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

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

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

ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Building construction for Fire Service and Civil Defence (FSCD) at Cox's Bazar.

Under Package No. EMCRP/AF/W8

Component Name: Building construction for Fire Service and Civil Defence (FSCD) at Cox's Bazar
Municipality Area: Cox's Bazar Municipality; Upazila: Cox's Bazar Sadar
District: Cox's Bazar

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Contents

ACRONYMS

BCCP	Bangladesh Center for Communication Programs
BNBC	Bangladesh National Building Code
BOQ	Bill of Quantities
CiC	Camp in Charge
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
FSCD	Fire service Civil Defense
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
MoDMR	Ministry of Disaster Management and Relief
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
OHS	Occupational Health and Safety
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Band

1. INTRODUCTION

1.1 Project background

An estimated 730,000[1] people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033[2]. This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained basic service delivery system even before the crisis evolved and the mass exodus of FDMN has worsened the situation further. The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of both Forcibly Displaced Myanmar National (FDMN) and people from the host communities in Cox's Bazar District, to different hazards and improve the basic service delivery system through resilient infrastructure development and Prohibiting Gender-Based violence 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, including construction drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as installing lightning protection systems, solar street lights, nano-grids, and building firefighting/search and rescue warehouses. 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 Rationale of Site Selection for fire service under the project

Fire Service and Civil Defence is a service oriented first responding government organization of the People's Republic of Bangladesh under the Ministry of Home Affairs, with a mission to protect and save lives and property for a safe and secured Bangladesh. In every aspect of development, safety and security is an essential segment and therefore, planning ahead is key to sustainability and utilizing resources as such is the way to move forward. Increase in number of DRP and internal posting of local population in the district from the last wave of migration in 2017 has brought increased demand for space and services. Allotting assets towards safety is a high priority given the circumstances of high population in Bangladesh since it increases the degree of vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade.

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

Fire incidents across the country rose by 22.5 percent to 24,074 in the year 2019, compared to 19,642 in 2018, causing a loss of Tk 330.41 crore[3]. In Chittagong division alone, 147 number of incidents were reported as per NDRCC[4]. There is no doubt that this hazard is responsible for damages in no trivial amount. Upon all these affairs, high number of human settlers in Cox's Bazar are creating a case where this incident casualty is increasing every year; several ravages of fire incidents have been recorded in last two years in different DRP camps with huge losses of assets and properties. Adding more people, especially DRPs, to the existing population of resource-constrained Cox's Bazar district increases hazard risk (e.g., fire, land sliding, etc.) in the areas; while the existing resources and capacity of FSCD is very limited in terms of operating rescue and recovery operations. Thus realizing the challenges that FSCD faces in Cox's Bazar and need for capacity enhancement, the Government of Bangladesh has taken different capacity enhancement activities of FSCD, through this EMCRP project, and building construction for FSCD in Cox's Bazar is among the target initiatives. The decades-old existing building will be demolished and the new building will replace the same, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure. Moreover, the site is government owned having a very good accessibility from every corner of the district and the nearby upazilas of Ukhiya and Teknaf.

In fact, with a target to improve the accessibility to emergency services, such facilities are to be developed in the district where in plight, actions can be taken and efforts can be organized to reduce loss from such fire incidents.

1.3 Background of the Sub-project

EMCRP will support the Government of Bangladesh in addressing the immediate and urgent needs of the displaced people from Myanmar in Cox's Bazar, within the scope of improving access to basic services and building social service-oriented facilities of the displaced and local population. With the additional financing to the project, GoB will provide support and service facilities for the local people as well.

A Fire Service and Civil Defence Building will be constructed under the municipality area of Cox's Bazar Sadar Upazila in Cox's Bazar district, under the package no. EMCRP/AF/W8. The catchment area of the subproject comprises the surrounding area of the municipality. Relevant significant features of the sub-project area and the proposed fire service building features & facilities have been tabulated in Table 1.3.1 and 1.3.2.

Table 1.3.1: Significant features of the area and the Sub-project

Name of the sub project	Fire Service Center
District	Cox's Bazar
Upazila	Cox's Bazar Sadar
Union	Municipality
Owner of land	Government
Land Available (sq. ft.)	19,602

[3] The Daily Star; Front Page (February 10, 2020)
[4] Nirapad: Monthly Hazard Incident Report (April,2021)

Structural Design Option	Rectangular Shape G+5 Story with Mezzanine Floor of new FSCD Building (Dimension: Length 30.30m X Wide 24.70m)
Catchment area	Cox's Bazar Municipality
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	Bazarghata Main Road
Land acquisition	Not required
Current land condition	An old fire service station/building is found on the target location with capacity of service

[D&SC and Field survey, 2021]

Table 1.3.2: Proposed Building features and facilities of the Sub-project

Fire Service & Civil Defence Building in Cox's Bazar Municipality		
Floor Type	**Major Architectural Features**	**Quantity**
General Assemblage for all Floor	Total Floor Area (m^2)	748.41 square meter
	Drinking Water Facility	Yes
	Stair	Yes
	Lift	Yes
Ground Floor	Generator Room	1
	Parking Area	1
	Sr. Station Officer Room	1
	Station Officer Room	1
	Service Room	2
	Toilet	1
Mezzanine Floor	Office Room	2
	Service Room	2
	Toilet	1
1st Floor	Emergency Operation Center	1
	Office Room	2
	Service Room	2
	Toilet	1
2nd Floor	Barrack	2
	Assembly Space (Open to Sky)	1
	Veranda	2
	Recreation Zone	1
	Prayer Space	1
	Dining Room	1
	Service Room	2
	Toilet	1
3rd Floor	Office Room	10
	Lounge	2
	Meeting Room	1
	Void Space	1
	DAD Office	1

	M. Toilet	1
	Service Room	2
	Toilet	1
4th Floor	Rentable Office Floor	2
	Void Space	1
	Green Terrace (Open to Sky)	1
	Store Room	1
	M. Toilet	1
	Service Room	2
	Toilet	1
5th Floor	Veranda	4
	Bed Room	12
	Toilet	12
	Green Terrace (Open to Sky)	1
	Dining Room	1
	Service Room	2
	Kitchen	1
Roof Top	Green Terrace (Open to Sky)	1
	Water Tank	2
	Fire Hydrant	1
	Service Room	2
	Store Room	1

The objective of this Environmental Screening Report is to screen out the major environmental features of the proposed sub-project site and surrounding areas and assess the potential impacts in respect to the planned interventions on the site and also suggest with site and activities specific management plan including appropriate mitigation options.

1.4 Location of Sub-Project

The Sub-project is located in the municipality area of Cox's Bazar District. The site location is relatively a plain land and accessible through vehicles through 12ft wide broken BC road is present near the site which connects all major roads in the municipality area. The location details of the Sub-project have been summarized in Table 1.4.1. The District Map with project location, Location map of Fire service center shown in Figure 1.4.1 and Figure 1.4.2 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Cox's Bazar Sadar
Union	Cox's Bazar Municipality
GPS position	21.443206°N and 91.977734°E
Distance from Upazila HQ	3.82 km
Nearby major road	West Bazar Ghata Main Road
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2021]

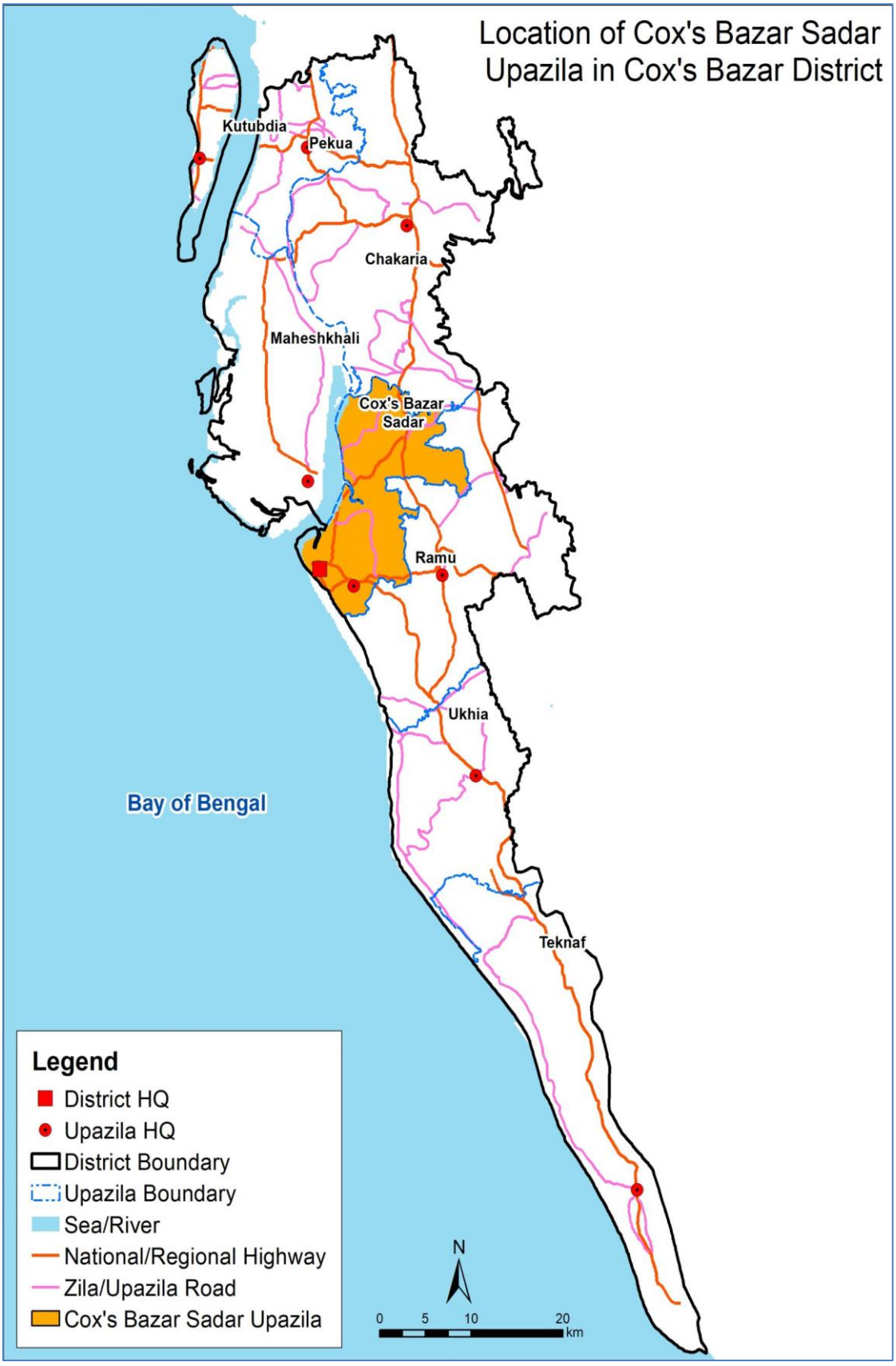


Figure 1.4.1: District Map with project location

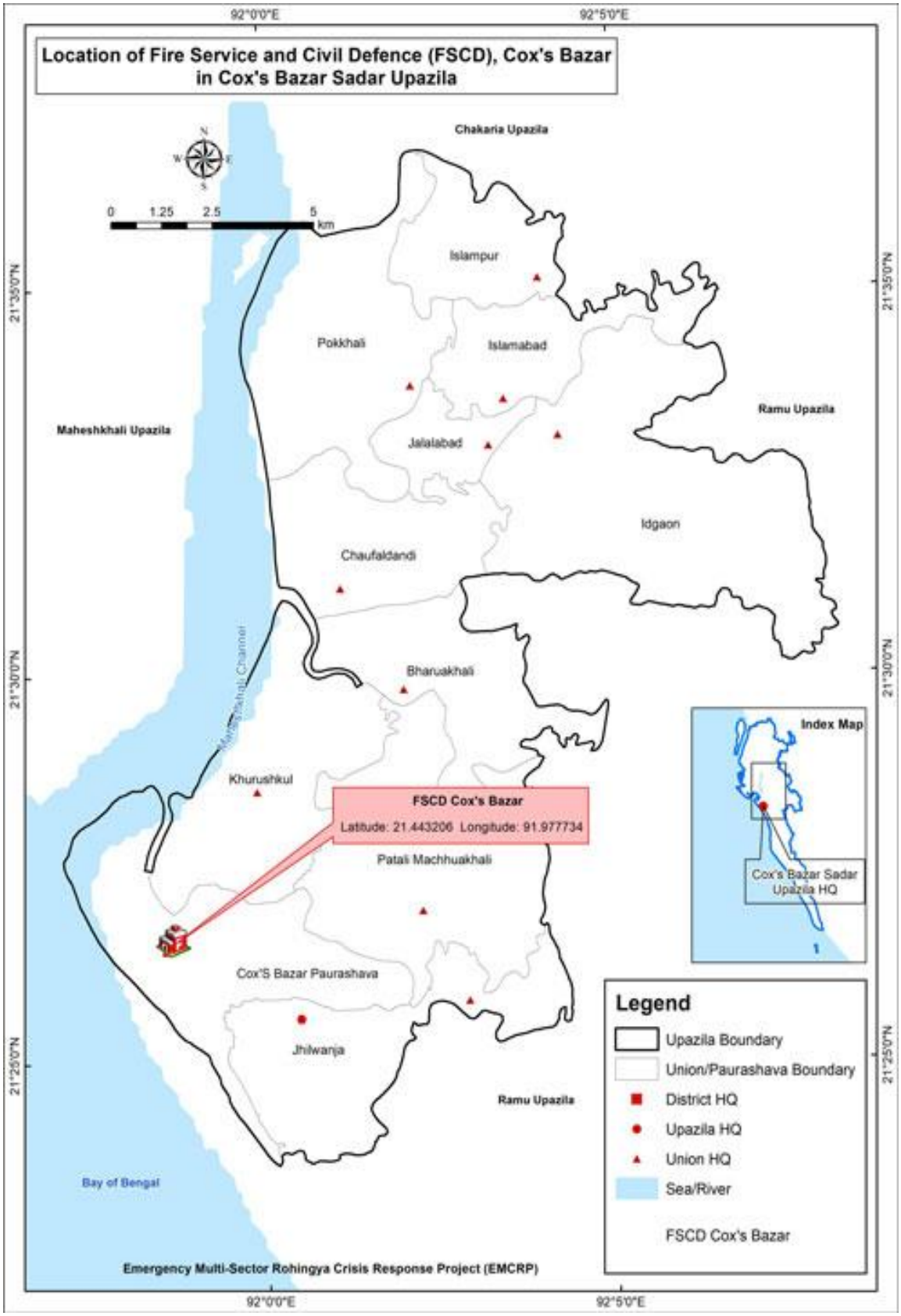


Figure 1.4.2: Location map of Fire Service & Civil Defence Office

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within half a km radial distance from the site which might face direct/indirect impacts from the construction works have been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area have been shown in Figure 1.5.1 and 1.5.2 respectively.

Table 1.5.1: Important features/establishments around the Sub-project site

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Municipality hawker market (10m), Ummedia Jame Mosque (400m)
South side	Zila Sadar Hospital (42 m), Khalka Jame Mosque (400m), Cox's Bazar Boys High School (500m), Municipality Preparatory High School (500m), Bir sreshto Ruhul Amin Stadium (480m)
East side	Fire Service Jame Mosque (10m), Boro Bazar Jame Mosque (50m), Bazarghata Pond (450m)
West side	Laldighir Jame Mosque (450m), kalibari Mondir (500m), Laldighi Pond (480m), Pan Bazar Road Medicine Market (30m), Community Clinic and Eye Hospital (50m)

[Sources of data: D&SC Field survey, 2021]

Figure 1.5.1: Present condition of the Sub-project site

Figure 1.5.2: Proposed location of Fire service Civil Defence building construction

2. PUBLIC CONSULTATION AND PARTICIPATION

2.1 Methodology

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Field visit has been carried out on 07 February 2021 in and around the Sub-project site. As part of the impact assessment, participatory public consultation was conducted in that area by the field level staffs, and consultants from PIU and D&SC. The consultation meeting was attended by 18 persons, and they were all Fire service officers and from local communities. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. Their concerns and comments were very critical for this proposed intervention, also for the safeguard screening, since all of the items are selected in side camp locations. The planning and adjustment which may be needed during, prior and post construction phases are to be moderated/ coordinated by the Fire Service and Civil Defence office only. This location, in particular, has no major complications and is in sheer relevance to the authority currently.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the Fire Service and Civil Defence office in Cox's Bazar Municipality and the list of attendees in that public consultation meeting, respectively. In addition, several walk-through informal group consultations were also held. A questionnaire was kept ready and responses were elicited. During these consultations, the communities were explained about the project, facilities for the specific sub-project, its benefits, and associated social and environmental aspects and possible mitigation measures.

Figure 2.1.1: Public Consultation in the Proposed Sub-project Site

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

2.2 Issues Raised by the Participants

The issues raised by the participants were as follows:

- They are very much in need of a better facility, so that they can perform their duties better and more effectively in case of an emergency and have access to updated gears.
- One of their concerns was the access road; the current road is not wide enough to response to fire hazards in time.
- Lack of adequate spaces for providing training to their officers/staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during the construction works.

2.3 Suggestions and recommendations of the participants

The participants presented the following suggestions and recommendations:

- The people attended in the meeting have considered that the selected site is suitable for the development of Fire Service & Civil Defence office from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the municipal areas.
- The participants have expressed their greater interest for this Fire Service & Civil Defence office for their community and using this facility with highest compatibility.
- Separate male and female latrines should be present for all the best concerns.

- Public safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required and maintaining safe working hours so that it does not come in the way of local traffic or courses.
- They also requested to keep provision for facilities in respect to sanitation, hygiene and power supply facilities, etc.
- They have also ascertained that the selected site is free from any events related to resettlement and environmental impacts.
- The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and persist for a short duration, yet proper management/conservative options should be adopted.

3. ENVIRONMENTAL SCREENING

3.1 General

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment based on this screening study for the Sub-project. The screening survey has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 07 February 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

The screening data and information for this Sub-project and details screening summary have been formulated and shown in Appendix-1.

3.2 Major Findings

The proposed sub-project (Construction of Fire Service and Civil Defence building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The center will be constructed within selected site allocated where no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. Some earth excavation work will be involved, so air, noise and dust pollution will be occurred within a small-scale during construction period. Within half a km from the site, there are several mosques, schools and ponds located, primarily. To the north Municipality hawker market (10m), Ummedia Jame Mosque (400m); To the south Zila Sadar Hospital (42 m), Khalka Jame Mosque (400m), Cox's Bazar Boys High School (500m), Municipality Preparatory High School (500m), Bir sreshto Ruhul Amin Stadium (480m); to the east side Fire Service Jame Mosque (10m), Boro Bazar Jame Mosque (50m), Bazarghata Pond (450m); to the west Laldighir Jame Mosque (450m), kalibari Mondir (500m), Laldighi Pond (480m), Pan Bazar Road Medicine Market (30m), Community Clinic and Eye Hospital (50m) are located. Few disturbances to some of these establishments/features are anticipated due to construction activities, in the case where a sufficient distance from the construction site couldn't be maintained.

However, appropriate safety measures such as, strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials etc. should be maintained. Construction related activities and setting up of labor camps along with associated facilities and their management issues will be accounted for impacts more likely to be generated during the pre, post and construction period. Noise pollution from pilling or drilling, air pollution caused by dust and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place. Soil can further be eroded and polluted from chemical spills or improper disposal of waste materials. Vibration effect generated from pilling and drilling may also trigger harmful disturbances to local fauna. Impact on surface and ground water bodies might get acute due mainly to the high abstraction rate and disposal/leakage of pollutants to the surface/ground water bodies. There is no evidence of presence of elephants in the subproject area.

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

3.3 Climate Change Impact Screening

3.3.1 General Overview of the district

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank[5] 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, as 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.

[5] 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 planation in sub-project areas, rainwater harvesting from every disaster shelter, 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

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 impact could only be assumed in an overarching manner.

The impact of cyclone and precipitation has higher impact in this district, Intensity of precipitation has increased according to the participants and number of cyclones has been seen to have increased in the past few years. Salinity has not been found in the vicinity of the subproject. Cyclonic storm surge has medium impact in different parts of the district. Temperature has increased and thus may have medium impact on the area and thunder storm has been seen to have increased and is found to have highest impact in the area. Water stagnation has not been found.

As compared to the entire district area or a 50km resolution for model simulation, the sub-project site is a very tiny point for impact generation, so tiny is its footprint in respect to climate change effects. Yet, to avoid the devastation caused by the growing thunderstorm events, conventional lightning protection system (copper rod to be used as a lightning arrester) will be employed to the proposed fire service facility. This building will have the ground floor with a height of 1.5 feet from the ground level which will accommodate only fire service vehicles and instruments, and there will be a mezzanine floor having the height of 12.5 feet from the GL, which is safe enough from any potential storm surge in the area. The highest wind speed among the cyclones hit Cox's Bazar was 210 km/hr (e.g., recent events in 1994 and 1995), whereas the proposed building has set the highest wind speed in design to withstand is 288km/hr and the entire construction works will follow the due qualitative specifications set in the Bangladesh National Building Code (BNBC) 2020.

Lift for physically challenged people and maintaining easiness to access to the building for all, separate toilets for male and female, provision of green terraces are also suggested to be incorporated in the design and to be implemented as part of the construction works of this FSCD Building. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the school premises.

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.

The proposed Fire Service & Civil Defence office building will be constructed on a plain land, and as the old office will be demolished, a temporary FSCD office will be constructed beside the site for continuing with the day-to-day office works and services which will be dismantled and removed once the proposed construction works are over. There is some matured vegetation found within the periphery of the site. Due to the construction activities of this Sub-project, 10 nos. of trees (medium sized) will need cutting and as a mitigation measure, 50 nos. of trees should be planted in the target location. Further, some settlements around the sub-project location might get affected during the construction period with the generated debris and dust, though for the time being. Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and construction waste, and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Further construction related activities which may result in adverse impacts in the surrounding environment of the sub project, especially the noise and vibration impacts, must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. In order to minimize the risks of fire hazards or small fire incidents during the construction period, appropriate type of fire extinguishers shall be kept at site. As the site is located in a busy part of the city, traffic management issue may appear to be critical and needs special care (with employing personnel for guiding traffic at the entrance) throughout the construction period. Contractor's staffs and workers will be given training on good practice construction works, health safety, fire/hazard 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 people living in the municipality.

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.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&SC, 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 office.

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 have to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

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

4.3 Cost of Environmental Management and Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures along with monitoring options for this sub-project component, a set of items are included in the BOQ of this sub-project. Provision for engaging a Safeguard Personnel responsible for ensuring Environmental and Social Management works for the Work Package EMCRP/AF/W8 has also been added in the BOQ. An allocation for some environmental enhancement and mitigation works such as tree plantation and dust Suppression is included in the ESMP budget. Moreover, in order to ensure health safety and sanitary measures of workers by providing labor shed, PPEs, First Aid Box, drinking water facility, temporary but separate latrine for male and female workers as well as waste disposal systems necessary budgetary allocation is provisioned. As the workforce at site need to be sensitized on environmental and social performance issues, motivational training on environmental and social considerations has been taken into account. An overview of the estimation is given 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. 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 measure 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 Cox's Bazar Sadar 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. Safeguard's 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 those 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 situations 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

We know that the whole world has been facing an unprecedented situation due to the devastation being caused by COVID-19, and Bangladesh is facing the same. Economic activities became limited and restrictions were imposed on movement and activities several times during the last one and a half year of infliction. The government has lifted the restrictions on public movement and activities from 11 August 2021, with reminding the authorities to make sure that people wear face coverings, maintain distances and follow other health safety guidelines when they are outdoors. Government has directed the local government division, information ministry, religious affairs ministry, health service division and district and upazila administrations to hold public awareness campaigns to stem the spread of the lethal virus. Besides, the Government has started mass vaccination program in full swing as part of the effort to reduce human losses and revive the economy of the country, which has been shattered heavily for the discontinued economic activities in last one and a half years.

This new-normal situation is still limiting the movement of consultants and supervising staffs to the proposed working sites for undertaking the screening survey along with conducting effective consultation meetings, which is in turn affecting the overall progress of the project and there might have a likely chance to remain the gaps in overall screening process and outcomes.

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, safety & protection against fire and other man-made hazards, 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 and the area will receive more advanced services in relation to fighting fire-related hazards, emergency rescue and rehabilitation during any disaster period and so on.
- The FSCD officials and workers will have sufficient spaces for office and barrack, and for other services. Residential, storage and service capacity of the FSCD unit at Cox's Bazar Sadar Upazila will be increased significantly with the construction of the proposed building, which will consequently strengthen the professional capacity of the department to fight disaster and emergency situation more effectively.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety that need to be minimized through the management plan.

- The project will create employment for those who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development, if necessary, with large-growing trees at the periphery of the site, and green terraces in upper floors of the building will give the places a more natural and pleasing appearance.
- A comprehensive Environmental and Social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities.

Implementation of this Sub-project will have large positive impacts to the communities in terms of ensuring safety and security from natural/man-made disasters and emergency situations, which would eventually retain the socio-economic condition of the people living in the catchment areas. Direct economic benefits from the engagement in different capacities during the construction period will also put some positive effects to the nearby community people. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Sub-Project Description Form: (Building Construction for Fire Service and Civil Defence (FSCD) at Cox's Bazar)

Name of Sub-Project: Building Construction for Fire Service & Civil Defence (FSCD) at Cox's Bazar. (LGED/EMCRP/AF/W8)

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

Estimated total cost of sub-project (in Taka): 2,547 Lac BDT

Estimated construction period duration: 2 Years

Estimated Operation and Maintenance period (life of sub-project): 15 years

District: Cox's Bazar **Sub-District**: Cox's Bazar Sadar **Union**: Cox's Bazar Municipality

Name of Community/Local Area: Bazarghata, Cox's Bazar Municipality, Cox's Bazar.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): Rectangular Shape G+5 Story with Mezzanine Floor of new FSCD Building (Dimension: Length 30.30m X Wide 24.70m) will be constructed within the target location.

Estimated footprint / land area for this sub-project is 19,602 sq. feet

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: Proposed Fire Service Center Steel Frame Building will be constructed within an identified location in the Sadar (town) area. To the north Municipality hawker market (10m), Ummedia Jame Mosque (400m); to the south Zila Sadar Hospital (45 yard), Khalka Jame Mosque (400m), Cox's Bazar Boys High School (500m), Municipality Preparatory High School (500m), Bir sreshto Ruhul Amin Stadium (480m); to the east side Fire Service Jame Mosque (10m), Boro Bazar Jame Mosque (50m), Bazarghata Pond (450m); to the west Laldighir Jame Mosque (450m), kalibari Mondir(500m), Laldighi Pond (480m), Pan Bazar Road Medicine Market (30m), Community Clinic and Eye Hospital (50m) are located. Being within the municipality means that the surrounding area is mostly inhabited by host community and local establishments of Cox's Bazar.

Overall Comments

People of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The subproject is environmentally sustainable and socially acceptable. Fire Service officers attended in the participatory public consultation meeting. They do not have any objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED. The public consultation meeting results confirmed that presence of this Fire Service Center will increase the access to emergency services and increase options for better preparation. This will also make way to ensure peoples' right to safety services. They also requested to keep provision of better accessibility to the service or facilities.

The proposed Sub-project area for the construction of Fire Service & Civil Defence office 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. As the building construction work is restricted to within the predefined boundary, no outside activity will be involved.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction of this building on the selected location. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of plastic and human wastes might be generated if labor camp is established. During the operation phase, kitchen waste will be produced from the residential part of the establishment, and human waste will find its way to septic tanks.

Sensitive environmental, cultural, archaeological, religious sites near (within 0.5 km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. To the north Ummedia Jame Mosque (400m); to the south Zila Sadar Hospital (45 yard), Khalka Jame Mosque (400m), Cox's Bazar Boys High School (500m), Municipality Preparatory High School (500m); to the east side Fire Service Jame Mosque (10m), Boro Bazar Jame Mosque (50m), Bazarghata Pond (450m); to the west Laldighir Jame Mosque (450m), Kalibari Mondir (500m), Laldighi Pond (480m), Community Clinic and Eye Hospital (50m) are present in the surrounding areas of this target location.

Some degree of disturbance is anticipated due to construction activities to those components since they are located in very close proximity. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below.

Section A: Sub-Project Overview

Description of sub-project/component interventions: Fire Service & Civil Defence (FSCD) building will be constructed within the boundary of an existing Fire Service & Civil Defence office area at Cox's Bazar Sadar, which will typically be used as a multipurpose (office-storage-service cum residential) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a G+5- story building with mezzanine floor being open for parking entrance. Safe water supply will be ensured, and all selected rooms will be provided with furniture and other essential tools/equipment. Floors will have mosaic finish and bathrooms have tiles for easy maintenance and cleaning. A walkway will be constructed from the camp entrance to the proposed building for the ease and safe movement during the rainy season. However, the existing structure in the same place will be demolished as part of the construction responsibility and a temporary shed for office and vehicles along with equipment/storage will be provided for the construction period.
Sub-project Location: The sub-project area is situated in Cox's Bazar municipality under Cox's Bazar district. The sub-project area is located at 21.443206° N and 91.977734° E. The distance from the Upazila headquarter is about 3.82 km. Nearby major road is Bazarghata main road. **Land ownership** Land is owned by the Government.

Expected construction period: 2 Years

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:

Project intervention area is found to have a pre-existing fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north Municipality hawker market (10m), Ummedia Jame Mosque (400m); to the south Zila Sadar Hospital (45 yard), Khalka Jame Mosque (400m), Cox's Bazar Boys High School (500m), Municipality Preparatory High School (500m), Bir sreshto Ruhul Amin Stadium (480m); to the east side Fire Service Jame Mosque (10m), Boro Bazar Jame Mosque (50m), Bazarghata Pond (450m); to the west Laldighir Jame Mosque (450m), kalibari Mondir (500m), Laldighi Pond (480m), Pan Bazar Road Medicine Market (30m), Community Clinic and Eye Hospital (50m) are located. However, there is very less likely chance of disturbance during this construction activity due to the adoption of best practice construction management in the field and stringent monitoring of the activities.

Few trees will be affected by this construction activity. Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

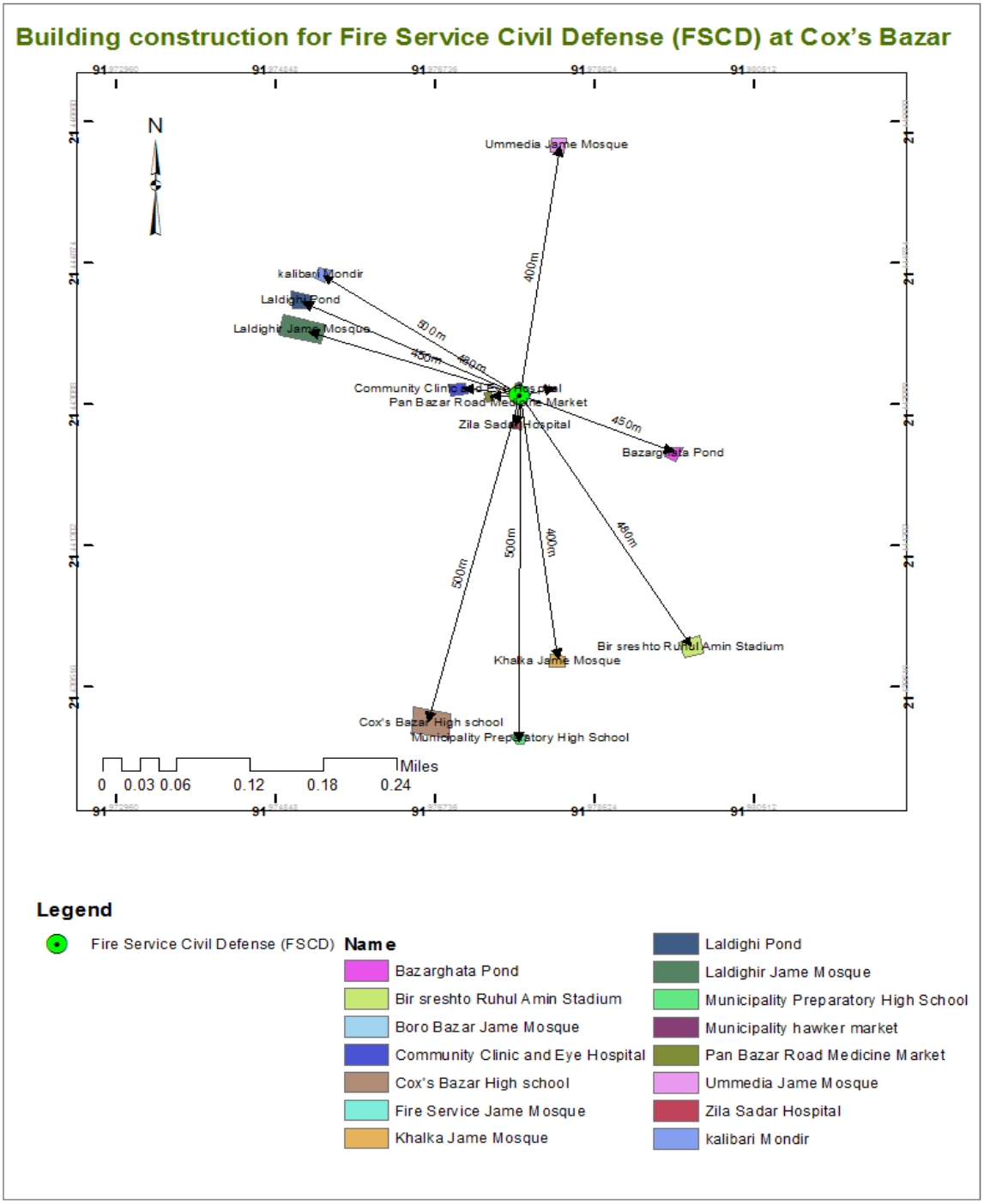
***B.1*: Environmental feature of sub-project location**

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

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

Among the sensitive cultural, environmental, or religious sites in the areas, Ummedia Jame Mosque (400m) in the north; to the south side Khalka Jame Mosque (400m), to the east side Fire Service Jame Mosque (10m), Boro Bazar Jame Mosque (50m), Bazarghata Pond (450m), to the west side Laldighir Jame Mosque (450m), kalibari Mondir (500m), and Laldighi Pond (480m), are located.

There are no further sensitive environmental, cultural, or religious sites exists within the catchment area of this sub-project.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site and ponds around this location. Several mosques, markets and human settlement were found during the survey. Other than some trees found to be cut, all these will not be affected by the construction works, as the activities will be carried out within the existing selected boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

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

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

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

N/A (This activity will be ensured in host community and within existing FSCD office boundary)

(3) Other issues:

No more mentionable issues raised.

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

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently dusty due to the appearance of municipal settings around. Dust is generated through movement of vehicles such as motor cycle, tempo, trolley, tractor around the area.

Conducting works at dry season and moving large quantity of materials may create dusts and increase in concentration of vehicle-related pollutants which will affect people who live and work near the sites. The impacts are negative but short-term, site-specific within a relatively small area and reversible/ preventable by mitigation measures.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto, motorcycle, bus, track, rickshaw, trailer, etc. move around the sub-project location throughout the day generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

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

N/A (the sub-project will be constructed on a plain land and within an identified FSCD office boundary)

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

Groundwater is the main source of potable water around the Sub-project area. The deep tube well depth is 800 feet. In the sub-project area, deep groundwater is fresh and potable and arsenic free. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should be deep tube well which pump water from the confined aquifer.

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

Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees are located in the proposed subproject area since there is already an established fire service station present with its amenities.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): A BC road named Bazarghata main road is passing on the north side of the sub-project. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities are already at hand with capacity of service and can ensure facility to the workforce. If separate facilities i.e., washroom is needed, contractor in the vicinity of the construction will provide. Moreover, electric connection is established here and FSCD authority can aid in connectivity realizing the priority points with the contractor team under the supervision of the Engineer in charge.
Possible location of labor camps: Labor camp is not needed since local labor force will participate in the works. However, if needed this will have to be done with the consent of fire service authority, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand iii) Cement iv) aggregates v) metals vi) water vii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction.
Identification of access road for transportation (Yes/No): A BC road named Bazarghata main road is passing on the north side of the sub-project. It is possible to carry the construction materials on this road to the construction site.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space within the existing fire service office boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, dust from bricks during construction of project components will be produced. Also, sludge will not be a matter of concern since labor camp or supporting latrines are not considered or kitchen waste composing organic matters (fiber, starch, carbohydrates and proteins) is not a possibility. However, plastics or non-biodegradables can be said to be a major amount of the total waste. Solid waste may amount to 10 kg daily and sludge may amount to 2 kg per day.

Demolition wastes from the existing building will be heterogeneous mixtures of building materials such as aggregate, concrete, wood, paper, metal, insulation, and glass that are usually contaminated with paints, fasteners, adhesives, wall coverings, insulation, and dirt, and these wastes will be removed from the site before the construction work begins.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will not be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which is mostly solid wastes. Leftover oils or spills from machinery can more likely to generate liquid waste. Waste from civil works will also add to the quantity of solid wastes, and the overall quantity will be nearly 100 kg.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Brick, ii) Sand, iii) cement, iv) aggregates, v) water, vi) iron rods are the most common type of raw materials to be used in the 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: Around 19,602 sq. feet land is required for the sub-project establishment. There is reasonable vegetation around the sub-project area. The vegetation will be affected by construction work. The area inside the existing fire station boundary is clearly enough to accommodate stack/equipment yards, temporary waste dumping sites, as well as the target construction plots.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) **Low**: No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the sub-project area. During construction period one or two water reservoir may be constructed for carrying out construction activities. But all those will completely be demolished and cleared out, once the construction period is over.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre-existing drainage channel is found. Though ponds are found outside of the construction area, but will not be affected because of having a fair distance from the construction site and the adoption of proper construction site management practices.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low: The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

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

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase of this subproject, small amount of dust and exhaust gas might be produced by the vehicles bound to emergency cases and while passing over the adjacent road which will be low in intensity. So, causing any health hazards and interference of plant growth is not very likely to happen by such activities for quite a short duration.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Low. The proposed fire service center will be equipped with full facilities for conducting emergency services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced for transferring to any disposal system during the operation period. Very little amount of solid waste consisting of mainly paper, plastic, polythene, and organic stuffs is likely to be produced in a typical day. All these wastes will be stored in covered plastic bins temporarily, and later collected and transferred by the agency responsible for waste management services in the municipality. Therefore, no odor, water and soil quality impacts are generated.
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 creating stagnant water bodies that can encourage 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: During the operation phase, this Fire Service & Civil Defence office will improve the social safety condition of the local community of the catchment area by providing better rescue services, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improve the living condition. Further, this facility will have improved capacity

to serve the community and will play a strong pivotal role in preserving fire/disaster security and ultimately help them gain better social life which certainly will have a huge positive impact.
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 are present within the sub-project boundary area, and no extent of disturbance or modification during the operation period 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) There is no protected area in or around the project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: The proposed site is located inside the established Fire Service compound. A BC road connects the sites. The roads are used for pedestrian access and vehicles like bicycles, motorbike, three wheelers, truck, cars etc. therefore, during operation period traffic congestion is expected. If not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and dust being dispersed around during the dry weather, and accidents may occur due to the bad condition of the access road and unsafe driving through it.
Type and Chance of hazards affecting Sub-project and labor camp location (e.g., flooding, landslides, cyclones, etc.) (High/Medium/Low with description) Low. The site is located on a relatively flat land area, and the area is devoid of any unstable masses of soil which can trigger landslide or mass movement during the operation phase.
Accessibility to the closest disaster shelter (Easy/Difficult with description) Cox's Bazar Government High School and Cox's Bazar Government Girls' High School are located within 500m distance from the site of FSCD building, which are easy location for taking shelter during the disaster period. Moreover, FSCD building itself may provide temporary shelter in its premises during the emergency period.

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	**Construction** of a Fire Service & Civil Defence office (degradation of air, water and soil quality, and local hydrology)	Under the sub-project intervention, the overall score is low	• Limiting earthworks; • Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; • 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 stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • All precautions to store chemicals/oil/fuel properly so that no chance of spill. • Workers must specify waste dump locations to avoid littering which in turn	Contractor, Environmental specialist of D&SC	Visual monitoring result of air quality condition, Results of water test parameters, blockage of water flow with soil, debris or stack materials at site.	Throughout the time during the construction period.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			might negatively affect surface and ground water. • Monitor water quality according to the environmental management plan.			
2.Pre-construction Phase	**Site planning** (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention, the overall score is low.	• The construction area is on a plain land. The entire construction area within the selected boundary needs to be well fenced so that children, people and others could be protected from any accidental events/injuries. • Construction camp and material storage area should be located at the site & approved by the Environmental Specialist of D&SC. • A mosque is nearby the FSCD boundary, so construction material storage needs to be stockpiled in such a location that the mosque is not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Constructi on works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of crime, Access of students, children, animals, etc.)	Under the sub-project intervention, the overall score is low.	• The contractor shall submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures. • Proper procedure for stockpiling/ storage of construction materials at the site will be proposed by the contractor & approved by the Environmental Specialist of D&SC. • Proper covering of dust producing materials with polythene sheet,	Contractor, Environmental specialist of D&SC	List of selected sites; Identified sources and storage place of materials.	During Design Stage

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			• Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by students, children, animals, etc. • Spills/ hazardous substances should be disposed of at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.			
	Demolishing of an existing structure	Under the sub-project intervention, the overall score is High	• Water spraying at the demolition site • Fencing / Installing barriers should be shield from dust and aggregates • Avoid usage of machines/equipment with extra noise; • Do not accumulate and burn waste at the site • Carry out demolition activities in stages, give adequate notice and information of activities to the adjoining stakeholders • It needs to Identify proper location to dispose solid waste from demolition and other activities in consultation with respective bodies • Make mandatory the use of safety gears (helmets, safety belts, masks, gloves and boot) by workers depending on nature of	Contractor, Environmental specialist of D&SC	List of selected sites; Identified sources of materials.	During Design Stage

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			work. • Further guidance on demolition works and wastes management is given in the appendix 2, below the ESMP table, to be followed by the contractor.			
	Setting up of labor camp (Generation of sewage waste; solid Waste; Water, soil, air & dust pollution/ environmental pollution; health hazard of workers due to poor quality drinking water)	Under the sub-project intervention, the overall score is low.	• Construction camp should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Constructi on works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			disposed of at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times.			
	Accidents	Under the sub-project intervention, the overall score is Medium.	• Provision of standard safety protocol. • Providing training on Environmental health and safety to the labors and associated field staffs is the responsibility of Upazila Engineer & Contractors. • Training should be scheduled twice, once before starting the construction & another in the middle of construction period. • Safety & protection gears, first aid box etc. should be available in the site during construction period.	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of materials transport vehicles.	Before and during construction phase
3. Construction Phase	**Noise Impacts**	Under the sub-project intervention, the overall score is low.	• Avoid high noise making activities during active hours. One very effective method is to discuss with the authority and settle for a time for heavy machinery usage. • Involve the community in planning the work program so that any particularly noisy or otherwise invasive activities can be scheduled to avoid sensitive times. • Avoid using of construction equipment producing excessive noise at school time & at night. • Ear protection devices for the workers & site staffs should be available in site during	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in noise producing equipment and sound barriers, Noise	Weekly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			construction period.		Level following decibel meter (dB)	
	Air Quality Conducting works at dry season and moving large quantity of materials may create dusts and increase in concentration of vehicle related pollutants which will affect people who live and work near the sites. The impacts are negative but short-term, site-specific within a relatively small area and reversible by mitigation measures.	Under the sub-project intervention, the overall score is low.	• Damp down exposed soil and any sand stockpiled on site by spraying with water during dry weather. • Use tarpaulins to cover soils, sand and other loose material when transported by trucks. • Unpaved surfaces used for haulage of materials within settlements shall be maintained dust-free. • Arrangements to control dust through provision of water sprinklers and dust extraction systems shall be provided at all stone crushers (if these establishments are being setup exclusively for the subproject). • Limiting speed of construction vehicles in work sites to maximum of 20 km/h. • Regular monitoring of air quality.	Contractor, Environmental specialist of D&SC	Location of stockpiles, Covering of trucks, Records of air quality inspection, Numbers of complaints from sensitive receptors, Heavy equipment and pollution control devices, Maintain records	Monthly
	Biodiversity (There are no protected areas in or around subproject sites, and no known areas of ecological interest.)	Under the sub-project intervention, the overall score is low.	• Prohibit employees from cutting of trees for firewood. • If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			cut. • Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.		Numbers of complaints from sensitive receptors	
	Worker's health and safety	Under the sub-project intervention, the overall score is low.	• Prevent excessive noise; • Construction staff are to make use of the facilities provided for them (e.g., fires for cooking); • No fires permitted on site except if needed for the construction works; • Staff must be trained up for operating equipment, • Availability and access to first-aid equipment and medical supplies. • Ensure the presence and use of safety gear at site: Ear protection devices, Goggles, Illuminating jackets, Masks, Gloves, Helmets, Uniforms etc., • Ensure adequate supply of drinking water. • Sanitation facilities for male & female workers separately.	Contractor, Environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly
	Fire Hazards/Fire Safety	Under the sub-project intervention, the overall score is low.	• Contractor will be encouraged to use of inflammable material for the construction of labor housing / site office. • Provide appropriate type of firefighting equipment suitable for the construction camps • Display emergency contact numbers clearly and prominently at strategic places in	Contractor, Environmental specialist of D&SC	Numbers of complaints from workers, Number of fire extinguishers, posters containing	Monthly and as required during the constructio n period.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			camps. • Communicate the roles and responsibilities of laborers in case of emergency in the monthly meetings with contractors		emergency contact numbers. ;	
4. **Post-Construction Phase**	**Construction clean-up** (Damage due to debris, spoils, excess construction materials)	Under the sub-project intervention, the overall score is low.	• Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; • All affected structures rehabilitated/compensated; • The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up; • All imported materials are to be removed and the area shall be re-vegetated as per specification that forms part of this document; • The contractor must arrange the cancellation of all temporary services	Contractor	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works
	Odor& waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor, monitored by Consultant and PMU	Complaints from communities	Site inspection daily / weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Vegetation	Under the issue the overall score is low.	• After construction work, all structures need to be removed and the area shall be top soiled and re-grassed using the guidelines set out in the re-vegetation specification that forms part of the bidding document.	Contractor, monitored by Consultant and PMU	Worksite is restored to original conditions	Over the completion of Works
5. Potential Natural Hazards (e.g., flooding, landslides, cyclones, etc.	**Loss of (damage in) lives, dwellings and possessions.**	Under the issue the overall score is low.	• Construction (incl. piling) works shall be undertaken cautiously considering the soil quality, and liquefaction/land sliding risks. • Emergency evacuation and sheltering during the disaster period have to be ensured, in coordination with respective government departments and local CPP volunteers.	Contractor, FSCD Officials, Consultant and PMU	Complaints from communities, No. of people sheltered and evacuated.	Over the construction and operation period.

* 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 Construction of Fire Service & Civil Defence (LGED/EMCRP/AF/W8): Building Construction for Fire Service Civil Defence (FSCD) at Cox's Bazar

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• No land acquisition is allowed within this sub-project activity so, there is no mitigation measures according to this impact.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact on livelihoods of the people of catchment area.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Stakeholders Engagement	• All the project stakeholders will be consulted • Separate community level consultation meeting with the potentially affected HHs if necessary • Consultation meeting with the authority about the project objectives and scope of works as well as officials. • Officers representing stakeholder interest (Fire Service officials) will be involved with the GRM • All the stakeholders will be informed about the GRM.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of right to access	• In case of unavoidable circumstances, alternative access will be provided. • Access road shall be well demarcated and accessibly paved.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be far away from any water bodies or natural flow path to avoid the flash flood or any kind or surface runoff. • Minimize cut & fill operations, the site clearing and grubbing operations should be limited to specific locations only. • The existing slope and natural drainage pattern on the site should not be significantly altered.	PIU & Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents.		
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole, or covering the end part of iron-bar with plastic caps/ clothes/ sacks or drenching the sand while transporting. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided in a separate place or in the same place where the temporary office/dwellings of FSCD officials/workers will be provided or constructed, within the periphery of the FSCD. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and further filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at day time within 05 PM. Proper measures will be taken to avoid any disturbances. • All Personal Protective Equipment (PPE) will be available in site before starting any kind of construction works.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	• Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons.	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Provision of using water sprinklers to dust control. • Construction materials should be covered properly while carrying in vehicles to the site. • Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.		
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the site will be properly fenced with a single entry, for this purpose. • It will be ensured that proper training and guidance are provided on general and occupational health and safety to Contractors' personnel and labors forces, and records of training sessions are to be kept on site. • All kinds of Child labor will be completely prohibited.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will discuss with traffic management authorities and take site specific traffic management measures to avoid traffic jam and any unwanted incidents or accidents.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. • 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. • Fire Service officials must be consulted before any construction work starts.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction	Increase in road accidents	• Maintain safety measures during the movement and	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity		operation of heavy machineries and equipment. • Local community will be trained up about traffic management and awareness.		Consultant of PIU, PSC
Construction Activity	Labor Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and wood cutting. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor 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 management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e., chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed of at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		stored in the paved and bounded area and subsequently sold to authorized recyclers.		
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	• All construction equipment will be properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Proper walkways will be prepared for office staffs in existing boundary. • Proper Signpost at any slippery areas will be ensured in construction site. • Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. • This sub project has Proper communicative emergency response plan (ERP) with all parties, the ERP to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in	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
		sub-project area. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.		
Construction Activity	Pollution of water bodies	• Contractor will ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE.	Contractor	Environmental Consultant of PIU/D&SC, PSC
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintain noise from the operation and	Fire Service and Civil Defence	UNO, Upazila Chairman of Upazila

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna.	• Maintenance of septic tank and soak well should be carried out periodically. • Preventative maintenance schedule for drainage system should be followed.	Fire and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Maintenance of assets, properties and equipment	• Periodic maintenance of building structures, plumbing, water filtering and electric equipment has to be carried out. • Periodic cleaning and maintenance of solar panel, watering to the storage batteries and maintenance/replacing of associated equipment is to be ensured. • Water tanks should be cleaned properly at least once in a quarter.	Fire and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Decommissioning during the project implementation period (including site clearance after the construction)	The impacts are similar to those listed in construction stage: • Pollution from waste materials • Health & Safety risks to workers and local community.	• Provision to proper measure of mitigation and monitoring to minimize or reduce the environmental and social impacts during decommissioning are anticipated to be similar to those identified for the construction phase. • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those compartments seems to be significantly getting worsen.	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Demolition/Demobilization and Waste Management Plan:

The Contractor shall develop a demolition plan in line with the provisions set in BNBC 2020 and 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 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.

For demobilization:

- After the construction works completed, temporary establishments for that work site as labor camp, latrines and waste disposal facility are to be demobilized. While doing so, separation of joined or coupled items should be considered so that during replacements, no unwanted overhead accidents or any damage comes its way.
- Before toilets are taken care of, enveloping septic tanks must be ensured otherwise odor and chances of vector borne diseases may be induced. Moreover, inorganic chemicals as chlorine powder or bleaching agents should be applied on the surrounding facility to ensure further health safety.
- Kitchen space disassembling must be treated with same level of accuracy and caution.
- It is imperative to ensure all the moving parts should be in manageable portions with the aim that transporting vehicles can house the items safely and overhead workers do not need to take overloads.
- Vehicles should be within a close proximity so that overhead can be minimized as much as possible.
- Waste generated during demobilization should be tackled with the waste management practices preferred by this document in aspects of waste collection, separation and storing.

For demolition works:

- All electric, gas, water, sewer, and other energy services or power lines shall be capped/blinded and/or otherwise cut before the commencement of demolition work.
- All asbestos, insulation materials, glass and other hazardous materials and substances shall be removed. Such materials shall not be stored within the structure to be demolished.
- Openings and weak flooring shall be prominently marked or barricaded before the commencement of demolition. Operators of machinery and equipment and workers involved in demolition work shall be informed of such hazardous location.
- Demolition work shall commence from the top of a structure and progress downward.
- Proper entrances of adequate strength to protect workers from falling materials shall be erected for access into the structure.

- The entire demolition site shall be effectively barricaded with appropriate safety signs displayed.
- The lower floor where demolition wastes are collected shall be properly barricaded and guarded to prevent materials from ricocheting and injuring workers or passer-by.
- Excessive debris shall not be allowed to accumulate inside a demolished structure. All demolition waste and debris shall be cleared from the work site on a daily basis.
- Refuse containers shall be provided at worksite for the storage of demolition wastes and debris.

For wastes generated from construction and demobilization debris:

- 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.
- 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.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area with separate container which cannot be carbonized under high temperature or incidents of fire and subsequently sold to authorized recyclers.
- The scrap material generated from the erection of structures and related construction activities will be collected and stored separately in the stack yard and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials for low grounds if found near the site or be sold for using as sub-base material or driveway bedding.
- All wastes generated during construction shall be disposed of in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Proper waste management chain should be maintained, in case of collected waste and debris from demobilization or construction site, separation in accordance with the type of waste must be maintained. After which all remains shall be kept in a separate location designated for the purpose of segregation and storing until transported to disposal sites allocated by the administration.
- Organic wastes produced in the camp site 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 the construction site shall be prohibited completely.

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

Proposed Cost of Environmental management and Enhancement Works of Building Construction for Fire Service & Civil Defence (FSCD)

In consideration to the environmental impact's mitigation/managment and healthy safety measures for this sub-project, the following items and cost are proposed to include in the BOQ.

Sl no.	Description of item	Quantity	Unit price	Total amount
1	**First Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	1 no.	@6500 Tk. Per box	6,500
2	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 40,000 BDT	40,000
3	**Health safety warning sign & Project Signboard** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 10000	10,000
4	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	10 persons	Approx. @ Tk. 1000.per person (twice: before and after construction start)	20,000
5	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 30,000	30,000
6	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace,	20 nos.	@ Tk. 5000	100,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles 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.			
7	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area preferably at sub-project site where space is available including protection, fencing and conservation during project defects liability period as required by and as per direction of E-I-C. Tree like Dumur, Amla, Parul, Coconut, Jackfruit, Mango etc. to be planted. The payment is to be made only when trees are fully planted. Total 50 nos. of trees need to be replanted around the periphery of the proposed site.	50 nos.	@ Tk. 1000 for each tree.	50,000
8	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
9	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@10,000 each	20,000
10	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of	2 no.	LS @ Tk. 30,000	60,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.			
11	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C. The water test is advised two (02) times to be conducted during the whole construction period (before starting the construction & after) @Tk. 6,500.00 each set of tests (Lump Sum)	2 nos.	@ Tk. 6,500	13,000
12	**Environmental management** Environmental management costs of the Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk.35000 for 24 months. One person covering 1 site. i.e., 35,000tk X 24 months. (Net payment excluding Tax & VAT)	840,000
Subtotal Bill: Environmental enhancement works for Fire Service & Civil Defence Office Building Construction works				**1,229,500**

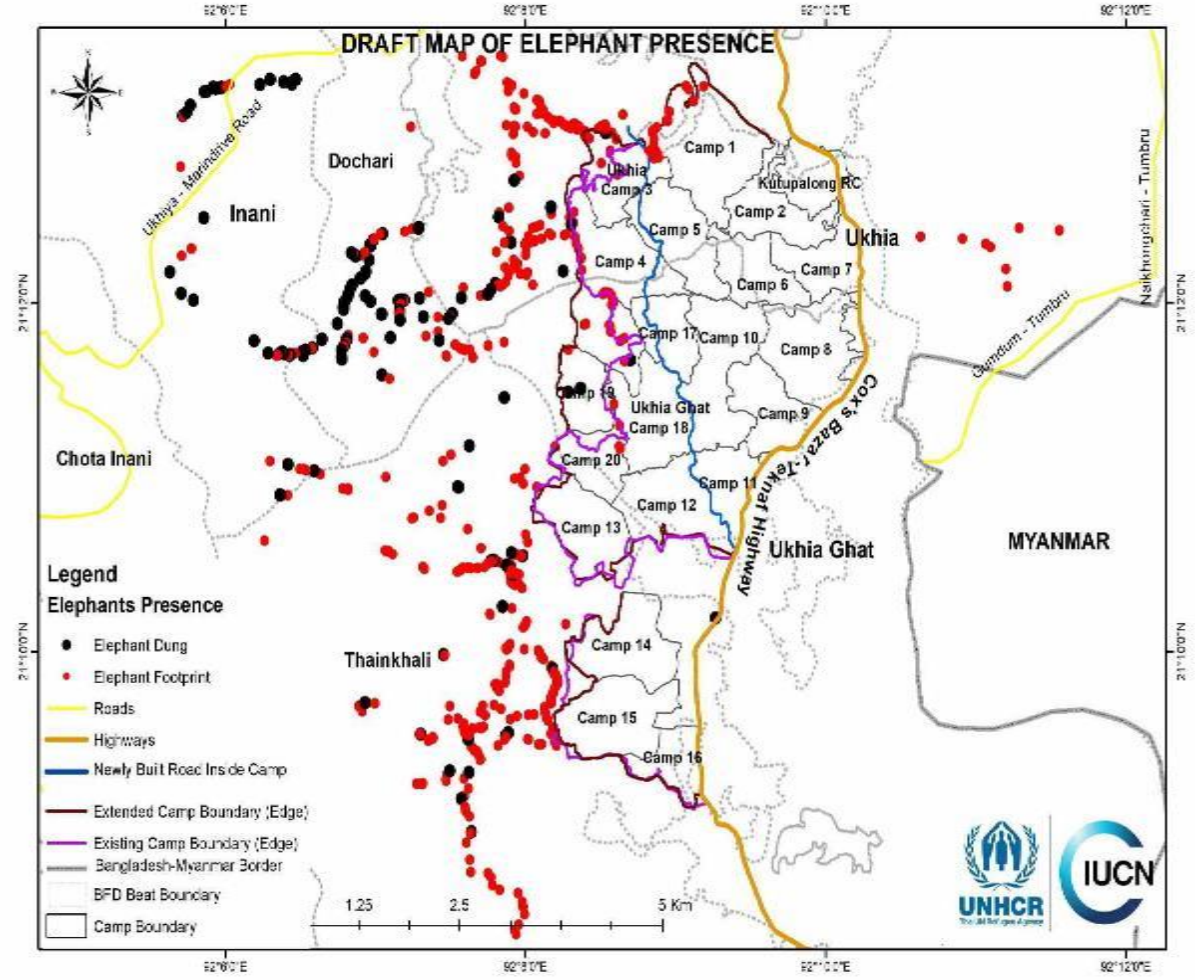
Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W8).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for	2 bottles and 1 Can for each	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	Refill)	site						
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	5400	64,800.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	720	25,200.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	18	7,200.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**165,125.00**	

Appendix-4: Elephant presence map for the nearby areas



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

Appendix-5: List of attendees in the consultation meetings

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

সময় : 1:30 pm তারিখ : 07/02/21

উপ-প্রকল্প/অংশের নাম : AF Fire station

মত বিনিময় স্থান : ফায়ার সেন্টার (অফিস রুম)

ইউনিয়ন : পালংখালী ওয়ার্ড নং : ০৬ ডাকঘর : উপজেলা : উখিয়া সদর জেলা : কক্সবাজার

সাব প্যাকেজ নং :

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর/টিপসই
০১।	মো: মাহমুদ হোসেন (SSO) ~~[illegible] (SO)~~	40	পুরুষ	office	[signature]
০২।	মো: আব্দুল্লাহ (Leader)	51	"	"	[signature]
০৩।	মো: মফিজুল ইসলাম - ফায়ার		"	"	[signature]
০৪.	মো: আতিকুর রহমান		"	"	Azib.
০৫.	মো: হাবিবউল্লাহ		"	"	হাবিবউল্লাহ

Package Number : EMCRP/AF/W8

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

সময়: 04:30 PM তারিখ: 07/02/2021

উপ-প্রকল্প/কম্পোনেন্ট এর নাম: Building Construction for fire service civil defense (FSCD) at Cox's Bazar

মত বিনিময় স্থান: Adjacent to Bazar Ghata road

ইউনিয়ন: Cox's Bazar Municipality ওয়ার্ড নং: 03 ডাকঘর: Cox's Bazar 4700 উপজেলা: Cox's Bazar Sadar জেলা: কক্সবাজার

সংশ্লিষ্ট প্যাকেজ নং: EMCRP/AF/W8

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	পেশা	স্বাক্ষর / টিপসই
০১	আবদুর রহমান	৩৪	পুরুষ	ক্ষুদ্র ব্যবসায়ী	আবদুর রহমান
০২	আবুল কাসেম	৫১	"	কাপড় ব্যবসায়ী	কাসেম
০৩	মোহাম্মদ আলী	৩৮	"	হোটেল ব্যবসায়ী	মোহাম্মদ আলী
০৪	মোঃ আবু বক্কর	৬৩	"	ফল ব্যবসায়ী	বক্কর
০৫	সৈয়দ আলী	২৬	"	আবার দোকান	সৈয়দ
০৬	মোঃ আনোয়ার	২৮	"	পান দোকানদার	আনোয়ার
০৭	মোঃ জামাল	৩৪	"	ক্ষুদ্র ব্যবসায়ী	জামাল
০৮	কালু মিয়া	৬৬	"	জুতা ব্যবসায়ী	কালু
০৯	মোহাম্মদ নেওয়াজ	৬০	"	হোটেল মালিক	নেওয়াজ
১০	মোঃ মহিবুল	২৭	"	কাপড় ব্যবসায়ী	মহিবুল
১১	মোঃ কাসেম	৩৭	"	ক্ষুদ্র ব্যবসায়ী	কাসেম
১২	মোঃ সাবিরুল ইসলাম	৪০	"	ক্ষুদ্র ব্যবসায়ী	সাবিরুল
১৩	মোঃ সাহাবুদ্দিন	৩২	"	কাপড় ব্যবসায়ী	সাহাবুদ্দিন

Public consultation participants' list