest cross drain, if any, and do not lower it than the bed of the cross-drain, to ensure efficient drainage. • Stabilize the banks of the borrow pit with the top soil if it is used for fish ponds by compaction. • Return stockpiled topsoil (first 15 cm soil) to the borrow pit and all worked areas to be stabilized through re-vegetation using local plants. 		loss.
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> • Construction activities shall be finished at day time within 05 PM. Further necessary measures to be taken for avoiding any disturbance. • Contractor must provide personal protective equipment (PPE) such as ear plugs, earmuffs, helmets, etc. to the persons working in high-risk areas and wherever required. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	<ul style="list-style-type: none"> • Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), 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 	Contractor	Environmental Consultant of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>pipes.</p> <ul style="list-style-type: none"> Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level 		
Construction Activity	Safety Issues	<ul style="list-style-type: none"> Unauthorized entry is completely prohibited in our site and take necessary measures for preventing this problem Before works started proper training and guidelines on health and safety issues to the labours and associated staffs are to be provided. 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	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. If ground water is withdrawn, adequate approvals from the appropriate department need to be undertaken before setting up bore wells. Any type of consent letter or agreement for 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>withdrawing water from either surface or underground sources will be kept on site.</p> <ul style="list-style-type: none"> Local community must be consulted before any construction works starts. 		
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 forces. Labor code of conduct is to be disclosed through consultation. 	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction Activity	Waste Management: Improper	Preparation of a waste management plan covering the	Contractor	Environmental

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
	management and handling of hazardous and non-hazardous waste during construction.	<p>following aspects:</p> <ul style="list-style-type: none"> • 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 from respective authority or Environmental Specialist at PIU in difficulties to reaches to that authority. 		Consultant of PIU, PSC
Construction Activity	<p>Health & Safety Risks:</p> <ul style="list-style-type: none"> • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and 	<ul style="list-style-type: none"> • All construction equipment at site will be properly inspected and timely repairing to be ensured. • The risk assessment shall be prepared and communicated prior to the commencement of work for all types of work activities on site. • All provided walkways (if required and managed to provide) 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. • Sub project will have a Proper emergency response plan (ERP) and be communicated with all parties, the ERP to consider such things as specific 	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
	dermatitis.	<p>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 efficacy and coherence with the plan.</p> <ul style="list-style-type: none"> • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • Ensure all equipment is in working condition and suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Ensure all tools and other work equipment are serviced and maintained in accordance with maintenance schedules and manufacturer's instructions. • 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 		

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of this awareness training shall be kept on site.</p> <ul style="list-style-type: none"> • 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 that all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used. 		
Construction activity	Noise disturbances to fauna	<ul style="list-style-type: none"> • 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. 	Contractor	Environmental Consultant of PIU, PSC.
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge and other solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> • 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 	Contractor	Environmental Consultant of PIU, PSC.

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		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		
Decommissioning during the project implementation period (including site clearance after the construction)	The impacts are similar to those listed in construction stage: <ul style="list-style-type: none"> • Pollution from waste materials • Health & Safety risks to workers and local community 	<ul style="list-style-type: none"> • Contractor must prepare a waste management plan including following principles given hereunder. 	PIU and Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

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, IC, 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. This BOQ has two parts- costs shown in first part are only the site specific (the costs associated with the component/specific road site) and the costs shown in second part bear the overall/common costs for the sub-project (**a labor shed in Teknaf** will be constructed for the entire sub-project, and costs for that and other associated facilities in the labor camp areas are presented under this head). Moreover, costs associated with certain engineering design and implementation, such as road safety measures, construction of retaining wall for protection from landslides/mass movement, or storm water drainage system, etc. are included into the BOQ for physical works.

Cost of Environmental and Social Management and Enhancement Works in BOQ

1. Site/component Specific BOQ:

SI no.	Description of item	Quantity (Nos.)	Unit price BDT	Total amount BDT
01	<u>RN Plate</u> Providing, fitting and fixing rectangular Road Name Plate.	2	5962.87	11925.74
02	<u>Dust suppression measures</u> 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.	1	LS 10000	10000
03	<u>Personal Protective Equipment</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 15 sets as per direction of E.I.C.	15	LS 5000	75000
04	<u>Health and Safety Warning Signs</u> Signage postings and occupational safety management	2	LS/ Tk. 5000 each	10000
05	<u>First Aid Box</u> Supply of first aid box with standard contents and as per direction of the E.I.C.	1	LS/Tk. 6500 each box	6,500
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				113,425.74

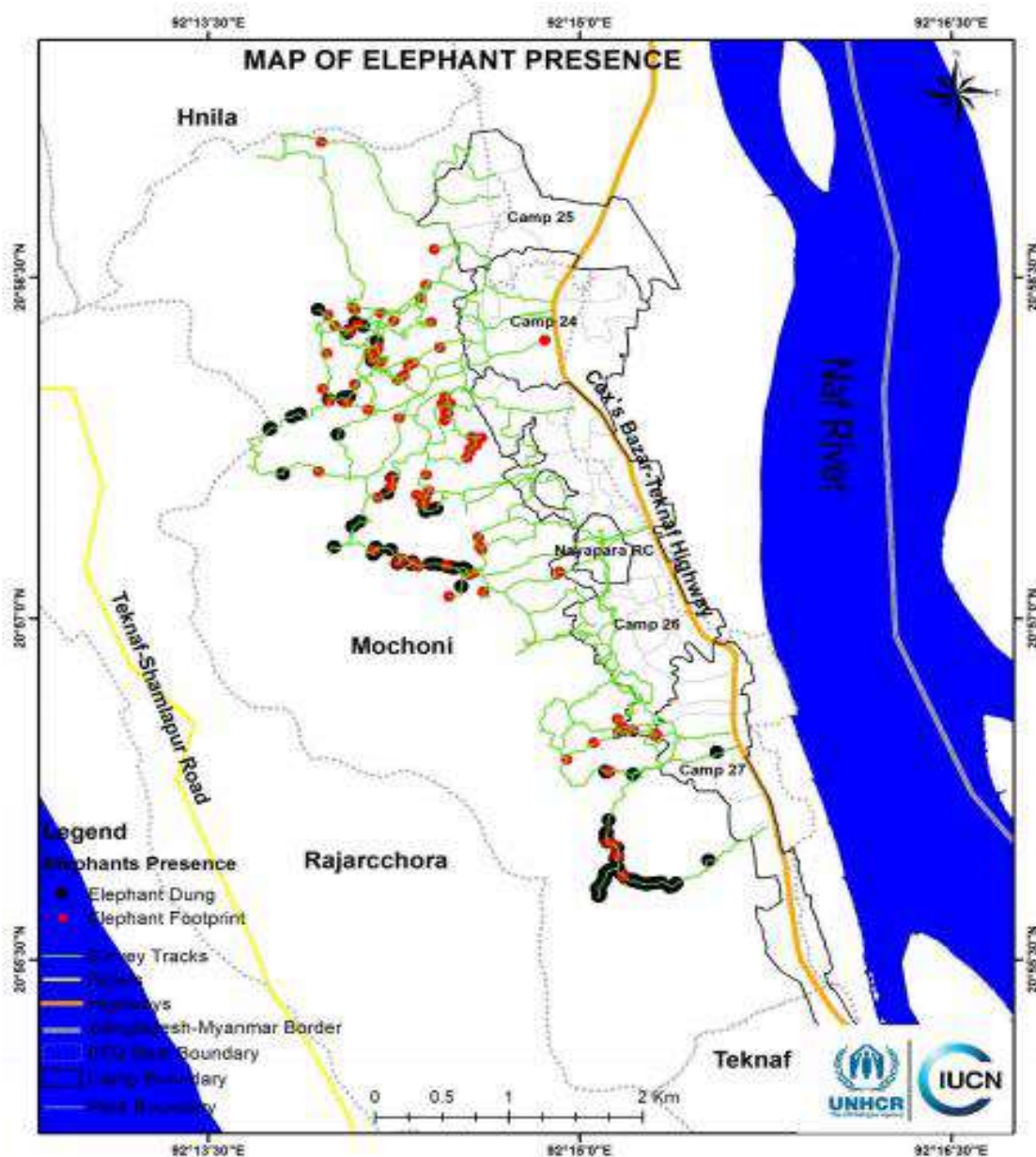
2. Common (Shared) items in BOQ for the entire sub-project

SI no.	Description of item	Quantity (Nos.)	Unit price BDT	Total amount BDT
01	Labor camp establishment, pit establishment, water establishment including water filter	LS 1	100000	100000
02	<u>Waste disposal facility</u> Temporary camp site waste disposal facility	LS 2	5000	10000



	improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.			
03	<u>Soil Erosion and Drainage Congestion monitoring</u>	LS	40000	40000
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				150,000

Appendix-4



Map 2: Elephant presence, along with traversing routes, around the camps 24, 25 26 and 27, based on elephant signs - foot-prints and dung piles. (Based on data from IUCN Bangladesh's field survey conducted during 13-24 May 2018 and on maps provided by the UNHCR)

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

Appendix-5

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

Time: 04:05 PM Date: 24/12/2019

COMMUNICATION AND PARTICIPATION PROGRAMME
FOCUS GROUP DISCUSSION

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

প্রকল্পের নাম: Nhila R&H to Uthar loda Lamoni para road ইতিমধ্যে: ইতিমধ্যে
মত বিনিময়ের স্থান: উত্তর মেজা: কাটাঙ্গা-১৩ মেজা ডাকঘর: বাথুখালী
উপজেলা: উত্তর মেজা জেলা: কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক সং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
০১	শ্রী: নবী হোসেন	৫২	পুরুষ	উত্তর মেজা	নবী হোসেন
০২	শ্রী: নবী হোসেন	৩০	"	"	শ্রী: নবী
০৩	শ্রী: ইমরুল	৩০	"	দক্ষিণ এলি থানা	শ্রী: ইমরুল
০৪	শ্রী: ইমরুল হোসেন	২৫	"	উত্তর মেজা	ইমরুল
০৫	শ্রী: ইমরুল হোসেন	২২	"	"	ইমরুল
০৬	শ্রী: ইমরুল হোসেন	২০	"	"	ইমরুল
০৭	শ্রী: ইমরুল হোসেন	২০	"	"	ইমরুল
০৮	শ্রী: ইমরুল হোসেন	৩০	"	"	ইমরুল
০৯	শ্রী: ইমরুল হোসেন	৩২	"	"	ইমরুল
১০	শ্রী: ইমরুল হোসেন	৪০	"	"	ইমরুল
১১	শ্রী: ইমরুল হোসেন	৪২	নারী	"	ইমরুল
১২	শ্রী: ইমরুল হোসেন	৪৫	পুরুষ	দক্ষিণ এলি থানা	ইমরুল

Public Consultation Participants List

Appendix-6



Current condition of road



Tin and Bamboo fence on road shoulder. At some chainage there are drains.



Brick wall on both sides



Bamboo fence and shops on the existing road

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



Design and Supervision Consultancy

Environmental Screening Report

For Nhila R&H Jadimura RNGPS to Ahmed's house

UNDER THE PACKAGE NO: EMCRP/W14

APRIL-2020



ACRONYMS

ARAP	Abbreviated Resettlement Action Plan
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
ESMP	Environmental and Social 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 Bank

Contents

Executive Summary	4
1. INTRODUCTION	5
1.1 Project Background	5
1.2 Objective of the Sub-Project.....	5
2. PUBLIC CONSULTATION AND PARTICIPATION	6
2.1 Methodology	6
2.2 Summary of Public Consultation Meeting	8
2.3 Suggestions and recommendations of the participants	9
3. ENVIRONMENTAL SCREENING	9
3.1 General.....	9
3.2 Assessment of Screening Findings	9
3.3 Climate Change Impact Screening	10
3.3.1 General Overview of the area	10
3.3.2 Site Specific Screening and outcome.....	11
4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS.....	11
4.1 Mitigation and Management Measures	11
4.2 Health and Safety Measures under COVID situations	12
4.3 Cost of Environmental Enhancement Works in BOQ	13
5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION.....	13
6. LIMITATIONS OF THIS STUDY	14
7. CONCLUSIONS AND RECOMMENDATIONS	14
Appendix-1	16
Appendix-2	39
Appendix-3	49
Appendix-4	51
Appendix-5	52
Appendix-6	53
Appendix-7	54

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 Host 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 construction of school cum cyclone shelters and Multipurpose Community and Service Centers (MCSC), facilitating growth centers and RCC Bridge development, and so on, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agency along with D&SC (Development Design Consultants Limited-DDC) identifies the key project beneficiaries- Displaced Rohingya Population (DRP) and Host Community or in other words, the 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 have been carried out in accordance with guidelines from World Bank; as a result environmental and social screening reports have 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-B and will be improved by HBB options from Ch: 00-625m. This sub-project component starts at Nhila R&H, by Jadimura RN GPS and ends at Ahmed's house of adjacent Jadimura hill. This proposed road is very much important for local community and Displaced Rohingya People (DRP). 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. The area is embellished with dense and mature forestation; yet people living in the area are eagerly practicing homestead gardening and social forestry on leased land from the Department of Forest. However, none of those vegetation will directly be affected or removed during the construction works, as all the works will be carried out within the ROW. Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures. However, the construction works will generate significant amount of dust and air pollutants, create noise, and have a potential to pollute water resources. All these impacts are site-specific and manageable 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 730,000¹ 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 923,033². 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.

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

¹ ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)

² IOM Needs and Population Monitoring round 12 as of October 10, 2018

Consultation Date	Time	Venue	Mode of Consultation	Stakeholder/ Participants	Outcomes
24 th December 2019	2:00 noon	At (Chainage: 625m) a place adjacent to the sub-project location.	Focus Group Discussion	List is attached in Appendix.	Participants were informed about the sub-project interventions, potential impacts and management options, their informed views and comments were taken into consideration and appropriately reflected into the ESMP.
18 th February 2020	6:00 pm	Office of the UE, LGED, Cox's Bazar	Direct conversation	UE, Resident Engineer, Field Engineers, LGED Staffs	Consulted about the survey plan and UE office assured of putting all efforts in enforcing ESMP in the field.
19 th February, 2020			Telephonic consultation	Md. Sultan Mahmud, Asst. Site planner of UNHCR	Consulted about the survey plan and the site was found free from any direct physical impacts associated with the proposed road works.
19 th February, 2020			Telephonic consultation	Shegufta Newaz, Coordinator of site management, UNHCR	
19 th February, 2020	3:00 pm	CiC office in Camp 7	Direct Conversation	Subash Chandra Sheel, Camp Mgt. Support-Dty Lead, BRAC, Cox's Bazar.	He assured of lending all hands from him and his organization in successful implementation of the project.



Figure 2.1.1: Consultation meeting (FGD) with local community

Public consultation is a living process as type of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution process must differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.

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 or minimize adverse impacts. 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 problems due to this unimproved condition of the road.

Discussion was also made on various environmental issues like dust/air pollution, water pollution etc. which are potential environmental hazards during road construction. The participants expected that none of the interventions would worsen their living conditions or surrounding environment and

they requested for adopting all measures to reduce/avoid the environmental hazards during the implementation phase.

2.3 Suggestions and recommendations of the participants

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

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

3. ENVIRONMENTAL SCREENING

3.1 General

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

3.2 Assessment of Screening Findings

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted with the purpose of fulfilling the requirements of GoB and World Bank. Assessment of potential impacts requires a multi-disciplinary approach in which a wide range of issues are taken into consideration to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation.

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**

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 communities, agricultural lands and community level forest. 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 and camps. 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 were reported in 2018. The IUCN has conducted a study on such type of conflict. **Appendix-4** presents a map of elephant routes of Teknaf Upazila which is prepared by the IUCN.

3.3 Climate Change Impact Screening

3.3.1 General Overview 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 Bank³ 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. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. 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 deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation, again due to sudden extraction of huge amount of groundwater, 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.

³ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

Considering the general climate change effects in Cox's Bazar area and offsetting the aggravating environmental situation due to the mass arrival of Rohingya communities, several specific measures including tree plantation in sub-project areas, 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 Screening and outcome

The thunder storm has been found to have the highest impact in the area, casualties were not 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.

Mitigation: Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time. And the mass migration will lead to man-made disaster which also can aggravate the climate change impacts in that area. 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. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the road.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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.

Specific Environmental and Social Management Plan (ESMP) has been prepared to eliminate, reduce or regulate the adverse impacts for this subproject. The purpose of this Environmental and Social Management Plan (ESMP) is to formulate measures which will mitigate adverse impacts on various environmental components, which have been identified during observation, and protect environmental resources where possible and enhance the value of environmental and social components where possible.

Among the notable prioritized management measures, contractor must adhere to the best practice HSE (Health, Safety and Environment) management procedure and regular adoption of dust control procedures (spraying of water at least twice a day) to minimize the effect to the least level. This HSE management procedure targets both groups- the working staffs/labors directly employed by the contractor and the people living in the catchment area or simply the users of the road. Noise impacts must be controlled efficiently as the road has the presence of settlements, learning center, CiC office, and NGO offices/establishments along the road length and construction works must be limited in day time; and the time and duration of any potential noisy works should be communicated with the surrounding people fairly in advance. Special attention should be given to hill/tila-side slopes to protect from any potential landslide or mass movement to adjoining road surface. Construction of L-drain, cross drain, and protection wall are suggested at different chainages to avoid such catastrophe or nuisance. 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 and Social Management Plan has been outlined in **Appendix-2**. The mitigation measures as well as monitoring program of ESMP have also been incorporated in the management plan.

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

4.2 Health and Safety Measures under COVID situations

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 situations should be allocated in consultation with project PIU.

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. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

There will be several tiers in monitoring framework to ensure the proper implementation of ESMP. Contractors, throughout the construction or implementation period, must ensure that environmental and social risks and impacts are minimized effectively while working at sites and adequate health and safety measures are put in place not only for their workers but also for the surrounding communities and DRPs. Contractors' employed site managers and safeguard supervisors (or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive measures delineated in

ESMP, on top of the best engineering practices at sites including Occupational Health and Safety (OHS). D&SC firm will prepare regular monitoring reports based on the findings of stringent supervision and monitoring on its part.

PIU will have safeguards specialists stationed in Cox's Bazar and will conduct field visits very frequently. Moreover, Executive Engineer's office in Cox's Bazar and Upazila Engineers' office in Ukhiya and Teknaf will play a vital role in upholding the proper monitoring and supervision of civil works and associated project activities, including social and environmental safeguards in and around the sub-project sites. Safeguards specialists of PIU will monitor that all staffs of the contractors and other counterparts who are involved in project implementation receive both initial and ongoing environmental and social safeguard awareness and training sufficient to ensure the best practices in the field. Local Engineers from LGED and PIU safeguards specialists shall ascertain that contractors cleaning and reclamation works after the decommissioning of sites/ end of construction works are perfectly done, and will also suggest for punitive measures against the contractors if any negligence or indifference is found in following the ESMP to the fullest effectiveness.

The highest tier in the monitoring system is bestowed upon the respective Ministerial Project Steering Committee (PSC) chaired by the Sr. Secretary/Secretary, LGD, MoLGRD&C. The PIU, in collaboration with the PSC, will also ensure that Environmental and social safeguards training are provided to all Project personnel.

Widespread COVID 19 situation prevailing across the country has put further intense necessity for all concerned parties to scale up their monitoring frequency and activities in line with the prescribed guidelines to be followed in the field, camp site, and project offices. Frequent and abrupt visit to the working sites and labor camps is quite necessary in this crisis period and is strongly suggested.

6. LIMITATIONS OF THIS STUDY

Bangladesh government has imposed a nationwide lockdown to curb the spread of the novel coronavirus in the wake of series of deaths and infections. Authorities declared a ban on passenger travel on all sector from March 24 while all public transport on roads have been suspended from March 26 to stem the spread of virus, officially known as COVID-19. All office works have been postponed and an intended visit to the sites for further consultation with the relevant stakeholders has had to cancel due to this crisis. Therefore, some relevant information and arrangement needs awaiting for recovering this pandemic crisis.

Further, during the consultation, people living in the area and along the site were primarily targeted, though local dialect and Burmese language sometimes posed difficulties in understanding peoples' views. The safeguards team put their best efforts in meeting local representatives and Camp in Charges (CiCs), different sector coordinators, responsible agencies for site development and management while went to any respective road to survey. However, difficulties in finding the meeting time during the stringent working hours in camp areas have been observed very common, therefore, telephonic consent or views were taken in many cases.

7. 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. These issues might be problematic if necessary mitigation measures, as suggested in ESMP, would not be properly taken into consideration.
- The project will create employment for the workforce 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 Management & Monitoring Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities. The ESMP mainly focuses on managing, mitigating and reducing the impacts exhibited in design, construction and operation phases.

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

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 8 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District; EMCRP/W14).

Name of the component: (5) Nhila R&H Jadimura RN GPS to ahmed's house Road ID 422905220

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

Estimated total cost of sub-project (in Taka): 13,00,63,178 Tk

Estimated construction period duration: 6 (Six) months

Estimated total cost of the component (in Taka): 3151990.00(Tk.)

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

District: Cox's Bazar

Sub-District: Teknaf

Union: Nhilla

Name of Community/Local Area: Jadimura

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-B and construction with HBB options. Proposed intervention type is Masonry Brick work and pre-cast RCC. (Technical Report 2019, EMCRP)

Estimated footprint / land area for this sub-project is 1875 sqm.

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

This road component is situated within Jadimura village under Nhila union of Teknaf upazila. It is categorized as a village Road-B and will be improved by HBB options from Ch: 00-625m. Jadimura RN GPS is located by the starting point of the road, which goes by two mosques and a Hefzokhana (madrassa like religious institution), a children learning center, a service center for children and adolescent people of DRP communities and fences and agricultural fields. At least two sections of the road pass by small uplands or tilas. The road also accommodates a U-drain and a small culvert on its way forward. Detail Environmental and socioeconomic features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Chainage	Left	Right	Environmental/Socioeconomic features
"0" Point 000-300	L		Jadimora GPS, tin fence, mosque
		R	Brick wall(Jadimora GPS)U-Drain, Camp-road
300-625	L		Tin-fence, Brick-wall, Small-hill, Mosque, Hefzokhana
		R	Tin-fence, Brick-wall, (home boundary), Small culvert. small hill

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 settings of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging has been observed in the road area. A mosque and a Hefzo Khana are located within 300m along with the subproject. Small hill is also located within 500m chainage length of the subproject. No agricultural productive soil will be used for construction works. In order to minimize the risk of potential sliding or slipping of soil mass, earth will be compacted for stabilization and necessary cut and fill operation along the hill slope is to be ensured. All these inputs will be mainly at construction phase and limited within project boundary. Further 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. Several individuals from local communities participated in the consultation meeting and they do not have any objection to construction works under this sub-project. Rather, the community appreciated the initiative as they will have very good access to all the services and facilities provided by the government and different organizations, and they would be able to harness the full socio-economic benefits as well as have the passage during any 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 project component.

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. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

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 Jadimura village under Nhila union of Teknaf upazila, Cox's Bazar. Mostly Rohingya and local community lives in the surrounding areas of this sub project component. The proposed Sub-project is located within Jadimura village which connects the Jadimura Rohingya camp. Two mosques and a Hefzokhana (madrassa like religious institution), a children learning center, a service center for children and adolescent people of DRP communities are found along the road length.

In this sub-project area, no elephant migration routes exist (ref. IUCN).

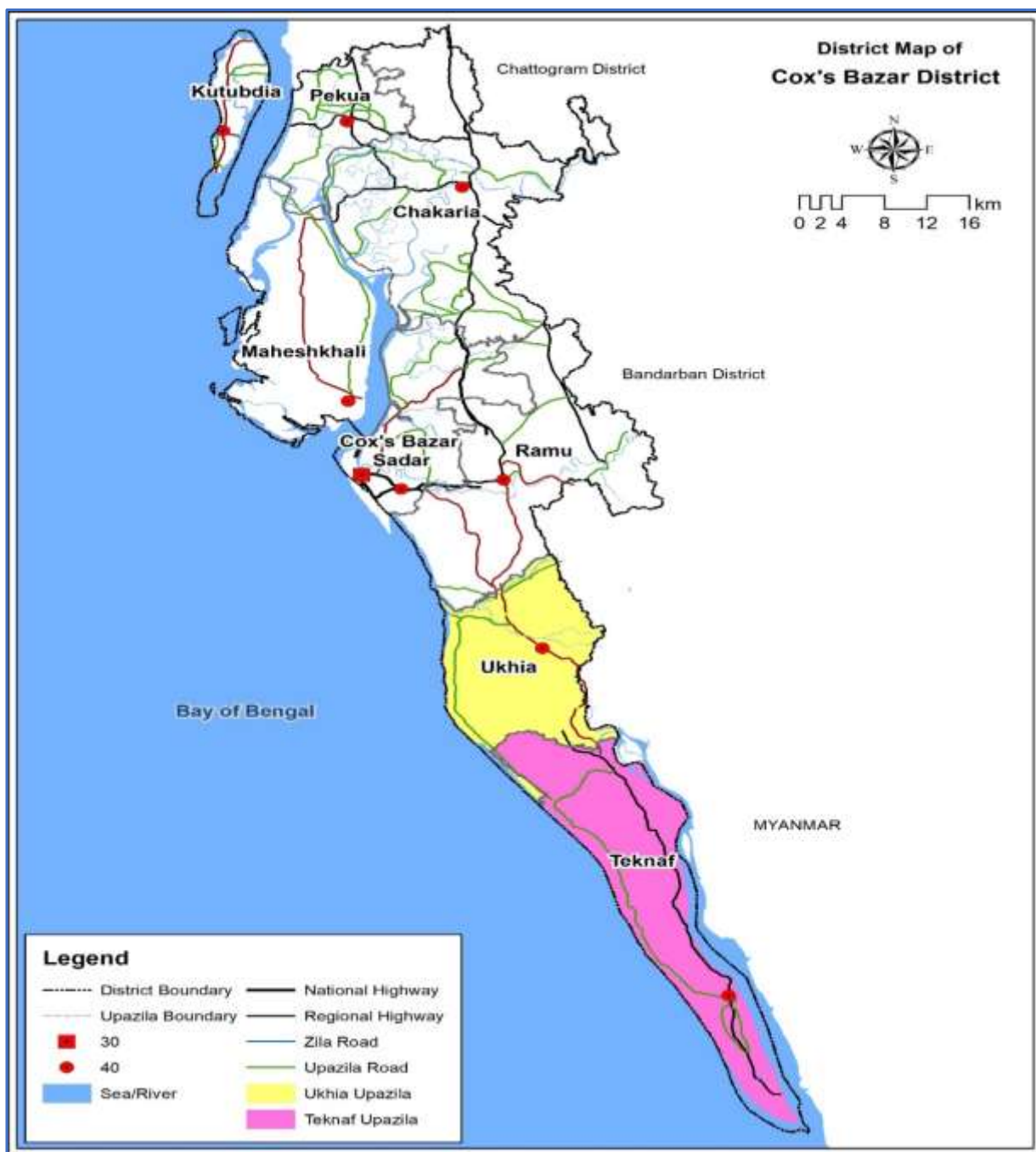


Figure 3: District Map with project location

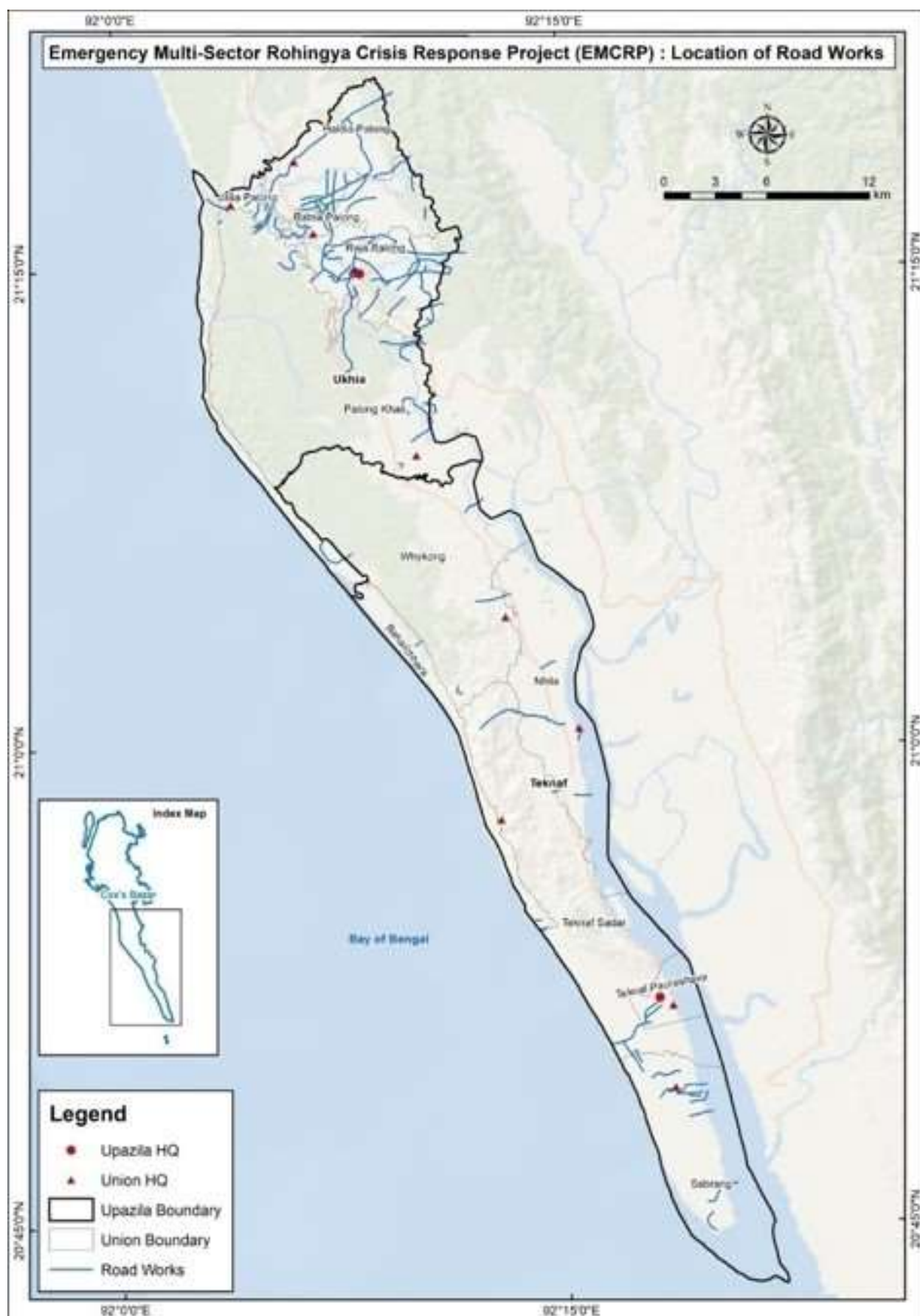


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

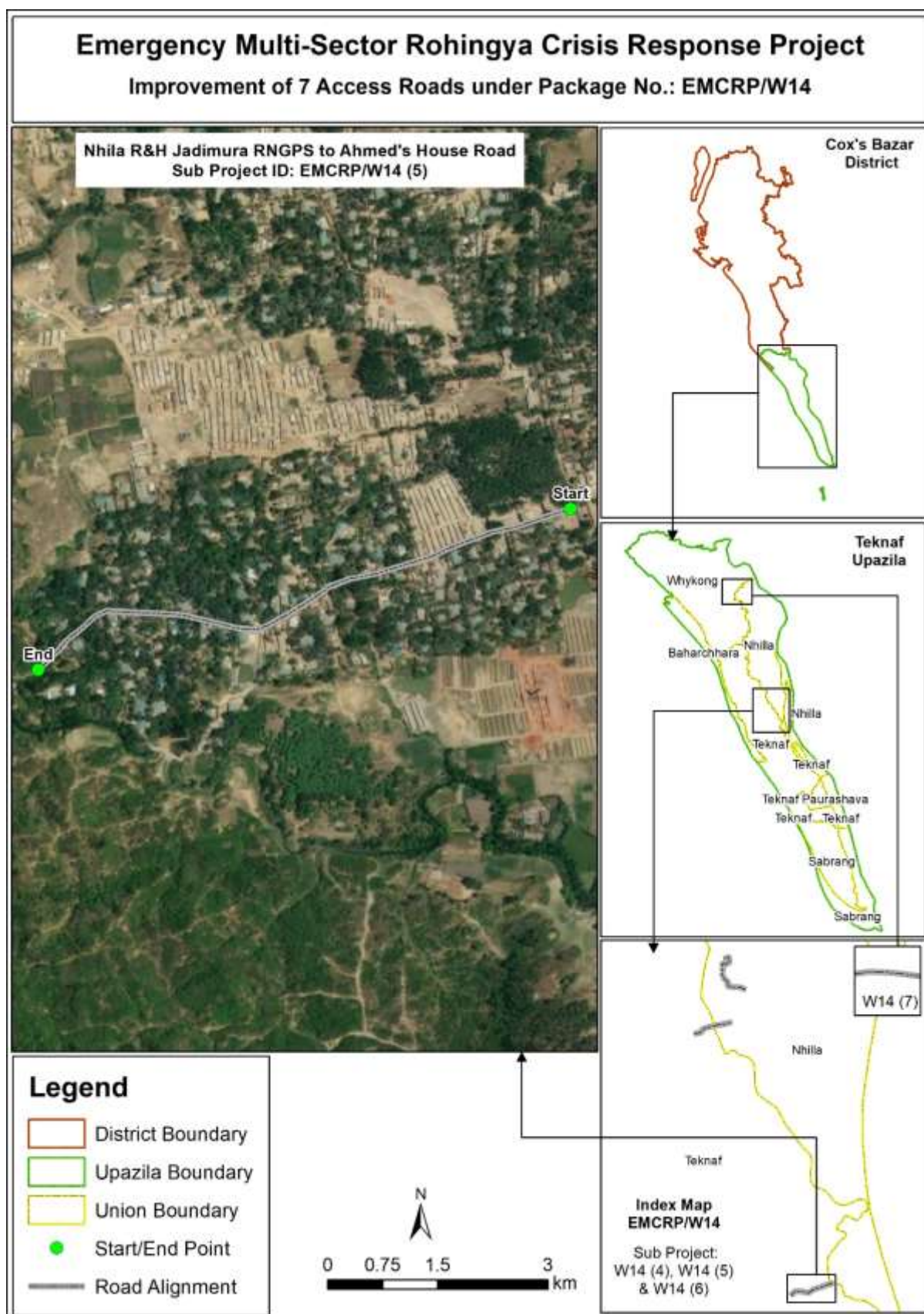


Figure 5: Upazila Map with Sub-project location

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-B and will be improved by HBB options from Ch: 00-625m. This sub-project starts at Jadimura RN GPS on the Nhila R&H road and ends at Ahmed's house of adjacent Jadimura hill. This proposed sub-project is very much important for local community and Displaced Rohingya People (DRP) and will facilitate better access to the Jadimura Rohingya camp areas.

Sub-project Location:

This sub-project is situated within Jadimura village under Nhila union of Teknaf upazila, Cox's Bazar. Both local and Rohingya community people are living in this sub project area.

GPS Coordinates of Sub-project:

Starting Point: Latitude: 20°56'26" N; Longitude: 92°15'38" E

Ending point: Latitude: 20°56'21" N; Longitude: 92°15'26" E

Land ownership

Land is owned by the Government of Bangladesh.

Expected construction period: 6 (Six) months

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

- i) The proposed Sub-project is located within Jadimura villages which also connects Jadimura Rohingya camp.
- ii) Small relocation/resettlement activities will be required and ARAP has been prepared accordingly.
- iii) Within the influence area of the subproject no historical or cultural sites were identified.
- iv) Environmental Sensitivity: No mentionable eco-concerned establishment, no socio cultural site were identified and
- v) There is no evidence of presence of elephants in the subproject influence area at this moment (checked with IUCN report and confirmed by the local inhabitants in the stakeholder meetings).

Section B: Environmental Screening

B.1: Environmental feature of sub-project location

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

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

There are several socio-cultural and religious sites like mosque, madrasah, graveyard, primary school, within the catchment area. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Locations of sensitive institutions in the project surrounding areas (within 30m buffer zone) are shown in figure B.1.1. and list is shown in Appendix 7

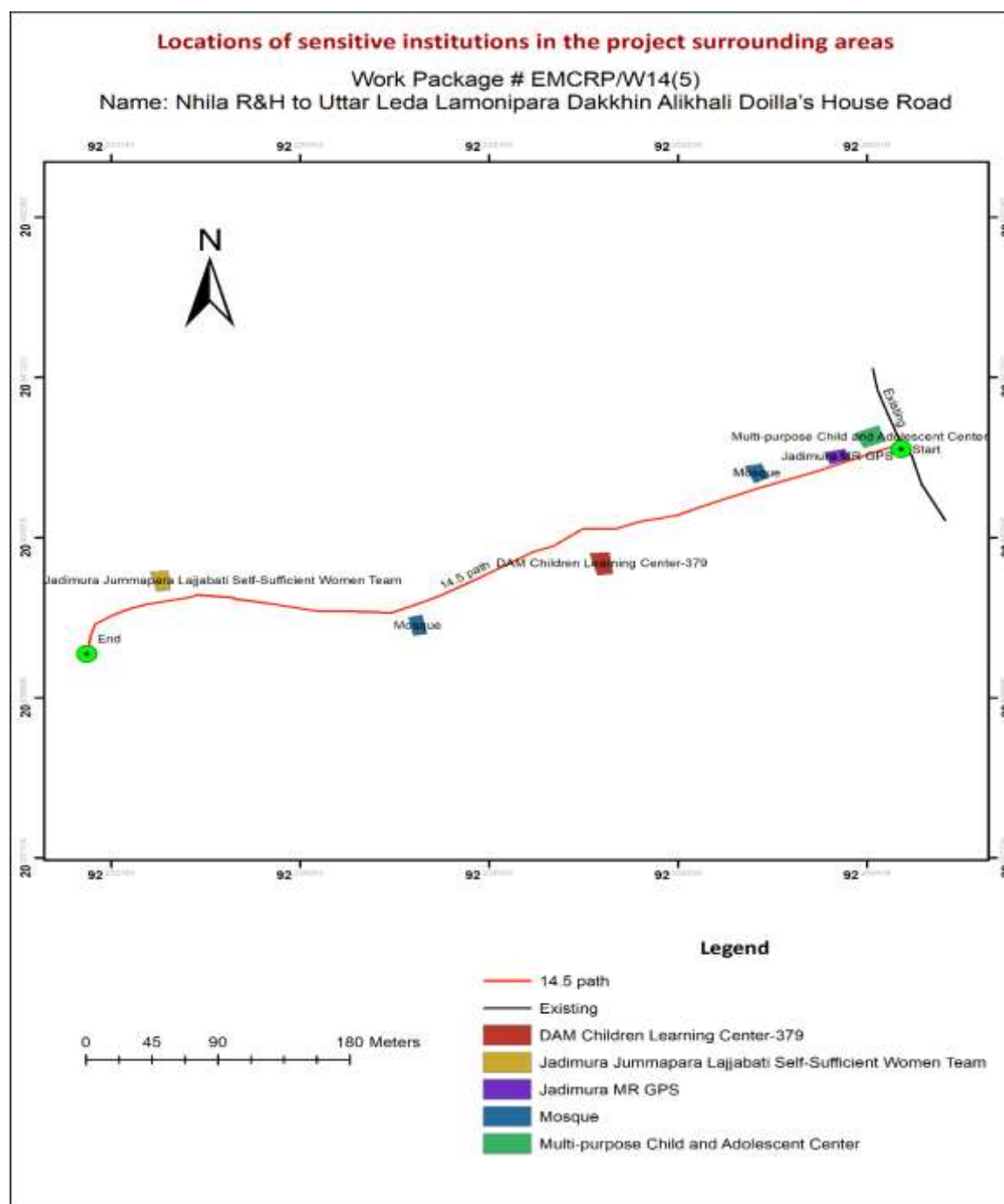


Figure B.1.2: Locations of sensitive institutions in the project surrounding areas (30m buffer zone)

Location of environmentally important and sensitive areas:

The surrounding areas are occupied by moderate to dense and matured vegetation/forest, and also the local people are very enthusiastic to develop homestead gardening or social forestation on leased land areas.

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

No. Elephant migration routes or corridors were present near the sub-project area about 8-9 years ago, but no presence of elephants or their migration routes are at this moment. This information is confirmed with maps established by UNHCR/IUCN and the consultation meeting with local stakeholders.

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

No. There are densely forests at all the surrounding areas of this sub-project component. No trees will be required to remove, but dust deposition impact may appear during the construction period.

(3) Other issues:

No more mentionable issues raised.

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

Baseline air quality and noise levels:
Dust:

Ambient air quality data was not readily available, but quality was apparently good due to the appearance of rural vegetative settings around. But after arrival of Rohingya the number of vehicle movement on the road became too high. Dust is generated through movement of vehicles such as bus, truck, mini truck, motor cycle, auto rickshaw, tempo, trolley, tractor, etc. over the road surface which has caused deterioration of air quality.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerable limit. Vehicles such as motor cycle, bus, truck, mini truck, tempo, auto rickshaw, tractor, trailer, etc. move on the road surface throughout the day and night. These vehicles generate noise but still within the 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):

Medium. Presence of upland/tillas along some chainage of the road and in the vicinity poses the risk of landslide to a medium a scale, especially when slope stability and cut-and-fill operations are carried out, and torrential rains increases the potential. The impacts are negative but not significant (some protective measures are already in place along the existing road side), site-specific within a relatively small area and manageable by mitigation measures.

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

Surface water quality: Surface water source were found during the visiting time as canals, chorra etc., but distantly from the road alignment.

Many shallow tube wells (20ft. to 30 ft.) and deep tube wells (600ft. to 700ft.) are fitted in local and camp areas and most of the water usage is sufficed from these sources.

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.

*Data source: IWM Study Report, 2019

Status of wildlife movement:

No major land-dwelling wildlife movement is observed in the targeted sub-project area

State of forestation:

Dense and matured forests are present near or around the target area and in addition, social forestations were identified. So, there is no practice of deforestation or loss of vegetation by the local community. This area is mostly covered with homestead gardening and backyard tree coverage.

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

Not applicable.

B.2: Pre construction Phase
Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air and also, the route has narrow curves.

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

An open space is required to set up a labor camp with associated facilities (toilet for male and female workers, kitchen for cooking, tube-well for water supply facility, and electricity connection) to support the workforce during construction. The space should have enough land area to accommodate a stack yard along with a site office, if possible. This open space should be selected in such a way that workers do not need to travel/walk through a longer distance to reach the sites and the place can be secured with proper fencing with a guard be posted at the entrance. The space or land area can be used on rental basis or under a mutual agreement between the owner and the contractor. The contract/consent document must be kept at the site office, whatsoever the mode of the contract is.

Possible location of labor camps:

Next to the labor Camp area or the site office, and within walking distance from the sub-project location.

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

i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.

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

Yes. The existing road seems to be the best option for transporting materials unto any unloading point in the area. Head load from unloading point to different working locations is easily possible by the assigned contractor.

Location identification for raw material storage:

Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.

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

Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

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

During the pre-construction period wastes will be generated from some preparatory activities, such as construction of labor camp, site office, material storage/stack yard and associated facilities, etc. and removal of road pavement. All these activities also will be carried out by numbers of local labors. So, around 45 kilograms of construction related wastes, such as bricks, aggregates, leftover cements, sands, etc. will be generated, which are typical solid wastes and a negligible quantity (nearly 5 kg) of bio and non-biodegradable wastes will be generated from the daily necessities of workers and construction staffs, such as food wastes, polythene, papers, plastics, etc. Some chemical waste, like paints, oils, etc. and small amount of solid and liquid wastes from the immediate use of constructed latrines by the workers may also be generated, such as feces and urines.

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

Raw materials:

Raw materials: i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates.

Quantity: It is difficult to provide exact figures of raw materials on a typical pre-construction site at this level.

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

Vegetation from social forestry is present in the right of way, mostly within the boundaries of adjacent households and approx. area is nearly 720 sqm, but no trees will be affected. No borrow pits were found in the area and the current condition shows that there is no aggregated soil on the right of way.

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

Low. This area does not face water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.

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

Low, there are no existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes) besides the sub-project location.

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

Low. There is very little scope of causing damage to terrestrial or aquatic ecosystems or endangered species directly in the pre-construction phase.

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

Only some preparatory physical works will be carried out in this phase which has very little scope

to trigger landslide.

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

Since both sides of the road is more or less of similar elevation except in some upland sections along the road length and bot the soil and hill slope are well compacted, the scale of erosion of lands is very unlikely at this stage.

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

Dust impact can be high due to poor condition of the road, but other traffic movement impacts such as light or noise impact will not be significant in the pre-construction phase.

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 waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.

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

Type: i) Bricks, ii) Sand, iii) cement, iv) aggregates, v) water are the most common type of raw materials to be used in construction period.

Quantity: Anticipating the quantity of raw materials to be used needs detail calculation as per design, which is beyond the scope of this report, but presented in engineering design/estimates of the sub-project.

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

Vegetation is present in some sections of the right of way, but measuring the approx. area is difficult to identify. Aggregated Soil is not present on the ROW. However, a temporary waste dump and equipment yards require approximately 650 square meters of area altogether.

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

Low. This area does not face water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.

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

Low. An existing U-drain and a small culvert were found in two sections of the road. No natural drainage channels or surface water bodies are located alongside the road length. However, the existing drains can be disturbed by the construction works, especially from the dust, soil and oil spillage during this period. Proper mitigation and preventive measures must be put in place to reduce the impacts to the minimum level.

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

Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.

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

Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

Low. Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

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:

During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.

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

Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.

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

Not applicable.

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 for encouraging mosquito breeding and other disease vectors, during the operation phase.

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

Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the

trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.

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

No existing drainage channels or surface water bodies found in the project area; therefore, no such effect is 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. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.

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

Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.

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

Low. Concentrated outflow will be carried by existing drains and culvert.

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 HBB road will reduce the pollution generated from dust on the existing poor conditioned 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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
1: Sub-Project Interventions	Air Quality	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Soil impacts	Under the sub-project intervention the overall score is low .	<ul style="list-style-type: none"> • 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 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. • Cut-and-fill operations on the hill slope and slope stabilization shall be carried out step by step following proper operational procedures. 	Construction Contractor monitored by Consultant and PIU	<p>No visible degradation to nearby drainages, <i>khals</i> or water bodies due to soil erosion.</p> <p>Rain storms in construction phase.</p>	Monitoring on weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is low .	<p>All precautions to store chemicals/oil/fuel properly so that no chance of spill.</p> <p>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</p> <p>Monitor water quality according to the environmental management plan.</p>	Construction Contractor and monitored by Consultant and PIU	<p>(i) Areas for stockpiles, storage of fuels and lubricants and waste materials;</p> <p>(ii) Records of water quality inspection; Water Quality Test (National Drinking Water Quality Standard Parameters) if requires;</p> <p>(iii) No visible degradation to nearby drainages, or water bodies due to construction activities.</p> <p>(iv) Records should be kept and logged.</p>	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	
					Indicators	Frequency
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	<ul style="list-style-type: none"> Record of regular inspection. Record of accidents/incidents 	Monthly monitoring.
	Storage of construction materials	Under the subproject intervention the overall score is low .	Train concerned person and team assigned for the construction work to ensure items are stored properly and away from steep slopes.	Construction Contractor and monitored by Consultant and PIU	<ul style="list-style-type: none"> List of materials and sources of materials; Storage facility for construction materials. 	During implementation phase, as necessary with discussion with PIU, Consultant
3: Construction Phase	Wastes	Under the sub-project	<ul style="list-style-type: none"> Prepare and implement on-site waste water runoff and labor camp waste 	Construction Contractor and	Complaints from community;	Weekly as work progresses

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
on Phase		intervention the overall score is low .	<p>management plan approved by PIU and consultants.</p> <ul style="list-style-type: none"> 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. 	monitored by Consultant and PIU	Regular inspection of waste management activity; Waste disposal record.	
	<p>Cut and fill Activities</p> <p>(Cutting of hill slope and earth removal from borrow areas caused for soil erosion and landslides)</p>	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> During construction cut and fill will be balanced as far as possible. Designs shall also ensure that all cut and fill activities are balanced to the best possible level. 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	
					Indicators	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 .	<p>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. However, following sets of requirements shall be taken into consideration :</p> <ul style="list-style-type: none"> • Storage area will be sufficiently spacious so that unloading works can be performed inside the area and materials must not be rest on road side, near the water bodies, or trees and bushes, and will not be located in any crowded place. • Storage area must be well fenced with guard posted at the entrance and at least 30 m distant from any water bodies. • Construction materials must not interrupt land contours, natural drainage pattern, and create water logging or depression. • Cement, sand, reinforced bars, stone chips, aggregates etc. must be covered with tarpaulins, and end of reinforced bars will be capped with plastic caps or covered with sacks/clothes to avoid any health injury. 	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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			<ul style="list-style-type: none"> Chemicals and hazardous materials including oil, grease, bitumen, etc. shall be kept in a Cement concrete bunded area or on wooden stage covered with polythene/tarpaulin. 			
	Noise pollution	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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 ESMP. 	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) if required at all.	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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Road Safety and Accidents	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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. 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. 	Construction Contractor, environmental specialist of D&SC.	Complaints from communities, pedestrians	Daily, during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
4. Post Construction	Road Safety		<ul style="list-style-type: none"> 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. Imposing barriers at several strategic places on the road to limit the movement of overloaded or heavy vehicles. 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.
	Afforestation	Under the issue the overall score is low .	<ul style="list-style-type: none"> Plantation of trees as homestead gardening, during monsoon period by the people living in roadside areas, if the road is selected under the plantation scheme from the additional financial part of EMCRP. 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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
5. Operational Phase	Maintenance of road and assets (Road accidents may increase due to higher number of vehicles using the roads at increased speeds)	Under the issue the overall score is low .	<ul style="list-style-type: none"> No advertisement/ boardings shall be allowed within the Right of Way 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. 	LGED	Number of complaints from stakeholders;	During Operation under 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:

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is allowed within this sub-project activities <p>So, there are no any mitigation measures according to this impact.</p>	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Selection of sub-project sites and all implementing interventions must take place outside of the 	PIU	Environmental Consultant of PIU,

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
	conflict	elephant corridor/influence area.		PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	<ul style="list-style-type: none"> • All sites must avoid the low land near the water bodies or natural flow paths to avoid the flash flood or any kind of surface runoff. Keeping 20 meters distance from water bodies or natural water flow paths should be maintained, if possible. • Tubewell location within the construction site/camp should not near any kind of latrine and soak well which could be contaminated by those. • Minimize cut & fill operations, the site clearing and grubbing operations should be limited to the locations wherever necessary. • Avoid disruption to human settlement, and social, cultural and religiously sensitive areas. • Avoid disturbance to existing slop and any natural drainage system. • The contractor shall ensure that site preparation activities do not lead to any disruption to living or activities of the local residents. 	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> • Construction activities shall be finished at day time within 05 PM. Further necessary measures to be taken for avoiding any disturbance. • Contractor must provide personal protective equipment (PPE) such as ear plugs, earmuffs, helmets, etc. to the persons working in high-risk areas and wherever required. 	Contractor	Environmental Consultant of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
Construction Activity	Dust	<ul style="list-style-type: none"> Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), 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 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Safety Issues	<ul style="list-style-type: none"> Unauthorized entry is completely prohibited in the site and take necessary measures for preventing this problem Before works start 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	<ul style="list-style-type: none"> Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the Executive Engineer of Cox's Bazar. Local traffic police department should be contacted, 	Contractor	Environmental Consultant of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> • A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. • If ground water is withdrawn, adequate approvals from the appropriate department need to be 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. 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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. 	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<ul style="list-style-type: none"> • 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 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: <ul style="list-style-type: none"> • Residual waste from the temporary accommodation facilities for labor and Waste from equipment maintenance/vehicles on-site • After completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management from respective authority or Environmental Specialist at PIU in difficulties to reach that authority. 	Contractor	Environmental Consultant of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts. 	PIU & Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: <ul style="list-style-type: none"> The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<ul style="list-style-type: none"> All construction equipment at site will be properly inspected and timely repairing to be ensured. 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. Sub project will have a Proper emergency response plan (ERP) and be communicated with all parties, the ERP to consider such things as specific foreseeable emergency situations, organizational 	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the efficacy and coherence with the plan.</p> <ul style="list-style-type: none"> • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • Ensure all equipment is in working condition and suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Ensure all tools and other work equipment are serviced and maintained in accordance with maintenance schedules and manufacturer's instructions. • 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, 		

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>heat stroke, and dehydration. Written records of this awareness training shall be kept on site.</p> <ul style="list-style-type: none"> • 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. 		
Operation & Maintenance	Noise disturbances to fauna	<ul style="list-style-type: none"> • 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. 	PIU	Environmental Consultant of PIU, PSC. Union Member
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> • 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 	PIU	Environmental Consultant of PIU, PSC. Union Member

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		filling with soil layer for preventing pollution and generating nutrient rich compost 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: <ul style="list-style-type: none"> • Pollution from waste materials • Health & Safety risks to workers and local community 	<ul style="list-style-type: none"> • Contractor must prepare a waste management plan including following principles given hereunder. 	PIU / Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

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, IC, Field Level Environmental Specialist, +8801913442006

Appendix-3

Cost of Environmental and Social Management and 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. This BOQ has two parts- costs shown in first part are only the site specific (the costs associated with the component/specific road site) and the costs shown in second part bear the overall/common costs for the sub-project (**a labor shed will be constructed in Teknaf** for all the components in Teknaf under this sub-project, and costs for that and other associated facilities in the labor camp areas are presented under this head). Moreover, costs associated with certain engineering design and implementation, such as road safety measures, construction of retaining wall for protection from landslides/mass movement, or storm water drainage system, etc. are included into the BOQ for physical works.

1. Site/component Specific BOQ:

Sl no.	Description of item	Quantity (Nos.)	Unit price BDT	Total amount BDT
01	<u>RN Plate</u> Providing, fitting and fixing rectangular Road Name Plate.	2	5962.87	11925.74
02	<u>Dust suppression measures</u> 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.	1	LS 10000	10000
03	<u>Personal Protective Equipment</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 15 sets as per direction of E.I.C.	15	LS 5000	75000
04	<u>Health and Safety Warning Signs</u> Signage postings and occupational safety management	2	LS/ Tk. 5000 each	10000
05	<u>First Aid Box</u> Supply of first aid box with standard contents and as per direction of the E.I.C.	1	LS/Tk. 6500 each box	6,500
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				113,425.74

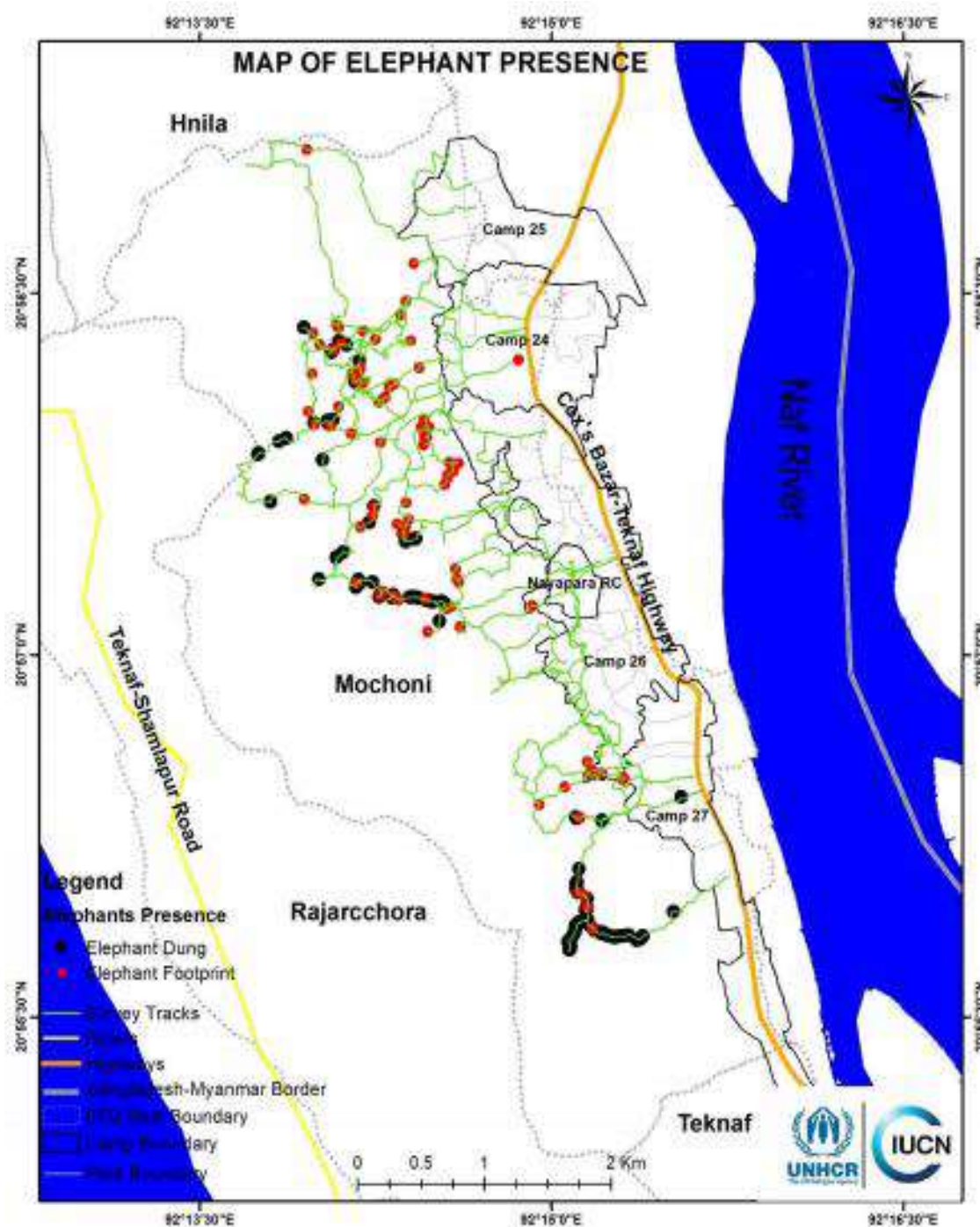
2. Common (Shared) items in BOQ for the entire sub-project

Sl no.	Description of item	Quantity (Nos.)	Unit price BDT	Total amount BDT
01	Labor camp establishment, pit establishment, water establishment including water filter	LS 1	100000	100000
02	<u>Waste disposal facility</u>	LS	5000	10000



	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.	2		
03	<u>Soil Erosion and Drainage Congestion monitoring</u>	LS	40000	40000
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				150,000

Appendix-4



Map 2: Elephant presence, along with traversing routes, around the camps 24, 25 26 and 27, based on elephant signs - foot-prints and dung piles. (Based on data from IUCN Bangladesh's field survey conducted during 13-24 May 2018 and on maps provided by the UNHCR)

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

Appendix-5

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

Time: 02:50 PM Date: 24.12.2019

COMMUNICATION AND PARTICIPATION PROGRAMME
FOCUS GROUP DISCUSSION

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

প্রকল্পের নাম: Nihil RKH Jadimura RNGPS to Ahmed's house
মত বিনিময়ের স্থান: জাদিমুরা জুম্মা মসজিদ

উপস্থিত:
ডাকঘর: বাহাদুর
উপজেলা: বেকশাহ
জেলা: কক্সবাজার

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/ নারী	গ্রাম	স্বাক্ষর
০১	আব্দুল হক	৭২	পুরুষ	জাদিমুরা	আব্দুল হক
০২	আব্দুল হক	৩৮	"	"	আব্দুল হক
০৩	আব্দুল হক	৬৫	"	"	আব্দুল হক
০৪	আব্দুল হক	৩৮	"	"	আব্দুল হক
০৫	আব্দুল হক	২২	"	"	আব্দুল হক
০৬	আব্দুল হক	৪৫	"	"	আব্দুল হক
০৭	আব্দুল হক	১২	"	"	আব্দুল হক
০৮	আব্দুল হক	১২	"	"	আব্দুল হক
০৯	আব্দুল হক	২২	"	"	আব্দুল হক
১০	আব্দুল হক	৪০	"	"	আব্দুল হক
১১	আব্দুল হক	২০	"	"	আব্দুল হক
১২	আব্দুল হক	২০	"	"	আব্দুল হক
১৩	আব্দুল হক	৫০	"	"	আব্দুল হক

Scanned with CamScanner

Public Consultation Participants' List

Appendix-6



Present condition of the road at one point



Current condition of road with drain on the left side



Tin fence and Brick wall on both sides of the road. These parts are narrower than average



Hilly areas on last quarter of the road

Overview of surrounding features of the Sub-Project

Appendix-7

GOVERNMENT OF THE PEOPLE’S REPUBLIC OF BANGLADESH
Local Government Engineering Department (LGED)
Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Work Package # EMCRP/W14 (5)

Name: Nhila R&H to Uttar Leda Lamonipara Dakkhin Alikhali Doilla’s House Road

Locations of sensitive institutions in the project surrounding areas

Sl. No.	Available Sensitive Institution	Location of Institution			Distance from Sub Project Location	
		Chainage	Latitude	Longitude	Distance(m)	Orientation
1	Multi-purpose Child and Adolescent Center	16	20.940667	92.260556	1	Right
2	Jadimura MR GPS	45	20.940583	92.260306	1	Right
3	Mosque	96	20.940389	92.259806	2	Right
4	DAM Children Learning Center-379	228	20.940000	92.258778	2	Left
5	Mosque	381	20.939500	92.257611	1	Left
6	Jadimura Jummapara Lajjabati Self-Sufficient Women Team	520	20.939694	92.256139	1	Right

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



Design and Supervision Consultancy

Environmental Screening Report

**For Nhila R&H to Moulavi para Muktul Hossain's house to Soronarthi
Camp**

UNDER THE PACKAGE NO: EMCRP/W14

APRIL-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 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 Bank



Contents

Executive Summary	4
1. INTRODUCTION	6
1.1 Project Background	6
1.2 Objective of the Sub-Project.....	6
2. PUBLIC CONSULTATION AND PARTICIPATION	7
2.1 Methodology	7
2.2 Issues discussed during the consultation meeting	9
2.3 Suggestions and recommendations of the participants	10
3. ENVIRONMENTAL SCREENING	11
3.1 General.....	11
3.2 Assessment of Screening Findings	11
3.3 Climate Change Impact Screening	12
3.3.1 General Overview of the area	12
3.3.2 Site Specific Screening and outcome.....	13
4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS.....	13
4.1 Mitigation and Management Measures	13
4.2 Health and Safety Measures under COVID situations	14
4.3 Cost of Environmental Enhancement Works in BOQ	15
5. LIMITATIONS OF THIS STUDY	15
6. CONCLUSIONS AND RECOMMENDATIONS.....	15
Appendix-1	17
Appendix-2	42
Appendix-3	52
Appendix-4	54
Appendix-5	55
Appendix-6	56
Appendix-7	57

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 construction of school cum cyclone shelters and Multipurpose Community and Service Centers (MCSC), facilitating growth centers and RCC Bridge development, and so on, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agencies with D&SC (Development Design Consultants Limited-DDC) identifies the key project beneficiaries- Displaced Rohingya Population (DRP) and Hosting Community or in other words, the 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 have 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.

Proposed Improvement of Nhila R&H to Moulavi para Moktul Hossain's house to Soronathi Camp Road by HBB from Ch. 00-555m will be completed as village road-B. This sub-project is located in a hilly region of Nhila Union of Teknaf Upazila, Cox's Bazar. In close proximity Leda Bazar and Leda Rohingya camp were found and the land is owned by Government. Apart from residing in the camp, a good number of people from Rohingya community are living here in local's houses as tenants. This proposed road component is very important for both the local community and the Displaced Rohingya People (DRP) for access to the greater road communication network under the upazila. Residents in the areas, in some places, have encroached road shoulder areas with fencing or planting trees; still the road width is more than 3 meters in all sections. However, they would strongly intend to recede to their legal boundaries as soon as the contractor is mobilized for works for having the road construction works done successfully. The proposed road will be constructed along the alignment of an old damaged road, which is highly populated on both sides with houses, shops, NGO offices, mosques, learning centers and many different types of establishments. There are some important socio-cultural and religious facilities as well. Earthen shoulder and slope of the road is in poor condition. So, earth work is needed during construction period for the sub-project. However, the construction works will generate 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 manageable 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 730,000¹ 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 923,033². 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 socio-economic condition of 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.

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

¹ ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)

² IOM Needs and Population Monitoring round 12 as of October 10, 2018

This document represents the Findings from Environmental Screening of the sub-projects under 'Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District'; with a package name EMCRP/W14.

Table 1.2.1: Significant features of the Sub-project

EMCRP/W14: Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District; EMCRP/W14.													
Name of the component: (6) Nhila R&H to Moulavi para Moktul Hossain's house to Soronathi Camp.													
Component Location:													
<table border="1"> <tr> <td colspan="2">i. ID- 422905197</td></tr> <tr> <td>ii. Name of the Upazila: Teknaf</td><td>iii. Construction Year: 2020-2021</td></tr> <tr> <td>iv. Width (m): 3m (approx.)</td><td>v. Length (Km): 555m</td></tr> <tr> <td>vi. Water Status: Available</td><td>vii. Water Source: Shallow Tube-well, Deep tube-well</td></tr> <tr> <td>Condition of Road</td><td>HBB</td></tr> <tr> <td>Communication Source</td><td>Radio & Mobile Network</td></tr> </table>		i. ID- 422905197		ii. Name of the Upazila: Teknaf	iii. Construction Year: 2020-2021	iv. Width (m): 3m (approx.)	v. Length (Km): 555m	vi. Water Status: Available	vii. Water Source: Shallow Tube-well, Deep tube-well	Condition of Road	HBB	Communication Source	Radio & Mobile Network
i. ID- 422905197													
ii. Name of the Upazila: Teknaf	iii. Construction Year: 2020-2021												
iv. Width (m): 3m (approx.)	v. Length (Km): 555m												
vi. Water Status: Available	vii. Water Source: Shallow Tube-well, Deep tube-well												
Condition of Road	HBB												
Communication Source	Radio & Mobile Network												
Subproject Intervention: <ul style="list-style-type: none"> • HBB road construction. • Earth Work for protecting existing slope through protection of masonry brick work and pre-cast RCC post • 2 nos. of Cross Drain (dimension: 450mmx600mm) • 1 no. Surface drain (length:128m) • 1 no. RCC Box Culvert (dimension: 2.5m x 2.5m). • 20m Surface Drain 													
Implementing Agency: Local Government Engineering Department (LGED)													
Expected construction period): 2020-2021													
Estimated total cost of component: 42,41,730.00 (Tk.)													

2. PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Several events of consultation meetings were held in different dates and times with different types of stakeholders. D&SC conducted the first consultation meeting with local community from 01:40 PM to 02:45 PM on 24 December, 2019 at (Chainage: 00m-555m) which is adjacent of the sub-project location. The locals, Member 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** and sub-project pictorial overview are attached in **Appendix-6**. Several more consultation meetings in different modes were carried out as well. The local individuals, chairman and/or member of Union Parishad, representatives from different agencies 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. The following table depicts details of several of those consultation meetings with outcomes.

Consultation Date	Time	Venue	Mode of Consultation	Stakeholder/ Participants	Outcomes
24 th December 2019	1:40 PM	At (Chainage: 555m) a place adjacent to the sub-project location	Focus Group Discussion	List is attached in Appendix.	Participants were informed about the sub-project interventions, potential impacts and management options, their informed views and comments were taken into consideration and appropriately reflected into the ESMP.
18 th February 2020	6:00 pm	Office of the UE, LGED, Cox's Bazar	Direct conversation	UE, Resident Engineer, Field Engineers, LGED Staffs	Consulted about the survey plan for the 2 nd detail survey and UE office assured of putting all efforts in enforcing ESMP in the field.
19 th February, 2020	Repeatedly as and when required.		Telephonic consultation	Md. Sultan Mahmud, Asst. Site planner of UNHCR	Consulted about the survey plan, and the site was found mostly free from any direct physical impacts associated with the proposed road works. Reciprocal assurance and commitment were rendered for the successful implementation of the component.
19 th February, 2020	Repeatedly as and when required.		Telephonic consultation	Shegufta Newaz, Coordinator of site management, UNHCR	
19 th February, 2020	3:00 pm	CiC office in Camp 7	Direct Conversation	Subash Chandra Sheel, Camp Mgt. Support-Dty Lead, BRAC, Cox's Bazar.	He assured of lending all hands from him and his organization in successful implementation of the project.



One of the owner (Dil Mohammad) of the land on the ROW of the Nhila R&H to Moulavi para Muktul Hossain's house to Soronarthi Camp Road

Figure 2.1.1: Consultation meeting (FGD) with local community

Public consultation is a living process as type of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution process must differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.

2.2 Issues discussed during the consultation meeting

D&SC conducted consultation meeting with local community regarding the sub-project activities. The local community is already in distress condition due to the existing Leda rohingya camp nearby and for the continuous commotion and increased vehicle transportation. However they did realize that, this road development works will help their community providing ease of transport. They have concerned with the relocation of their households. It has appealed to their negative instincts that

this intervention might cause the demolition of their settlements. 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 either.

Other issue has also been brought to their attention such as proper placement facility for labors and construction materials' quality. Tree cutting might take place for the sub-project but very few just along the existing road, by the owner themselves. Their tolerance to any adjustment is very high, they have stated during the consultation meeting. Nonetheless, they have been clearly informed that no household would be affected in a way of relocation or resettlement.

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 views and information from affected parties and inhabitants on environmental issues. (iii) Consultation with interest groups and the public.

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

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

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

2.3 Suggestions and recommendations of the participants

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

- Participants' agreed to recede their home boundary equally from the both sides of the road to accommodate the road width.
- Slope protection should properly be established on the side of the proposed road at different chainages.
- Best available measures should be adopted to avoid potential negative environmental impacts and enhance positive impacts.

- Participants' suggestions and expectations that came out through the different forms of consultation meetings are taken into consideration to reflect their wishes and minimize the adverse impacts of construction works.
- Steps should be taken for minimizing the air pollution by spraying water at the construction sites.
- Noise pollution should be effectively minimized to a tolerable limit.

3. ENVIRONMENTAL SCREENING

3.1 General

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

3.2 Assessment of Screening Findings

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted with the purpose of fulfilling the requirements of GoB and World Bank. Assessment of potential impacts requires a multi-disciplinary approach in which a wide range of issues are taken into consideration to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation.

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**

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 communities, shops, NGO offices, mosque, madrasa, learning centers, community level forest and so many different types of establishments. During the construction period, people will remove several of their own trees planted on the illegally encroached road shoulders.

Construction related 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 and camps.

Presence of number of educational, religious and social institutions along the road length denotes the significance of potential risks from ambient air and noise pollution. 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 were reported in 2018. The IUCN has conducted a study on such type of conflict. Consultation meetings held at the site also revealed that there was no presence of elephants across the areas. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

3.3 Climate Change Impact Screening

3.3.1 General Overview 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 Bank³ 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 soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. 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 deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. In fact, forests would protect those lands from high wind and storm surges, whereas demolishing the trees has made the area more vulnerable.

Together with the above mentioned hazardous situation and sudden extraction of huge amount of groundwater, availability of potable water from shallow tube wells that pump water up from about 150 feet below the ground 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 because of the mass arrival of Rohingya communities, several specific measures including tree planation in sub-project areas, construction of drainage facilities along the

³ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

The thunder storm has been found to have the highest impact in the area, casualties were not 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.

Mitigation: Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time. And the mass migration will lead to man-made disaster which also can aggravate the climate change impacts in that area. 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. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the road.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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.

Specific Environmental and social Management Plan (ESMP) has been prepared to eliminate, reduce or regulate the adverse impacts for this subproject. The purpose of this Environmental and social Management Plan (ESMP) is to formulate measures which will mitigate adverse impacts on various environmental components, which have been identified during observation, and protect environmental resources where possible and enhance the value of environmental and social components where possible.

Among the notable prioritized management measures, contractor must adhere to the best practice HSE (Health, Safety and Environment) management procedure and regular adoption of dust control procedures (spraying of water at least twice a day) to minimize the effect to the least level. This HSE management procedure targets both groups- the working staffs/labors directly employed by the contractor and the people living in the catchment area or simply the users of the road. Noise impacts must be controlled efficiently due to the presence of numbers of educational, social and religious centers/institutions along the road length and construction works must be limited in day time; and the time and duration of any potential noisy works should be communicated with the surrounding people fairly in advance. 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. Moreover, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-

site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works 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 and social 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 roads pass through and by the Rohingya Camps, up on the hills and are already denuded of trees or vegetation. Local Government Engineering Department (LGED) will allocate and channelize the finance to the Forest Department under the said additional financing component and oversee the progress of works with due diligence. However, this enhancement work will improve the environmental quality of the area and reinstate some parts of the ecosystem services to those areas, though primarily.

4.2 Health and Safety Measures under COVID situations

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 situations should be allocated in consultation with project PIU.

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. LIMITATIONS OF THIS STUDY

Bangladesh government has imposed a nationwide lockdown to curb the spread of the novel coronavirus in the wake of series of deaths and infections. Authorities declared a ban on passenger travel on all sector from March 24 while all public transport on roads have been suspended from March 26 to stem the spread of virus, officially known as COVID-19. All office works have been postponed and an intended visit to the sites for further consultation with the relevant stakeholders has had to cancel due to this crisis. Therefore, some relevant information and arrangement needs awaiting for recovering this pandemic crisis.

Further, during the consultation, people living in the area and along the site were primarily targeted, though local dialect and Burmese language sometimes posed difficulties in understanding peoples' views. The safeguards team put their best efforts in meeting local representatives and Camp in Charges (CiCs), different sector coordinators, responsible agencies for site development and management while went to any respective road to survey. However, difficulties in finding the meeting time during the stringent working hours in camp areas have been observed very common, therefore, telephonic consent or views were taken in many cases.

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 component. There will in fact be tremendous benefits from recommended mitigation and

enhancement measures and major improvements in quality of life, opportunities in business and 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. These issues might be problematic if necessary mitigation measures, as suggested in ESMP, would not be properly taken into consideration.
- The project will create employment for the workforce 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 & Monitoring Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities. The ESMP mainly focuses on managing, mitigating and reducing the impacts exhibited in design, construction and operation phases.

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 component within shortest possible period of time, and with great care and efficiency.

Appendix-1

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District; EMCRP/W14.

Name of the component: Nhila R&H to Moulavi para Muktul Hossain's house to Soronathi Camp. Road ID 422905197

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

Estimated total cost of sub-project (in Taka): 13,00,63,178 Tk

Estimated construction period duration: 6 (Six) months

Estimated total cost of the component (in Taka): 42,41,730.06 (Tk.)

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years, but Government policies will determine here about the O&M period inside the camps.

District: Cox's Bazar

Sub-District: Teknaf

Union: Nhilla

Name of Community/Local Area: Moulavipara Muktul Hossains house, Soronarathi camp

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

Important Features	
Total length	555m
Road Type	Village Road-B
Proposed Intervention Type	HBB road, Masonry Brick work, Pre-Cast RCC post
Proposed Safety Structures	Earth Work for protecting existing slope through protection of masonry brick work and pre-cast RCC post 2no. of Cross Drain (Size: 450mmx600mm) 1 no. Surface drain (length:128m) 1 no. RCC Box Culvert (Size: 2.5m x 2.5m). 20m Surface Drain

(Technical Report 2019, EMCRP)

Estimated footprint / land area for this sub-project is 1665 sqm.

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

Proposed Improvement of Nhila R&H to Moulavi para Muktul Hossain's house to Soronarathi Camp Road by HBB from Ch. 00-555m will be completed as village road-B. This sub-project is located in the hilly region of Nhila Union of Teknaf Upazila, under Cox's Bazar district. In close proximity Leda Bazar

and Leda Rohingya camp are located. Land is owned by Government. This proposed sub-project is very much important for both the local community and Displaced Rohingya People (DRP) community. The existing road is not accessible well due to worse damaging condition of the road. Earthen Shoulder and slope is in very bad condition. So, earth work is needed during construction period for the sub-project. Two ponds, two culverts and a brick field are present in the vicinity. **Starting point** coordinates of the proposed road are Latitude: 20° 58' 21.2" N Longitude: 92° 14' 53.5" E & the **Ending Point** coordinates are Latitude: 20° 58' 16.1" N Longitude: 92° 14' 36.8" E. Both sides of the road are significantly inhabited with different types of establishments including shops, NGO offices, learning center, and religious and social institutions.

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

Chainage	Left	Right	Environmental and Socio-economic Features
"0" Point 000-300	L		Shop, Brick wall, Pond, Shop, Brick wall, Mosque, culvert, tin shed boundary, bamboo boundary, brick wall, connecting house road to the left, Green Field, Solar Panel, Culvert, Bamboo Retaining Wall , tin shed boundary.
		R	Shop, RCC Pole, wired fence, Telecom network tower, Concrete household, Brickwall, Tin shed boundary, settlement, Half concrete household, drain, Bamboo Retaining wall, Tree, Shop, Brick wall, Tin shed boundary
300-555	L		Bamboo fence, Tree, Settlement, connecting house road the right, brick field (100m away), Open space, bamboo fence, log collection ground, settlement, half brick household, WFP and UK Aid Office, pond, shop, log collection yard, Hospital (IOM), connecting camp road to the left, solar street light
		R	Tree, tin shed boundary, settlement of Rohingya, Tree, Tin boundary, earthen household, Learning Center, Shop, Electric pole, tin shed boundary, settlement, drain, connecting camp road, tree

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 or to any important environmental features. There are two ponds in the vicinity; one is located in closer proximity to the ROW of the road. Several trees on the road shoulder may need to be removed, but the owners are not clearly/legally identified, as road shoulders in those places are illegally encroached by the respective roadside households; however, they have agreed to remove the trees before the work starts. No drainage congestion/water logging have been observed in the road area. Leda Bazar and Leda Rohingya camp are located nearby and the land is owned by the Government. This proposed sub-project is very much important for local community and Displaced Rohingya People (DRP). Earthen Shoulder and slope of the existing road is in poor condition; pavement in

some sections is also damaged heavily. No agricultural productive soil will be used for earthworks. Appropriate and best possible 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. Local individuals participated in participatory public consultation meeting. Local communities have no objection to construction of this sub-project. The community also appreciated the initiative as they are seeking a safe and easy access across the areas through this road and a favorable passage in times of emergency.

The proposed 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. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

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. The road plays a crucial role in providing support services for Leda Rohingya Camp and it passes through numbers of different cultural, religious and educational establishments, such as 2 mosques, a learning centre, a SMSD camp office, a health clinic, Women and Girls safe house and so on. A brick field is also located within a close proximity of the road. There are two ponds in the vicinity; one is located in closer proximity to the ROW of the road. Also, there are 4/5 road side trees which may need to be removed by the encroachers, who planted the trees on that public land without seeking any permission. However, there is no further significant environmental feature within the close reaches of the road. No elephant migration routes exist (ref. IUCN) within a kilometer of radial distance from the road site.

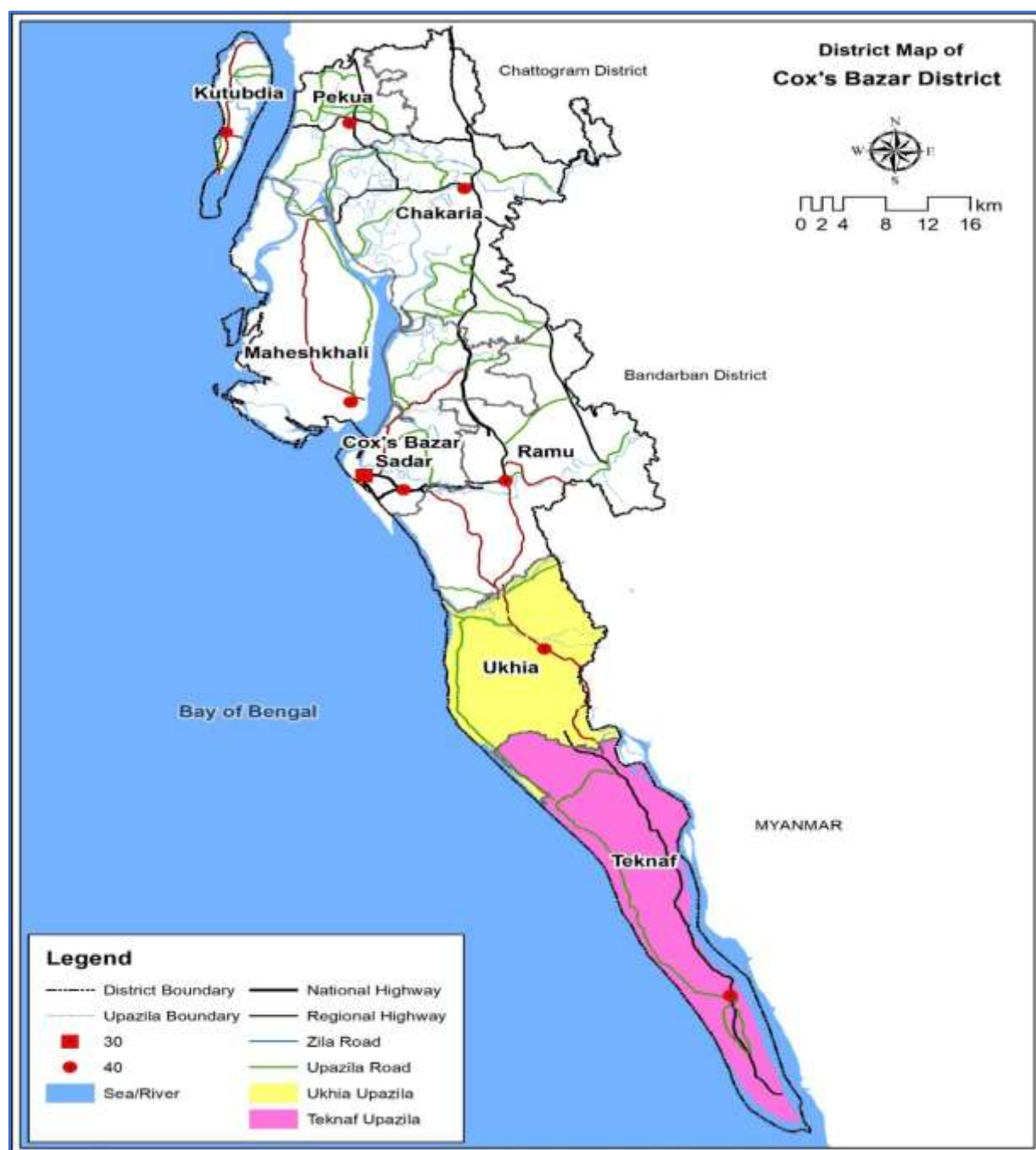


Figure 3: District Map with project location

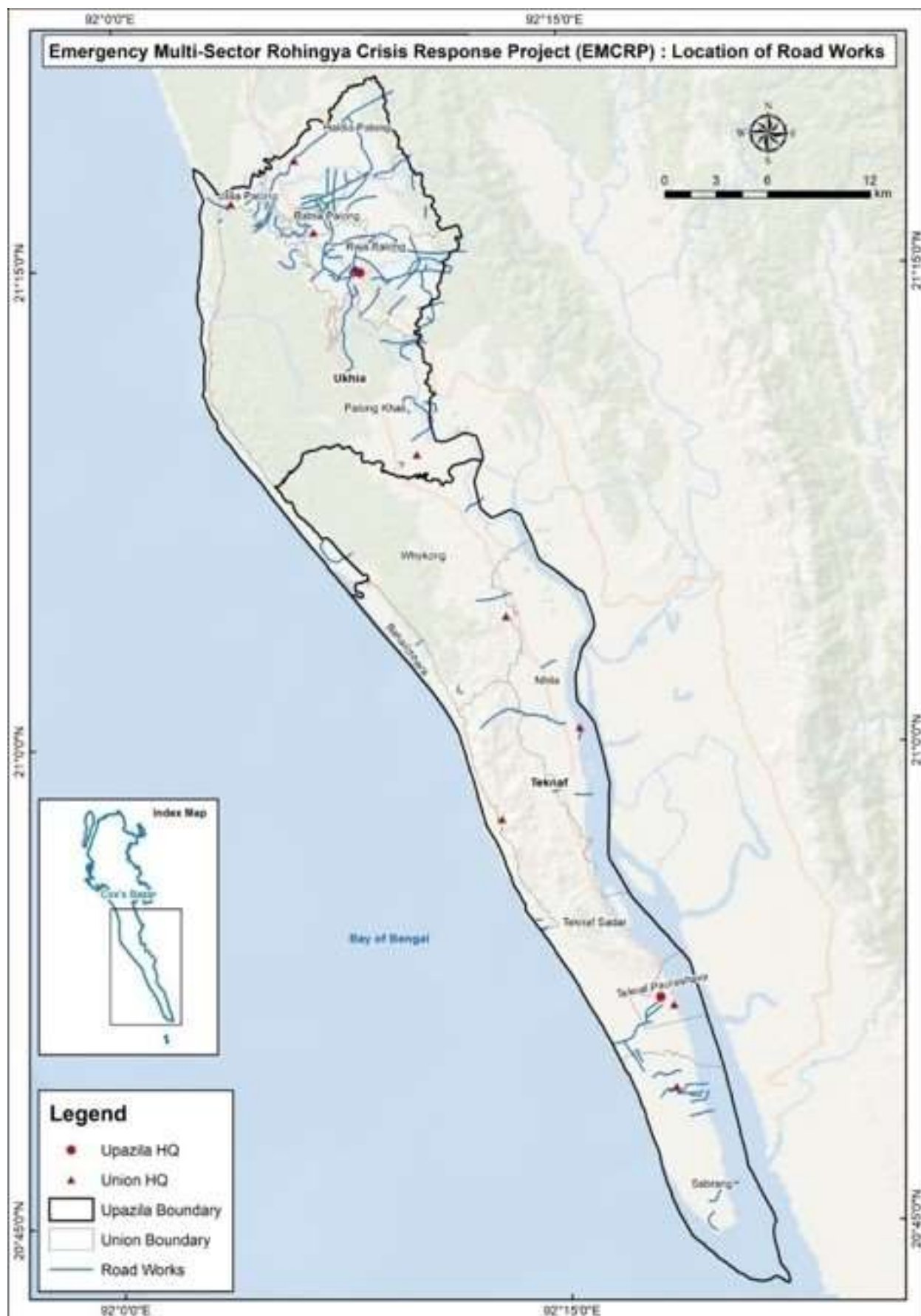


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

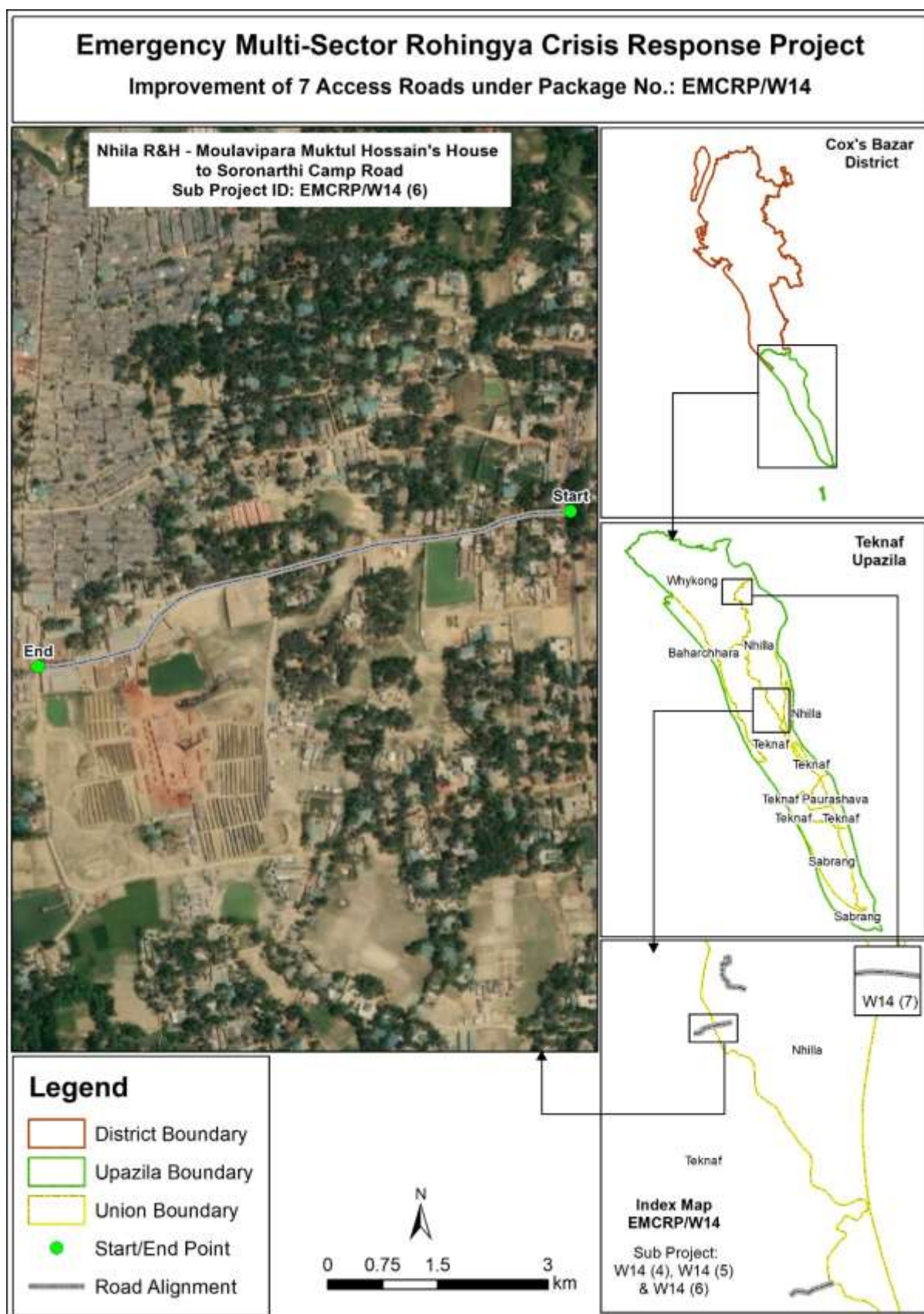


Figure 5: Upazila Map with Sub-project component location

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-B and will be improved as a 555m HBB road. It has started from Nhila R&H to Rohingya Leda camp. Other major interventions include earth Work for protecting existing slope through protection of masonry brick work and pre-cast RCC post, construction of 2 nos. of **Cross Drain** (dimension: 450mmx600mm), 128 m long surface drain and a **RCC Box Culvert** (dimension: 2.5m x 2.5m). This proposed sub-project is very much important both for the local community and Displaced Rohingya People (DRP).

Sub-project Location:

This sub-project is situated within Moulavi para village under Nhila union, Ward No. 8 of Teknaf upazila, Cox's Bazar. People from both the Rohingya and local community live in this sub project area.

GPS Coordinates of Sub-project:

Starting Point: Latitude: 20°58'21.2" N; Longitude: 92°14'53.5" E

Ending point: Latitude: 20°58'16.1" N; Longitude: 92°14'36.8" E

Land ownership: Land is owned by the Government of Bangladesh.

Expected construction period: 6 (Six) months

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

- i) This proposed road will be constructed as a HBB road on government land.
- ii) Not required to relocate Displaced Rohingya People (DRP).
- iii) Some trees and livelihood will be affected by this construction activity, but those trees will be removed by the encroachers (assured in consultation meeting), who planted the trees on road shoulders without seeking any permission.
- iv) Within the influence area of the subproject no historical sites were identified.
- v) Environmental Sensitivity: There are two ponds in the vicinity; one is located in closer proximity to the ROW of the road. No further environmentally significant site or eco concerned establishment were identified; many establishments for supporting Rohingya people living in nearby camp and surrounding areas were found present near the roadside.
- vi) There is no evidence of presence of elephants in the subproject influence area which has been confirmed in consultation meeting with the local people and verified with IUCN study report published in 2018.

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 the influence area of the subproject no historical sites were identified. The road plays a crucial role in providing support services for Leda Rohingya Camp and it passes through numbers of different cultural, religious and educational establishments, such as 2 mosques, a learning centre, a SMSD camp office, a health clinic, Women and Girls safe house and so on. A brick field, a key air polluting agent in the area, is also located within a close proximity of the road. Two ponds are located in the area; one is very close to the ROW. However, there is no other significant environmental feature within the close reaches of the road. No elephant migration routes exist (ref. IUCN) within a kilometer of radial distance from the road site.

A sketch of the project surrounding area with several features at relatively distant places shown in figure B.1.1 and locations of sensitive institutions in the project surrounding areas (within 30m buffer zone) are shown in figure B.1.2. and list is shown in Appendix 7.

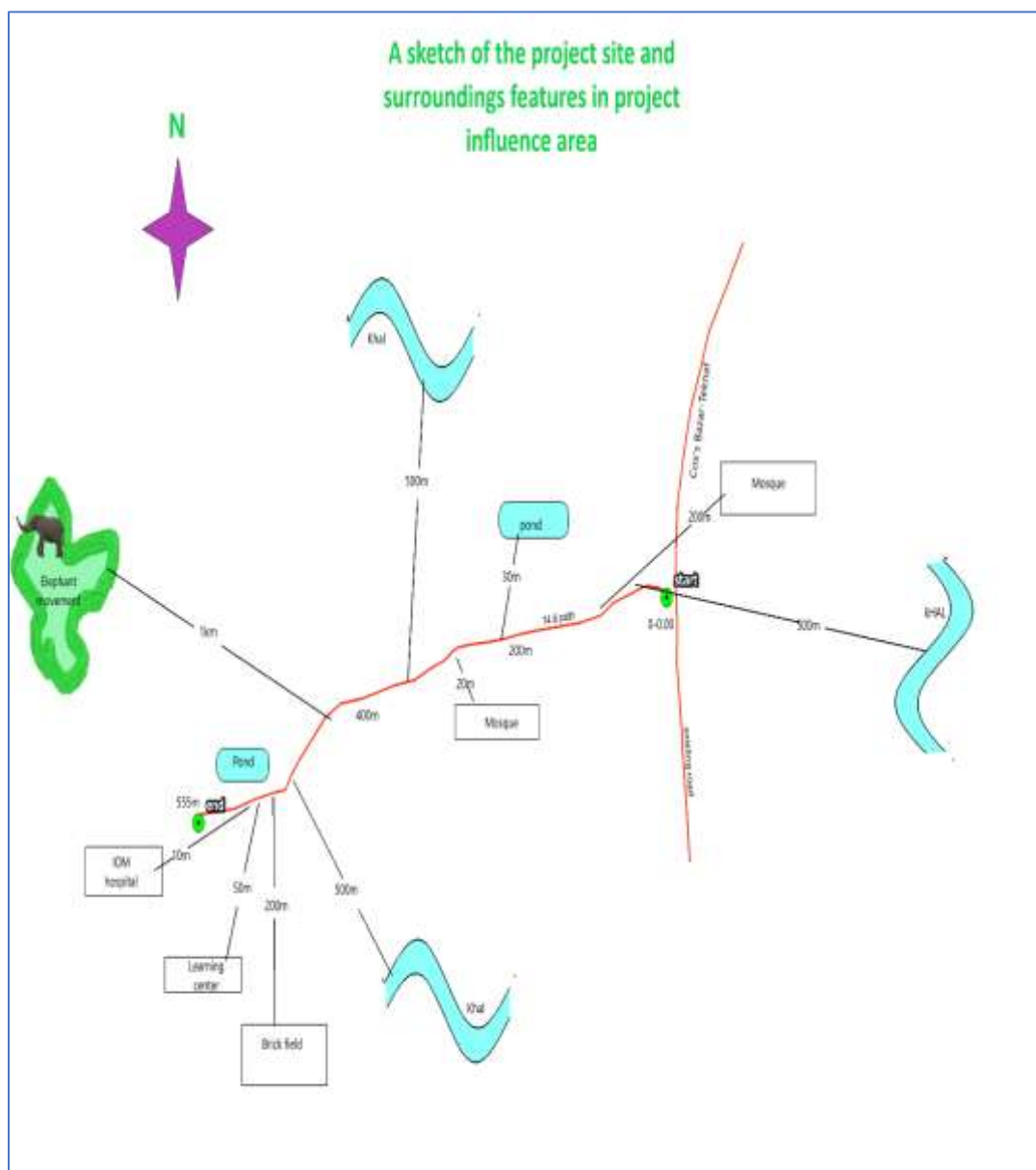


Figure B.1.1 : A sketch of the project site and surrounding area

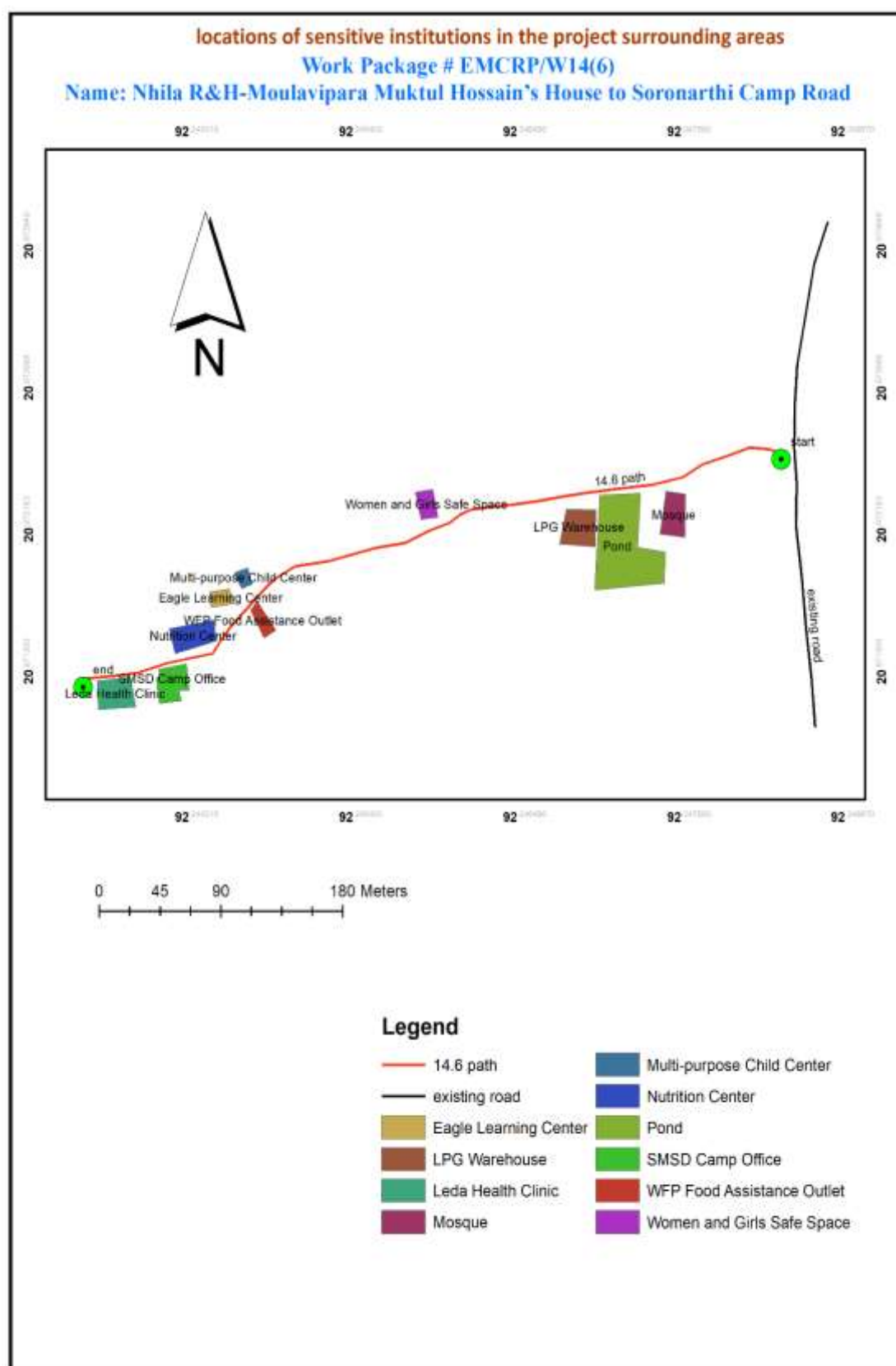


Figure B.1.2: Locations of sensitive institutions in the project surrounding areas (within 30m buffer zone)

Location of environmentally important and sensitive areas:

This sub-project component location is not environmentally important and sensitive in any aspect. People from local community are practicing social forestry on the land leased from the forest department. Potential erosion or landslide may occur when moderate to steep sloping terrains are disturbed for the improvement of road. The impacts are negative but small scale, site-specific within a relatively small area and adjustable by mitigation measures.

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

No, there is no existence of Elephant corridor/ route at the moment.

Elephant migration route was confirmed with maps established by UNHCR/IUCN and the consultation meeting with local stakeholders.

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

No. There are dense forests all around this sub-project area, though at a sufficient distance on top of hillocks, from the road corridor; no significant impact on forests is anticipated. Social forestry is being practiced by locals.

(3) Other issues:

Two ponds are located in the area; one is very close to the ROW.

*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 was apparently good due to the appearance of rural vegetative settings around. But after arrival of Rohingya the number of vehicle movement on the road increased considerably. Dust is generated through movement of vehicles such as bus, truck, mini truck, motor cycle, auto rickshaw, tempo, trolley, tractor, etc. over the road surface which has caused deterioration of air quality. Moreover, presence of a brick field contributes a significant amount of emission to the ambient air environment.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerable limit. Vehicles such as motor cycle, bus, truck, mini truck, tempo, auto rickshaw, tractor, trailer, etc. move on the road surface throughout the day and night. These vehicles generate noise but still within the tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on 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):

Low. Potential erosion or landslide may occur when moderate to steep sloping terrains are disturbed for the improvement of road. The impacts are negative but in small scale, and are site-specific within a relatively small area and adjustable by mitigation measures.

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

Surface water quality: Water from nearby canal or ponds, present within the catchment area, is regarded as the Surface water source, but water quality data was not available at the moment.

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 (20ft. to 30 ft.) and deep tube wells (600ft. to 700ft.) are fitted in local and camp area and most of the water usage is sufficed from these sources.

*Data source: IWM Study Report, 2019

Status of wildlife movement:

No major land-dwelling wildlife movement is present in the targeted sub-project area

State of forestation: No such dense forest is present in or around the target area; the practice of social forestry by local people is regenerating this resources in the area. The area is mostly covered with homestead gardening and backyard tree coverage.

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

N/A

B.2: Pre construction Phase
Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air and have more potential to get the slope damaged.

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

An open space is required to set up a labor camp with associated facilities (toilet for male and female workers, kitchen for cooking, tube-well for water supply facility, and electricity connection) to support the workforce during construction. The space should have enough land area to accommodate a stack yard along with a site office, if possible. This open space should be selected in such a way that workers do not need to travel/walk through a longer distance to reach the sites and the place can be secured with proper fencing with a guard be posted at the entrance. The space or land area can be used on rental basis or under a mutual agreement between the owner and the contractor. The contract/consent document must be kept at the site office, whatsoever the mode of the contract is.

Possible location of labor camps:

Labor camps should be very close to the site location. In case of using a common labor camp area for the workers of different sites under this package, the camp should be located in such a place that workers don't need to walk through or travel long distances to reach their respective sites. In that case, special arrangement (mobile toilet or so) has to be ensured by the contractor in every working site.

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

i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates, vii) tin, for the construction of labor camps and associated facilities.
Identification of access road for transportation (Yes/No): Yes. The adjoining areas can offer required spaces for labor camp and contiguous material stack yard with sufficient spaces for unloading works. So, the existing road can still be a good access for transportation of materials. Other option can be looked into, but crowded places should be avoided. Material transportation can be made by pickup trucks and manual head load from unloading point to different site locations is very much possible.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick and chips, cement dusts, and dust from bricks can be found during pre-construction time when removal of existing pavement is the prime task, and those can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in labor camp and associate facilities construction works. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.
Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): During the pre-construction period wastes will be generated from some preparatory activities, such as construction of labor camp, site office, material storage/stack yard and associated facilities, etc. and removal of road pavement. All these activities also will be carried out by numbers of local labors. So, around 45 kilograms of construction related wastes, such as bricks, aggregates, leftover cements, sands, etc. will be generated, which are typical solid wastes and a negligible quantity (nearly 5 kg) of bio and non-biodegradable wastes will be generated from the daily necessities of workers and construction staffs, such as food wastes, polythene, papers, plastics, etc. Some chemical waste, like paints, oils, etc. and small amount of solid and liquid wastes from the immediate use of constructed latrines by the workers may also be generated, such as feces and urines.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): Raw materials: Raw materials: i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates. Quantity: It is difficult to provide exact figures of raw materials on a typical pre-construction site at this level.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Vegetation from social forestry is present dispersedly in the right of way, covering an area of nearly 236 sq.m. Soil is not needed at this pre-construction stage. The current condition shows that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito

<p>breeding and other disease vectors:(High/Medium/Low with explanation)</p> <p>Low. This area is not facing water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.</p>
<p>Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes):(High/Medium/Low with description)</p> <p>Low. Local drainage channels (rivers, canals) or surface water bodies (wetlands, marshes) are not present alongside the sub-project area. Only two ponds are present; one is very close by, but will not be disturbed in the pre-construction stage.</p>
<p>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</p> <p>Low. There is very little scope of causing damage to terrestrial or aquatic ecosystems or endangered species directly in pre-construction phase.</p>
<p>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</p> <p>Only some preparatory physical works will be carried out in this phase which has little scope to trigger landslide.</p>
<p>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</p> <p>Low. Since both sides of the road is more or less of similar elevation, and the soil is well compacted, the scale of erosion of lands is very minimum at this stage. Still the concentrated outflow will be managed through the drains included in design.</p>
<p>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</p> <p>Dust impact can be high due to current poor condition of the road, but no significant effects related to light and noise are anticipated.</p>

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

B.3: Construction Phase

<p>Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):</p> <p>Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily.</p> <p>Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.</p>
<p>Type and quantity of raw materials used (wood, bricks, cement, water, etc.):</p> <p>Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes are the most common type of materials used in construction.</p> <p>Quantity: Anticipating the quantity of raw materials to be used needs detail calculation as per design, which is beyond the scope of this report, but presented in engineering design/estimates of the sub-project.</p>
<p>Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:</p> <p>Sparse vegetation is present in the right of way but measuring the approx. area is difficult to identify.</p>

Aggregated Soil is not present on the ROW. However, a temporary waste dump and equipment yards require approximately 650 square meters of area altogether.

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

Low. This area is not facing water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.

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

Low. There are two ponds in the area; one is located very close by to the road ROW. Two drains and culverts in two locations are also facilitating drainage and storm water flows across the surrounding areas. However, the contiguous pond may receive some disturbance during the construction period (through slipping of soil mass, dust deposition, draining or spillage of chemicals/contaminants, etc.), though the impact is site-specific, but appropriate protection measures have been guided in ESMP to avoid/ minimize the impacts to the minimum level.

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

Low. The improvement works will be limited within the Right of Way of this road component. However, aquatic ecosystem of two ponds located in the area may experience damaging effects due to road construction activities, but the level of effects will be kept to the minimum by adopting different protective and practicing measures. The area is not known for containing any endangered or threatened species of any kind.

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

Construction of the sub-project intervention may lead to low scale land slide/slip slope areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

Low, Potential erosion may occur when moderate to steep sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

Medium. No traffic movement impacts in relation to light effects, but medium effects of noise and air/dust pollution will be observed due to the heavy loaded traffic movement for carrying construction materials and equipment on the existing road, and can mostly be controlled/ mitigated by different management and protective options.

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:

During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute in

health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. The exposure of bare soil becomes limited after the construction of the proposed road; but over and frequent use of road by the moderate to heavy or overloaded vehicles may cause damage to road and increasing erosion of soil that may turn to long-term or semi-permanent destruction and loss of soils. Setting barriers at strategic locations to limit or stop the heavy/overloaded vehicles on the road and speed breakers at different sensitive points on the road to limit the speed, are two effective options for saving the road and people's lives, and reducing soil erosion and the effects on road-side vegetation.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable
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 for encouraging mosquito breeding and other disease vectors, during the operation phase or as long as the road surface remains well-drained.
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) Low. There are some small, local drainage channels and 2 ponds near the road. During the operation phase, the runoff from the road surface will not impact these water bodies as surface drains have been included in the road design.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low, Little effects on terrestrial aquatic ecosystem is anticipated due to the dust pollution and vehicular emission as well as some local runoff, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around the sub-project component site, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: During operation phase, some maintenance works can be done on ROW. These will be localized road surface repair type of works and will not change road grade and therefore there are no chances of landslides, slumps, slips and other mass movements.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Surface drains, cross-drain and box-culvert designed to minimized concentrated outflows.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which will increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed HBB road will reduce the pollution generated from dust on the previously muddy and semi-pucca 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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
1: Sub-Project Interventions	Air Quality	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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 .	<ul style="list-style-type: none"> 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 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 	Construction Contractor, monitored by Consultant and PIU	No visible degradation to nearby drainages, <i>khals</i> or water bodies due to soil erosion. Rain storms in construction phase.	Monitoring on weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			minimum to reduce the erosive potential of surface water flows elsewhere.			
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is low .	<p>All precautions to store chemicals/oil/fuel properly so that no chance of spill.</p> <p>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</p> <p>Monitor water quality according to the environmental and social management plan.</p>	Construction Contractor, and monitored by Consultant and PIU	<p>(i) Areas for stockpiles, storage of fuels and lubricants and waste materials;</p> <p>(ii) Records of water quality inspection; Water Quality Test (National Drinking Water Quality Standard Parameters) if requires;</p> <p>(iii) No visible degradation to nearby drainages, <i>khals</i> or water bodies due to construction activities.</p> <p>(iv) Records should be kept and logged.</p>	Water quality test (mainly GW) twice during the construction period in six months interval.
	Vegetation	Low.	<ul style="list-style-type: none"> Tree plantation as part of offsetting 	Construction	Tree cuttings near	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Removal	Vegetation in ROW may be affected	<p>measures is suggested to carry out under the planation scheme of this project (additional financing part)</p> <ul style="list-style-type: none"> • Ensure any trees cut are offset by planting additional 5 trees of similar type along ROW. • Ensure no private trees are cut without compensation • Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. 	Contractor monitored by Consultant and PIU	ROW Complaints from Community	
2: Pre-construction Phase	Sanitation, water supply	Under the subproject intervention the overall score is low .	<p>Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer.</p> <p>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.</p> <p>Records for any type of training or awareness building sessions must be kept at site.</p>	Construction Contractor and Consultant monitored by 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	Contractor should verify vehicles for the	Construction	• Record of regular inspection.	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
		subproject intervention the overall score is low .	suitability of carrying, loading and unloading of materials	Contractor and monitored by Consultant and PIU	Record of accidents/incidents	monitoring.
	Storage of construction materials	Under the subproject intervention the overall score is low .	Train concerned person and team assigned for the construction work to ensure items are stored properly and away from steep slopes.	Construction Contractor and monitored by Consultant and PIU	<ul style="list-style-type: none"> List of materials and sources of materials; Storage facility for construction 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 .	<ul style="list-style-type: none"> 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.	Weekly as work progresses
	Cut and fill Activities (Cutting of hill slope and earth removal)	Under the sub-project intervention, the overall score is low.	<ul style="list-style-type: none"> During construction cut and fill will be balanced as far as possible. Designs shall ensure that as far as possible all cut and fill activities are balanced Proper care will be taken during cutting 	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	
					Indicators	Frequency
	from borrow areas caused for soil erosion and landslides)		and filling so that slope or 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 .	<ul style="list-style-type: none"> Storage area will be sufficiently spacious so that unloading works can be performed inside the area and materials must not be rest on road side, near the water bodies, or trees and bushes, and will not be located in any crowded place. Storage area must be well fenced with guard posted at the entrance and at least 30 m distant from any water bodies. Construction materials must not interrupt natural land contours, natural drainage pattern, and create water logging or depression. Cement, sand, reinforced bars, stone chips, aggregates etc. must be covered with tarpaulins, and end of reinforced bars will be capped with plastic caps or covered with sacks/clothes to avoid any health injury. 	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

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			<ul style="list-style-type: none"> Chemicals and hazardous materials including oil, grease, bitumen, etc. shall be kept in an Cement Concrete bunded area or on wooden stage covered with polythene/tarpaulin. 			
	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 .	<ul style="list-style-type: none"> If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree cut. Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna. 	Contractor, environmental specialist of D&SC	Complaints from community;	Daily
	Noise pollution	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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. <p>Conduct noise quality monitoring as per ESMP.</p>	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;

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.
4. Post Construction	Road Safety and Accidents	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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. 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 	Construction Contractor, environmental specialist of D&SC	Complaints from communities, pedestrians	Day basis during work time
	Road Safety		<ul style="list-style-type: none"> Install traffic signs for speed limit, speed breaker where needed, Mile post and Create 	Construction Contractor, environmental	Road signage and safety instruments at suitable	Immediately after the construction

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			adequate traffic detours, and sufficient signage & warning signs, Post speed limits and suitable bending on the road. <ul style="list-style-type: none"> 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. 	specialist of D&SC	locations and chainage	work is over.
	Afforestation	Under the issue the overall score is low .	<ul style="list-style-type: none"> Afforestation will only be carried out if any existing trees are uprooted/damaged for this construction works, as the road will not have sufficient spaces after the shoulder for plantation, and if required, the plantation will be carried out from the scheme of Forest Department under the additional financing to the EMCRP project. Replantation of trees during monsoon period Maintain 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. Operational Phase	Maintenance of road and assets (Road accidents may	Under the issue the overall score is low .	<ul style="list-style-type: none"> No advertisement/boardings shall be allowed within the Right of Way limits of the project road. Regular maintenance and cleaning of assets such as sign boards, road safety 	LGED	Number of complaints from stakeholders; numbers of accidents occur.	During Operation under LGED's regular maintenance program in each

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	increase due to higher number of vehicles using the roads at increased speeds)		sign etc. shall be undertaken. <ul style="list-style-type: none"> • Clear smooth speed breaker/rough surfaces should be clear in views. • Regular maintenance of road surface and shoulders. 			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

**Post-construction phase denotes the time period contractor use to clear and clean up the sites after the construction work is ended, perform tree plantation, grass turfing, and minor rectification till the official handing over the site to LGED, or owner of the site.

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 allowed 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:

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is allowed within this sub-project activities <p>So, there are no any mitigation measures according to this impact.</p>	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Selection of sub-project sites and all implementing interventions must take place outside of the 	PIU	Environmental Consultant of PIU,

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
	conflict	elephant corridor/influence area.		PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; alteration of natural drainage	<ul style="list-style-type: none"> • All sites must avoid the low land near the water bodies or natural flow paths to avoid the flash flood or any kind of surface runoff. Keeping 20 meters distance from water bodies or natural water flow paths should be maintained, if possible. • Tubewell location within the construction site/camp should not near any kind of latrine and soak well which could be contaminated by those. • Minimize cut & fill operations, the site clearing and grubbing operations should be limited to the locations wherever necessary. • Avoid disruption to human settlement, and social, cultural and religiously sensitive areas. • Avoid disturbance to existing slop and any natural drainage system. • The contractor shall ensure that site preparation activities do not lead to any disruption to living or activities of the local residents. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Borrow pit construction and management: water stagnation, mosquito breeding ground, and soil fertility loss.	<ul style="list-style-type: none"> • Identify borrow pits/areas in consultation with the local LGED staff and D&S consultants, and priority should be given to barren land or land without tree cover outside the road reserve or by excavating land and creating new water tanks/ponds, or land acquired temporarily outside the road reserve or by excavation of proposed culverts. • Do not dug the borrow pits within 3m of the toe line 	Contractor	Environmental Consultant of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>of the final section of the road embankment and dig the borrow pits continuously. Ridges of not less than 8 m widths shall be left at intervals, not exceeding 300 m in length and small drains should be cut through the ridges to facilitate drainage.</p> <ul style="list-style-type: none"> • Slope the bed level of the borrow pits, as far as possible, down progressively towards the nearest cross drain, if any, and do not lower it than the bed of the cross-drain, to ensure efficient drainage. • Stabilize the banks of the borrow pit with the top soil if it is used for fish ponds by compaction. • Return stockpiled topsoil (first 15 cm soil) to the borrow pit and all worked areas to be stabilized through re-vegetation using local plants. 		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> • Construction activities shall be finished at day time within 05 PM. Further necessary measures to be taken for avoiding any disturbance. • Contractor must provide personal protective equipment (PPE) such as ear plugs, earmuffs, helmets, etc. to the persons working in high-risk areas and wherever required. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	<ul style="list-style-type: none"> • Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), 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 	Contractor	Environmental Consultant of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>pipes.</p> <ul style="list-style-type: none"> Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level 		
Construction Activity	Safety Issues	<ul style="list-style-type: none"> Unauthorized entry is completely prohibited in the site and take necessary measures for preventing this problem Before works start proper training and guidelines on health and safety issues to the labours and associated staffs are to be provided. 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	<ul style="list-style-type: none"> Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the Executive Engineer of Cox's Bazar. Local traffic police department should be contacted, if traffic problem becomes more complex. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. If ground water is withdrawn, adequate approvals from the appropriate department need to be 	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>undertaken before setting up bore wells.</p> <ul style="list-style-type: none"> 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. 		
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 forces. Labor code of conduct is to be disclosed through 	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		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: <ul style="list-style-type: none"> • Residual waste from the temporary accommodation facilities for labor and Waste from equipment maintenance/vehicles on-site • After completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management from respective authority or Environmental Specialist at PIU in difficulties to reaches to that authority. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> • Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. • Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts. 	PIU & Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: <ul style="list-style-type: none"> • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in 	<ul style="list-style-type: none"> • All construction equipment at site will be properly inspected and timely repairing to be ensured. • The risk assessment shall be prepared and communicated prior to the commencement of work for all types of work activities on site. • All provided walkways (if required and managed to 	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
	<p>electrical installation, mobile plant and vehicles, and electrical shocks.</p> <ul style="list-style-type: none"> Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<p>provide) shall be provided with good conditions underfoot; signposted and with adequate lighting.</p> <ul style="list-style-type: none"> 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. Sub project will have a Proper emergency response plan (ERP) and be communicated 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 efficacy and 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project areas will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. Ensure all equipment is in working condition and suitable for jobs (safety, size, power, efficiency, 		

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		<p>ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works.</p> <ul style="list-style-type: none"> • Ensure all tools and other work equipment are serviced and maintained in accordance with maintenance schedules and manufacturer's instructions. • 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. • 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 that all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used. 		
Construction activity	Noise disturbances to fauna	<ul style="list-style-type: none"> • Provision to maintain noise and vibration from the operation and maintenance of machinery and 	Contractor	Environmental Consultant of PIU,

<i>Project Stage</i>	<i>Potential Environmental & Social Impacts/Issues</i>	<i>Proposed Mitigation Measures</i>	<i>Institutional Responsibilities</i>	<i>Supervision Responsibility</i>
		equipment by proper monitoring and measures. <ul style="list-style-type: none"> • Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light. 		PSC.
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge and other solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> • 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. 	Contractor	Environmental Consultant of PIU, PSC.
Decommissioning during the project implementation period (including site clearance after the construction)	The impacts are similar to those listed in construction stage: <ul style="list-style-type: none"> • Pollution from waste materials • Health & Safety risks to workers and local community 	<ul style="list-style-type: none"> • Contractor must prepare a waste management plan including following principles given hereunder. 	PIU and Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

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, IC, 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. This BOQ has two parts- costs shown in first part are only the site specific (the costs associated with the component/specific road site) and the costs shown in second part bear the overall/common costs for the sub-project (**a labor shed** will be constructed for all the components in **Teknaf** under the sub-project, and costs for that and other associated facilities in the labor camp areas are presented under this head). Moreover, costs associated with certain engineering design and implementation, such as road safety measures, construction of retaining wall for protection from landslides/mass movement, or storm water drainage system, etc. are included into the BOQ for physical works.

Cost of Environmental and Social Management and Enhancement Works in BOQ

1. Site/component Specific BOQ:

SI no.	Description of item	Quantity (Nos.)	Unit price BDT	Total amount BDT
01	<u>RN Plate</u> Providing, fitting and fixing rectangular Road Name Plate.	2	5962.87	11925.74
02	<u>Dust suppression measures</u> 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.	1	LS 10000	10000
03	<u>Personal Protective Equipment</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 15 sets as per direction of E.I.C.	15	LS 5000	75000
04	<u>Health and Safety Warning Signs</u> Signage postings and occupational safety management	2	LS/ Tk. 5000 each	10000
05	<u>First Aid Box</u> Supply of first aid box with standard contents and as per direction of the E.I.C.	1	LS/Tk. 6500 each box	6,500
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				113,425.74

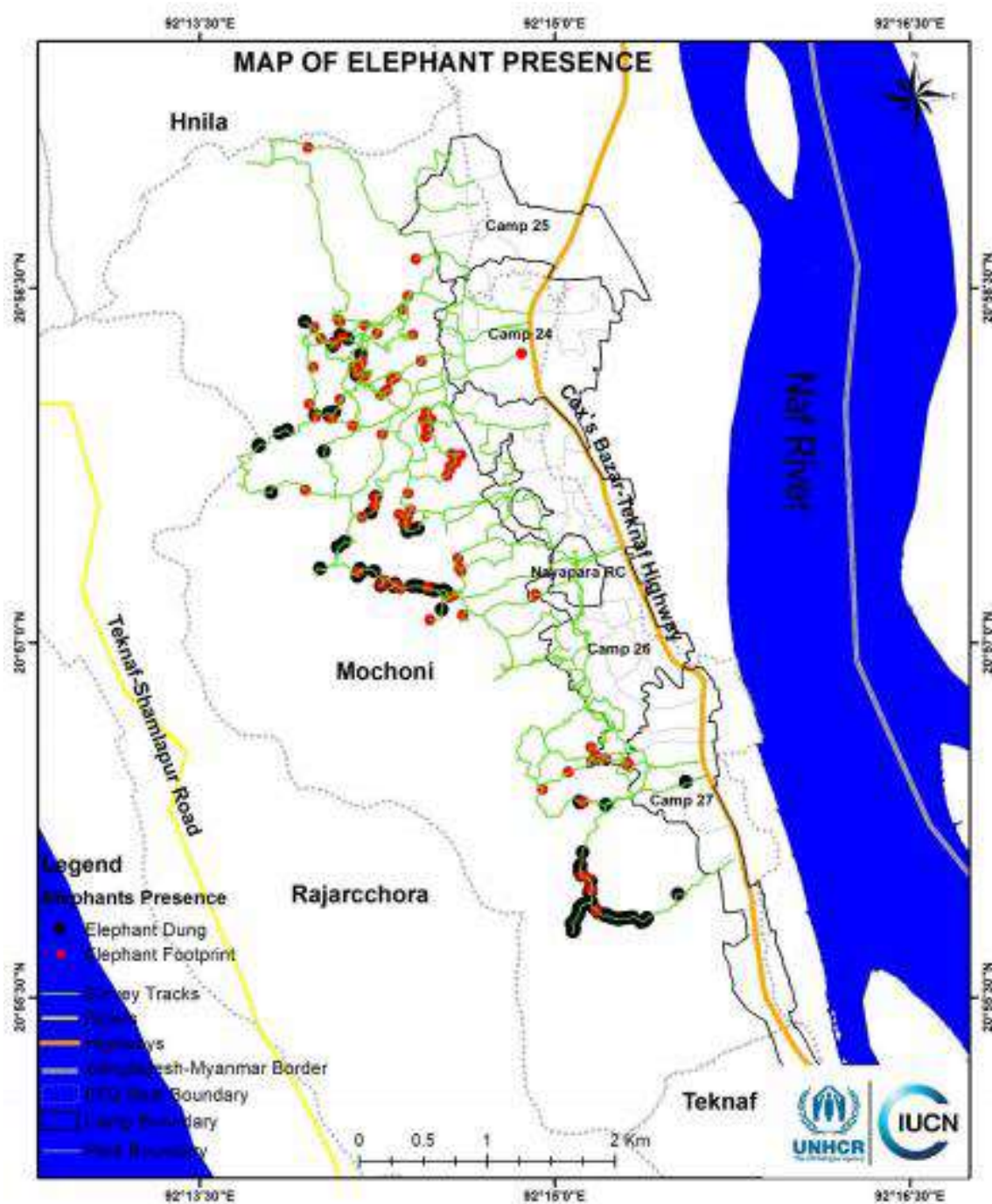
2. Common (Shared) items in BOQ for the entire sub-project

SI no.	Description of item	Quantity (Nos.)	Unit price BDT	Total amount BDT
01	Labor camp establishment, pit establishment, water establishment including water filter	LS 1	100000	100000
02	<u>Waste disposal facility</u> Temporary camp site waste disposal facility	LS 2	5000	10000



	improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.			
03	<u>Soil Erosion and Drainage Congestion monitoring</u>	LS	40000	40000
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				150,000

Appendix-4



Map 2: Elephant presence, along with traversing routes, around the camps 24, 25, 26 and 27, based on elephant signs - foot-prints and dung piles. (Based on data from IUCN Bangladesh's field survey conducted during 13-24 May 2018 and on maps provided by the UNHCR)

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

Appendix-5

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

Time: 3:30 pm Date: 24/12/19

COMMUNICATION AND PARTICIPATION PROGRAMME
FOCUS GROUP DISCUSSION

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

গ্রুপের নাম: Houlouipara Multitul Hossain's House to Sanamamul Camp Road
মত বিনিময়ের স্থান: ~~লতা~~ Leda Tower

ইউনিয়ন: Mita Union-2
ডাকঘর: Teknaf
উপজেলা: Teknaf
জেলা: Cox's Bazar
WARP: 08

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর
১।	শ্রী. মাহমুদ	৫৪	পুরুষ	শ্রী. মাহমুদ	শ্রী. মাহমুদ
২।	কিম্বাডাউল	৩৬	পুরুষ	শ্রী. মাহমুদ	কিম্বাডাউল
৩।	সাহা (মো. মোবারক হোসেন)	২০	পুরুষ	শ্রী. মাহমুদ	সাহা
৪।	Raphan-Bon	২৬	পুরুষ	শ্রী. মাহমুদ	Raphan-Bon
৫।	Md. Enamul Hossain ০১৩১-৬০০৬৩১	২২	পুরুষ	শ্রী. মাহমুদ	Enamul
৬।	শ্রী. মাহমুদ	৫৪	পুরুষ	শ্রী. মাহমুদ	শ্রী. মাহমুদ
৭।	শ্রী. মাহমুদ	৪৫	পুরুষ	শ্রী. মাহমুদ	শ্রী. মাহমুদ
৮।	ABULK	৪৫	পুরুষ	শ্রী. মাহমুদ	ABULK
৯।	শ্রী. মাহমুদ	৪০	পুরুষ	শ্রী. মাহমুদ	শ্রী. মাহমুদ
১০।	গারু	৩৫	পুরুষ	শ্রী. মাহমুদ	গারু

CS Scanned with CamScanner

Public Consultation Participants' List

Appendix-6



BFS layer on existing road



Brick wall on both sides of the road



Mosque on the left side of the road



Brick field on the left (100m away)

Appendix-7

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Local Government Engineering Department (LGED)
Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Work Package # EMCRP/W14(6)

Name: Nhila R&H-Moulavipara Muktul Hossain's House to Soronarthi Camp Road

Survey on locations of sensitive institutions in the project surrounding areas

Sl. No.	Available Sensitive Institution	Location of Institution			Distance from Sub Project Location	
		Chainage	Latitude	Longitude	Distance(m)	Orientation
1	Mosque	89	20.972417	92.247444	1	Left
2	Pond	112	20.972361	92.247167	1	Left
3	LPG Warehouse & Distribution Center	143	20.972444	92.246861	5	Left
4	Women and Girls Safe Space	239	20.972194	92.245944	1	Right
5	Open Space	293	20.972056	92.245556	3	Left
6	Eagle Learning Center	395	20.971667	92.244667	2	Right
7	Multi-purpose Child and Adolescent Center	395	20.971667	92.244667	4	Right
8	WFP Food Assistance Outlet	395	20.971667	92.244667	0	Left
9	Nutrition Center, Mental Healthy, Community Kitchen	439	20.971361	92.244389	0	Right
10	SMSD Camp Office	461	20.971278	92.244194	0	Left
11	Leda Health Clinic	503	20.971222	92.243806	0	Left

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Co-operatives

Local Government Division

Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



Design and Supervision Consultancy

Environmental Screening Report

For Unchi prang Bazar Raikhong Road with culverts in Ukhia Upazila

UNDER THE PACKAGE NO: EMCRP/W14

APRIL-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
ESMP	Environmental and Social 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 Bank



Contents

Executive Summary	4
1 INTRODUCTION	6
1.1 Project Background	6
1.2 Objective of the Sub-Project.....	6
2 PUBLIC CONSULTATION AND PARTICIPATION	7
2.1 Methodology	7
2.2 Summary of Public Consultation Meeting	9
2.3 Suggestions and recommendations of the participants	10
3 ENVIRONMENTAL SCREENING	10
3.1 General.....	10
3.2 Assessment of Screening Findings	10
3.3 Climate Change Impact Screening	11
3.3.1 General Overview of the area	11
3.3.2 Site Specific Screening and outcome.....	12
4 ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS.....	12
4.1 Mitigation and Management Measures	12
4.2 Health and Safety Measures under COVID situations	13
4.3 Cost of Environmental Enhancement Works in BOQ	14
5. LIMITATIONS OF THIS STUDY	14
6. CONCLUSIONS AND RECOMMENDATIONS	15
Appendix-1	16
Appendix-2	41
Appendix-3	51
Appendix-4	53
Appendix-5	54
Appendix-6	55
Appendix-7	56

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 Host 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 construction of school cum cyclone shelters and Multipurpose Community and Service Centers (MCSC), facilitating growth centers and RCC Bridge development, and so on, road development works are highly significant to ensure all branches of interventions are welded together. Local Government Engineering Department (LGED) as the implementing agency along with D&SC (Development Design Consultants Limited-DDC) identifies the key project beneficiaries- Displaced Rohingya Population (DRP) and Host Community or in other words, the 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 have 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.

Proposed Improvement of Unchi prang Bazar Raikhong Road with culverts in Ukhia Upazila of Cox's Bazar District by BC from Ch. 00-500m will be completed as village road-B. This sub-project component will be constructed on government owned land, located on hilly region in Whykong Union of Teknaf Upazila, Cox's Bazar. Unchi prang Bazar and Unchi prang Rohingya camp was found in close proximity. 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. This proposed sub-project is very much important for local community and Displaced Rohingya People (DRP). The existing road from Cha. 0+000 to 0+500 m is in very poor condition, with earthen shoulder and slope being broken heavily. Damages in different sections of the road have been caused mainly by the heavy rain and strong runoff from mountain eel water. So, earth work is needed during construction period for the sub-project. There are school, mosque and other settlements surrounding the sub-project location. The proposed road is not passing through any sensitive environmental components or reserved areas. However, the construction works will generate significant amount of dust and air pollutants, create noise, and have a potential to pollute water resources and affect some trees. All these impacts are site-specific and manageable 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 730,000¹ 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 923,033². 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 socio-economic condition of the host 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.

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

¹ ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)

² IOM Needs and Population Monitoring round 12 as of October 10, 2018

This document represents the Findings from Environmental Screening of the sub-projects under 'Improvement of 7 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District'; with a package name- EMCRP/W14.

Table 1.2.1: Significant features of the Sub-project

Package Name: EMCRP/W14: Improvement of 7 Access Road to different camps of Forcibly Displaced Myanmar Nationals (FDMN) under Cox's Bazar District.	
Sub-project Component no. Unchi prang Bazar Raikhong Road with culverts in Ukhiya Upazila of Cox's Bazar District. ID 422905038	
Component Location:	
i. ID- 422905038	
ii. Name of the Upazila: Ukhiya	iii. Construction Year: 2020-2021
iv. Width (m): 3m (approx.)	v. Length (Km): 500m
GPS Coordinates	Starting Point: Latitude: 21°05'28.9" N; Longitude: 92°12'39.45.6" E
	Starting Point
GPS Coordinates	Latitude: 21°05'27.7" N; Longitude: 92°12'33.7" E
	Ending Point
Condition of Road	HBB
Communication Source	Radio & Mobile Network
Subproject Intervention:	
1. BC	
2. 1 no. RCC box culvert	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period : 2020-2021	
Estimated total cost of component: 51,87,961.00 (Tk.)	

2 PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Several events of consultation meetings were held in different dates and times with different types of stakeholders. D&SC conducted the first consultation meeting with local community during 04:15 PM to 05:40 PM on 24 December, 2019. Refer to **Figure 2.1.1** , Public Consultation Participants' List are attached in **Appendix-5** and sub-project pictorial overview are attached in **Appendix-6**. Several more consultation meetings in different modes were carried out as well. The local individuals, chairman and/or member of Union Parishad, representatives from different agencies 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 and scope of a functional GRM under the project. The following table depicts details of several of those consultation meetings with outcomes.

Consultation Date	Time	Venue	Mode of Consultation	Stakeholder/ Participants	Outcomes
24 th December 2019	04:15 noon	At Sub-project Site	Focus Group Discussion	List is attached in Appendix.	Participants were informed about the sub-project interventions, potential impacts and management options, their informed views and comments were taken into consideration and appropriately reflected into the ESMP.
18 th February 2020	6:00 pm	Office of the UE, LGED, Cox's Bazar	Direct conversation	UE, Resident Engineer, Field Engineers, LGED Staffs	Consulted about the survey plan and UE office assured of putting all efforts in enforcing ESMP in the field.
19 th February, 2020			Telephonic consultation	Md. Sultan Mahmud, Asst. Site planner of UNHCR	Consulted about the survey plan and the site was found free from any direct physical impacts associated with the proposed road works. Reciprocal assurance and commitment were rendered for the successful implementation of the component.
19 th February, 2020			Telephonic consultation	Shegufta Newaz, Coordinator of site management, UNHCR	
19 th February, 2020	3:00 pm	CiC office in Camp 7	Direct Conversation	Subash Chandra Sheel, Camp Mgt. Support-Dty Lead, BRAC, Cox's Bazar.	He assured of lending all hands from him and his organization in successful implementation of the project.



Figure 2.1.1: Consultation meeting (FGD) with local community

Public consultation is a living process as type of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution process must differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.

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 minimize adverse impacts. Information should be disseminated to all interested parties, professionals and the general public so that they can develop informed opinions and provide useful input. Effective communication with the affected parties and individuals helps to resolve any adversary to the road project concerned. Cooperation from informed residents and groups can lead to substantial savings in costs and time.

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

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

2.3 Suggestions and recommendations of the participants

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

- Participants' agreed to recede their home boundary equally from the both sides of the road to accommodate the road width, and to remove the trees planted illegally on encroached land/shoulders of the road.
- Slope protection should properly be established on the side of the proposed road at different chainages.
- Best available measures should be adopted to avoid potential negative environmental impacts and enhance positive impacts.
- Participants' suggestions and expectations that came out through the different forms of consultation meetings are taken into consideration to reflect their wishes and minimize the adverse impacts of construction works.
- Steps should be taken for minimizing the air pollution by spraying water at the construction sites.
- Noise pollution should be effectively minimized to a tolerable limit.

3 ENVIRONMENTAL SCREENING

3.1 General

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

3.2 Assessment of Screening Findings

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted with the purpose of fulfilling the requirements of GoB and World Bank. Assessment of potential impacts requires a multi-disciplinary approach in which a wide range of issues are taken into consideration to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation.

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**

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 road itself has got 3 culverts for ease drainage of natural water flow and mountain eel water (flash water), and some parts has got retaining wall in three different sections to protect the road from any potential mass movement from adjoining upland or tillas. The area is characterized by the presence of sparse settlements, a government primary school, a mosque, fences, a pond, NGO offices/facilities, and patches of green fields or agricultural land. Community forestry is found very popular in the area.

Construction related 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 and camps. 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 were reported in 2018. The IUCN has conducted a study on such type of conflict. Consultation meetings held at the site also revealed that there was no presence of elephants across the areas. **Appendix-4** presents a map of elephant routes of Teknaf Upazila which is prepared by the IUCN.

3.3 Climate Change Impact Screening

3.3.1 General Overview 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 Bank³ 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. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. 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 deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

³ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

Together with the above mentioned hazardous situation, again due to sudden extraction of huge amount of groundwater, 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.

Considering the general climate change effects in Cox's Bazar area and offsetting the aggravating environmental situation due to the mass arrival of Rohingya communities, several specific measures including tree plantation in sub-project areas, 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 Screening and outcome

The thunder storm has been found to have the highest impact in the area, casualties were not 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.

Mitigation: Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time. And the mass migration will lead to man-made disaster which also can aggravate the climate change impacts in that area. 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. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the road.

4 ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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.

Specific Environmental and Social Management Plan (ESMP) has been prepared to eliminate, reduce or regulate the adverse impacts for this subproject. The purpose of this Environmental and Social Management Plan (ESMP) is to formulate measures which will mitigate adverse impacts on various environmental components, which have been identified during observation, and protect environmental resources where possible and enhance the value of environmental and social components where possible.

Among the notable prioritized management measures, contractor must adhere to the best practice HSE (Health, Safety and Environment) management procedure and regular adoption of dust control procedures (spraying of water at least twice a day) to minimize the effect to the least level. This HSE management procedure targets both groups- the working staffs/labors directly employed by the contractor and the people living in the catchment area or simply the users of the road. Noise impacts must be controlled efficiently due to the presence of numbers of educational, social and religious

centers/institutions along the road length and construction works must be limited in day time; and the time and duration of any potential noisy works should be communicated with the surrounding people fairly in advance. 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. Moreover, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works 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 and Social Management Plan has been outlined in **Appendix-2**. The mitigation measures as well as monitoring program of ESMP have also been incorporated in the management plan.

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

4.2 Health and Safety Measures under COVID situations

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 situations should be allocated in consultation with project PIU.

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. LIMITATIONS OF THIS STUDY

Bangladesh government has imposed a nationwide lockdown to curb the spread of the novel coronavirus in the wake of series of deaths and infections. Authorities declared a ban on passenger travel on all sector from March 24 while all public transport on roads have been suspended from March 26 to stem the spread of virus, officially known as COVID-19. All office works have been postponed and an intended visit to the sites for further consultation with the relevant stakeholders has had to cancel due to this crisis. Therefore, some relevant information and arrangement needs awaiting for recovering this pandemic crisis.

Further, during the consultation, people living in the area and along the site were primarily targeted, though local dialect and Burmese language sometimes posed difficulties in understanding peoples' views. The safeguards team put their best efforts in meeting local representatives and Camp in Charges (CiCs), different sector coordinators, responsible agencies for site development and management while went to any respective road to survey. However, difficulties in finding the

meeting time during the stringent working hours in camp areas have been observed very common, therefore, telephonic consent or views were taken in many cases.

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 component. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business and 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. These issues might be problematic if necessary mitigation measures, as suggested in ESMP, would not be properly taken into consideration.
- The project will create employment for the workforce 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 & Monitoring Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities. The ESMP mainly focuses on managing, mitigating and reducing the impacts exhibited in design, construction and operation phases.

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

Environmental Screening Form

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 8 Access Road to different camps of forcibly displaced Myanmar nationals under Cox's Bazar District; EMCRP/W14).

Name of the component: Unchi prang Bazar Raikhong Road with culverts in Teknaf Upazila of Cox's Bazar District. ID 422905038

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

Estimated total cost of sub-project (in Taka): 13,00,63,178 Tk

Estimated construction period duration: 6 (Six) months

Estimated total cost of the component (in Taka): 5187961.00(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: Teknaf

Union: Whykong

Name of Community/Local Area: Unchi parang Bazar, Raikhong road

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): Proposed Improvement of Unchi prang Bazar Raikhong Road with culverts in Ukhia Upazila of Cox's Bazar District by BC from Ch. 00-500m to be completed as village road-B. This sub-project is located on a hilly region in Whykong Union of Teknaf Upazila, Cox's Bazar. In close proximity Unchi prang Bazar and Unchi prang Rohingya camp was found. Land is owned by Government. This proposed sub-project is very much important for local community and Displaced Rohingya People (DRP). The existing road from Cha. 0+000 to 0+500 m is in very poor condition, with earthen shoulder and slope being broken heavily. Damages in different sections of the road have been caused mainly by the heavy rain and strong runoff from mountain eel water. So, earth work is needed during construction period for the sub-project. There are school, mosque and other settlements surrounding the sub-project location.

Starting Point: Latitude: 21°05'28.9" N; Longitude: 92°12'39.45.6" E and

Ending point: Latitude: 21°05'27.7" N; Longitude: 92°12'33.7" E

(Technical Report 2019, EMCRP)

Estimated footprint / land area for this sub-project is 1500 sqm.

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

The targeted camp road belongs to Whykong union, under Whykong Upazila, Cox's Bazar District. Proposed Improvement of Unchi prang Bazar Raikhong Road with culverts in Ukhia Upazila of Cox's Bazar District by BC from Ch. 00-500m to be completed as village road-B. Moreover, details important environmental features of the Sub-Project are included in the table below.

Important Environmental Features (IEFs) near site:

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

Chainage	Left	Right	Environmental/Socioeconomic features
"0" Point 000-300	L		Settlement(shop),culvert, Paddy field, Big tree, Tower Building, school, green field, building(Brac office)
		R	Settlement (shop), Tin shed fence, culvert, pond, settlement ,tin fence, Green field
300-600 (existing BC till 500m)	L		Building(Brac office), Green field, tin fence, Green field, Big tree, settlement, tin fence, culvert, green field, Retaining wall
		R	Green field, Big tree, mosque, Retaining wall ,Green field, Big field, Retaining wall

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 settings 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. Earthwork is required in proposed development, but no agricultural productive soil will be used for this purpose. All 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. Local individuals participated in participatory public consultation meeting. Local communities have no objection to construction of this sub-project. The community also appreciated the initiative as they are seeking a safe and easy access across the areas through this road and a favorable passage in times of emergency.

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. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

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. A mosque is situated at 1km north of the subproject side and another mosque is located within 300m of the road alignment. A pond is located in the close vicinity of the area, but not adjoining to the road. So, no major or significant disturbance to these features is anticipated by this sub-project component.

In this sub-project area, no elephant migration routes exist (ref. IUCN).

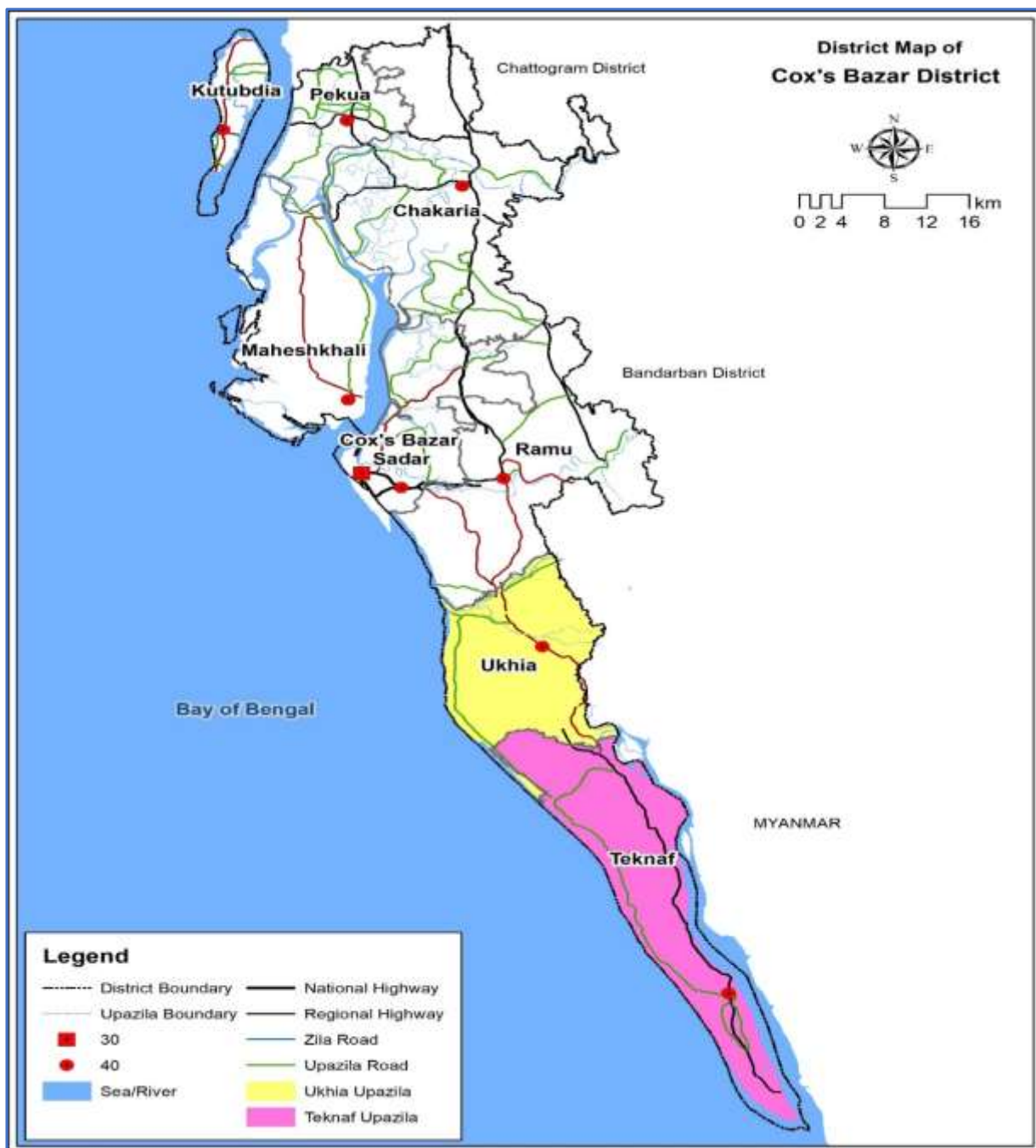


Figure 3: District Map with project location

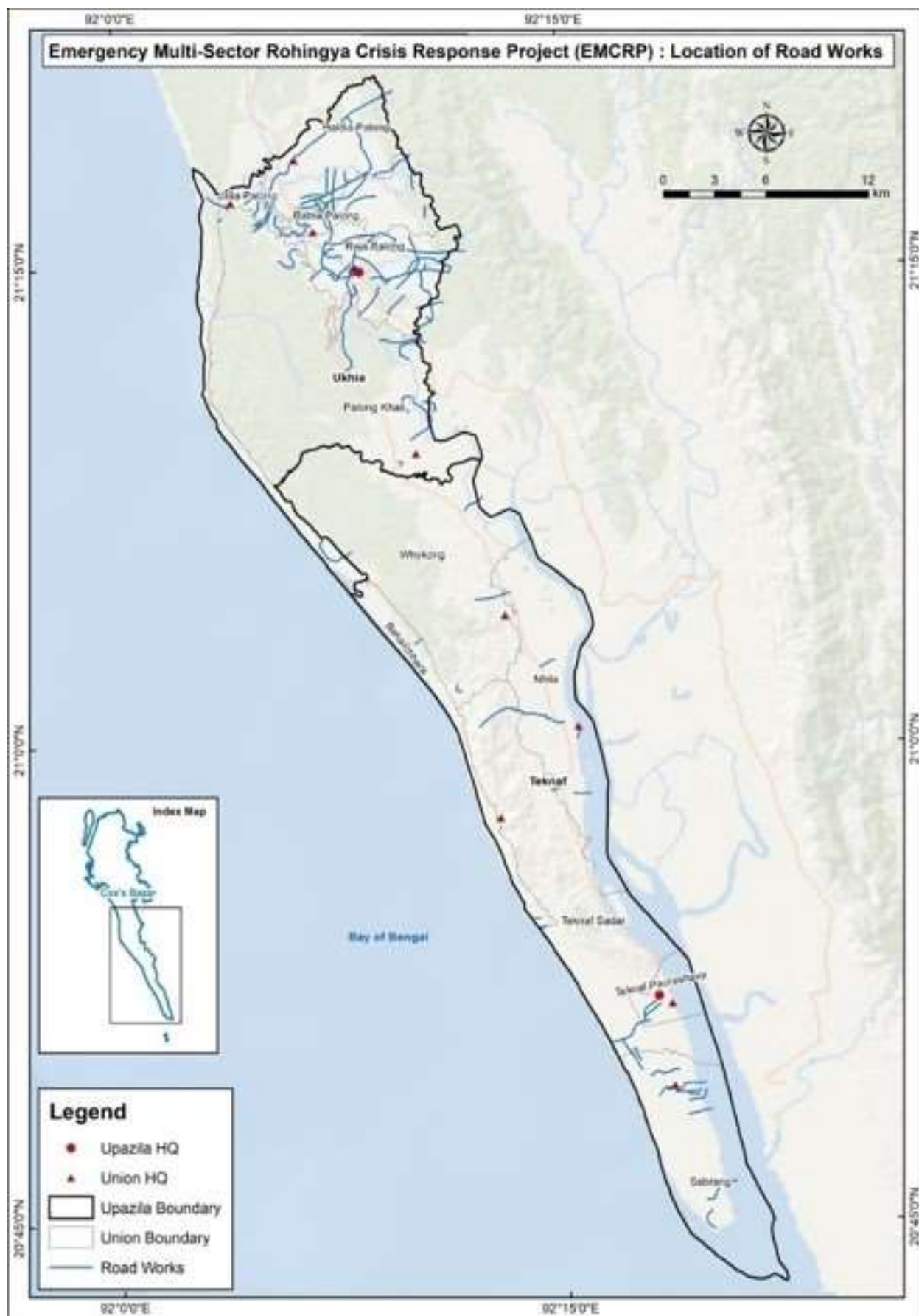


Figure 4: Location Map of Access Road (Ukhiya & Teknaf)

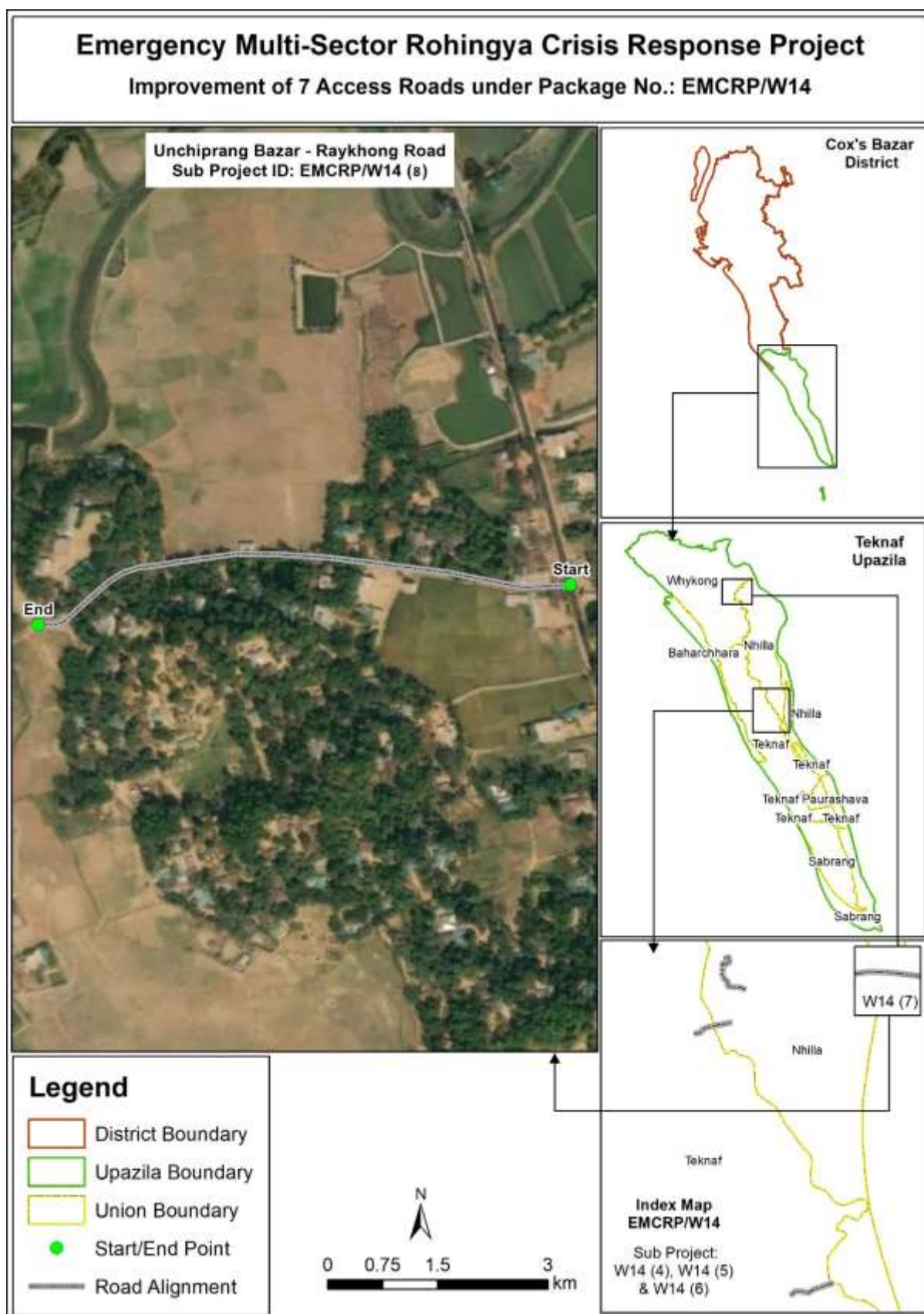


Figure 5: Upazila Map with Sub-project location

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-B which is to be improved with Bituminous Coating and proposed with Masonry Brick Work and Pre-Cast RCC Post for Protection Work with 1 nos. **Box culvert** sized 4m*3.50m at CH. 450m. Proposed length is 500 meters.

Sub-project Location:

The targeted camp road belongs to Whykong union, under Whykong Upazila, Cox's Bazar District. This proposed new Unchiprang Bazar to Whykong Bazar Road has started from Unchiprang Bazar to Whykong Bazar village area.

Starting Point: Latitude: 21°05'28.9" N; Longitude: 92°12'39.45.6" E

Ending point: Latitude: 21°05'27.7" N; Longitude: 92°12'33.7" E

Land ownership

Land is owned by the Government of Bangladesh

Expected construction period: 6 (Six months)

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

- i) The proposed Sub-project is located within Unchiprang Village and local community.
- ii) No cultural or historical sites were identified.
- iii) One water body (pond) is found in the vicinity, but will not directly be affected.
- iv) No Relocation or displacement of Rohingya People (DRP) is needed.
- v) Some household boundary maybe affected, but local people have agreed to recede their boundary on their own before the work starts.
- vi) Project influence area (directly): approx. 2500 sq.m
- vii) Environmental Sensitivity: No mentionable eco-concerned establishment, no socio cultural site and elephant corridors.

Section B: Environmental Screening

B.1: Environmental feature of sub-project location

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

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

This sub-project is situated within Unchiprang Village under Union of Whykong upazila of Cox's Bazar District. One mosque with Hefjakhana and Unchiprang GPS is found along with the sub-project area.

No scope of disturbance is anticipated by this sub-project. Local bazar, Shops, Garage and local households are situated within approximately half kilometer from the sub-project component, which bring growth to local community. There are no sensitive environmental, cultural, archaeological sites exist on the area of this sub-project.

In this sub-project area, no elephant migration routes exist (ref. IUCN).

A sketch of the project surrounding area with several features at relatively distant places shown in figure B.1.1 and locations of sensitive institutions in the project surrounding areas (within 30m buffer zone) are shown in figure B.1.2. and list is shown in Appendix 7

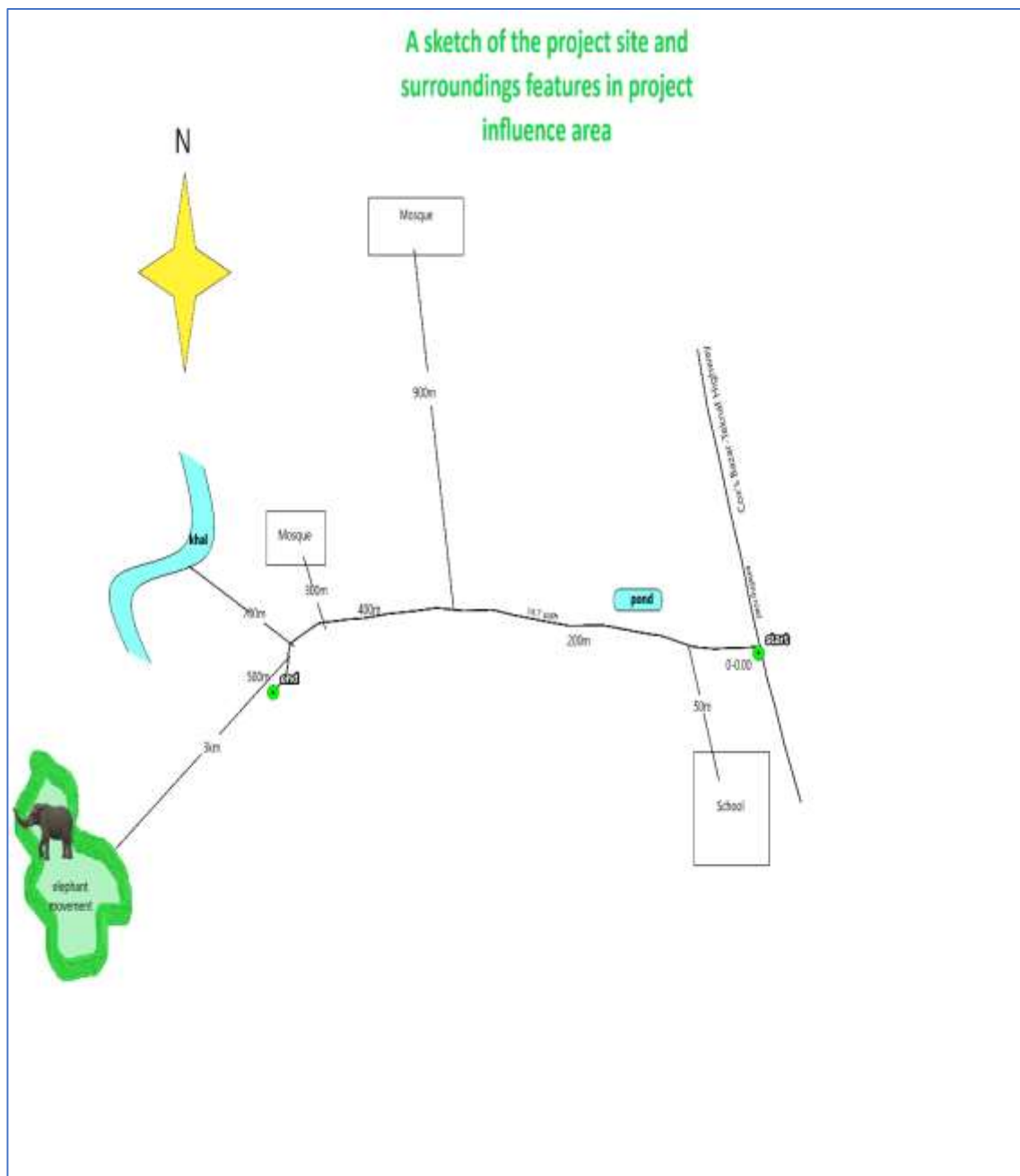


Figure B.1.1 : A sketch of the project intervention area

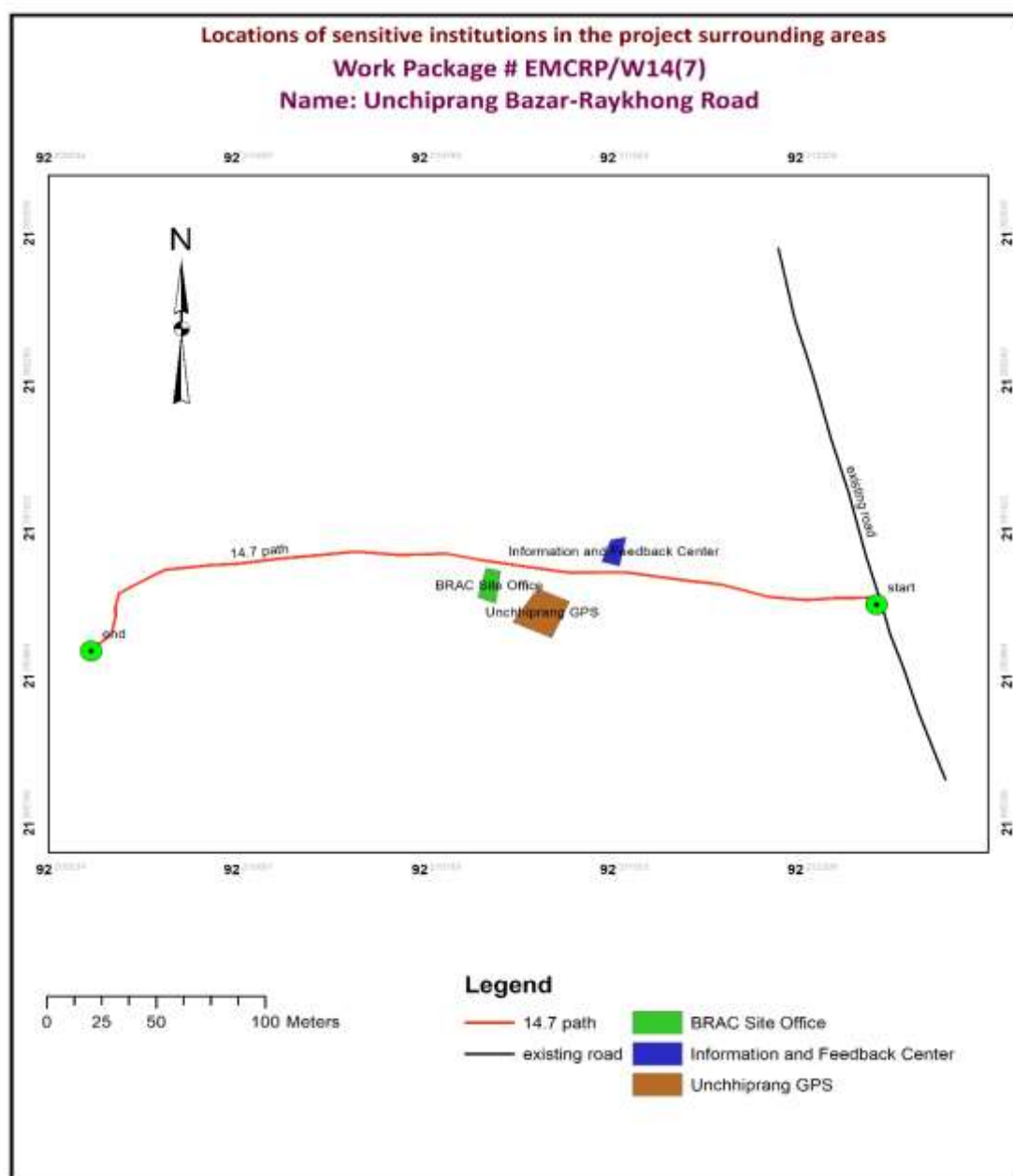


Figure B.1.2: Locations of sensitive institutions in the project surrounding areas (30m buffer zone)

Location of environmentally important and sensitive areas:

Once the area was environmentally important and sensitive for containing protected forests but the area has suffered from denudation of trees at an alarming rate for sheltering the DRPs and meeting other necessities (e.g, fuel wood). A pond is located near the road, but not adjoining. No other environmentally important or sensitive features are found in the area. Community forestry is now gaining popularity in the area.

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

No. Elephant migration route corridor is at least 20 kilometers away from the sub-project site, which

has been confirmed with maps established by UNHCR/IUCN and the consultation meeting with local stakeholders.

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

Not significantly. Local community is now practicing social forestry in the area along with sub-project location. Dust produced during the construction period may impact on remaining forests, but not significantly.

(3) Other issues:

No more mentionable issues raised.

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

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality was apparently good due to the appearance of rural vegetative settings around. But after arrival of Rohingya the number of vehicle movement on the road increased considerably. Dust is generated through movement of vehicles such as bus, truck, mini truck, motor cycle, auto rickshaw, tempo, trolley, tractor, etc. over the road surface which has caused deterioration of air quality. Moreover, presence of a brick field contributes a significant amount of emission to the ambient air environment.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerable limit. Vehicles such as motor cycle, bus, truck, mini truck, tempo, auto rickshaw, tractor, trailer, etc. move on the road surface throughout the day and night. These vehicles generate noise but still within the 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):

Low. Potential erosion or landslide may occur when moderate to steep sloping terrains are disturbed for the improvement of road. The impacts are negative but in small scale, and are site-specific within a relatively small area and adjustable by mitigation measures.

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

Surface water quality: Water from nearby pond, present within the catchment area, is regarded as the Surface water source, but water quality data was not available at the moment.

Groundwater quality: Groundwater is the main source of potable water in the Sub-project area. In the sub-project area local community extract water from shallow tube well, shallow aquifers having depth of around 70-100 feet in the Sub-project area contain iron-laden water, but for drinking purposes they collect water from Hindu Para Rohingya camp spot. Local people usually use shallow tube-well water for their domestic purposes.

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
*Data source: IWM Study Report, 2019
Status of wildlife movement:
No major land-dwelling wildlife movement is present in the targeted sub-project area.
State of forestation:
Locals are enthusiast to plant a lot many trees for the betterment of the local environment. Some hilly areas have vegetation cover which is important for these communities as well. Newly plantation has been taken place at respective site areas by FAO and others organizations.
Summary of water balance analysis (For water supply scheme only):
N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):
Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air and have more potential to get the slope damaged.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction:
An open space is required to set up a labor camp with associated facilities (toilet for male and female workers, kitchen for cooking, tube-well for water supply facility, and electricity connection) to support the workforce during construction. The space should have enough land area to accommodate a stack yard along with a site office, if possible. This open space should be selected in such a way that workers do not need to travel/walk through a longer distance to reach the sites and the place can be secured with proper fencing with a guard be posted at the entrance. The space or land area can be used on rental basis or under a mutual agreement between the owner and the contractor. The contract/consent document must be kept at the site office, whatsoever the mode of the contract is.
Possible location of labor camps:
Labor camps should be very close to the site location. In case of using a common labor camp area for the workers of different sites under this package, the camp should be located in such a place that workers don't need to walk through or travel long distances to reach their respective sites. In that case, special arrangement (mobile toilet or so) has to be ensured by the contractor in every working site.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.):
i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates, vii) tin, for the construction of labor camps and associated facilities.
Identification of access road for transportation (Yes/No):

Yes. The adjoining areas can offer required spaces for labor camp and contiguous material stack yard with sufficient spaces for unloading works. So, the existing road can still be a good access for transportation of materials. Other option can be looked into, but crowded places should be avoided. Material transportation can be made by pickup trucks and manual head load from unloading point to different site locations is very much possible.

Location identification for raw material storage:

Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.

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

Earth/ mud, plastics, brick and chips, cement dusts, and dust from bricks can be found during pre-construction time when removal of existing pavement is the prime task, and those can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in labor camp and associate facilities construction works. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

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

During the pre-construction period wastes will be generated from some preparatory activities, such as construction of labor camp, site office, material storage/stack yard and associated facilities, etc. and removal of road pavement. All these activities also will be carried out by numbers of local labors. So, around 45 kilograms of construction related wastes, such as bricks, aggregates, leftover cements, sands, etc. will be generated, which are typical solid wastes and a negligible quantity (nearly 5 kg) of bio and non-biodegradable wastes will be generated from the daily necessities of workers and construction staffs, such as food wastes, polythene, papers, plastics, etc. Some chemical waste, like paints, oils, etc. and small amount of solid and liquid wastes from the immediate use of constructed latrines by the workers may also be generated, such as feces and urines.

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

Raw materials: i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates.

Quantity: It is difficult to provide exact figures of raw materials on a typical pre-construction site at this level.

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

Vegetation from social forestry is present dispersedly in the right of way, covering an area of nearly 220 sq.m. Soil is not needed at this pre-construction stage. The current condition shows that there is no aggregated soil on the right of way.

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

Low. This area is not facing water stagnation for long periods of time. Moreover, locals have stated that they do not have severe troubles with mosquitos or other disease vectors.

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

Low. Local drainage channels (rivers, canals) or surface water bodies (wetlands, marshes) are not present alongside the sub-project area. Only a pond is present, but will not be disturbed in the pre-construction stage.

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

Low. There is very little scope of causing damage to terrestrial or aquatic ecosystems or endangered species directly in pre-construction phase.

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

Only some preparatory physical works will be carried out in this phase which has little scope to trigger landslide.

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 of similar elevation, except in some elevated sections, and the existing soil and slope is well compacted along the hillside. The scale of erosion of lands is very minimum at this stage. Still the concentrated outflow will be managed through the drains included in design.

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

Dust impact can be high due to current poor condition of the road, but no significant effects related to light and noise are anticipated.

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 waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes are the most common type of materials used in construction.

Quantity: Anticipating the quantity of raw materials to be used needs detail calculation as per design, which is beyond the scope of this report, but presented in engineering design/estimates of the sub-project.

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

Sparse vegetation is present in the right of way but measuring the approx. area is difficult to identify. Aggregated Soil is not present on the ROW. However, a temporary waste dump and equipment yards require approximately 650 square meters of area altogether.

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

Low: No borrow pit or quarries are found around/ adjacent to the sub-project area.

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

Low. There is a pond in the area; though not located very close to the road ROW. Three culverts located in three different sections on the road are also facilitating drainage and storm water flows across the surrounding areas. However, the pond may receive some disturbance during the construction period (through dust deposition, draining or spillage of chemicals/contaminants, etc.), though the impact is site-specific, but appropriate protection measures have been guided in ESMP to avoid/ minimize the impacts to the minimum level.

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

Low. The improvement works will be limited within the Right of Way of this road component. However, aquatic ecosystem of the pond located in the area may experience damaging effects due to road construction activities, but the level of effects will be kept to the minimum by adopting different protective and practicing measures. The area is not known for containing any endangered or threatened species of any kind.

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

Construction of the sub-project intervention may lead to low scale land slide/slip slope areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

Low, Potential erosion may occur when moderate to steep sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

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

Medium. No traffic movement impacts in relation to light effects, but medium effects of noise and air/dust pollution will be observed due to the heavy loaded traffic movement for carrying construction materials and equipment through the existing road, and can mostly be controlled/mitigated by different management and protective options.

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:

During the operation phase, number of vehicles and frequency will be increased, though not to a significant

level. This growth has moderate potential to generate dust and blow those in the air, and contribute in health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. The exposure of bare soil becomes limited after the construction of the proposed road; but over and frequent use of road by the moderate to heavy or overloaded vehicles may cause damage to road and increasing erosion of soil that may turn to long-term or semi-permanent destruction and loss of soils. Setting barriers at strategic locations to limit or stop the heavy/overloaded vehicles on the road and speed breakers at different sensitive points on the road to limit the speed, are two effective options for saving the road and people's lives, and reducing soil erosion and the effects on road-side vegetation.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) No applicable.
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 for encouraging mosquito breeding and other disease vectors, during the operation phase or as long as the road surface remains well-drained.
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) Low. There are some small, local drainage channels and a pond near the road. During the operation phase, the runoff from the road surface will not impact these water bodies.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low, Little effects on terrestrial aquatic ecosystem is anticipated due to the dust pollution and vehicular emission as well as some local runoff, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around the sub-project component site, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: During operation phase, some maintenance works can be done on ROW. These will be localized road surface repair type of works and will not change road grade and therefore there are no chances of landslides, slumps, slips and other mass movements.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

Low. Existing Box-culverts will facilitate to minimize concentrated outflows.

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

Improved road communication will definitely increase the traffic/ vehicular movement, which will increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

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

Section D: Environmental Screening Summary

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
1: Sub-Project Interventions	Air Quality	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Soil impacts	Under the sub-project intervention the overall score is low .	<ul style="list-style-type: none"> • 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 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. 	Construction Contractor, monitored by Consultant and PIU	<p>No visible degradation to nearby drainages, <i>khals</i> or water bodies due to soil erosion.</p> <p>Rain storms in construction phase.</p>	Monitoring on weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is low .	<p>All precautions to store chemicals/oil/fuel properly so that no chance of spill.</p> <p>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</p> <p>Monitor water quality according to the environmental and social management plan.</p>	Construction Contractor, and monitored by Consultant and PIU	<p>(i) Areas for stockpiles, storage of fuels and lubricants and waste materials;</p> <p>(ii) Records of water quality inspection; Water Quality Test</p> <p>(National Drinking Water Quality Standard Parameters) if requires;</p> <p>(iii) No visible degradation to nearby drainages, <i>khals</i> or water bodies due to construction activities.</p> <p>(iv) Records should be kept and logged.</p>	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	
					Indicators	Frequency
2: Pre-construction Phase	Sanitation, water supply	Under the subproject intervention the overall score is low .	<p>Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer.</p> <p>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.</p> <p>Records for any type of training or awareness building sessions must be kept at site.</p>	Construction Contractor and monitored by Consultant and PIU	<p>Site-specific H&S Plan;</p> <p>Records of supply of uncontaminated water;</p> <p>Record of Health & Safety orientation trainings;</p> <p>Condition of sanitation facilities for workers</p>	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	<ul style="list-style-type: none"> Record of regular inspection. Record of accidents/incidents 	Monthly monitoring.
	Storage of construction materials	Under the subproject intervention the overall score is low .	Train concerned person and team assigned for the construction work to ensure items are stored properly and away from steep slopes.	Construction Contractor and monitored by Consultant and PIU	<ul style="list-style-type: none"> List of materials and sources of materials; Storage facility for construction materials. 	During implementation phase, as necessary with discussion with PIU, Consultant

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
3: Construction Phase	Wastes	Under the sub-project intervention the overall score is low .	<ul style="list-style-type: none"> • 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.	Weekly as work 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.	<ul style="list-style-type: none"> • During construction cut and fill will be balanced as far as 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	
					Indicators	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 .	<p>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. However, following sets of requirements shall be taken into consideration :</p> <ul style="list-style-type: none"> Storage area will be sufficiently spacious so that unloading works can be performed inside the area and materials must not be rest on road side, near the water bodies, or trees and bushes, and will not be located in any crowded place. Storage area must be well fenced with guard posted at the entrance and at least 30 m distant from any water bodies. Construction materials must not interrupt land contours, natural drainage pattern, and create water logging or depression. Cement, sand, reinforced bars, stone chips, aggregates etc. must be covered with tarpaulins, and end of reinforced bars will be capped with plastic caps or covered with sacks/clothes to avoid any health injury. 	Construction Contractor and monitored by Consultant and PIU	<p>-List of materials and sources of materials;</p> <p>-Storage areas for materials and equipment.</p>	Monthly basis during implementation phase, as necessary with discussion with PIU, Consultant

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			<ul style="list-style-type: none"> Chemicals and hazardous materials including oil, grease, bitumen, etc. shall be kept in a Cement concrete bunded area or on wooden stage covered with polythene/tarpaulin. 			
	Noise pollution	Under the subproject intervention the overall score is low .	<ul style="list-style-type: none"> 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 ESMP. 	Construction Contractor and monitored by Consultant and PIU	Number of complaints from stakeholders; Use of silencers in noise-producing equipment and sound barriers; Level following decibel meter (dB), if required at all.	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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
4. Post Construction	Road Safety and Accidents	Under the subproject intervention the overall score is low.	<ul style="list-style-type: none"> 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. 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 	Construction Contractor, environmental specialist of D&SC .	Complaints from communities, pedestrians	Daily, during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Road Safety		<ul style="list-style-type: none"> 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. Imposing barriers at several strategic places on the road to limit the movement of overloaded or heavy vehicles. 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.
	Afforestation	Under the issue the overall score is low .	<ul style="list-style-type: none"> Plantation of trees during monsoon period by the people living in roadside areas as homestead gardening (if plantation program carried out from additional financing of EMCRP) 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.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
5. Operational Phase	Maintenance of road and assets (Road accidents may increase due to higher number of vehicles using the roads at increased speeds)	Under the issue the overall score is low .	<ul style="list-style-type: none"> No advertisement/boardings shall be allowed within the Right of Way 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. 	LGED	Number of complaints from stakeholders;	During Operation under 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

**Post-construction phase denotes the time period contractor use to clear and clean up the sites after the construction work is ended, perform tree plantation, grass turfing, and minor rectification till the official handing over the site to LGED, or owner of the site.

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:

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> No land acquisition is allowed within this sub-project activities <p>So, there are no any mitigation measures according to this impact.</p>	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> All sites must avoid the low land near the water bodies or natural flow paths to avoid the flash flood or any kind of surface runoff. Keeping 20 meters distance from water bodies or natural water flow paths should be maintained, if possible. Tubewell location within the construction site/camp should not near any kind of latrine and soak well which could be contaminated by those. Minimize cut & fill operations, the site clearing and grubbing operations should be limited to the locations wherever necessary. Avoid disruption to human settlement, and social, cultural and religiously sensitive areas. Avoid disturbance to existing slop and any natural drainage system. The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> Construction activities shall be finished at day time within 05 PM. Further necessary measures to be taken for avoiding any disturbance. Contractor must provide personal protective equipment (PPE) such as ear plugs, earmuffs, helmets, etc. to the persons working in high-risk areas and wherever required. 	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Dust	<ul style="list-style-type: none"> Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), 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 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Safety Issues	<ul style="list-style-type: none"> Unauthorized entry is completely prohibited in the site and take necessary measures for preventing this problem. Before works started proper training and guidelines on health and safety issues to the labours and associated staffs are to be provided. 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> A detailed assessment of the available resources 	PIU & Contractor	Social

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	to the scarcity of resource base.	<p>and consent of the local representative for withdrawal of water from existing surface water sources shall be taken.</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
		<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 from respective authority or Environmental Specialist at PIU in difficulties to reach that authority. 	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts. 	PIU & Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks:	<ul style="list-style-type: none"> All construction equipment at site will be properly 	PIU & Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis. 	<p>inspected and timely repairing to be ensured.</p> <ul style="list-style-type: none"> The risk assessment shall be prepared and communicated prior to the commencement of work for all types of work activities on site. All provided walkways (if required and managed to provide) 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. Sub project will have a Proper emergency response plan (ERP) and be communicated 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 efficacy and 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, 		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
		<p>aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project areas will be ensured.</p> <ul style="list-style-type: none"> • Proper Emergency evacuation response plan will exist in sub-project area. • Ensure all equipment is in working condition and suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Ensure all tools and other work equipment are serviced and maintained in accordance with maintenance schedules and manufacturer's instructions. • 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. • 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 that all workers exposed to a risk are aware of the possible dangers and also 		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Borrow pit construction and management: water stagnation, mosquito breeding ground, and soil fertility loss.	<ul style="list-style-type: none"> Identify borrow pits/areas in consultation with the local LGED staff and D&S consultants, and priority should be given to barren land or land without tree cover outside the road reserve or by excavating land and creating new water tanks/ponds, or land acquired temporarily outside the road reserve or by excavation of proposed culverts. Do not dig the borrow pits within 3m of the toe line of the final section of the road embankment and dig the borrow pits continuously. Ridges of not less than 8 m widths shall be left at intervals, not exceeding 300 m in length and small drains should be cut through the ridges to facilitate drainage. Slope the bed level of the borrow pits, as far as possible, down progressively towards the nearest cross drain, if any, and do not lower it than the bed of the cross-drain, to ensure efficient drainage. Stabilize the banks of the borrow pit with the top soil if it is used for fish ponds by compaction. Return stockpiled topsoil (first 15 cm soil) to the borrow pit and all worked areas to be stabilized through re-vegetation using local plants. 	Contractor	Environmental Consultant of PIU, PSC
Construction activity	Noise disturbances to fauna	<ul style="list-style-type: none"> Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures. 	Contractor	Environmental Consultant of PIU, PSC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light. 		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge and other solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> 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 	Contractor	Environmental Consultant of PIU, PSC.
Decommissioning during the project implementation period (including site clearance after the construction)	The impacts are similar to those listed in construction stage: <ul style="list-style-type: none"> Pollution from waste materials Health & Safety risks to workers and local community 	<ul style="list-style-type: none"> Contractor must prepare a waste management plan including following principles given hereunder. 	PIU and Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar

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, 01686640284

Reviewed by: Md. Saiful Islam, IC, Field Level Environmental Specialist, +8801913442006

Appendix-3

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. This BOQ has two parts- costs shown in first part are only the site specific (the costs associated with the component/specific road site) and the costs shown in second part bear the overall/common costs for the sub-project (**a labor shed** will be constructed for all the components in **Teknaf** under the sub-project, and costs for that and other associated facilities in the labor camp areas are presented under this head). Moreover, costs associated with certain engineering design and implementation, such as road safety measures, construction of retaining wall for protection from landslides/mass movement, or storm water drainage system, etc. are included into the BOQ for physical works.

Cost of Environmental Management and Enhancement Works in BOQ

1. Site/component Specific BOQ:

Sl no.	Description of item	Quantity (Nos.)	Unit price BDT	Total amount BDT
01	<u>RN Plate</u> Providing, fitting and fixing rectangular Road Name Plate.	2	5962.87	11925.74
02	<u>Dust suppression measures</u> 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.	1	LS 10000	10000
03	<u>Personal Protective Equipment</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 15 sets as per direction of E.I.C.	15	LS 5000	75000
04	<u>Health and Safety Warning Signs</u> Signage postings and occupational safety management	2	LS/ Tk. 5000 each	10000
05	<u>First Aid Box</u> Supply of first aid box with standard contents and as per direction of the E.I.C.	1	LS/Tk. 6500 each box	6,500
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				113,425.74

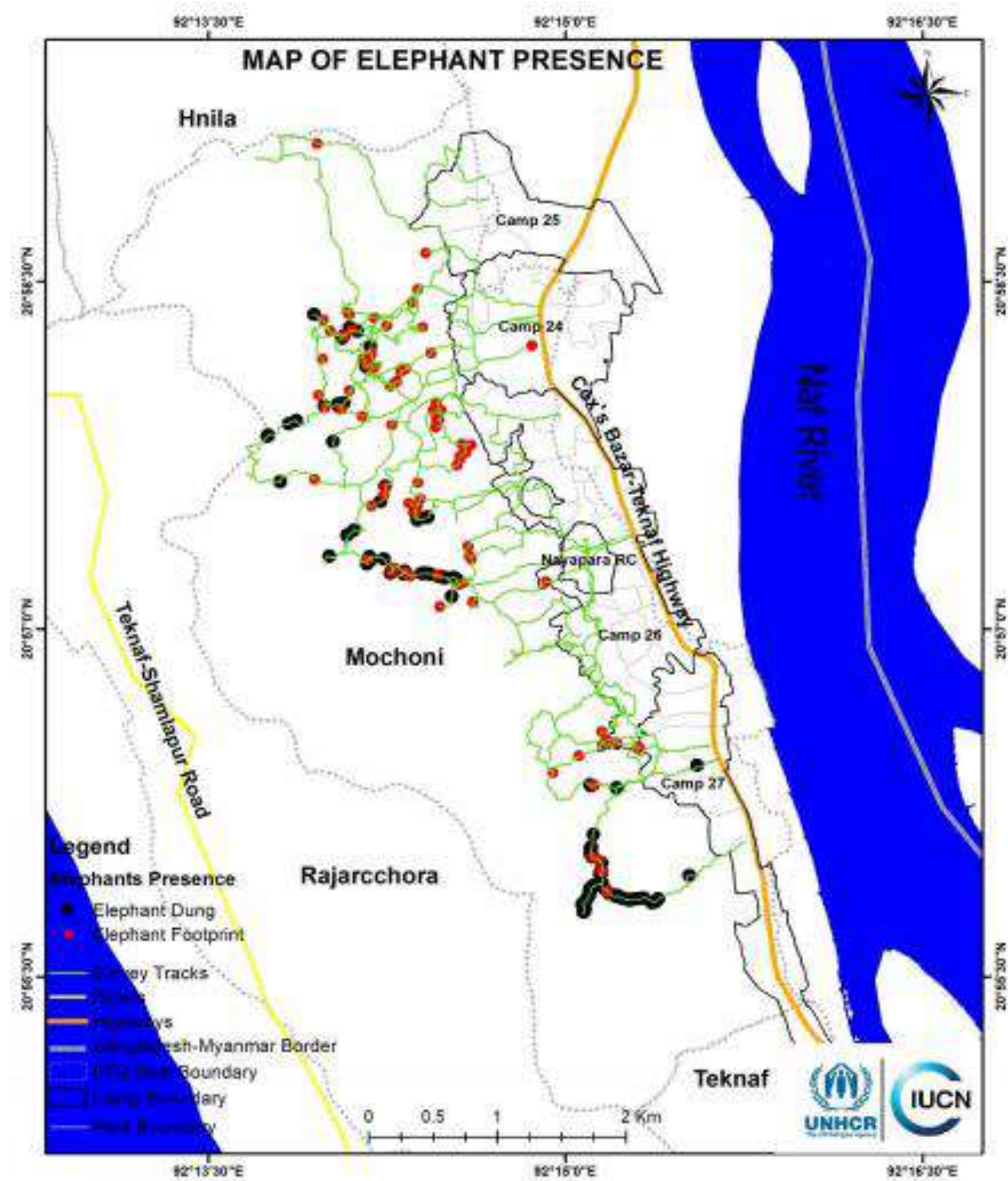
2. Common (Shared) items in BOQ for the entire sub-project

Sl no.	Description of item	Quantity (Nos.)	Unit price BDT	Total amount BDT
01	Labor camp establishment, pit establishment, water establishment including water filter	LS 1	100000	100000
02	<u>Waste disposal facility</u> Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no	LS 2	5000	10000



	of inorganic waste disposal facility) and as per direction of E.I.C.			
03	<u>Soil Erosion and Drainage Congestion monitoring</u>	LS	40000	40000
Subtotal Bill for Environmental Mitigation and Enhancement Work (BDT)				150,000

Appendix-4



Map 2: Elephant presence, along with traversing routes, around the camps 24, 25 26 and 27, based on elephant signs - foot-prints and dung piles. (Based on data from IUCN Bangladesh's field survey conducted during 13-24 May 2018 and on maps provided by the UNHCR)

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

Appendix-5

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

Time: 05:30 pm Date: 24/12/19

COMMUNICATION AND PARTICIPATION PROGRAMME
FOCUS GROUP DISCUSSION

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

প্রকল্পের নাম: Unchipalong Bazar - Khong Road by BC
মত বিনিময়ের স্থান: Unchipalong Bazar

ইউনিয়ন: Whythong - 1st Union
ডাকঘর: Noyapara Madhara Mi/a
উপজেলা: Teknaf
জেলা: Cox's Bazar
WARD: 03

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও বাক্য)

ক্রমিক নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর
১.	মুহাম্মদ জাহেদ নইম	৪২	পুরুষ	উনচিপালং	[Signature]
২.	মোঃ ফজলুল	৭২	"	উনচিপালং	[Signature]
৩.	জাঃ বশির আলী	৫৬	"	উনচিপালং	[Signature]
৪.	জাঃ জামাল	৪০	"	উনচিপালং	[Signature]
৫.	জাঃ আলী	৬০	"	"	[Signature]
৬.	জাঃ জামাল	৭০	"	"	[Signature]
৭.	জাঃ আলী	২৫	পুরুষ	উনচিপালং	[Signature]
৮.	জাঃ আলী	৩৫	"	"	[Signature]
৯.	জাঃ আলী	২৭	"	"	[Signature]
১০.	জাঃ আলী	৫৫	"	উনচিপালং	[Signature]
১১.	জাঃ আলী	৭৫	"	উনচিপালং	[Signature]
১২.	জাঃ আলী	৬০	"	উনচিপালং	[Signature]
১৩.	জাঃ আলী	৬৫	"	উনচিপালং	[Signature]
১৪.	জাঃ আলী	২৮	"	উনচিপালং	[Signature]
১৫.	জাঃ আলী	৩২	"	উনচিপালং	[Signature]
১৬.	জাঃ আলী	২০	"	উনচিপালং	[Signature]
১৭.	জাঃ আলী	৩৫	"	উনচিপালং	[Signature]

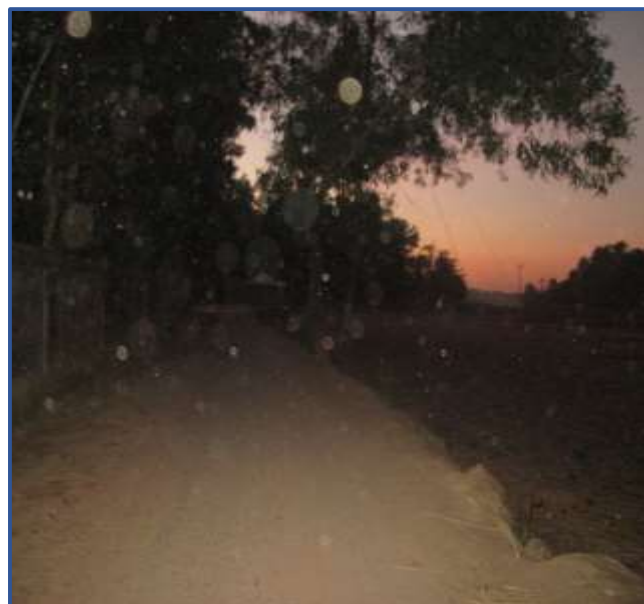
CS Scanned with CamScanner

Public Consultation Participants' List

Appendix-6



Current condition of road with tin boundary



Paddy Field on the side of the road (right)



Hilly areas on the side of the road with drain



Some parts of the road having BC upper layer and some parts BFS

Appendix-7

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Local Government Engineering Department (LGED)
Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Work Package # EMCRP/W14(7)

Name: Unchiprang Bazar-Raykhong Road

Survey on locations of sensitive institutions in the project surrounding areas

Sl. No.	Available Sensitive Institution	Location of Institution			Distance from Sub Project Location	
		Chainage	Latitude	Longitude	Distance(m)	Orientation
1	Information and Feedback Center	115	21.091389	92.2115278	7	Left
2	Unchhiprang GPS	130	21.091417	92.2113889	5	Left
3	BRAC Site Office	158	21.091444	92.2111111	3	Left