

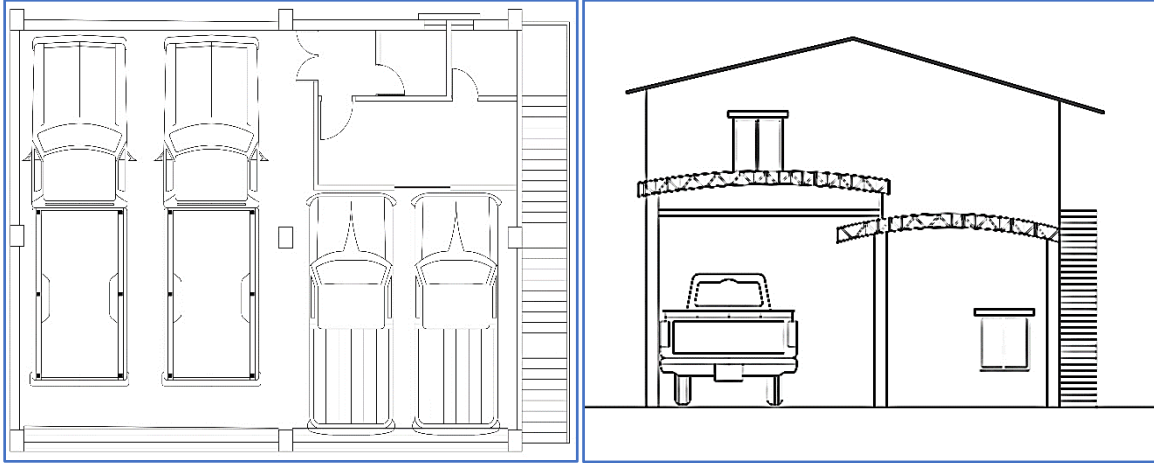


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

Executive Summary

In the backdrop of evolved critical situation and inflicted socio-economic burden across the areas due to the fleeing of thousands of Forcibly Displaced Myanmar National (FDMN) to Cox's Bazar district of Bangladesh, World Bank has extended its support to stand by the government of Bangladesh in different manners, and Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) is one of the World Bank's efforts to 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 population.

Besides providing adequate shelters, necessary goods and services, Bangladesh Government is keen to take adequate measures against disasters of all types, e.g., cyclone, high tide and flooding, landslide, lightning, fire-hazards, etc. for protecting FDMNs as well as the local people in the areas. Therefore, EMCRP has envisaged constructing of 9 (nine) Satellite fire stations accommodating warehouses for firefighting equipment across different camp areas in Ukhiya and Teknaf upazilas of Cox's Bazar district. In fact, several raging events of fire incidents in last couple of years within and adjacent to the camp areas in Cox's Bazar has rationalized this plan of intervention. After constructing these Satellite fire stations, Department of Fire Service and Civil Defence will take over the control of those infrastructures and start operation.

Sl. No.	Camp Coverage	Site Location	GPS Location	Footprint area	Land Ownership	Each Component Cost (Est. in BDT.)	Facilities
1.	Noyapara Register Camp (NRC), Block-P	Ward No. 7, Union-Hnila, Upazila-Teknaf	Lat.20.95695 0°N; Long.92.92.249500°E	1,546.58 Sq. ft (Length 45.11 feet, Width 34.18 feet)	Govt. Land	9,835,159.85	Car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (the position of the fire hydrant will be adjusted according to the field condition) in the ground floor and a store room (Dimension: 10825mmX4975mm) in the first floor with colored Tin Shed.
2.	Rohingya Camp-1W, Block-A	Ward No. 9, Union-Rajapalong, Upazila-Ukhiya	Lat.21.21847 3° N; Long.92.150 746°E				
3.	Rohingya Camp-07, Block-E	Ward No. 9, Union-Rajapalong, Upazila-Ukhiya	Lat.21.20242 0° N; Long.92.162 810° E				
4.	Rohingya Camp-10, Block-A	Ward No. 1, Union-Palongkhali, Upazila-Ukhiya	Lat.21.19470 25°N; Long.92.152 771°E				
5.	Rohingya Camp-11, Block-C	Ward: 4, Union-Palongkhali,	Lat.21.17753 0°N; Long.92.156				

		Upazila- Ukhiya	072°E				
6.	Rohingya Camp-16, Block-A	Ward: 5, Union- Palongkhali, Upazila- Ukhiya	Lat.21.15757 5°N; Long.92.152 328°E				
7.	Rohingya Camp-17, Block-A	Ward: 1, Union- Palongkhali, Upazila- Ukhiya	Lat.21.20103 4°N; Long.92.144 921° E				
8.	Rohingya Camp-18, Block-E	Ward: 1, Union- Palongkhali, Upazila- Ukhiya	Lat.21.18695 6°N Long.92.145 682°E				
9.	Rohingya Camp-25, Block-D	Ward No. 8, Union-Hnila, Upazila- Teknaf	Lat.20.97788 0°N; Long.92.244 450°E				

After conducting a screening, an assessment of the environment, potential direct, indirect and residual impacts of activities or the interventions, health and safety risks and requirement for the community, labors and employees associated with the interventions, has been undertaken by the DSM consultants of the project. The assessment reports for all the nine sites have been produced herewith in a combined format, and this executive summary elucidates only the striking parts of the assessment.

As mentioned in the table above, each of the Satellite Fire Stations will have a car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (the position of the fire hydrant will be adjusted according to the field condition) in the ground floor and a store room (Dimension: 10825mmX4975mm) in the first floor with colored Tin Shed. All the sites for this sub-project have been selected and allocated by the respective Camp-in-Charges (CiCs) and neither site falls in any environmentally sensitive area nor causes any severe negative effects to the environmental settings of the area or to important environmental features. Potential environmental impacts from this intervention are most likely to be construction related. Some earth excavation work will be involved, so air, noise and dust pollution will be occurred within a small-scale during construction period. Within 1 km area of each site, there are nothing but camp settlements and few social institutions. 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. Therefore, providing edge protection (e.g., using guard-rails and toe boards at open sides), installing safety canopy or safety nets to

retain individuals, and providing workers with personal fall arrest systems (e.g., harness with a short work restraint lanyard properly secured to a suitable anchorage point) are some of the measures the contractor shall adopt at all sites. 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 piling 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.

However, considering the environmental settings of the sub-project sites, it can be assumed that possible impacts would largely be 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. All necessary measures to be taken during the pre- and construction activity period and the O&M period have been tabulated in the reports. It's noteworthy that the sites for all these interventions are allocated by the Camp-in-Charges (CiCs) of respective camps; it appears that no trees need to be fell down in the first place, but a monetary allocation for 50 trees to be planted at each site has been provisioned. None of those trees to be planted will be invasive; rather the tree species will be selected in consultation with the local forest department who knows the legacy of the region far better than the LGED, but preference will be given on fast-growing local species.

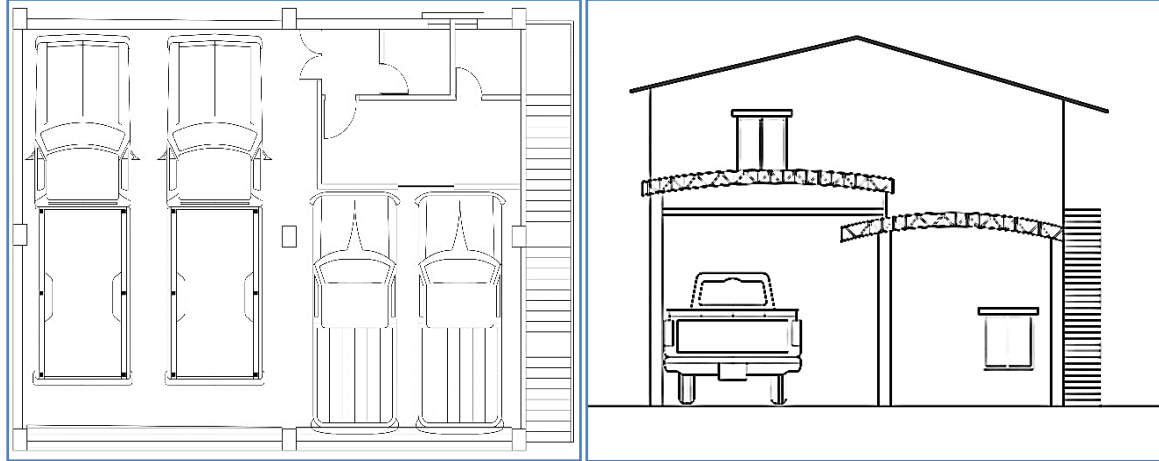


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and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of
Rohingya Camp-Noyapara Register Camp, Block-P
Union: Hnila; Upazila: Teknaf
District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



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August 2023

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ACRONYMS

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
ERTs	Elephant Response Teams
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank



1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Hnila union in Noyapara Register camp, Block P of Teknaf Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 24, 26 along with host community. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Noyapara Register Camp (NRC), Block-P	ii. Ward No.: 7
iii. Name of Union: Hnila	iv. Name of the Upazila: Teknaf
v. Water Status: Available	vi. Water Source: Pond, Deep tube-well

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

vii. Distance from UZHQ: 8 Km	
viii. GPS Coordinates	Latitude Value: 20.956950 ° N Longitude Value: 92. 92.249500 ° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	NRC Road
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed Implementing Agency: Local Government Engineering Department (LGED) Expected construction period: 2023-2024 Estimated total cost of component: 9,835,159.85 (Tk.)	

[D&SC and Field survey, 2023]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Noyapara Register Camp (NRC), Block P of Hnila union of Teknaf Upazila Under Cox's Bazar District. The site location is relatively a plain land and accessible through vehicles as of 12ft wide NRC camp connecting road is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Teknaf
Union	Hnila
Ward No.	7
Rohingya Camp No.	Noyapara Register Camp (NRC)
Block/Sub-Block	P
GPS Coordinates	20.956950 ° N and 92. 92.249500 ° E
Distance from Upazila HQ	15 km
Nearby major road	NRC camp connecting road
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2023]

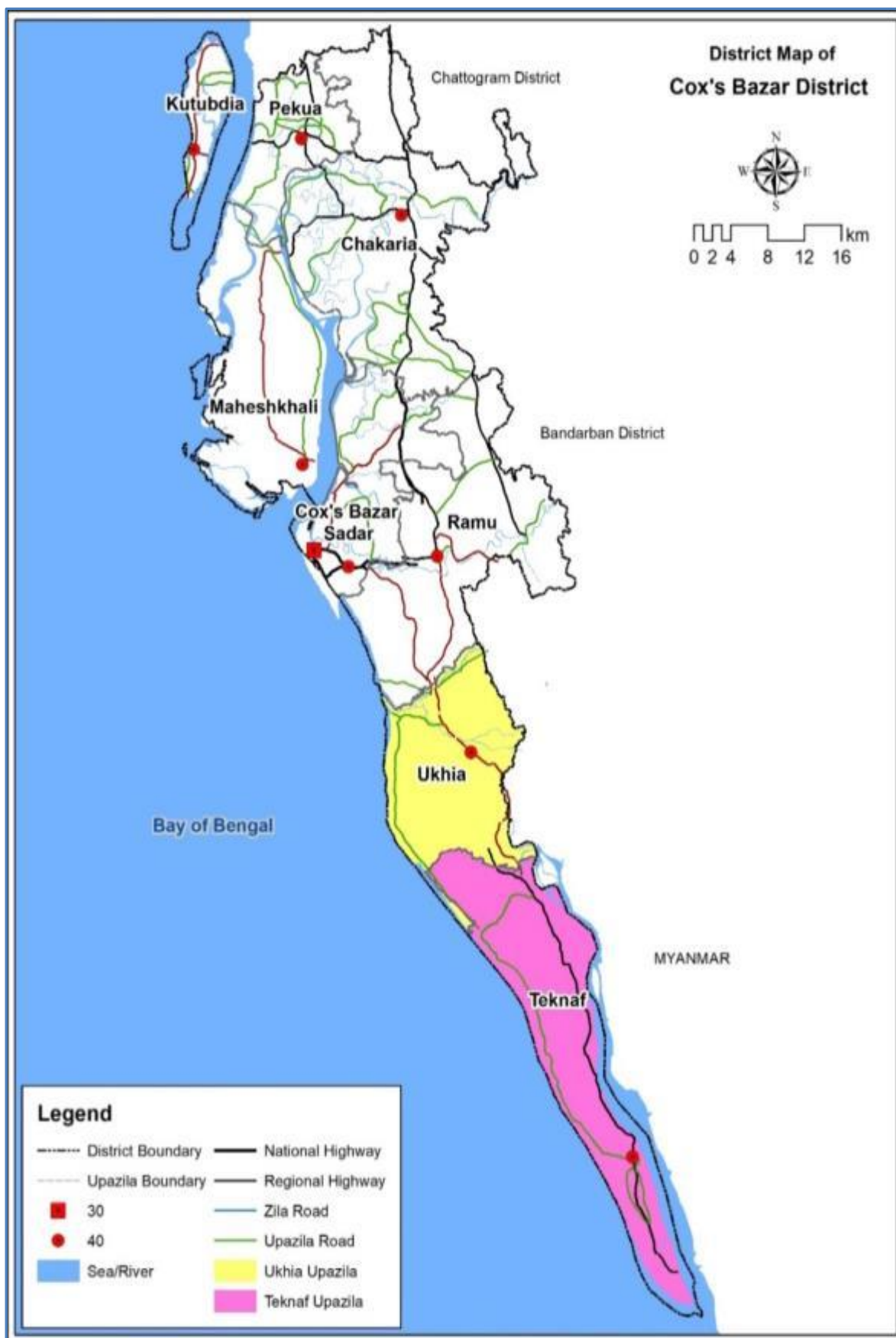


Figure 1.4.1: District Map with project location

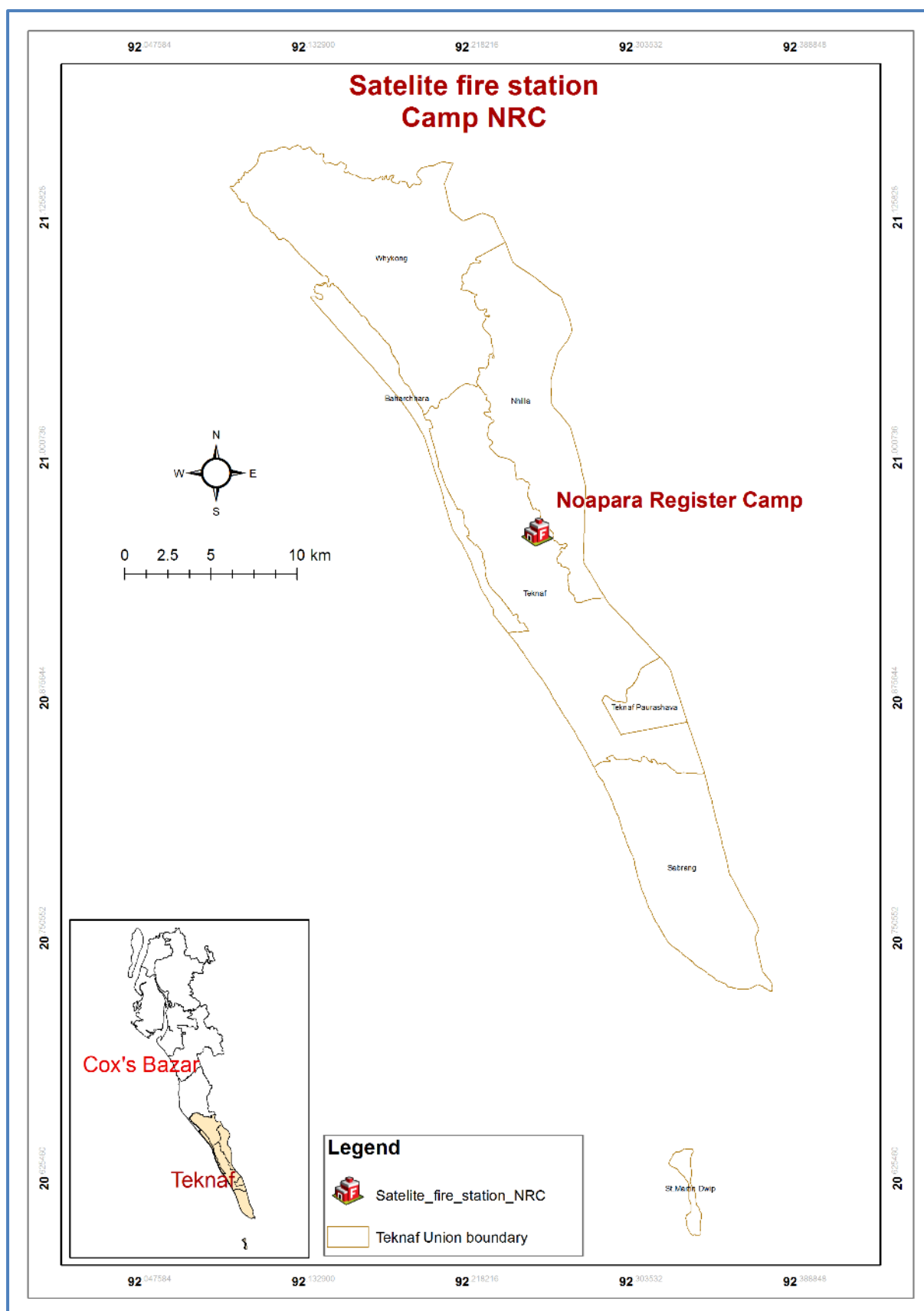


Figure 1.4.2: Upazila Map with project location

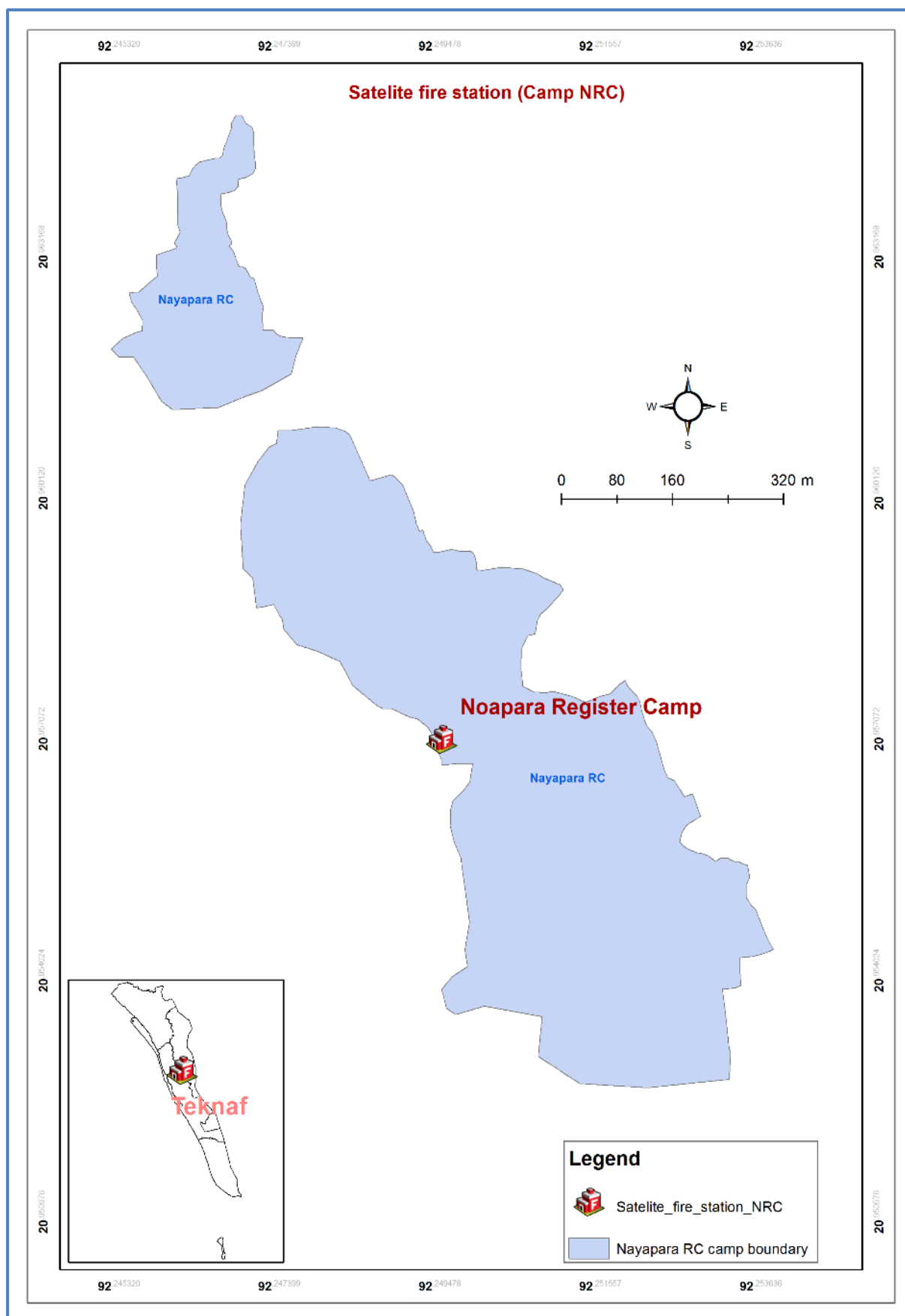


Figure 1.4.3: Location map of Satellite fire station

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	Mobile Fire Fighting Unit Station (10m), Solar Mini Grid (40m), Mosque (200m)
South side	APBN Police camp (5m), Mosque (50m), Water treatment plant (50m), Camp & block committee office (60m)
East side	Camp based water reservoir (50m), Mosque (180m), NRC CiC office (500m)
West side	Paddy land (20m), hill (500m)

[Sources of data: Field survey, 2023]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Fire service station 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 26 August 2023 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 12 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Noyapara Register Camp (NRC), Block-P and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 26 August 2023 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 warehouse for firefighting equipment and Satellite fire stations) 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 sited allocated by Camp in Charge (CiC) where no agricultural land/ activities, water reservoir at camp 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. Top soil in agricultural land will be avoided without any failure in earthwork and that productive part of the soil will be conserved and replaced, if underneath soil is taken from any agricultural land. Within 1 km area there are nothing but camp settlements and few social institutions. To the north side Mobile Fire Fighting Unit Station (10m), Solar Mini Grid (40m), Mosque (200m); to the south side APBN Police camp (5m), Mosque (50m), Water treatment plant (50m), Camp & block committee office (60m); to the east side Camp based water reservoir (50m), Mosque (180m), NRC CiC office (500m) and; to the west side Paddy land (20m), hill (500m) is 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and

informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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.

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.

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, this construction site is fully vacant and any types of trees will not need to be cut in the target location. Nonetheless, 50 nos. trees will be planted around the sub-project site which for monetary budget has been included in the Environmental BOQ. APBN police camp at south side and some camp service providing agencies around the targeted 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management and relevant awareness building sessions will be conducted. Besides adopting appropriate fall prevention measures, such as,

installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use, serviceability, and integrity of the necessary PPE is to be carried out. 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 and DRPs. Contractors' employed site managers and safeguard supervisors or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive 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 Teknaf will play a vital role in upholding the proper monitoring and supervision of civil works and associated project activities, including social and environmental safeguards in and around the sub-project sites. 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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

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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

District: Cox's Bazar **Sub-District:** Teknaf **Union:** Hnila

Name of Community/Local Area: Noyapara Register Camp (NRC), Block-P.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One warehouse for firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 2177.8 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Noyapara Register camp (NRC), Block-P area. To the north side Mobile Fire Fighting Unit Station (10m), Solar Mini Grid (40m), Mosque (200m); to the south side APBN Police camp (5m), Mosque (50m), Water treatment plant (50m), Camp & block committee office (60m); to the east side Camp based water reservoir (50m), Mosque (180m), NRC CiC office (500m) and; to the west side Paddy land (20m), hill (500m) is located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

The proposed Sub-project area for the construction of Satellite fire station is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and



biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side Mobile Fire Fighting Unit Station (10m), Solar Mini Grid (40m), Mosque (200m); to the south side APBN Police camp (5m), Mosque (50m), Water treatment plant (50m), Camp & block committee office (60m); to the east side Camp based water reservoir (50m), Mosque (180m), NRC CiC office (500m) and; to the west side Paddy land (20m), hills (500m) are present on the surrounding area 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 screening form is given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Fire Service office building will be constructed within the boundary of an existing Rohingya camp area of Noyapara Register Camp (NRC), Block-P at Teknaf Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.86 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

The sub-project area is situated in Noyapara Register Camp (NRC), Block-P of Hnila union under Teknaf Upazila. The sub-project area is located at 20.956950° N and 92. 92.249500° E. The distance from the Upazila headquarter is about 8 km. Nearby major road is 12 feet wide NRC connecting Road.

Land ownership

Land is owned by Government.

Expected construction period: 1 Year

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 pre-existing satellite fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north side Mobile Fire Fighting Unit Station (10m), Solar Mini Grid (40m), Mosque (200m); to the south side APBN Police camp (5m), Mosque (50m), Water treatment plant (50m), Camp & block committee office (60m); to the east side Camp based water reservoir (50m), Mosque (180m), NRC CiC office (500m) and; to the west side Paddy land (20m), hills (500m) are located. However, there is no chance of disturbance during this improvement activity. However, there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

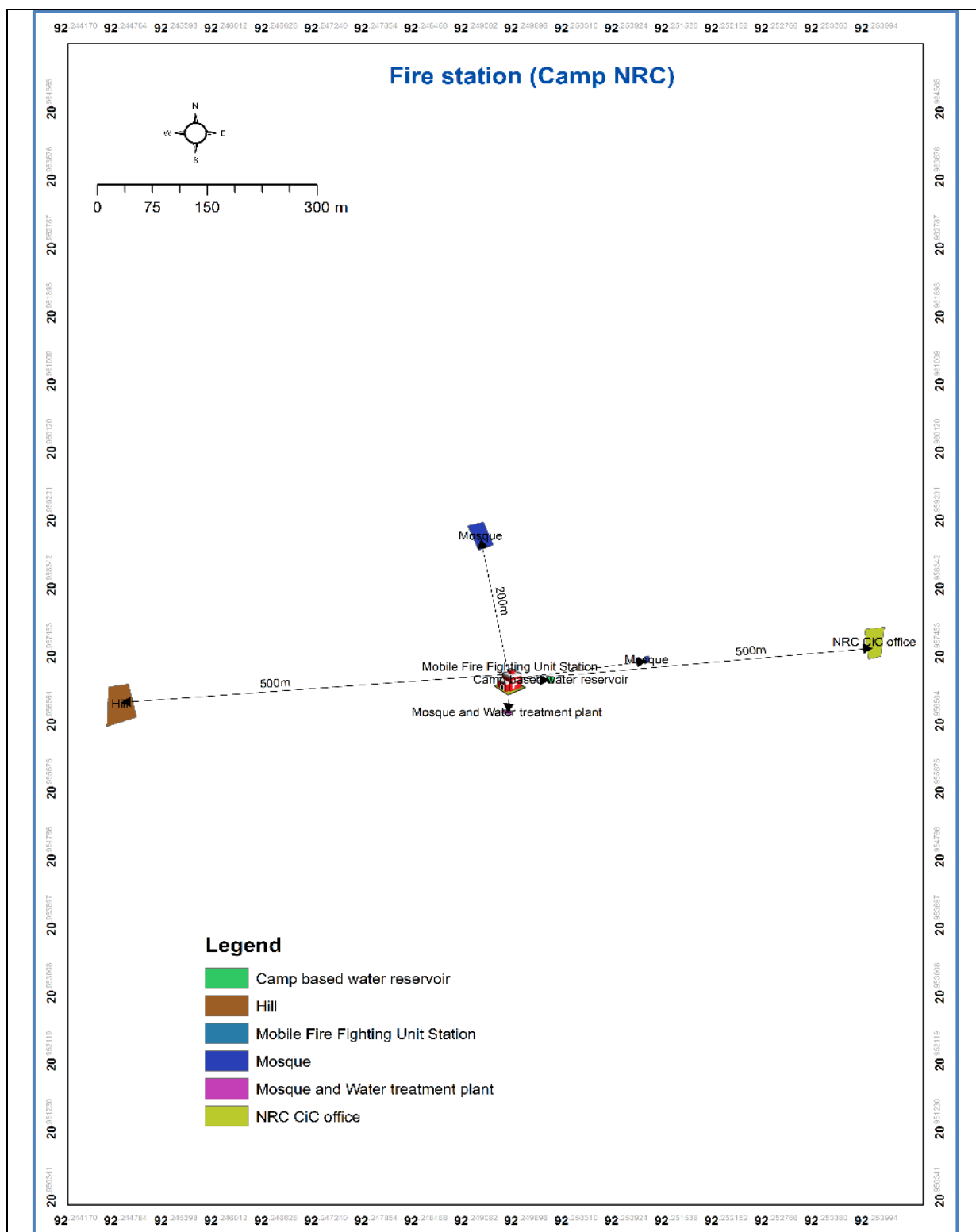
B.1: Environmental feature of sub-project location

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:

To the north side Mobile Fire Fighting Unit Station (10m), Solar Mini Grid (40m), Mosque (200m); to the south side APBN Police camp (5m), Mosque (50m), Water treatment plant (50m), Camp & block committee office (60m); to the east side Camp based water reservoir (50m), Mosque (180m), NRC CiC office (500m) and; to the west side Paddy land (20m), hills (500m) are located.

There are no sensitive environmental, cultural, archaeological 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, canals, ponds around this location. Several water treatment plants, mosques, learning centers and DRP settlement were found during the survey. Other than some agricultural land found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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 650 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Deep groundwater table (drinkable) varies from 350-700ft (Field survey, 2022). DRP 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 *Data source: DPHE Test Report, 2023 (Water samples collected and tested at DPHE laboratory) The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.
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 some small trees are located in the subproject area since there is already an established Satellite fire 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): 12 feet wide NRC connecting Road is present on the east side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand iii) Cement iv) aggregates v) metals vi) water vii) concretes viii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and ix) clay are the most common type of building material used in construction.
Identification of access road for transportation (Yes/No): 12 feet wide NRC connecting Road is present on the east side. It is possible to carry the construction materials on this road to the construction site.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found

during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

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

Around 1541.86 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.
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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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)

Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.

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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals,	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	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
	bitumen etc., Risk of crime, Access of students, children, animals, etc.)		the Environmental Specialist of D&SC. • Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by 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.			
	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	Contractor, Environmental specialist of D&SC	Complaints from DRPs community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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 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 DRPs 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	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in	Weekly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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 construction period.		noise producing equipment and sound barriers, Noise 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	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	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	reversible by mitigation measures.				records	
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly
	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.,	Contractor, Environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- Ensure adequate supply of drinking water. - Sanitation facilities for male & female workers separately.			
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.
	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	Contractor monitored by Consultant and PMU	Worksite is restored to original conditions;	Over the completion of Works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			that forms part of the bidding document.			
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Warehouses for FSCD (LGED/EMCRP/W02): Satellite Fire Station of Noyapara Register Camp (NRC), Block-P

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	Selected site will be far away from any water bodies or natural flow path to avoid the flash flood or any kind or	PIU & Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - 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/ DRPs, 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 within the periphery of the FSCD. - Potable water supply will be ensured for every workers/employee 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



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		kept on site. Fire Service officials must be consulted before any construction work starts.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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.	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
		• Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Decommissioning during the project	The impacts are similar to those listed in	Provision for proper mitigation measures and monitoring to minimize or reduce the environmental and social impacts	Contractor	Environmental Consultant of



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
implementation period (including site clearance after the construction)	construction stage: • Pollution from waste materials • Health & Safety risks to workers and local community/DRPs	during decommissioning are anticipated to be similar to those identified for the construction phase. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.		PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan (if required):

The Contractor shall develop a demolition plan 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 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 Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees (if required) or enhance the ecological condition in the subproject area, preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u> Water samples are to be collected from the Tube well at labor shed area for laboratory analysis of	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	different parameters such as PH, arsenic, Iron, Chloride, Hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
Subtotal Bill: Environmental facilities				300,000.00



Cost of H&S Measures under COVID 19 Situations

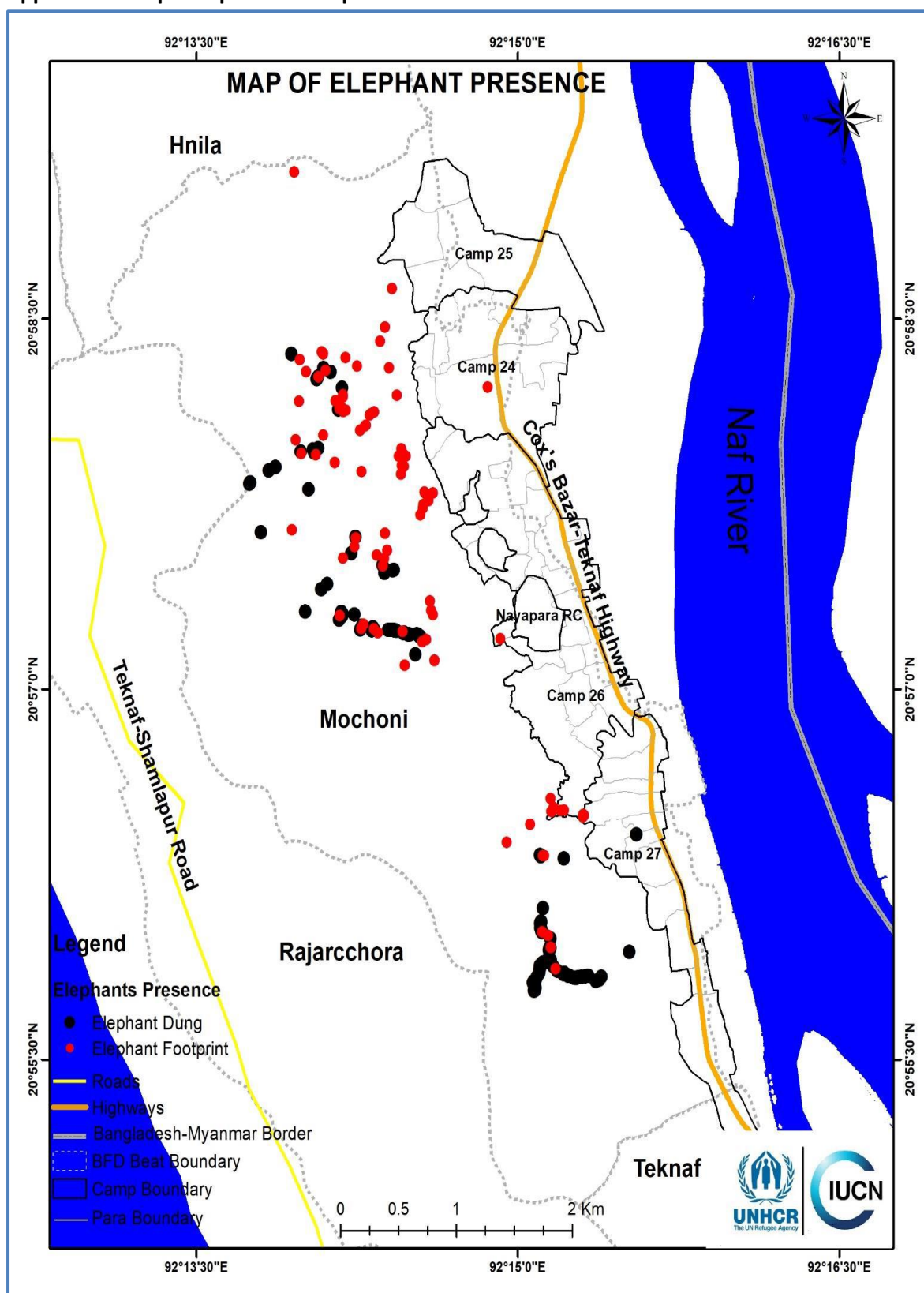
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 25, Block D).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of Warehouse for Firefighting Equipment and Satellite Fire Station

Package Number : EMCRP/W2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মান্দি সেন্টার প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময় : 2:00 PM

তারিখ : 26/08/2023

উপ-প্রকল্প/কম্পোনেন্ট এর নাম : Satellite Fire Station - Camp - NRC, Block-P

মত বিনিময় স্থান : Beside the Satellite Fire Station.

ইউনিটনং : Nhila

ওয়ার্ড নং : 7

ডাকঘর : Nhila-4761

উপজেলা : Teknaf

জেলা : কক্সবাজার

সাব প্রকল্প নং : EMCRP/W2

ক্যাম্পের নাম : Camp - NRC

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী DRP	ব্লক/সাব ব্লক নং	স্বাক্ষর / টিপসই
01	মোস্তফা আলমাসরা	৮৮	পুরুষ	Block-P	আবদুল্লাহ
02	হাসান আলম	৪২	হ	হ	Fouad
06	আবু বকর	৪৮	হ	হ	Abubakar
08	মোস্তফা	৪২	হ	হ	MOSLEM
09	মিয়াব আলম	৫২	হ	হ	মিয়াব আলম
06	আলমী আলম	৬৫	হ	হ	আলমী আলম
09	হাসান আলম	৪৫	হ	হ	Hasan Ali
06	মোস্তফা	৪২	হ	হ	Mohammad
0৯	হাসান আলম	৬০	হ	হ	Hasan
১০	হাসান আলম	২৫	হ	হ	Hasan Ali
২০	বকর	২৭	হ	হ	Jabbar
২২	হাসান আলম	৫৪	হ	হ	

Public consultation participants' list

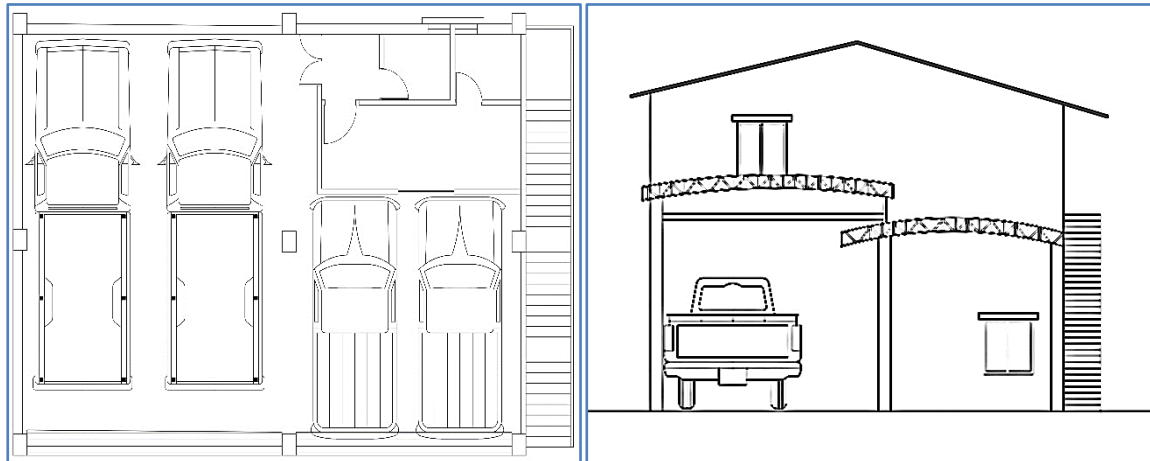


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of Rohingya Camp-1W, Block-A

Union: Rajapalong; Upazila: Ukhiya

District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

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ACRONYMS

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
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank



1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Rajapalong union in Rohingya camp number 1W, Block A of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 2W, 1E, 3 along with host community. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Rohingya Camp-1W, Block-A	ii. Ward No.: 9
iii. Name of Union: Rajapalong	iv. Name of the Upazila: Ukhiya
v. Water Status: Available	vi. Water Source: Pipe water supply, Deep tube-well
vii. Distance from UZHQ: 5 Km	

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

viii. GPS Coordinates	Latitude Value: 21.218473° N Longitude Value: 92.150746° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	Army Road
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period: 2023-2024	
Estimated total cost of component: 9,835,159.85 (Tk.)	

[D&SC and Field survey, 2022]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Rohingya camp 1W, Block A of Rajapalong union of Ukhiya Upazila Under Cox's Bazar District. The site location is relatively a high plain land and accessible through



vehicles as of 18ft wide HBB road named Army Road is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Ukhiya
Union	Rajapalong
Ward No.	9
Rohingya Camp No.	1W
Block/Sub-Block	A
GPS Coordinates	21.218473° N and 92.150746° E
Distance from Upazila HQ	5 km
Nearby major road	Army Road
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2022]

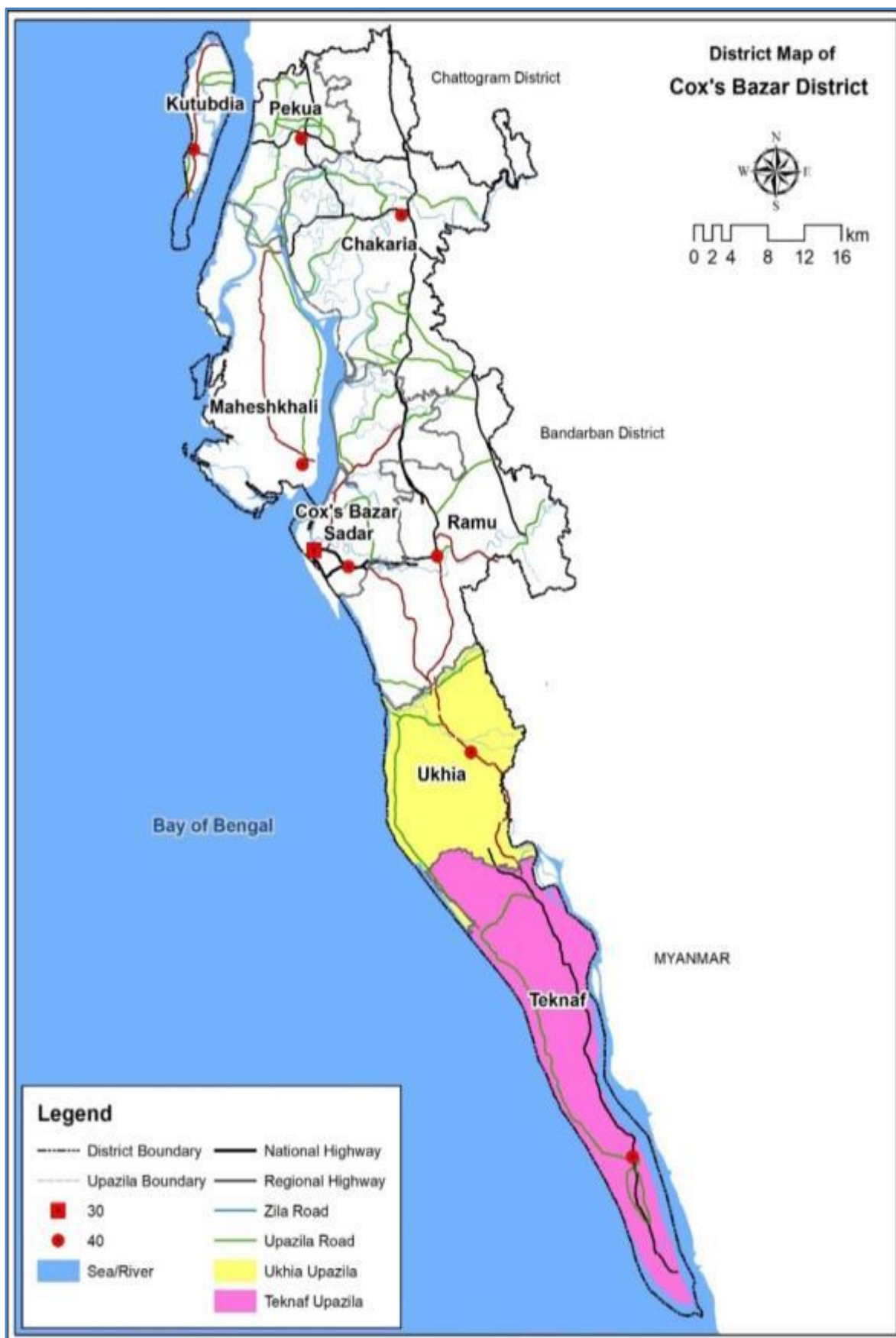


Figure 1.4.1: District Map with project location

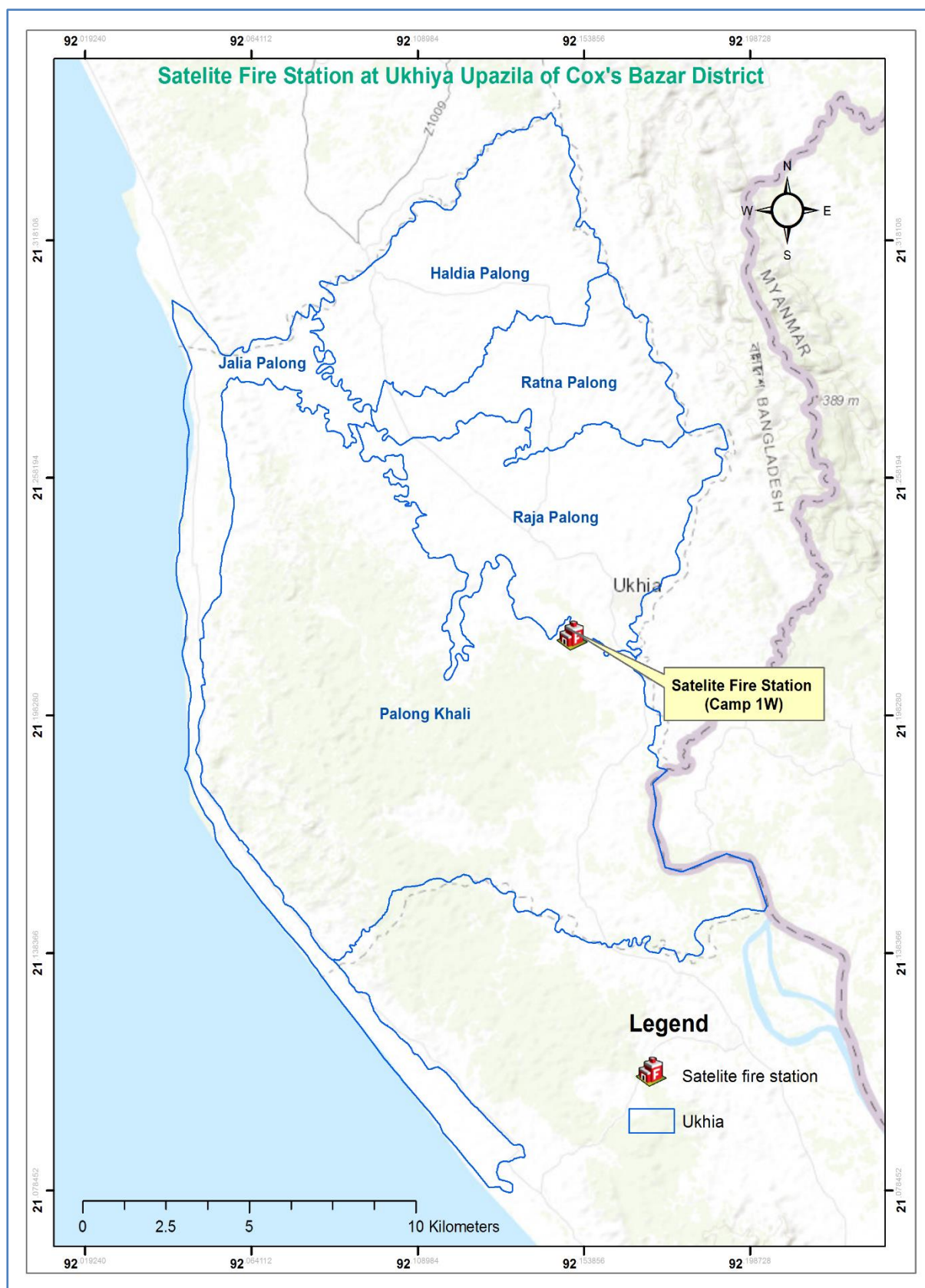


Figure 1.4.2: Upazila Map with project location

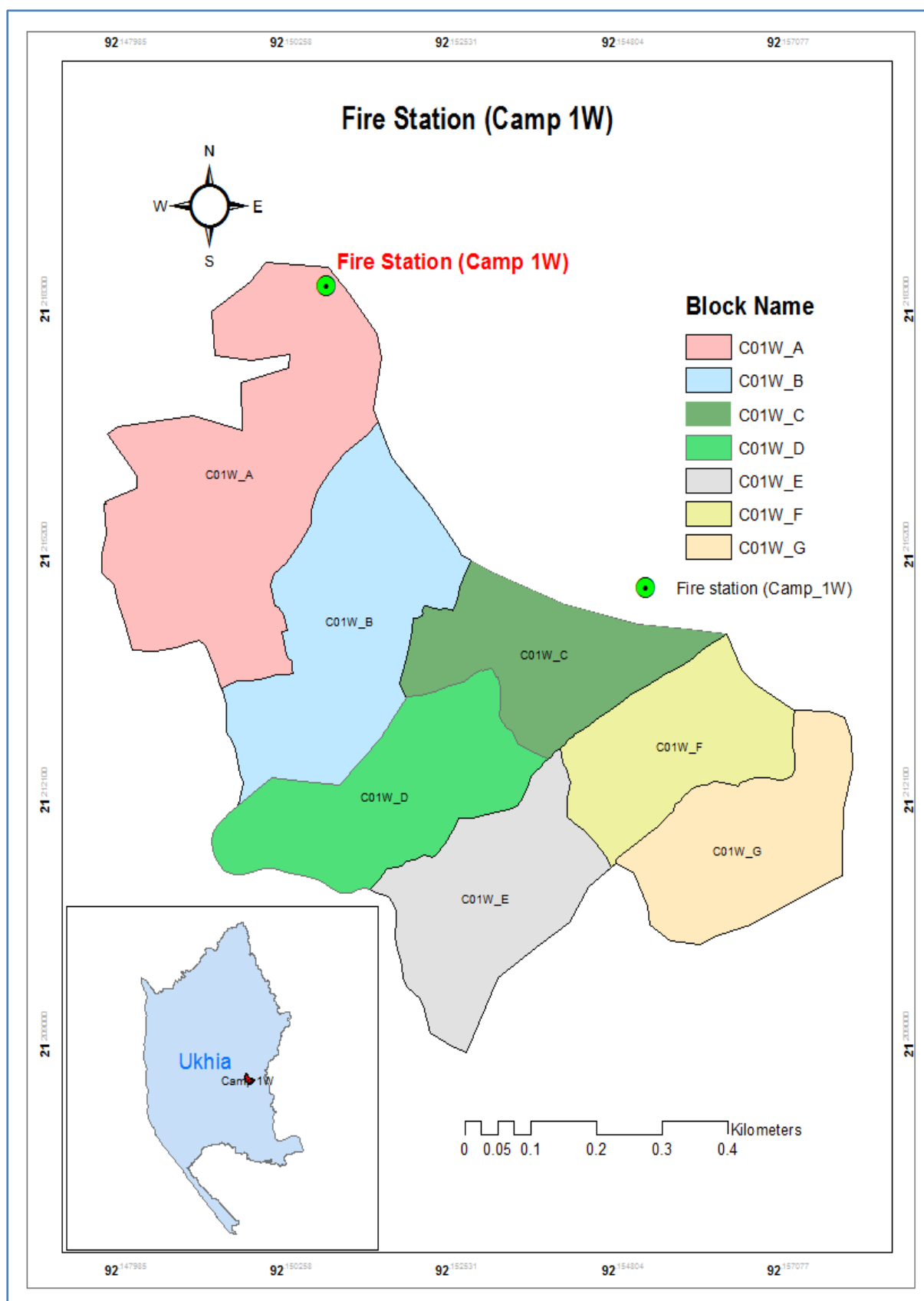


Figure 1.4.3: Location map of Satellite fire station

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	DRP settlement (10m), Mukti Learning Centre (120m)
South side	Army road (10m), DRP settlement (18m), Pond (50m), Mukti Learning Centre (70m)
East side	Army road (10m), DRP settlement (12m), Mosque (30m), BRAC Hospital (30m), Mosque (40m), Mukti Learning Centre (60m)
West side	Mosque (50m), Mukti Learning Centre (60m)

[Sources of data: Field survey, 2022]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Fire service station 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 26 July 2022 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 12 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Rohingya Camp 1W, Block-A and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 26 July 2022 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 warehouse for firefighting equipment and Satellite fire stations) 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 sited allocated by Camp in Charge (CiC) 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. Top soil in agricultural land will be avoided without any failure in earthwork and that productive part of the soil will be conserved and replaced, if underneath soil is taken from any agricultural land. Within 1 km area there are nothing but camp settlements and few social institutions. To the north side DRP settlement (10m), Mukti Learning Centre (120m); to the south side Army Road (10m), DRP settlement (18m), Pond (50m), Mukti Learning Centre (70m); to the east side Army Road (10m), DRP settlement (12m), Mosque (30m), BRAC Hospital (30m), Mosque (40m), Mukti Learning Centre (60m) and; to the west side a Mosque (50m) and a Mukti Learning Centre (60m). 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 piling 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 piling 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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.

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

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

including tree plantation 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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, trees will not need to be cut 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient

camp management, and relevant awareness building sessions will also be conducted. Besides adopting appropriate fall prevention measures, such as, installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use, serviceability, and integrity of the necessary PPE is to be carried out. 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 and DRPs. Contractors' employed site managers and safeguard supervisors or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive 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 Ukhiya 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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

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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

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

Name of Community/Local Area: Rohingya Camp 1W, Block A.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One warehouse for firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 1546.58 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Rohingya camp 1W, Block-A area. To the north side DRP settlement (10m), Mukti Learning Centre (120m); to the south side Army Road (10m), DRP settlement (18m), Pond (50m), Mukti Learning Centre (70m); to the east side Army Road (10m), DRP settlement (12m), Mosque (30m), BRAC Hospital (30m), Mosque (40m), Mukti Learning Centre (60m) and; to the west side a Mosque (50m) and a Mukti Learning Centre (60m) are located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

The proposed Sub-project area for the construction of Satellite fire station is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact



on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side DRP settlement (10m), Mukti Learning Centre (120m); to the south side Army Road (10m), DRP settlement (18m), Pond (50m), Mukti Learning Centre (70m); to the east side Army Road (10m), DRP settlement (12m), Mosque (30m), BRAC Hospital (30m), Mosque (40m), Mukti Learning Centre (60m) and; to the west side a Mosque (50m) and a Mukti Learning Centre (60m) are present on the surrounding area 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 screening form is given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Fire Service office building will be constructed within the boundary of an existing Rohingya camp area of Camp 1W, Block-A at Ukhiya Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.58 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

The sub-project area is situated in Rohingya Camp 1W, Block-A of Rajapalong union under Ukhiya Upazila. The sub-project area is located at 21.218473° N and 92.150746° E. The distance from the Upazila headquarter is about 5 km. Nearby major road is 18 feet HBB Army Road.

Land ownership

Land is owned by Government.

Expected construction period: 1 Year

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 pre-existing satellite fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north side DRP settlement (10m), Mukti Learning Centre (120m); to the south side Army Road (10m), DRP settlement (18m), Pond (50m), Mukti Learning Centre (70m); to the east side Army Road (10m), DRP settlement (12m), Mosque (30m), BRAC Hospital (30m), Mosque (40m), Mukti Learning Centre (60m) and; to the west side a Mosque (50m) and a Mukti Learning Centre (60m). However, there is no chance of disturbance during this improvement activity. However there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

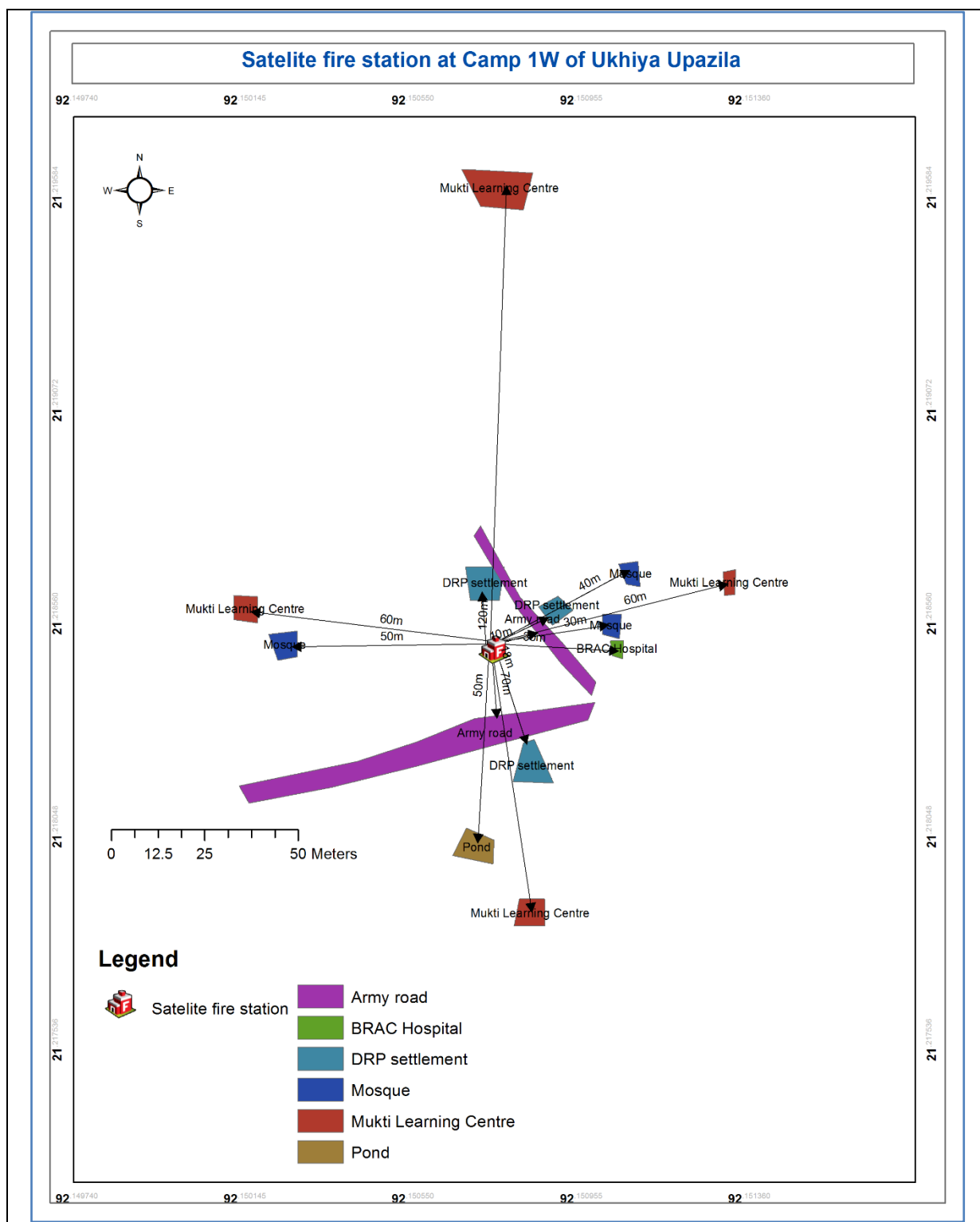
B.1: Environmental feature of sub-project location

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:

To the north side DRP settlement (10m), Mukti Learning Centre (120m); to the south side Army Road (10m), DRP settlement (18m), Pond (50m), Mukti Learning Centre (70m); to the east side Army Road (10m), DRP settlement (12m), Mosque (30m), BRAC Hospital (30m), Mosque (40m), Mukti Learning Centre (60m) and; to the west side a Mosque (50m) and a Mukti Learning Centre (60m).

There are no sensitive environmental, cultural, archaeological 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, learning centers and DRP settlement were found during the survey. Other than some trees found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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, 2022). DRP 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

*Data source: DPHE Test Report, 2022 (Water samples collected and tested at DPHE laboratory)
The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.

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 small trees are located in the subproject area since there is already an established Satellite fire 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):

HBB 18 feet Army Road is present on the south side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.

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

Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.

Possible location of labor camps:

Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.

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

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

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

HBB 18 feet Army Road is present on the south side. It is possible to carry the construction materials on this road to the construction site.

Location identification for raw material storage:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.

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

Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand,

bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

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

Around 1546.58 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.
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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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)

Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.

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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of	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.	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
	crime, Access of students, children, animals, etc.)		• Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by 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.			
	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.	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 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.	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in noise	Weekly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 construction period.		producing equipment and sound barriers, Noise 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	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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	mitigation measures.					
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly
	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.,	Contractor, Environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- Ensure adequate supply of drinking water. - Sanitation facilities for male & female workers separately.			
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.
	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	Contractor monitored by Consultant and PMU	Worksite is restored to original conditions;	Over the completion of Works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			that forms part of the bidding document.			
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Warehouses for FSCD (LGED/EMCRP/W02): Satellite Fire Station of Rohingya Camp 1W, Block A

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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. - The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents.	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ DRPs, 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 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		All Personal Protective Equipment (PPE) will be available in site before starting any kind of construction works.		
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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	- 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	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
	dermatitis.	carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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.		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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/DRPs	• Provision for proper mitigation measures 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. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan:

The Contractor shall develop a demolition plan 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 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.

Prepared by: Harogopal Kabiraj, Environmental Focal Person, +8801714980171
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**Appendix-3 Cost of Environmental Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area, preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u> Water samples are to be collected from the Tube well at labor shed area for laboratory analysis of	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	different parameters such as PH, arsenic, Iron, Chloride, Hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
	Subtotal Bill: Environmental facilities			300,000.00



Cost of H&S Measures under COVID 19 Situations

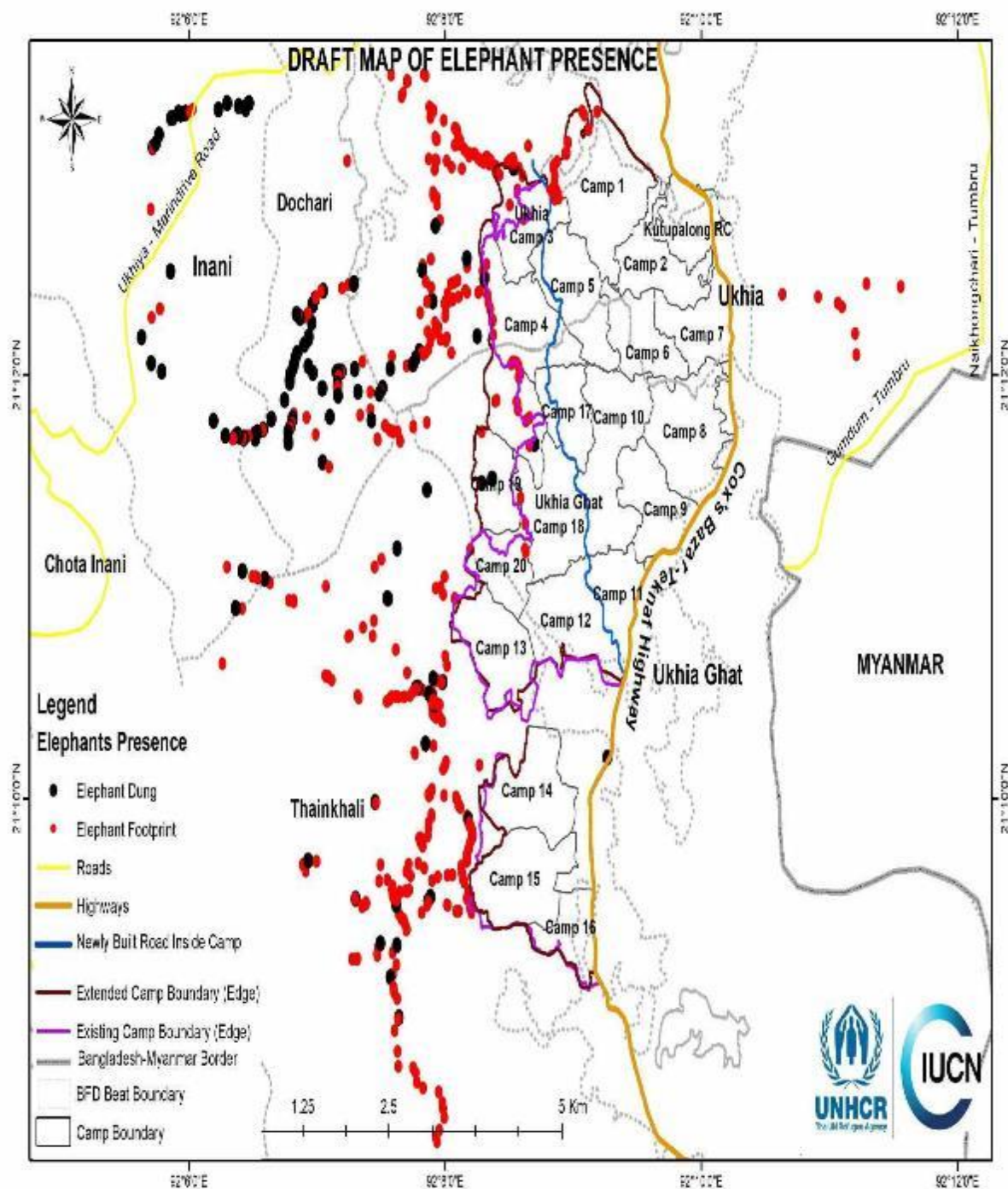
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 1W, Block A).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of warehouse for firefighting equipment and Satellite fire station Package Number : EMCRP/W2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মানসি সেক্টর প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময় : ০২:৩০ PM

তারিখ : ২৬/০৭/২২

উপ-প্রকল্প/কমপোনেন্ট এর নাম : Construction of warehouse for firefighting equipment and Satellite fire station.

মত বিনিময় স্থান : In front of Mr. Siddique's shop located following to the selected area of fire station.

ইউনিটন : বঙ্গবন্ধু ওয়ার্ড নং : ০২ ডাকঘর : UKIya-4750 উপজেলা : উল্লাহভাঙ্গা জেলা : কক্সবাজার

সাব প্রকল্প নং : EMCRP/W-2

ক্যাম্পের নাম : Camp-1W, Block-A

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	ব্লক/সাব ব্লক নং	স্বাক্ষর / চিহ্নসহ
১	আব্দুল্লাহ হুসাইন	৩৫	পুরুষ (DRP)	A-15	
২	মুহাম্মদ আলী	৩০	পুরুষ (DRP)	B-11	
৩	আবদুল ওয়াহিদ	৬০	পুরুষ (DRP)	B-11	
৪	আবদুল মালিক করিম	৪৯	পুরুষ (DRP)	B-11	
৫	মুহাম্মদ আলী	৬৬	পুরুষ (DRP)	B-11	
৬	মুহাম্মদ ওয়াহিদ	৬২	পুরুষ (DRP)	B-11	
৭	আবদুল্লাহ রহমান	৬০	পুরুষ (DRP)	B-11	
৮	মুহাম্মদ আলী	৭০	পুরুষ (DRP)	B-11	
৯	আবদুল্লাহ হুসাইন	৪০	পুরুষ (DRP)	B-11	
১০	আবদুল্লাহ করিম	২৪	পুরুষ (DRP)	B-11	
১১	মুহাম্মদ রহমান	৪০	পুরুষ (DRP)	B-11	
১২	মুহাম্মদ আলী	৬০	পুরুষ (DRP)	B-11	

Public consultation participants' list

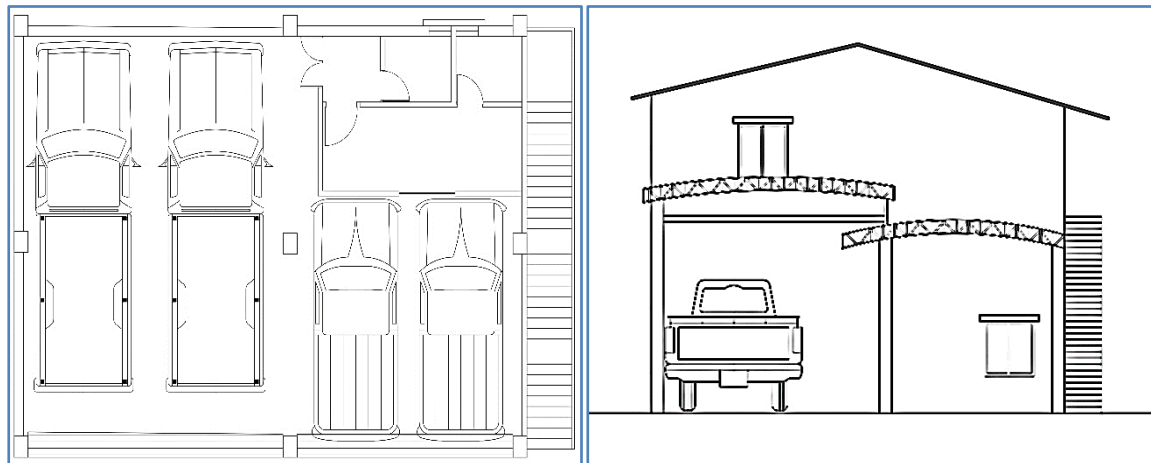


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of Rohingya Camp-07, Block-E

Union: Rajapalong; Upazila: Ukhiya

District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

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ACRONYMS

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
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank



1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Rajapalong union in Rohingya camp number 1W, Block A of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 2E, 6, 8W, 8E along with host community. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Rohingya Camp-07, Block-E	ii. Ward No.: 9
iii. Name of Union: Rajapalong	iv. Name of the Upazila: Ukhiya
v. Water Status: Available	vi. Water Source: Pipe water supply, Deep tube-well
vii. Distance from UZHQ: 7 Km	

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

viii. GPS Coordinates	Latitude Value: 21.202420° N Longitude Value: 92.162810° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	Rohingya Camp 7 Connecting Road
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period: 2023-2024	
Estimated total cost of component: 9,835,159.85 (Tk.)	

[Field survey, 2023]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Rohingya camp 7, Block E of Rajapalong union of Ukhiya Upazila Under Cox's Bazar District. The site location is relatively a high plain land and accessible through vehicles as



of 12ft wide HBB road named Camp 7 Connecting Road is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Ukhiya
Union	Rajapalong
Ward No.	9
Rohingya Camp No.	07
Block/Sub-Block	E
GPS Coordinates	21.202420° N and 92.162810° E
Distance from Upazila HQ	7 km
Nearby major road	Rohingya camp 7 connecting road
Nearby river/canal	No mentionable feature

[Sources of data: Field survey, 2023]

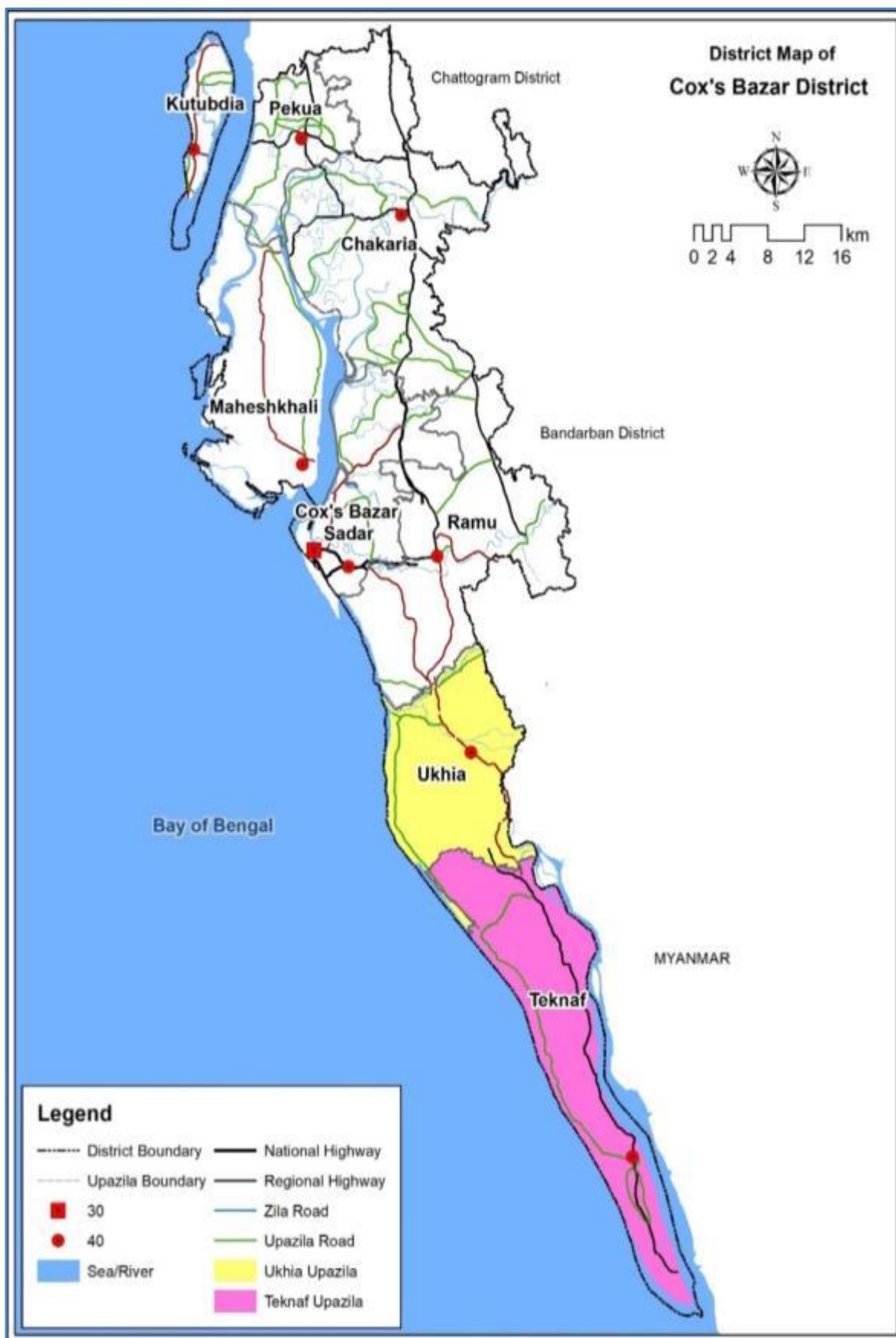


Figure 1.4.1: District Map with project location

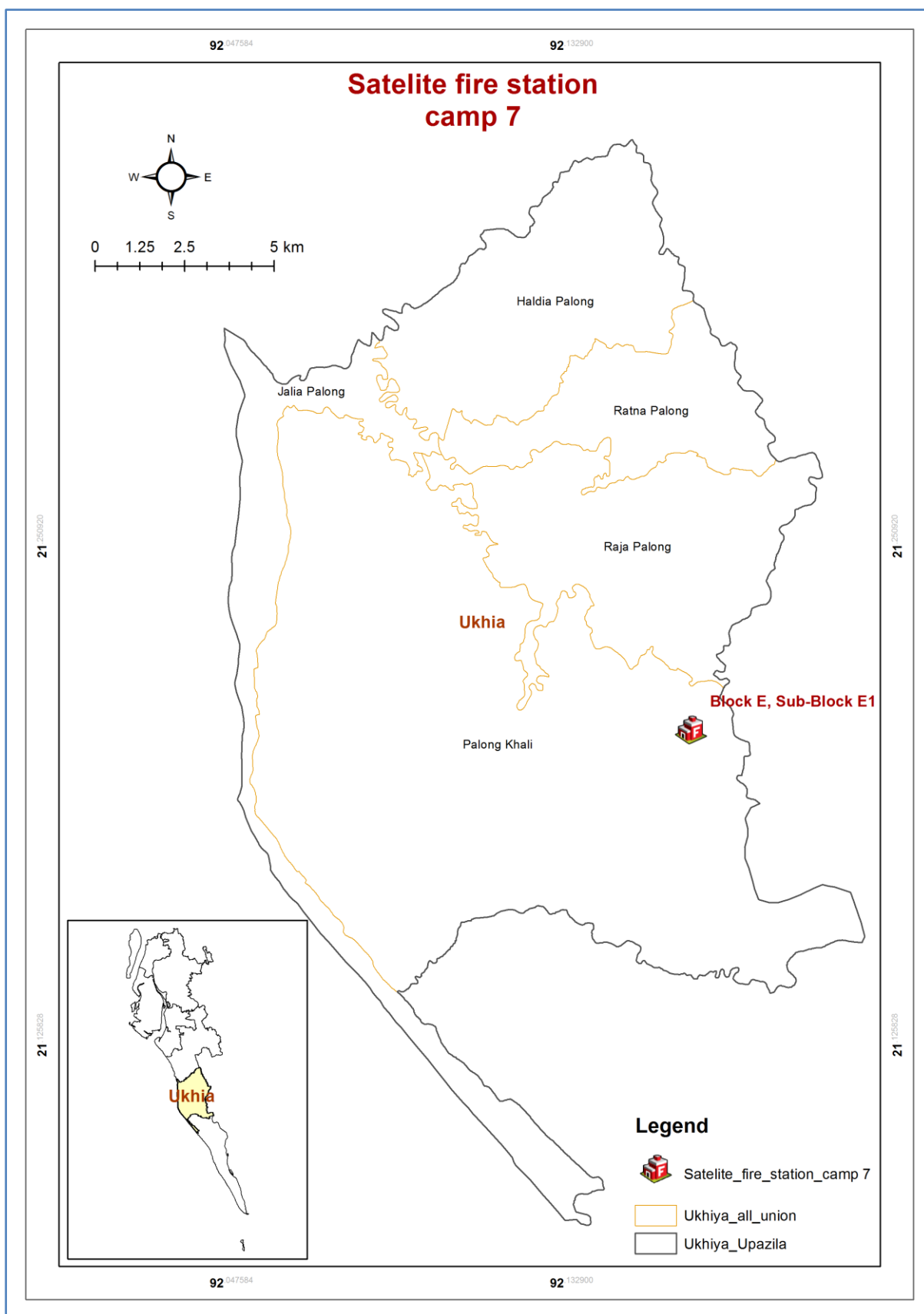


Figure 1.4.2: Upazila Map with project location

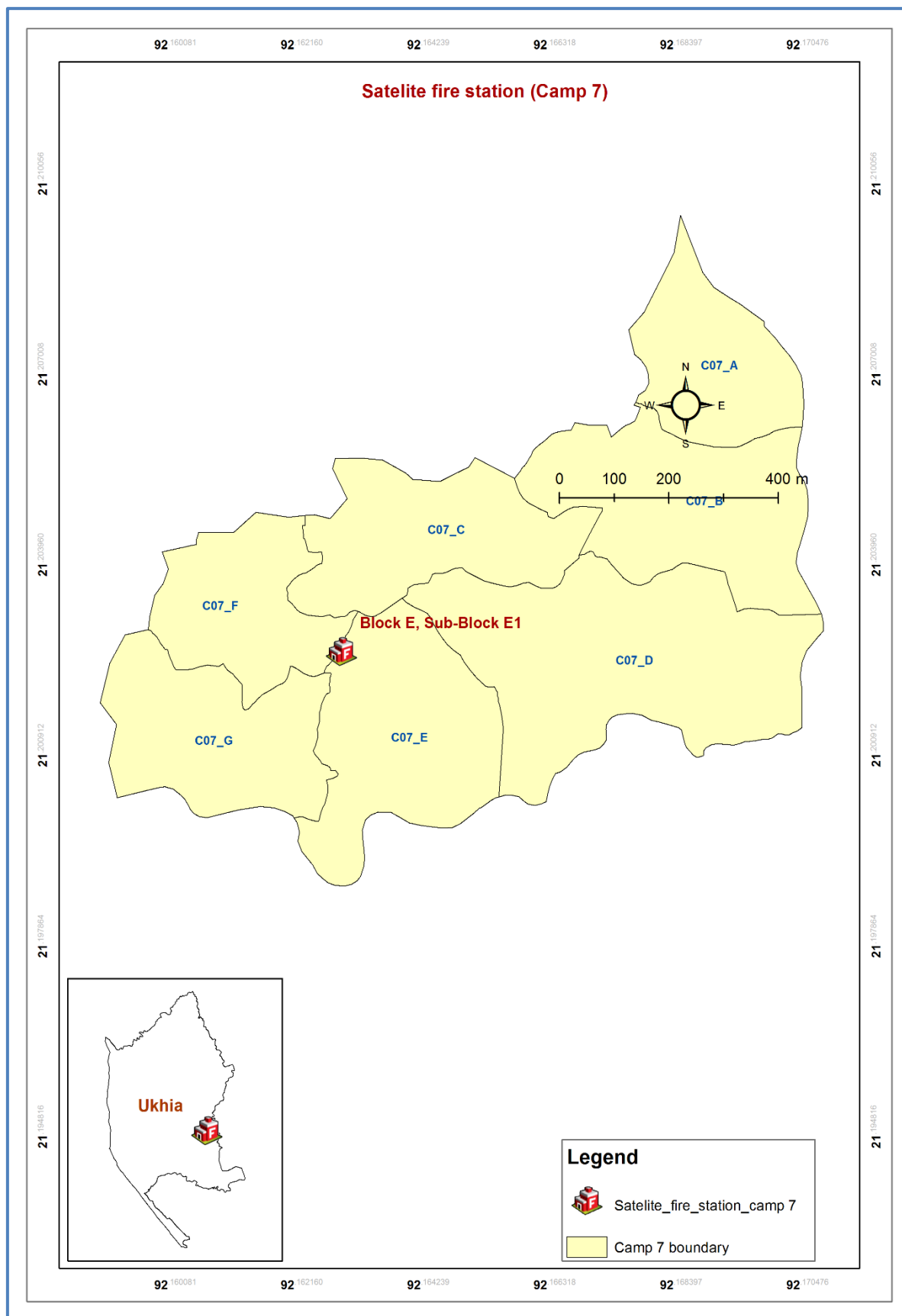


Figure 1.4.3: Location map of Satellite fire station

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	Mosque (300m)
South side	Mosque (150m), Nutrition center (80m), Police Camp (100m)
East side	Mosque (60m)
West side	BRAC Office (50m), BRAC Learning Center (100m), Madrasah (60m)

[Sources of data: Field survey, 2023]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Satellite Fire station 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 29 August 2023 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 13 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Rohingya Camp 07, Block-E and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 29 August 2023 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 warehouse for firefighting equipment and Satellite fire stations) 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 sited allocated by Camp in Charge (CiC) 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 1 km area there are nothing but camp settlements and few social institutions. To the north side a Mosque (300m); to the south side Mosque (150m), Nutrition center (80m), Police Camp (100m); to the east side Mosque (60m) and; to the west side BRAC Office (50m), BRAC Learning Center (100m), Madrasah (60m) 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 piling 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 piling 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routes and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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.

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,

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, trees will not need to be cut 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted. Besides

adopting appropriate fall prevention measures, such as, installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use, serviceability, and integrity of the necessary PPE is to be carried out. 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 and DRPs. Contractors' employed site managers and safeguard supervisors or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive 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 Ukhiya 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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

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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

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

Name of Community/Local Area: Rohingya Camp 07, Block E.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One warehouse for firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 1546.58 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Rohingya camp 07, Block-E area. To the north side a Mosque (300m); to the south side Mosque (150m), Nutrition center (80m), Police Camp (100m); to the east side Mosque (60m) and; to the west side BRAC Office (50m), BRAC Learning Center (100m), Madrasah (60m) are located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

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

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side a Mosque (300m); to the south side Mosque (150m), Nutrition center (80m), Police Camp (100m); to the east side Mosque (60m) and; to the west side BRAC Office (50m), BRAC Learning Center (100m), Madrasah (60m) are present on the surrounding area 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 screening form is given below:**Section A: Sub-Project Overview****Description of sub-project/component interventions:**

Satellite Fire Service station building will be constructed within the boundary of an existing Rohingya camp area of Camp 07, Block-E at Ukhiya Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.58 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

The sub-project area is situated in Rohingya Camp 07, Block-E of Rajapalong union under Ukhiya Upazila. The sub-project area is located at 21.202420° N and 92.162810° E . The distance from the Upazila headquarter is about 7 km. Nearby major road is 12 feet Rohingya camp 7 connecting road.

Land ownership

Land is owned by Government.

Expected construction period: 1 Year

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 pre-existing fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north side a Mosque (300m); to the south side Mosque (150m), Nutrition center (80m), Police Camp (100m); to the east side Mosque (60m) and; to the west side BRAC Office (50m), BRAC Learning Center (100m), Madrasah (60m) are located. However, there is no chance of disturbance during this improvement activity. However there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

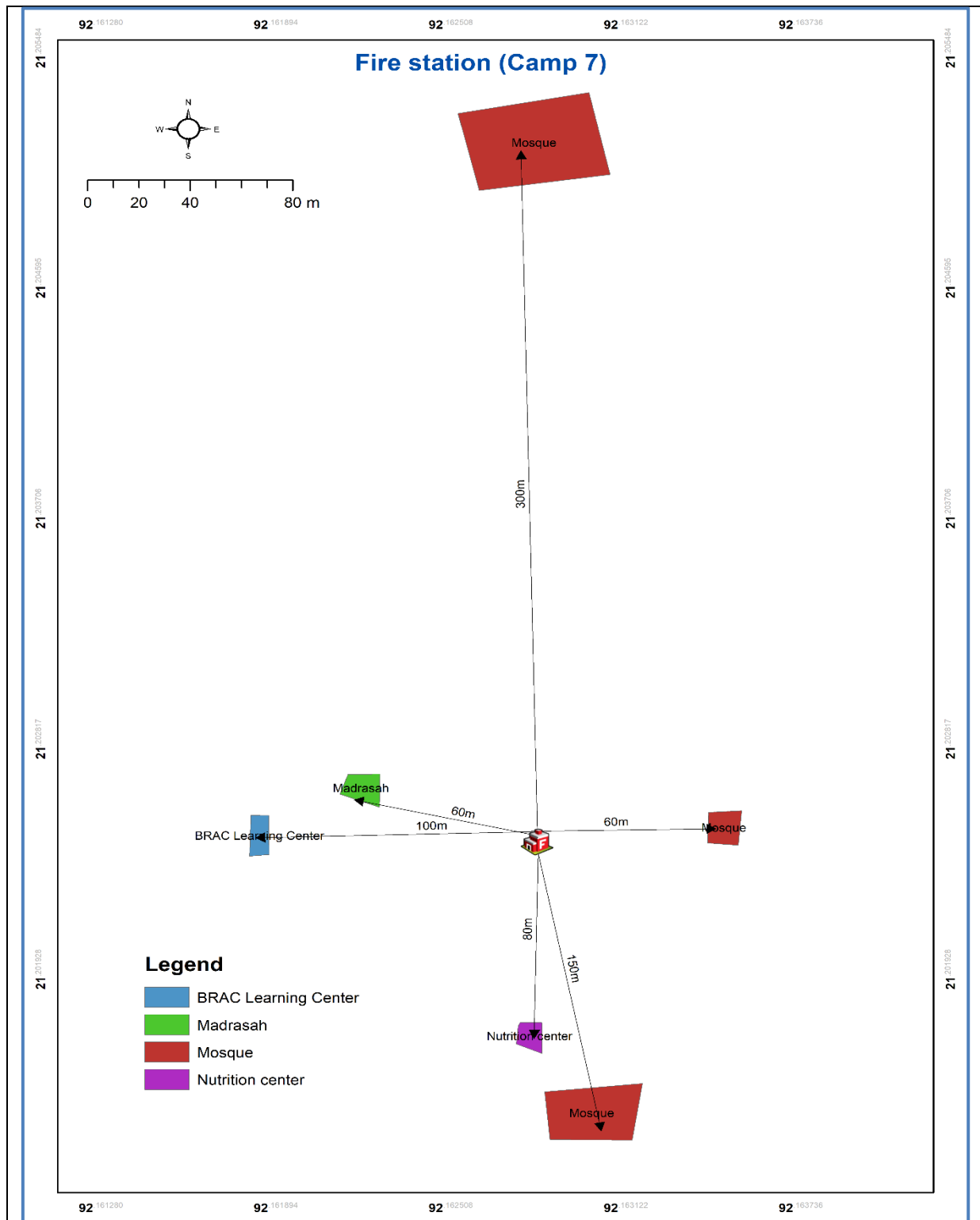
B.1: Environmental feature of sub-project location

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:

To the north side a Mosque (300m); to the south side Mosque (150m), Nutrition center (80m), Police Camp (100m); to the east side Mosque (60m) and; to the west side BRAC Office (50m), BRAC Learning Center (100m), Madrasah (60m).

There are no sensitive environmental, cultural, archaeological 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 chorra around this location. Several mosques, learning centers and DRP settlement were found during the survey. Other than some trees found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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, 2022). DRP 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 *Data source: DPHE Test Report, 2022 (Water samples collected and tested at DPHE laboratory) The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.
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 small trees are located in the subproject area since there is already an established Satellite fire 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): 12 feet HBB Rohingya camp connecting road is present on the south side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand iii) Cement iv) aggregates v) metals vi) water vii) concretes viii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and ix) clay are the most common type of building material used in construction.
Identification of access road for transportation (Yes/No): 12 feet HBB Rohingya camp connecting road is present on the south side. It is possible to carry the construction materials on this road to the construction site.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand,

bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

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

Around 1546.58 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.
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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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)

Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.

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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of	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.	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
	crime, Access of students, children, animals, etc.)		• Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by 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.			
	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.	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 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.	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in noise	Weekly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 construction period.		producing equipment and sound barriers, Noise 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	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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	mitigation measures.					
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly
	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.,	Contractor, Environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- Ensure adequate supply of drinking water. - Sanitation facilities for male & female workers separately.			
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.
	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	Contractor monitored by Consultant and PMU	Worksite is restored to original conditions;	Over the completion of Works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			that forms part of the bidding document.			
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Warehouses for FSCD (LGED/EMCRP/W02): Satellite Fire Station of Rohingya Camp 07, Block E**

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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. - The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents.	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ DRPs, 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 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		All Personal Protective Equipment (PPE) will be available in site before starting any kind of construction works.		
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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	- 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	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
	dermatitis.	carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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.		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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/DRPs	• Provision for proper mitigation measures 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. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan (if required):

The Contractor shall develop a demolition plan 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 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 Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area, preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u>	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	Water samples are to be collected 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 the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
	Subtotal Bill: Environmental facilities			300,000.00



Cost of H&S Measures under COVID 19 Situations

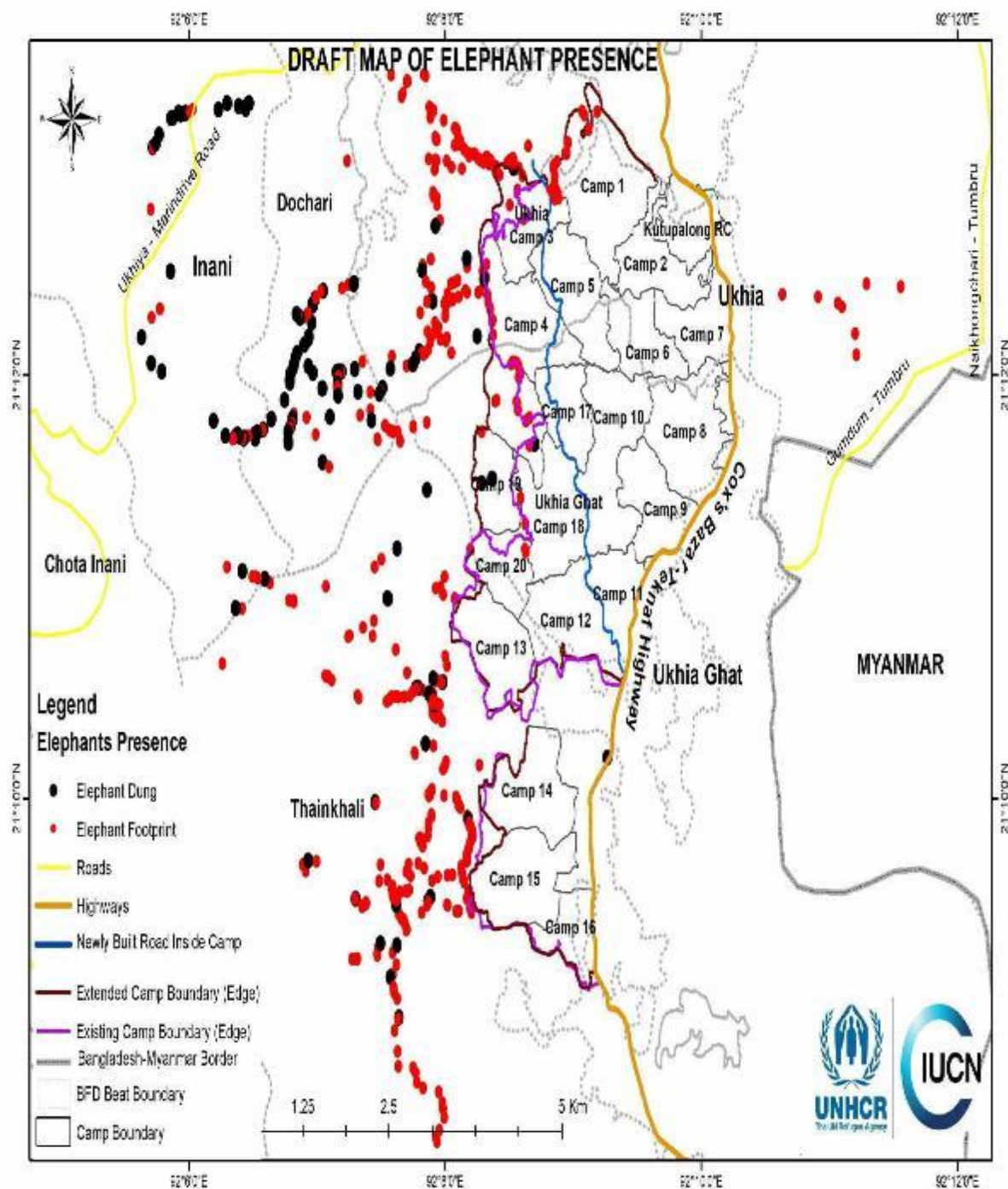
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 1W, Block A).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of Warehouse for Firefighting Equipment and Satellite Fire Station

Package Number : EMCRP/W2

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 : 11:30am তারিখ: 29/08/2023

উপ-প্রকল্প/কম্পোনেন্ট এর নাম : Satellite Fire Station- Camp-7

মত বিনিময় স্থান : Infront of Satellite Fire Station .

ইউনিটন : কুজাপান্ডা ওয়ার্ড নং : 7 ডাকঘর : কাম্বুগামী ৪৭৫০ উপজেলা : উজিরপুর জেলা : কক্সবাজার

সব প্যাকেজ নং : EMCRP-W-2 ক্যাম্পের নাম : Camp-7, Block-E.

অংশগ্রহণকারীদের হাতিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	ব্লক/সাব ব্লক নং	স্বাক্ষর / চিহ্ন
০১	হুসেন আমল	৬৮	পুরুষ	Block-E	
০২	শ্রীঃ আমল	৬২	৷	৷	
০৬	হুসেন	৪৫	৷	৷	
০৪	কাম্বুগামী	৪০	৷	৷	
০৫	শ্রীঃ কাম্বুগামী	২৫	৷	৷	
০৬	কাম্বুগামী সিকান্দার	২৭	৷	৷	
০৭	সিকান্দার হুসেন	২০	৷	৷	
০৮	আব্দুল ওহাব	৬২	৷	৷	
০৯	শ্রীঃ হাদির	৬৮	৷	৷	
১০	কাম্বু জিয়া	৪০	৷	৷	
১১	শ্রীঃ কাম্বুগামী	৬২	৷	৷	
১২	আব্দুল্লাহ সিকান্দার	২৫	৷	৷	
১৬	পঙ্ক জেড	২৮	৷	৷	

Public consultation participants' list

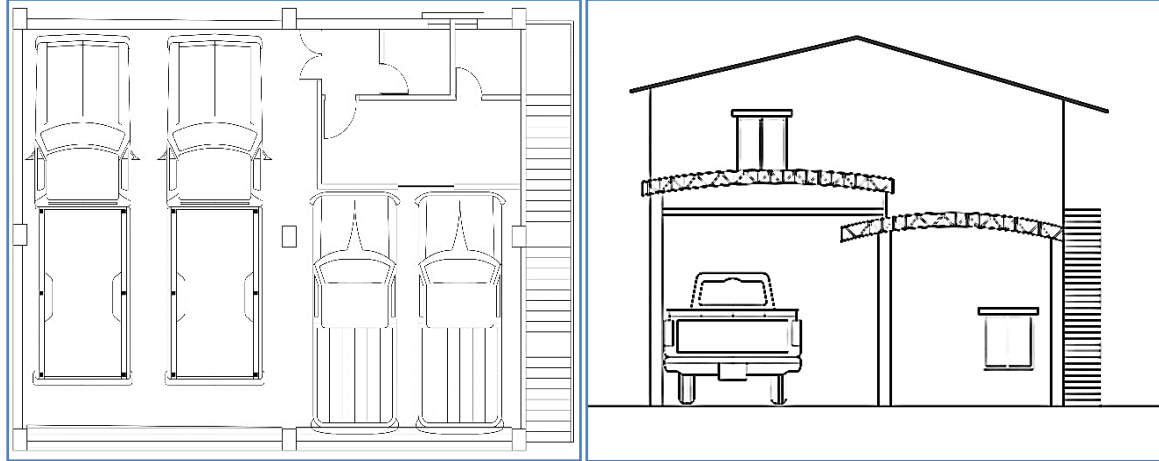


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of Rohingya Camp-10, Block-A

Union: Palongkhali; Upazila: Ukhiya

District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

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ACRONYMS

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
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank



1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Palongkhali union in Rohingya camp number 10, Block E of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 8W, 9, 11, 12 and 18. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Rohingya Camp-10, Block-A	ii. Ward No.: 1
iii. Name of Union: Palongkhali	iv. Name of the Upazila: Ukhiya
v. Water Status: Available	vi. Water Source: Pipe water supply, Deep tube-well
vii. Distance from UZHQ: 10 Km	

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

viii. GPS Coordinates	Latitude Value: 21.1947025° N Longitude Value: 92.152771° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	LGED Road
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period: 2023-2024	
Estimated total cost of component: 9,835,159.85 (Tk.)	

[D&SC and Field survey, 2022]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Rohingya camp 10, Block A of Palongkhali union of Ukhiya Upazila Under Cox's Bazar District. The site location is relatively a high plain land and accessible through



vehicles as of 12ft wide HBB road named LGED Road is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Ukhiya
Union	Palongkhali
Ward No.	1
Rohingya Camp No.	10
Block/Sub-Block	A
GPS Coordinates	21.1947025° N and 92.152771° E
Distance from Upazila HQ	10 km
Nearby major road	LGED Road
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2022]

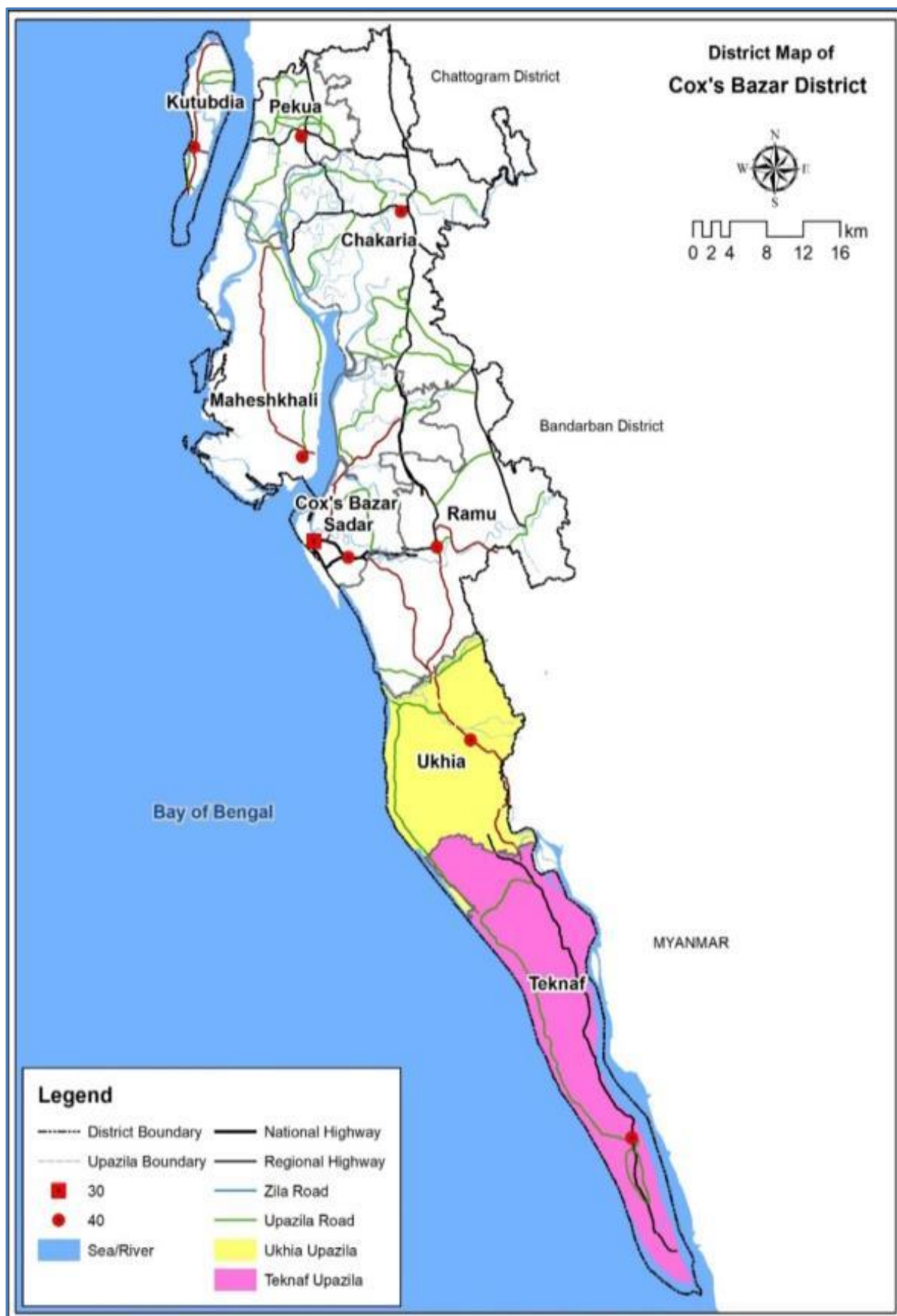


Figure 1.4.1: District Map with project location

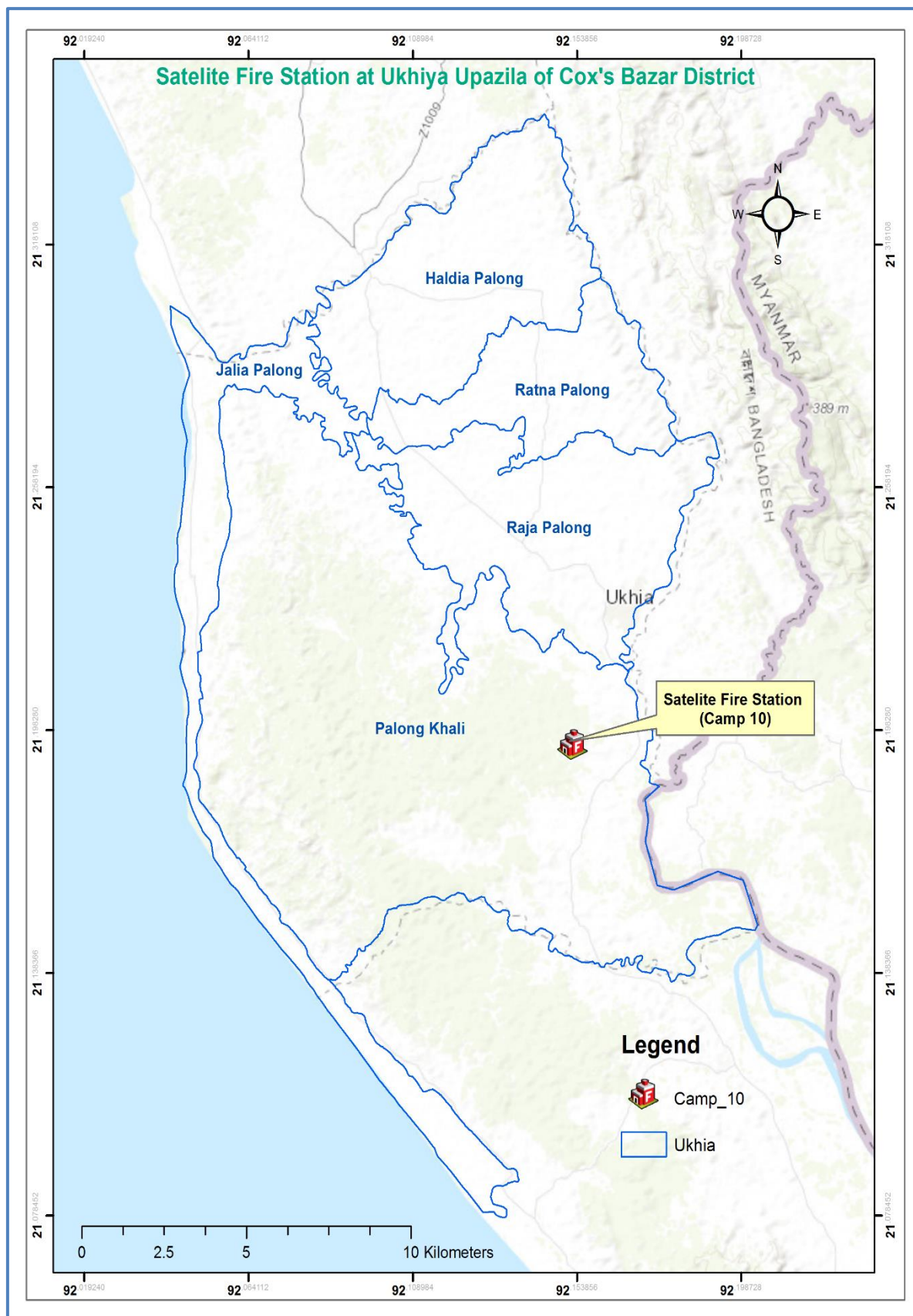


Figure 1.4.2: Upazila Map with project location

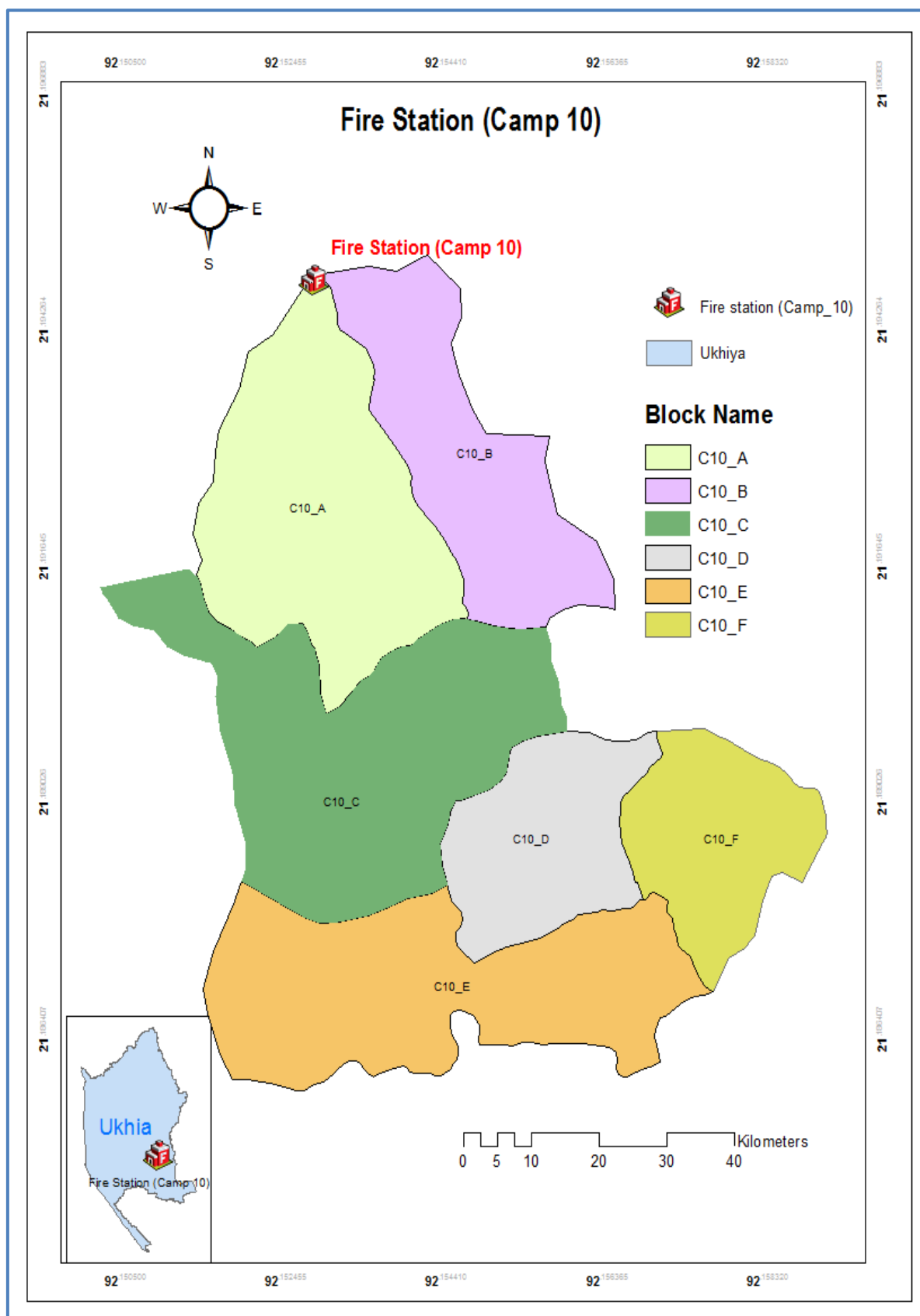


Figure 1.4.3: Location map of Satellite fire station

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	LGED road (5m), Mosque (30m), Graveyard on hill (50m)
South	Khal (15m), Learning Centre (20m), DRP settlement (30m), Mosque (40m)
South- East	Learning Centre (10m), Mosque (20m)
East	Learning Centre (80m)
West	Graveyard (20m), Mosque (40m), Learning Centre (50m)

[Sources of data: Field survey, 2022]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Fire service station 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 03 August 2022 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 12 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Rohingya Camp 10, Block-A and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 03 August 2022 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 warehouse for firefighting equipment and Satellite fire stations) 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 sited allocated by Camp in Charge (CiC) 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. Top soil in agricultural land will be avoided without any failure in earthwork and that productive part of the soil will be conserved and replaced, if underneath soil is taken from any agricultural land. Within 1 km area there are nothing but camp settlements and few social institutions. To the north side LGED road (5m), Mosque (30m), Graveyard on hill (50m); to the south side a Khal (15m), Learning Centre (20m), DRP settlement (30m), Mosque (40m); to the south-east side Learning Centre (10m), Mosque (20m); to the east side a Learning Centre (80m) and; to the west side Graveyard (20m), Mosque (40m), Learning Centre (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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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.

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

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

including tree plantation 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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, trees will not need to be cut 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient

camp management, and relevant awareness building sessions will also be conducted. Besides adopting appropriate fall prevention measures, such as, installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use, serviceability, and integrity of the necessary PPE is to be carried out. 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 and DRPs. Contractors' employed site managers and safeguard supervisors or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive 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 Ukhiya 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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

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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

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

Name of Community/Local Area: Rohingya Camp 10, Block A.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One warehouse for firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 1546.58 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Rohingya camp 10, Block-A area. To the north side LGED road (5m), Mosque (30m), Graveyard on hill (50m); to the south side a Khal (15m), Learning Centre (20m), DRP settlement (30m), Mosque (40m); to the south-east side Learning Centre (10m), Mosque (20m); to the east side a Learning Centre (80m) and; to the west side Graveyard (20m), Mosque (40m), Learning Centre (50m) are located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

The proposed Sub-project area for the construction of Satellite fire station is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and



biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side LGED road (5m), Mosque (30m), Graveyard on hill (50m); to the south side a Khal (15m), Learning Centre (20m), DRP settlement (30m), Mosque (40m); to the south-east side Learning Centre (10m), Mosque (20m); to the east side a Learning Centre (80m) and; to the west side Graveyard (20m), Mosque (40m), Learning Centre (50m) are present on the surrounding area 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 screening form is given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Fire Service office building will be constructed within the boundary of an existing Rohingya camp area of Camp 10, Block-A at Ukhiya Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.58 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

The sub-project area is situated in Rohingya Camp 10, Block-A of Palongkhali union under Ukhiya Upazila. The sub-project area is located at 21.1947025° N and 92.152771° E. The distance from the Upazila headquarter is about 10 km. Nearby major road is 12 feet wide HBB LGED Road.

Land ownership

Land is owned by Government.

Expected construction period: 1 Year

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 pre-existing fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north side LGED road (5m), Mosque (30m), Graveyard on hill (50m); to the south side a Khal (15m), Learning Centre (20m), DRP settlement (30m), Mosque (40m); to the south-east side Learning Centre (10m), Mosque (20m); to the east side a Learning Centre (80m) and; to the west side Graveyard (20m), Mosque (40m), Learning Centre (50m) are located. However, there is no chance of disturbance during this improvement activity. However, there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

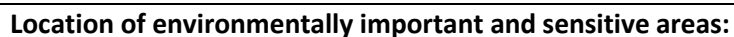
B.1: Environmental feature of sub-project location

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:

To the north side LGED road (5m), Mosque (30m), Graveyard on hill (50m); to the south side a Khal (15m), Learning Centre (20m), DRP settlement (30m), Mosque (40m); to the south-east side a Learning Centre (10m), Mosque (20m); to the east side a Learning Centre (80m) and; to the west side Graveyard (20m), Mosque (40m), Learning Centre (50m) are located.

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



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, learning centers and DRP settlement were found during the survey. Other than some trees found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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 650-850ft (Field survey, 2022). DRP people usually use pipe water supply and 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 *Data source: DPHE Test Report, 2022 (Water samples collected and tested at DPHE laboratory) The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.
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 small trees are located in the subproject area since there is already an established Satellite fire 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): 12 feet wide HBB LGED Road is present on the north side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand iii) Cement iv) aggregates v) metals vi) water vii) concretes viii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and ix) clay are the most common type of building material used in construction.
Identification of access road for transportation (Yes/No): HBB 12 feet wide LGED Road is present on the north side. It is possible to carry the construction materials on this road to the construction site.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand,

bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

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

Around 1546.58 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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 canals 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.

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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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)

Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.

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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of	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.	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
	crime, Access of students, children, animals, etc.)		• Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by 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.			
	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.	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 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.	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in noise	Weekly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 construction period.		producing equipment and sound barriers, Noise 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	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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	mitigation measures.					
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly
	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.,	Contractor, Environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- Ensure adequate supply of drinking water. - Sanitation facilities for male & female workers separately.			
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.
	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	Contractor monitored by Consultant and PMU	Worksite is restored to original conditions;	Over the completion of Works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			that forms part of the bidding document.			
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Satellite Fire Station (LGED/EMCRP/W02): Satellite Fire Station of Rohingya Camp 10, Block A

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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. - The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents.	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ DRPs, 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 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		All Personal Protective Equipment (PPE) will be available in site before starting any kind of construction works.		
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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	- 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	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
	dermatitis.	carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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.		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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/DRPs	• Provision for proper mitigation measures 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. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan (if required):

The Contractor shall develop a demolition plan 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 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 Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u> Water samples are to be collected from the Tube well at labor shed area for laboratory analysis of	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	different parameters such as PH, arsenic, Iron, Chloride, Hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
	Subtotal Bill: Environmental facilities			300,000.00



Cost of H&S Measures under COVID 19 Situations

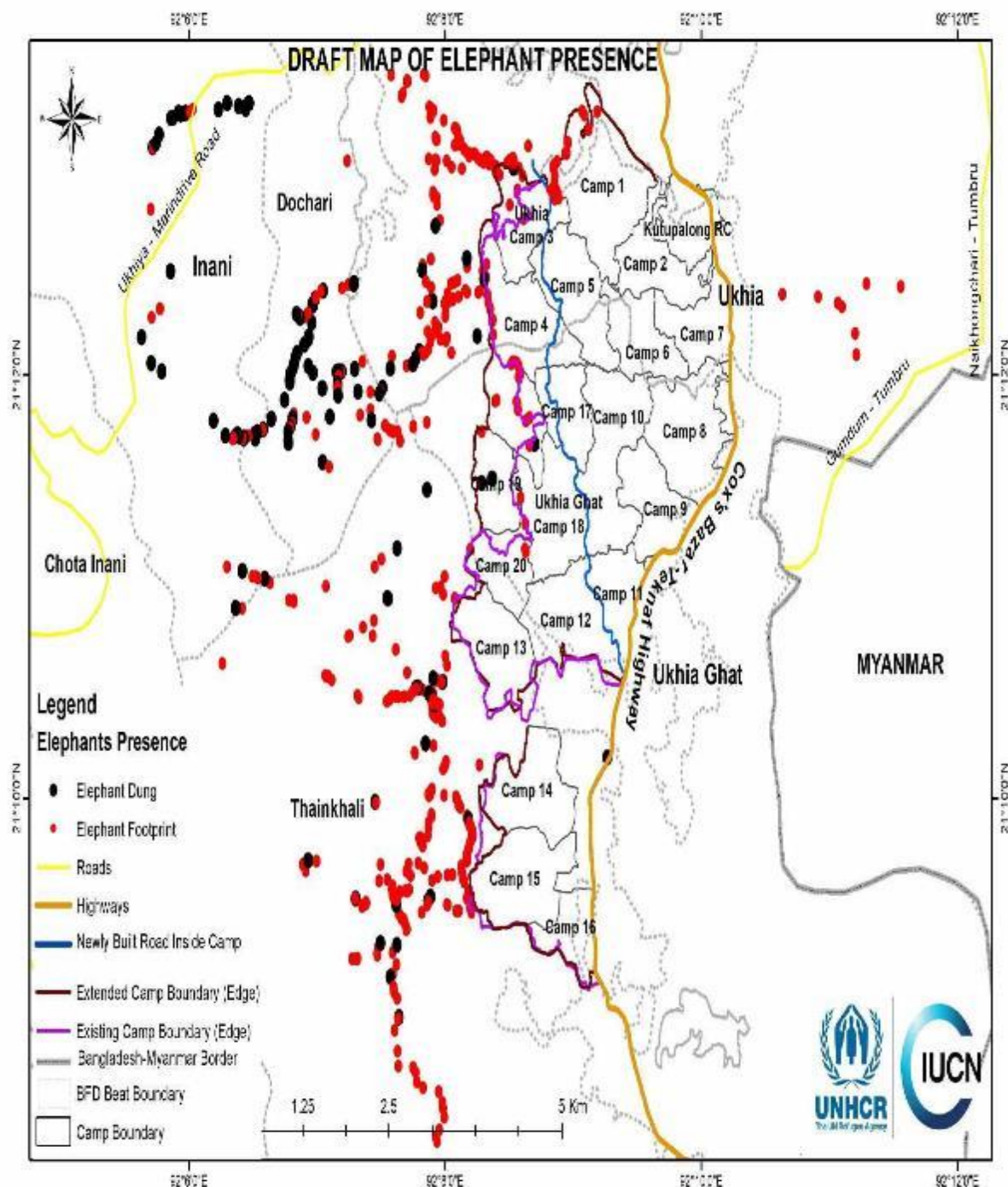
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 10, Block A).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of warehouse for firefighting equipment and Satellite fire station
Package Number : EMCRP/W2

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 : ০২:১০ PM তারিখ : ০৬/০৫/২০২২

উপ-প্রকল্প/কম্পোনেন্ট এর নাম : Construction of warehouse for firefighting equipment and Satellite fire station.

মত বিনিময় স্থান : On the location of selected satellite fire station.

ইউনিয়ন : পটলহাট ওয়ার্ড নং : ০১ ভাঙ্গাঘর : UKhiya-4750 উপজেলা : কক্সবাজার জেলা : কক্সবাজার

পাণ্ডা প্যাকেজ নং : EMCRP/W-02 ক্যাম্পের নাম : Camp-10 , Block-A4/H55

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	ব্লক/সাব ব্লক নং	স্বাক্ষর / টিপসাই
০	মোঃ ইমরান	৪০	পুরুষ (DRP)	A-4/H55	
২	মুন্সুর (হামেন)	৬৪	পুরুষ (DRP)	H-55	
৬	মাহমুদ মল্লিক	৪০	পুরুষ (DRP)	H-42	
৪	আবুল কাশিম	৬০	পুরুষ (DRP)	H-55	
৫	মোঃ মোস্তাফিজ	৩৫	পুরুষ (DRP)	H-48	
৬	মোস্তাফিজ	৫৭	পুরুষ (DRP)	H-55	
৭	আব্দুল করিম	৬০	পুরুষ (DRP)	H-55	
৮	মাহমুদ মল্লিক	৫৫	পুরুষ (DRP)	H-55	
৯	আবু আমর	৬৫	পুরুষ (DRP)	H-48	
১০	মাহমুদ মল্লিক	৫৫	পুরুষ (DRP)	H-55	
১১	আমিত (হামেন)	৪৪	পুরুষ (DRP)	H-55	
১২	আবুল (হামেন)	৫০	পুরুষ (DRP)	H-55	

Public consultation participants' list

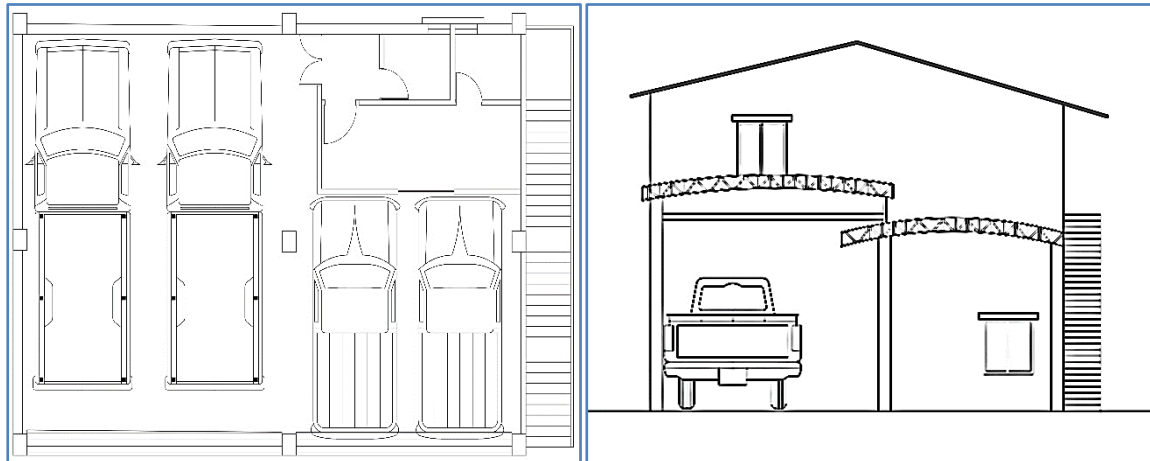


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of Rohingya Camp-11, Block-C

Union: Palongkhali; Upazila: Ukhiya

District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

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ACRONYMS

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
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank



1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Palongkhali union in Rohingya camp number 11, Block C of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 9, 10, 12 along with host community. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Rohingya Camp-11, Block-C	ii. Ward No.: 4
iii. Name of Union: Palongkhali	iv. Name of the Upazila: Ukhiya
v. Water Status: Available	vi. Water Source: Pipe water supply, Deep tube-well
vii. Distance from UZHQ: 10.5 Km	

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

viii. GPS Coordinates	Latitude Value: 21.177530° N Longitude Value: 92.156072° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	18 feet wide HBB Army Road
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period: 2023-2024	
Estimated total cost of component: 9,835,159.85 (Tk.)	

[D&SC and Field survey, 2022]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Rohingya camp 11, Block C of Palongkhali union of Ukhiya Upazila Under Cox's Bazar District. The site location is relatively a high plain land and accessible through



vehicles as of 18ft wide HBB road named Army Road is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Ukhiya
Union	Palongkhali
Ward No.	4
Rohingya Camp No.	11
Block/Sub-Block	C
GPS Coordinates	21.177530° N and 92.156072° E
Distance from Upazila HQ	10.5 km
Nearby major road	18 ft. wide Army Road
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2022]

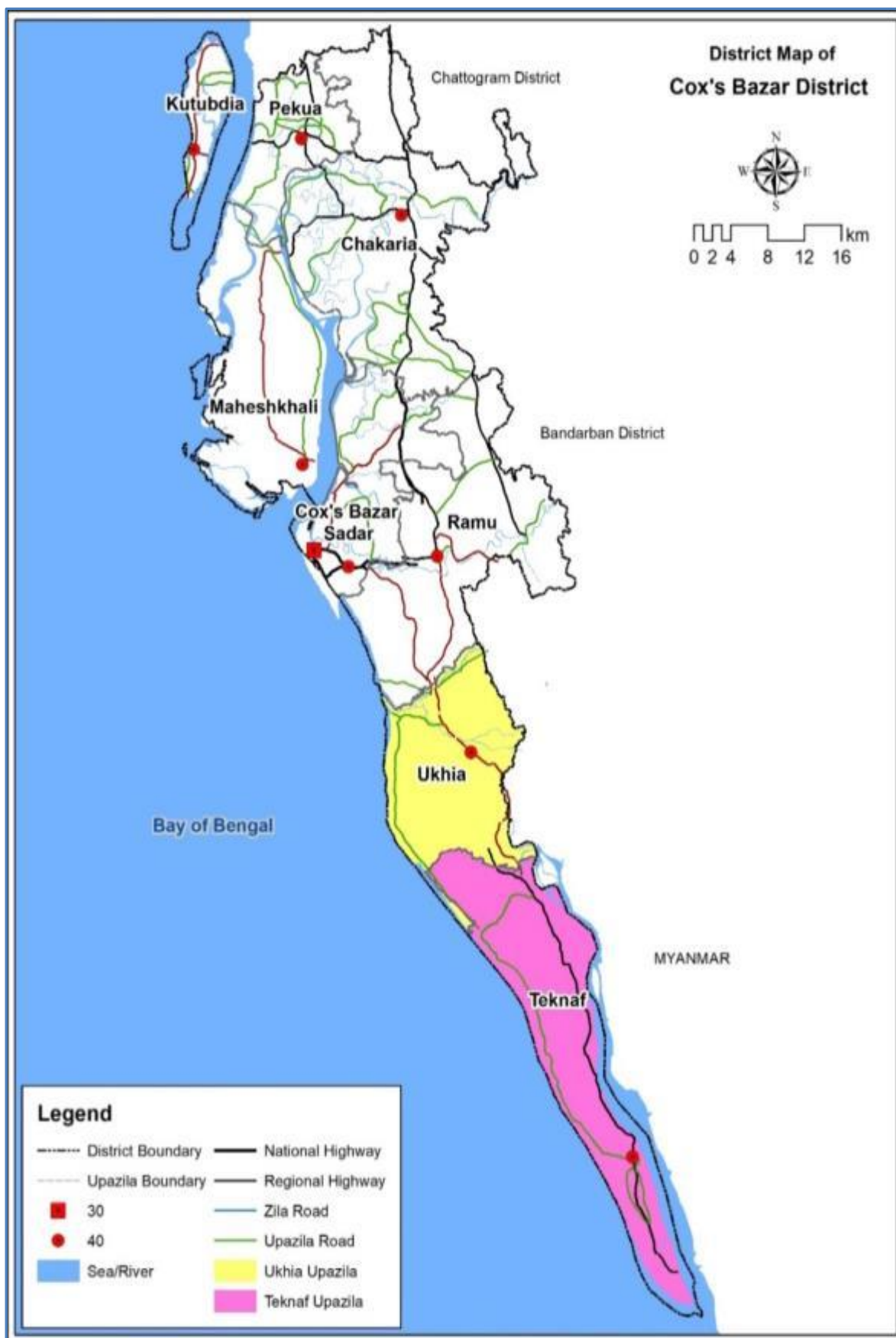


Figure 1.4.1: District Map with project location

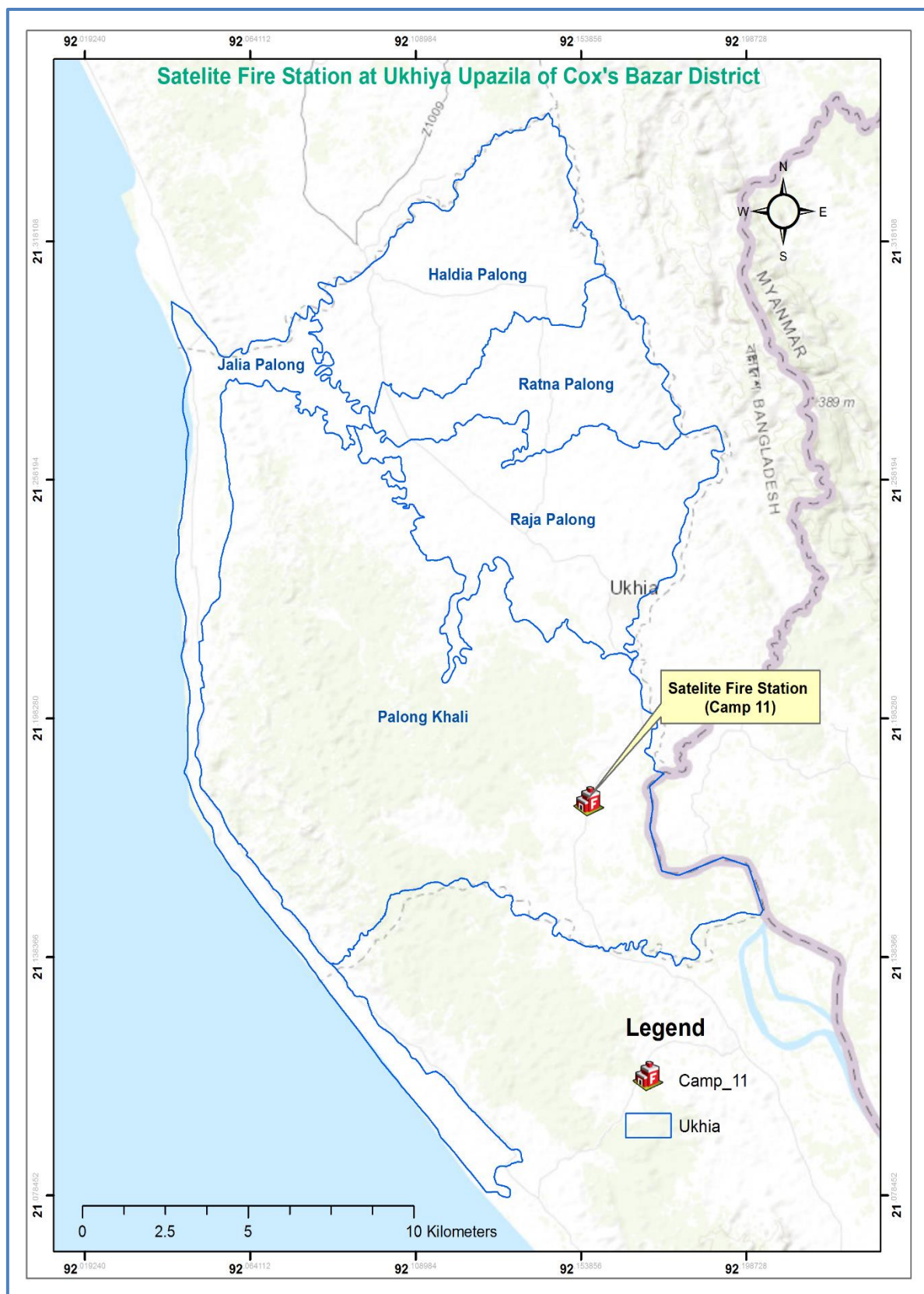


Figure 1.4.2: Upazila Map with project location



1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	DRP settlement (150m), CODEC Learning Centre (400m), BRAC Learning Centre (500m), UNICEF Learning Centre (600m)
South	Mosque (200m), Darud Tahajib Madrasah & Orphanage (200m), Thainkhali GPS (600m), Thainkhali Bazar (700m)
North-East	Camp 11 CiC office (500m)
West	Primary Health Care Center (120m), Mosque (150m), BRAC Learning Centre (350m) DRP settlement (380m), Graveyard (500m)

[Sources of data: Field survey, 2022]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Fire service station 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 03 August 2022 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 15 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Rohingya Camp 11, Block-C and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 03 August 2022 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 warehouse for firefighting equipment and Satellite fire stations) 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 by Camp in Charge (CiC) 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 1 km area there are nothing but camp settlements and few social institutions. To the north side DRP settlement (150m), CODEC Learning Centre (400m), BRAC Learning Centre (500m), UNICEF Learning Centre (600m); to the south side Mosque (200m), Darud Tahajib Madrasah & Orphanage (200m), Thainkhali GPS (600m), Thainkhali Bazar (700m); to the north-east side Camp 11 CiC office (500m) and; to the west side Primary Health Care Center (120m), Mosque (150m), BRAC Learning Centre (350m), DRP settlement (380m), Graveyard (500m) 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 piling 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 piling 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routes and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the

mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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.

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.

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, trees will not need to be cut 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted. Besides adopting appropriate fall prevention measures, such as, installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use,

serviceability, and integrity of the necessary PPE is to be carried out 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 ESMP and the responsibilities lie on all the responsible parties or institutions directly involved with or oversee the construction works.

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

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive 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 Ukhiya 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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

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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

District: Cox's Bazar

Sub-District: Ukhiya

Union: Palongkhali

Name of Community/Local Area: Rohingya Camp 11, Block C.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 1546.58 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Rohingya camp 11, Block-C area. To the north side DRP settlement (150m), CODEC Learning Centre (400m), BRAC Learning Centre (500m), UNICEF Learning Centre (600m); to the south side Mosque (200m), Darud Tahajib Madrasah & Orphanage (200m), Thainkhali GPS (600m), Thainkhali Bazar (700m); to the north-east side Camp 11 CiC office (500m) and; to the west side Primary Health Care Center (120m), Mosque (150m), BRAC Learning Centre (350m), DRP settlement (380m), Graveyard (500m) are located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

The proposed Sub-project area for the construction of Satellite fire station is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact



on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side DRP settlement (150m), CODEC Learning Centre (400m), BRAC Learning Centre (500m), UNICEF Learning Centre (600m); to the south side Mosque (200m), Darud Tahajib Madrasah & Orphanage (200m), Thainkhali GPS (600m), Thainkhali Bazar (700m); to the north-east side Camp 11 CiC office (500m) and; to the west side Primary Health Care Center (120m), Mosque (150m), BRAC Learning Centre (350m), DRP settlement (380m), Graveyard (500m) are present on the surrounding area 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 screening form is given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Fire Service office building will be constructed within the boundary of an existing Rohingya camp area of Camp 11, Block-C at Ukhiya Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.58 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

The sub-project area is situated in Rohingya Camp 11, Block-C of Palongkhali union under Ukhiya Upazila. The sub-project area is located at 21.177530° N and 92.156072° E. The distance from the Upazila headquarter is about 10.5 km. Nearby major road is 18 feet HBB Army Road.

Land ownership

Land is owned by Government.

Expected construction period: 1 Year

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 pre-existing satellite fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north side DRP settlement (150m), CODEC Learning Centre (400m), BRAC Learning Centre (500m), UNICEF Learning Centre (600m); to the south side Mosque (200m), Darud Tahajib Madrasah & Orphanage (200m), Thainkhali GPS (600m), Thainkhali Bazar (700m); to the north-east side Camp 11 CiC office (500m) and; to the west side Primary Health Care Center (120m), Mosque (150m), BRAC Learning Centre (350m), DRP settlement (380m), Graveyard (500m) are located. However, there is no chance of disturbance during this improvement activity. However there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

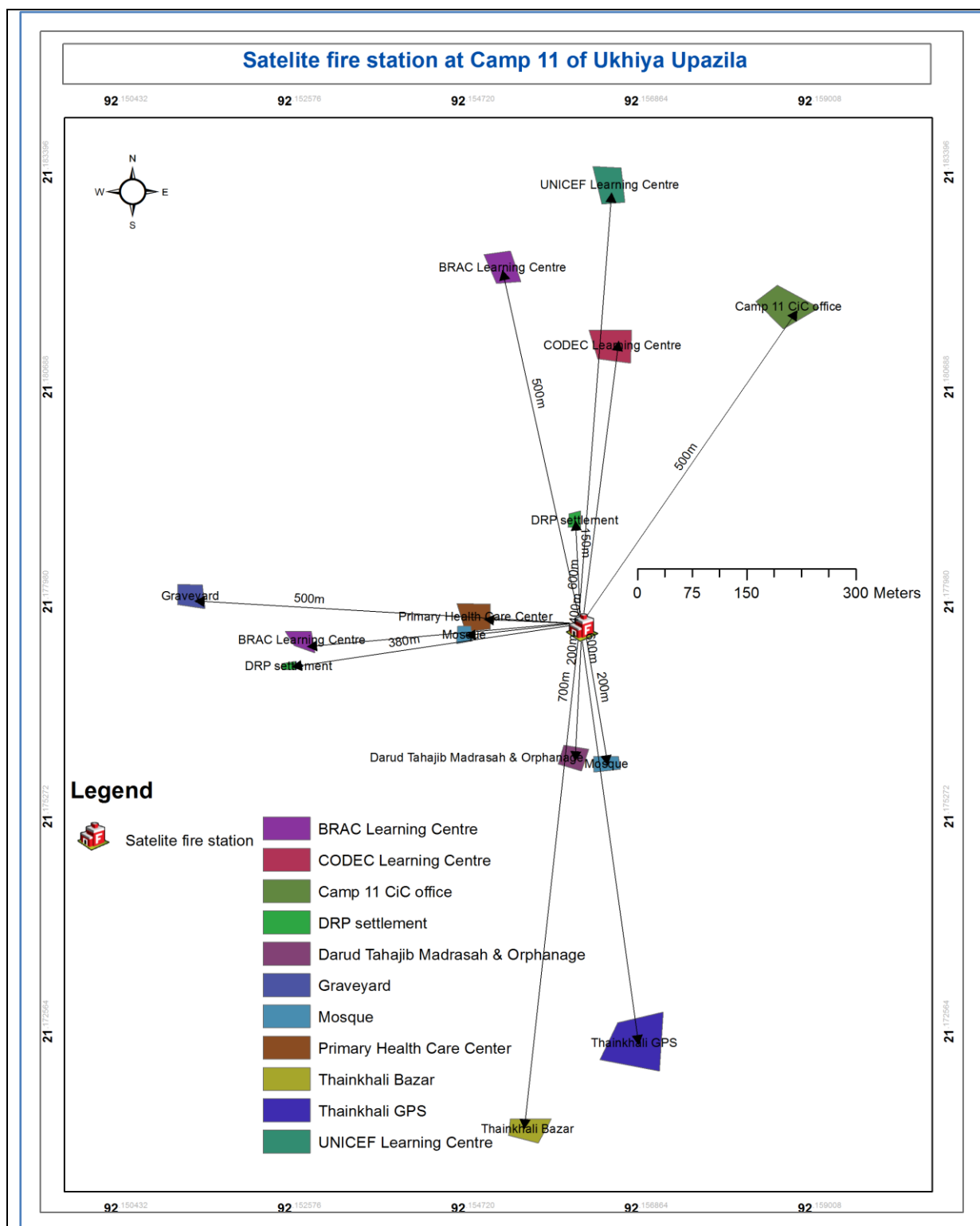
B.1: Environmental feature of sub-project location

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:

To the north side DRP settlement (150m), CODEC Learning Centre (400m), BRAC Learning Centre (500m), UNICEF Learning Centre (600m); to the south side Mosque (200m), Darud Tahajib Madrasah & Orphanage (200m), Thainkhali GPS (600m), Thainkhali Bazar (700m); to the north-east side Camp 11 CiC office (500m) and; to the west side Primary Health Care Center (120m), Mosque (150m), BRAC Learning Centre (350m), DRP settlement (380m), Graveyard (500m) are located.

There are no sensitive environmental, cultural, archaeological 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, learning centers and DRP settlement were found during the survey. Other than some trees found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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, 2022). DRP people usually

use pipe water supply, 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

*Data source: DPHE Test Report, 2022 (Water samples collected and tested at DPHE laboratory)
The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.

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 small trees are located in the subproject area since there is already an established Satellite fire 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):

HBB 18 feet Army Road is present on the west side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.

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

Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.

Possible location of labor camps:

Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.

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

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

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

HBB 18 feet Army Road is present on the west side. It is possible to carry the construction materials on this road to the construction site.

Location identification for raw material storage:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.

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

Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found

during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

Impacts of establishment of labor camp:

Impacts possibility is low, Locations of establishment of labor camps are to be identified, so that minimum disturbance on agricultural land is caused. Camps shall not be located near settlements or near water supply intakes. Place will be kept neat and clean strictly to ensure good sanitary condition. Proper toilet and water supply facilities to be required.

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

Around 1546.58 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.



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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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) Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.
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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of	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.	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
	crime, Access of students, children, animals, etc.)		• Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by 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.			
	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.	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 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.	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in noise	Weekly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 construction period.		producing equipment and sound barriers, Noise 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	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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	mitigation measures.					
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly
	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.,	Contractor, Environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- Ensure adequate supply of drinking water. - Sanitation facilities for male & female workers separately.			
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.
	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	Contractor monitored by Consultant and PMU	Worksite is restored to original conditions;	Over the completion of Works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			that forms part of the bidding document.			
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Warehouses for FSCD (LGED/EMCRP/W02): Satellite Fire Station of Rohingya Camp 11, Block C.**

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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. - The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents.	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ DRPs, 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 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		All Personal Protective Equipment (PPE) will be available in site before starting any kind of construction works.		
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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	- 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	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
	dermatitis.	carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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.		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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/DRPs	• Provision for proper mitigation measures 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. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan (if required):

The Contractor shall develop a demolition plan 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 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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Reviewed by: Md. Saiful Islam, Environmental Specialist, +8801913442006

**Appendix-3 Cost of Environmental Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area, preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u> Water samples are to be collected from the Tube well at labor shed area for laboratory analysis of	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	different parameters such as PH, arsenic, Iron, Chloride, Hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
	Subtotal Bill: Environmental facilities			300,000.00

**Cost of H&S Measures under COVID 19 Situations**

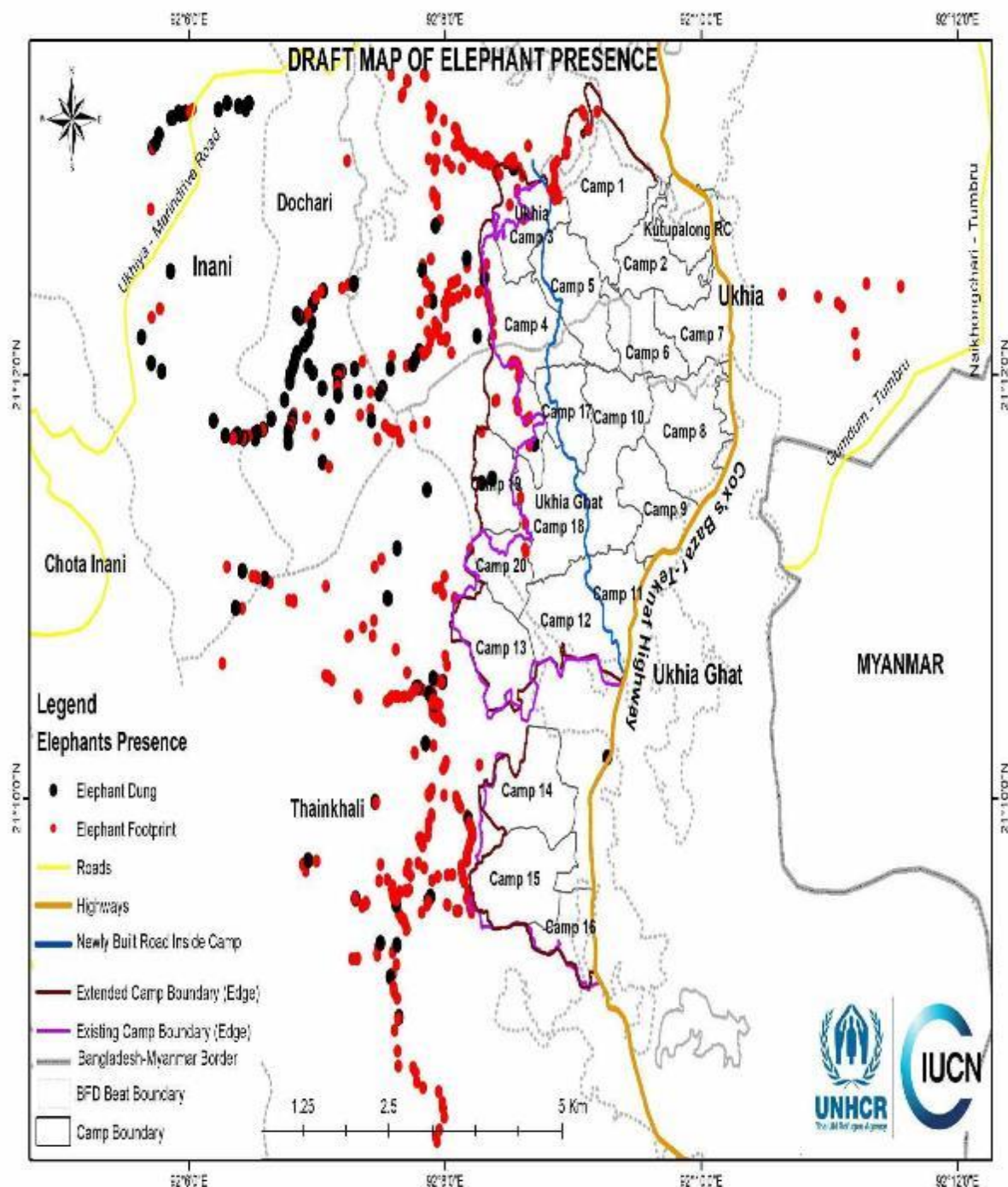
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 11, Block C).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of warehouse for firefighting equipment and Satellite fire station

Package Number : EMCRP/W2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মান্টি সেবির প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময় : 02:50 PM

তারিখ : 03/08/2022

উপ-প্রকল্প/কম্পোনেন্ট এর নাম : Construction of warehouse for firefighting equipment and satellite fire station (Camp-11)

মত বিনিময় স্থান : Mr. Montaza Hasan's Shop in front of UNHCR office.

ইজিনিয়ার : Palongkhali ডয়ার্ড নং : 04 ডাকঘর : Ukhiya উপজেলা : Ukhiya থানা : কক্সবাজার

সাব প্যাকেজ নং : EMCRP/W-2 ক্যাম্পের নাম : Camp-11

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রুপ/সাব গ্রুপ নং	স্বাক্ষর / উপস্থিতি
০১.	শ্রীঃ মাহমুদ	৬২	মহাশয় (DRP)	G-21 Camp-12	AO. Mazin
০২.	শ্রীঃ মাহমুদ আলম	৬৬	মহাশয় (DRP)	G-2 Camp-12	Mahmud, Mazin
০৩.	শ্রীঃ জামিন	২৫	মহাশয় (DRP)	G-2 Camp-12	Mahmud
০৪.	শ্রীঃ মাহমুদ	২৪	মহাশয় (DRP)	H-17 Camp-12	Shahid
০৫.	শ্রীঃ মাহমুদ আলম	৬৫	মহাশয় (DRP)	G-2 Camp-12	Birur
০৬.	শ্রীঃ মাহমুদ	২০	মহাশয় (DRP)	G-12 Camp-12	Mahmud
০৭.	শ্রীঃ (মাহমুদ)	২৪	মহাশয় (DRP)	G-2 Camp-12	Mahmud
০৮.	শ্রীঃ মাহমুদ আলম	২৬	মহাশয় (DRP)	G-2 Camp-12	Mahmud
০৯.	শ্রীঃ মাহমুদ আলম	৬৬	মহাশয় (DRP)	C-14 Camp-11	Mahmud

Construction of warehouse for firefighting equipment and Satellite fire station

Package Number : EMCRP/W2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জঙ্গলী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মান্দি সেক্টর প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

समय : 02:50 PM

তারিখ: 03/08/2022

উপ-প্রকল্প/কম্পোনেন্ট এর নাম : Construction of warehouse for firefighting equipment and satellite fire station

মত বিনিময় স্থান: Beside UNHCR office, G2 Block of camp-12

ইউনিয়ন: Palongkhali ওয়ার্ড নং: ০৫ ভাণ্ডার: Ukiya উপজেলা: Ukiya জেলা: কক্সবাজার

সাব প্রকল্প নং : EMCRP/W2

অংশগ্রহণকারীদের হাফিজা (পরিচয় ও বাসনা)

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Public consultation participants' list

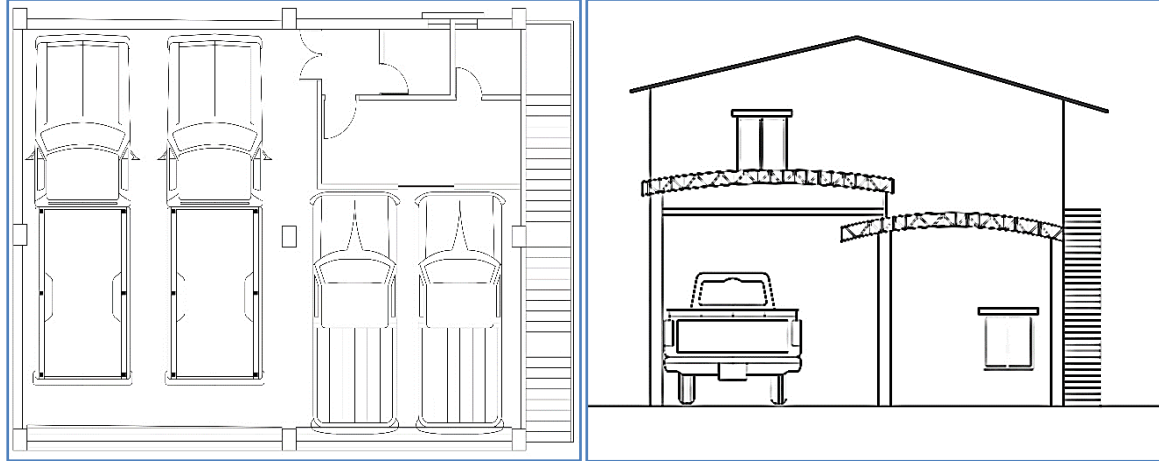


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya
and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of
Rohingya Camp-16, Block-A

Union: Palongkhali; Upazila: Ukhiya

District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

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ACRONYMS

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
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank



1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Palongkhali union in Rohingya camp number 16, Block A of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 14, 15 along with host community. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Rohingya Camp-16, Block-A	ii. Ward No.: 5
iii. Name of Union: Palongkhali	iv. Name of the Upazila: Ukhiya
v. Water Status: Available	vi. Water Source: Pipe water supply, Deep tube-well
vii. Distance from UZHQ: 14 Km	

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

viii. GPS Coordinates	Latitude Value: 21.157575° N Longitude Value: 92.152328° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	Arakan Road
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period: 2023-2024	
Estimated total cost of component: 9,835,159.85 (Tk.)	

[D&SC and Field survey, 2022]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Rohingya camp 16, Block A of Palongkhali union of Ukhiya Upazila Under Cox's Bazar District. The site location is relatively a plain land and accessible through vehicles



as of Cox's Bazar-Teknaf highway (Arakan Road) is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Ukhiya
Union	Palongkhali
Ward No.	5
Rohingya Camp No.	16
Block/Sub-Block	A
GPS Coordinates	21.157575° N and 92.152328° E
Distance from Upazila HQ	14 km
Nearby major road	Arakan Road
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2022]

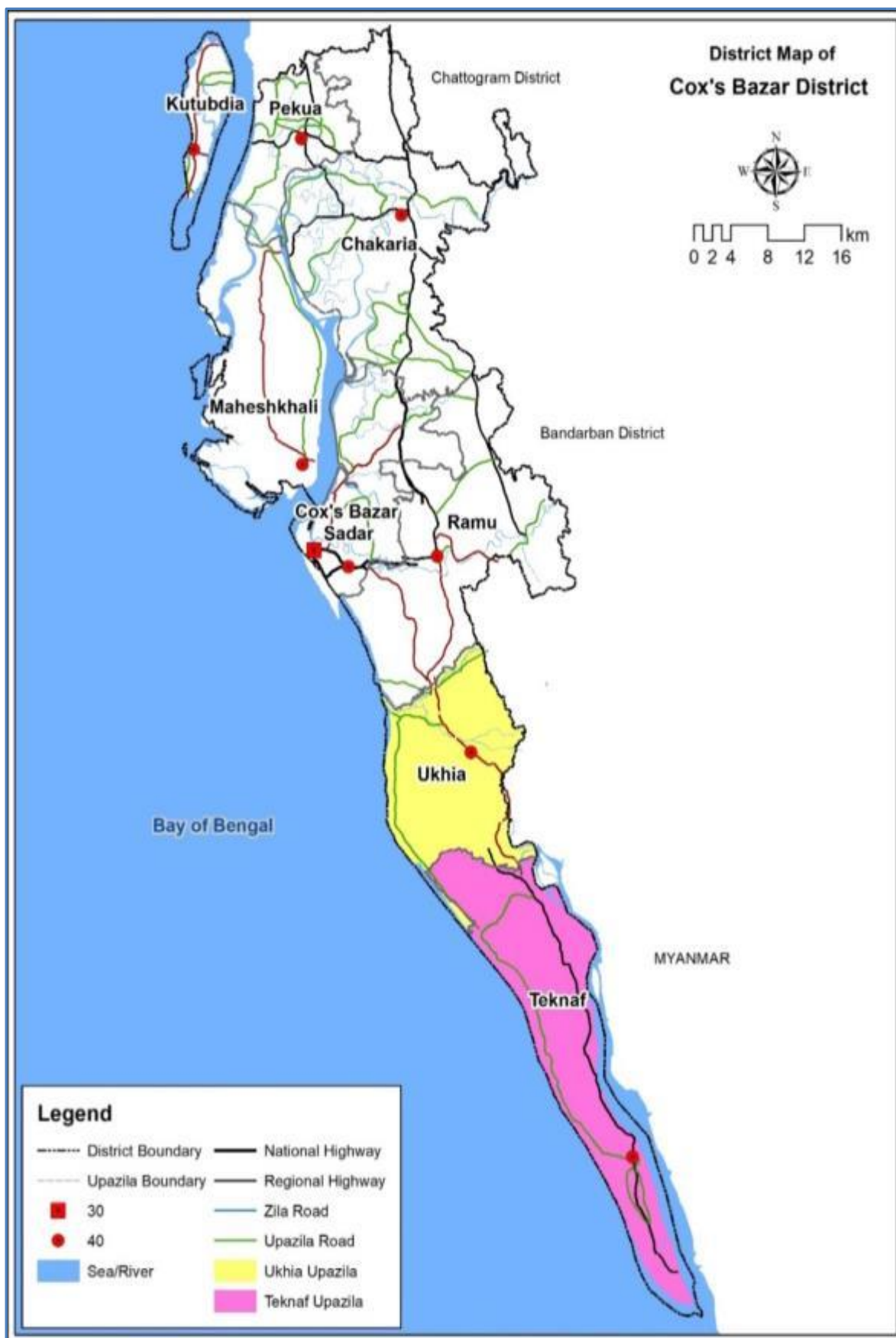


Figure 1.4.1: District Map with project location

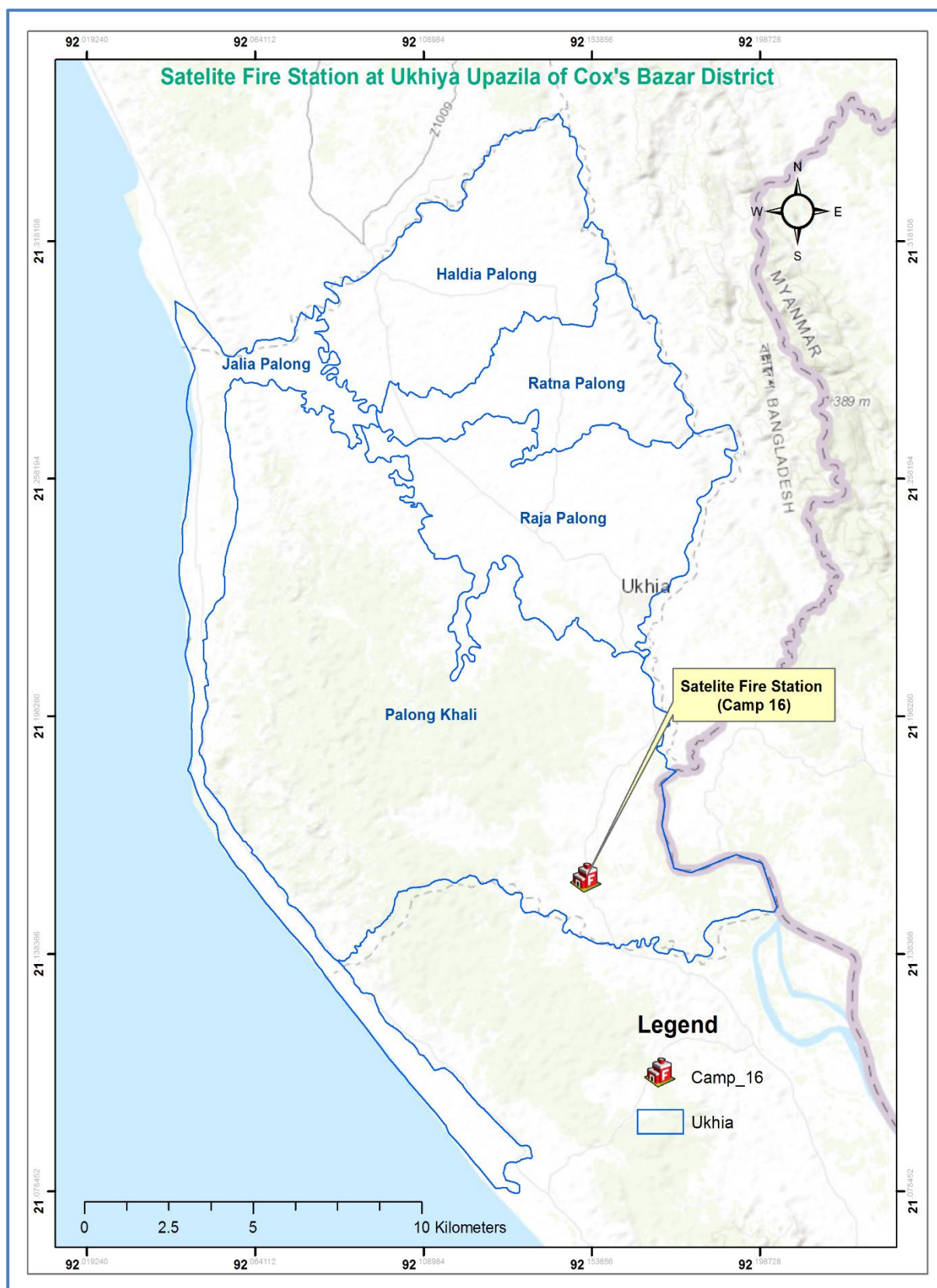


Figure 1.4.2: Upazila Map with project location

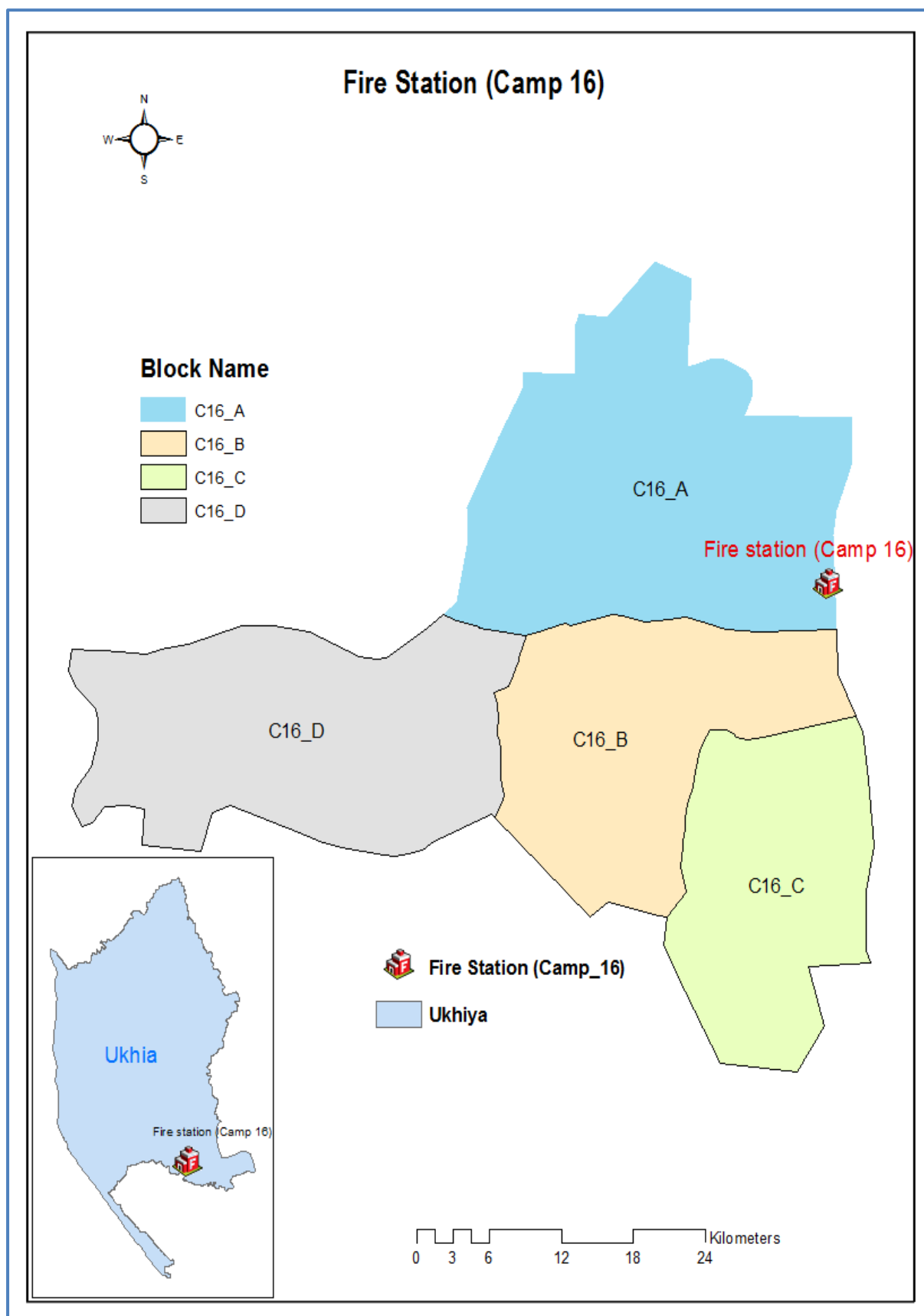


Figure 1.4.3: Location map of Satellite fire station

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	Global Relief center (5m), Solidarity Bangladesh School (8m), IOM Container yard (30m)
South side	CiC office (20m), Police camp (30m)
East side	Cox's Bazar-Teknaf Highway (10m)
West side	Mosque (20m), Mosque (30m), BRAC School (50m), Vaccination distribution center (50m), RRRC information and feedback center (50m), Mosque (80m), BRAC School (80m)

[Sources of data: Field survey, 2022]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Fire service station 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 02 August 2022 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 19 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Rohingya Camp 16, Block-A and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 02 August 2022 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 warehouse for firefighting equipment and Satellite fire stations) 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 sited allocated by Camp in Charge (CiC) 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. Top soil in agricultural land will be avoided without any failure in earthwork and that productive part of the soil will be conserved and replaced, if underneath soil is taken from any agricultural land. Within 1 km area there are nothing but camp settlements and few social institutions. To the north side Global Relief center (5m), Solidarity Bangladesh School (8m), IOM Container yard (30m); to the south side CiC office (20m), Police camp (30m); to the east side Cox's Bazar-Teknaf Highway (10m) and; to the west side a Mosque (20m), Mosque (30m), BRAC School (50m), Vaccination distribution center (50m), RRRC information and feedback center (50m), Mosque (80m) and BRAC School (80m) 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 piling 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 piling 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routes and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

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.

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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, trees will not need to be cut in the target location. But 50 nos. trees will be planted around the sub-project site which budget amount has been included in the environmental BOQ. 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted. Besides adopting appropriate fall prevention measures, such as, installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use, serviceability, and integrity of the necessary PPE is to be carried out. 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 ESMP



and the responsibilities lie on all the responsible parties or institutions directly involved with or oversee the construction works.

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

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive 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 Ukhiya 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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

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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

District: Cox's Bazar

Sub-District: Ukhiya

Union: Palongkhali

Name of Community/Local Area: Rohingya Camp 16, Block A.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 1546.58 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Rohingya camp 16, Block-A area. To the north side Global Relief center (5m), Solidarity Bangladesh School (8m), IOM Container yard (30m); to the south side CiC office (20m), Police camp (30m); to the east side Cox's Bazar-Teknaf Highway (10m) and; to the west side a Mosque (20m), Mosque (30m), BRAC School (50m), Vaccination distribution center (50m), RRRC information and feedback center (50m), Mosque (80m) and BRAC School (80m) are located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

The proposed Sub-project area for the construction of Satellite fire station is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and



biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side Global Relief center (5m), Solidarity Bangladesh School (8m), IOM Container yard (30m); to the south side CiC office (20m), Police camp (30m); to the east side Cox's Bazar-Teknaf Highway (10m) and; to the west side a Mosque (20m), Mosque (30m), BRAC School (50m), Vaccination distribution center (50m), RRRC information and feedback center (50m), Mosque (80m) and BRAC School (80m) are present on the surrounding area 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 screening form is given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Fire Service office building will be constructed within the boundary of an existing Rohingya camp area of Camp 16, Block-A at Ukhiya Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.58 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

The sub-project area is situated in Rohingya Camp 16, Block-A of Palongkhali union under Ukhiya Upazila. The sub-project area is located at 21.157575° N and 92.152328° E. The distance from the Upazila headquarter is about 14 km. Nearby major road is Cox's Bazar-Teknaf highway.

Land ownership

Land is owned by Government.

Expected construction period: 1 Year

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 pre-existing satellite fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north side Global Relief center (5m), Solidarity Bangladesh School (8m), IOM Container yard (30m); to the south side CiC office (20m), Police camp (30m); to the east side Cox's Bazar-Teknaf Highway (10m) and; to the west side a Mosque (20m), Mosque (30m), BRAC School (50m), Vaccination distribution center (50m), RRRC information and feedback center (50m), Mosque (80m) and BRAC School (80m) are located. However, there is no chance of disturbance during this improvement activity. However there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

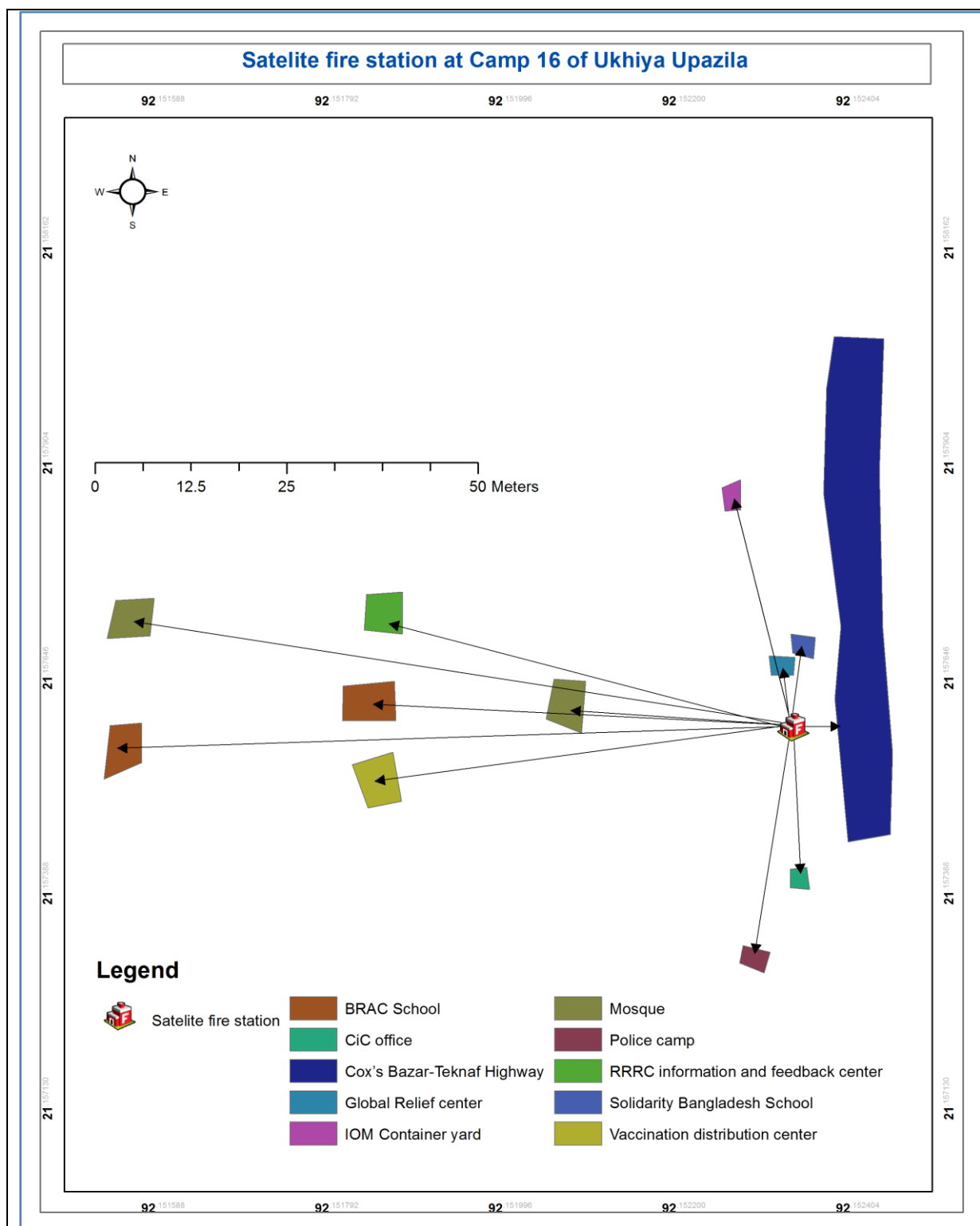
B.1: Environmental feature of sub-project location

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:

To the north side Global Relief center (5m), Solidarity Bangladesh School (8m), IOM Container yard (30m); to the south side CiC office (20m), Police camp (30m); to the east side Cox's Bazar-Teknaf Highway (10m) and; to the west side a Mosque (20m), Mosque (30m), BRAC School (50m), Vaccination distribution center (50m), RRRC information and feedback center (50m), Mosque (80m) and BRAC School (80m) are located.

There are no sensitive environmental, cultural, archaeological 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, learning centers and DRP settlement were found during the survey. Other than some trees found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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, 2022). DRP 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

*Data source: DPHE Test Report, 2022 (Water samples collected and tested at DPHE laboratory)
The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.

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 small trees are located in the subproject area since there is already an established Satellite fire 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):

Cox's Bazar-Teknaf highway is present on the east side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.

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

Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.

Possible location of labor camps:

Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.

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

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

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

Cox's Bazar-Teknaf highway is present on the east side. It is possible to carry the construction materials on this road to the construction site.

Location identification for raw material storage:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.

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

Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found

during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

Impacts of establishment of labor camp:

Impacts possibility is low, Locations of establishment of labor camps are to be identified, so that minimum disturbance on agricultural land is caused. Camps shall not be located near settlements or near water supply intakes. Place will be kept neat and clean strictly to ensure good sanitary condition. Proper toilet and water supply facilities to be required.

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

Around 1546.58 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.



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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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) Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.
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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of	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.	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
	crime, Access of students, children, animals, etc.)		• Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by 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.			
	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.	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 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.	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in noise	Weekly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- 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 construction period.		producing equipment and sound barriers, Noise 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	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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	mitigation measures.					
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly
	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.,	Contractor, Environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- Ensure adequate supply of drinking water. - Sanitation facilities for male & female workers separately.			
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.
	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	Contractor monitored by Consultant and PMU	Worksite is restored to original conditions;	Over the completion of Works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			that forms part of the bidding document.			
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Warehouses for FSCD (LGED/EMCRP/W02): Satellite Fire Station of Rohingya Camp 16, Block A**

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	Selected site will be far away from any water bodies or natural flow path to avoid the flash flood or any kind of	PIU & Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - 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/ DRPs, 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 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



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		kept on site. Fire Service officials must be consulted before any construction work starts.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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.	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
		• Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Decommissioning during the project	The impacts are similar to those listed in	Provision for proper mitigation measures and monitoring to minimize or reduce the environmental and social impacts	Contractor	Environmental Consultant of



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
implementation period (including site clearance after the construction)	construction stage: • Pollution from waste materials • Health & Safety risks to workers and local community/DRPs	during decommissioning are anticipated to be similar to those identified for the construction phase. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.		PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan (if required):

The Contractor shall develop a demolition plan 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 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 Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area, preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u>	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	Water samples are to be collected 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 the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
	Subtotal Bill: Environmental facilities			300,000.00



Cost of H&S Measures under COVID 19 Situations

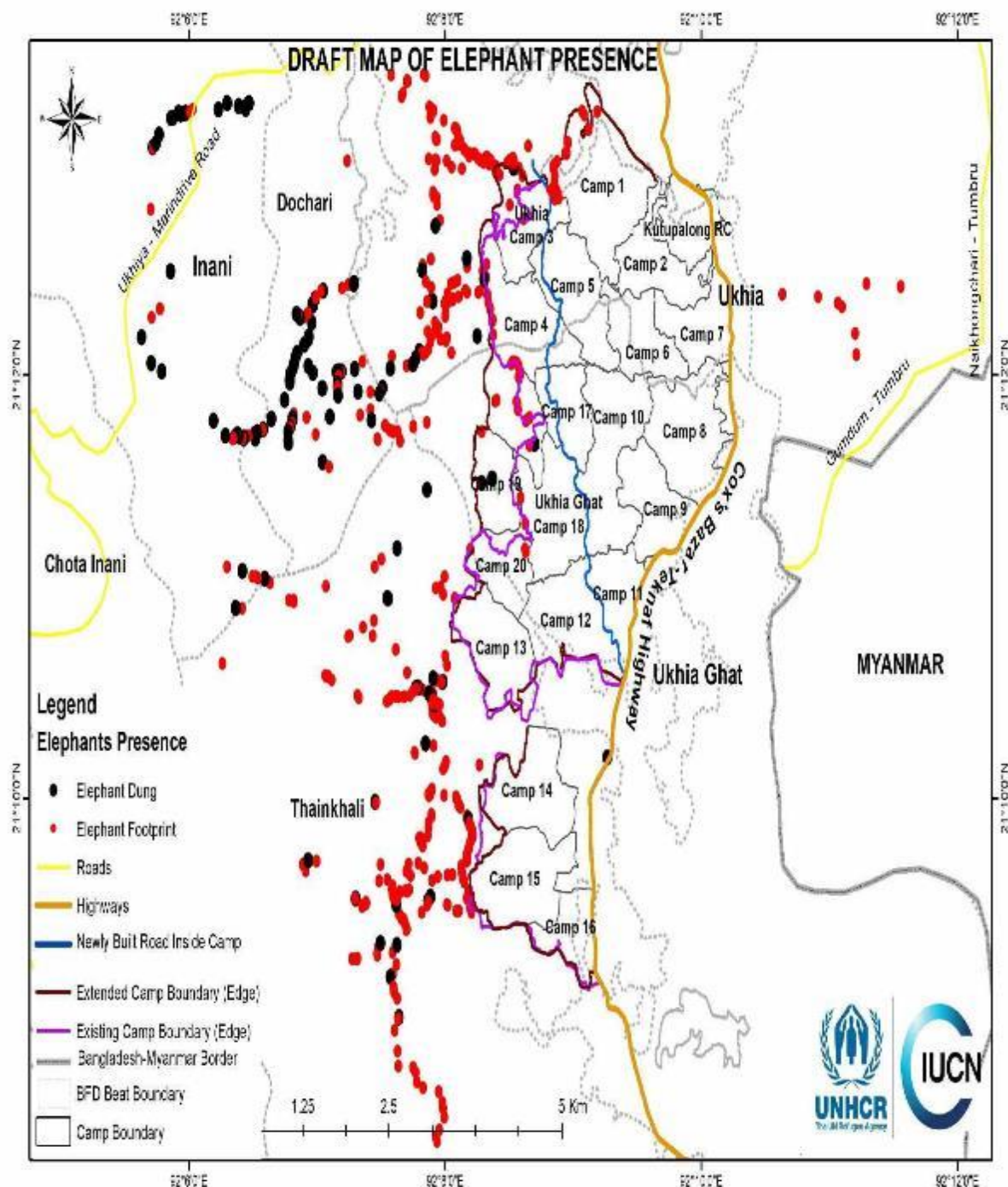
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 16, Block A).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of warehouse for firefighting equipment and Satellite fire station Package Number : EMCRP/W2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাস্টি সেক্টর প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময় : ০৩:১৫ PM

তারিখ : ০২/০৫/২২

উপ-প্রকল্প/কমপোনেন্ট এর নাম : Construction of warehouse for firefighting equipment and Satellite fire station

মত বিনিময় স্থান : Opposite site of the selected place of the concerned satellite fire station Block-A1.

ইউনিটন : কামারহাটী রোড নং : ০৫

ডাকঘর : UKiyya-4750

উপজেলা : চাঁদপুর

জেলা : কক্সবাজার

সাব প্রকল্প নং : EMCRP/W-2

ক্যাম্পের নাম : Camp-16, Block-A-3

অংশগ্রহণকারীদের হাতিয়া (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	ডাক/গাং ডাক নং	স্বাক্ষর / টিপসই
১	মুহাম্মদ	৪৬	পুরুষ DRP	A-3	
২	আবদুল্লাহ	২৪	পুরুষ DRP	A-3	
৩	মুহাম্মদ	২০	পুরুষ DRP	A-3	
৪	মাস: মাসিক	৩০	পুরুষ DRP	A-3	মাসিক
৫	মাস: মাসিক	৩৭	পুরুষ DRP	A-3	
৬	আবদুল আজিজ	৩০	পুরুষ DRP	A-3	
৭	মাস: মাসিক	৪০	পুরুষ DRP	A-1	
৮	মাস: মাসিক	২৬	পুরুষ DRP	B-5	
৯	মাস: মাসিক	৫০	পুরুষ DRP	A-3	
১০	মাস: মাসিক	৫০	পুরুষ DRP	A-5	
১১	মাস: মাসিক	২২	পুরুষ DRP	A-3	

Construction of warehouse for firefighting equipment and Satellite fire station Package Number : EMCRP/W2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মান্দি সেবুর প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময় ০৩:৪৫ PM

তারিখ: ০২/৬/২২

উপ-সকল/কমপোনেট এর নাম: Construction of warehouse for firefighting equipment and Satellite fire station

মত বিনিময় স্থান: Beside the camp-16, sub Block: A-3.

ইউনিয়ন: নারায়ণী

ওয়ার্ড নং: ০৫

ডাকঘর: Ukliya-4750

উপজেলা: টাঙ্গুয়া

জেলা: কক্সবাজার

সার প্রকল্প নং: EMCRP/W-2

কম্পেন্স নাম: Camp-16, Block-A-3

অংশগ্রহণকারীদের হাকিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	ব্লক/সাব ব্লক নং	স্বাক্ষর / টিপসই
১	হাফিজ বেগম	২৫	নারী (DRP)	A-3	
২	হাফিজ	২৫	৭	A-3	
৩	হাফিজ	৩৫	৭	A-3	
৪	হাফিজ	২০	৭	A-3	
৫	হাফিজ	৩৫	৭	A-1	
৬	হাফিজ	৩২	৭	B-1	
৭	হাফিজ	৩৪	৭	B-5	
৮	হাফিজ	২২	৭	A-3	

Public consultation participants' list

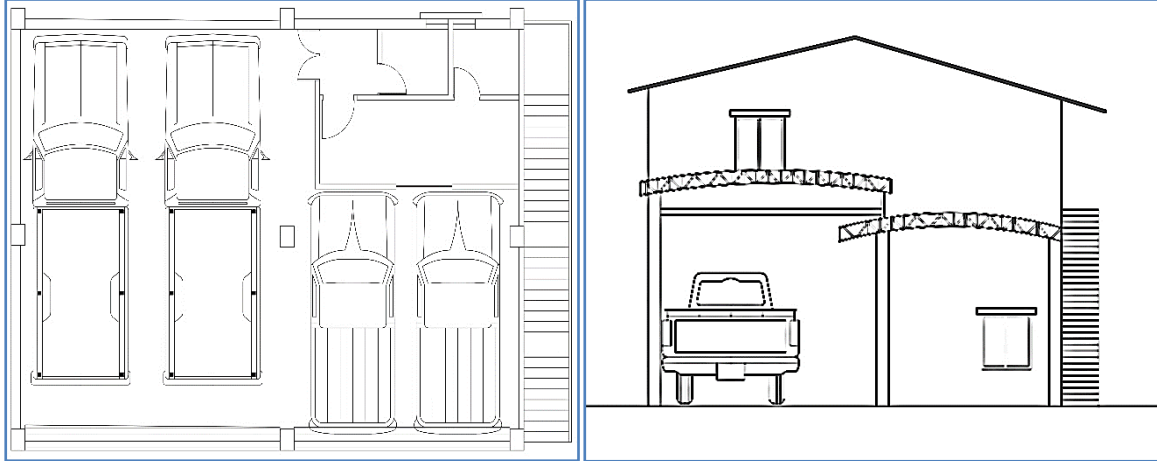


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of Rohingya Camp-17, Block-A

Union: Palongkhali; Upazila: Ukhiya

District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

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ACRONYMS

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
ERTs	Elephant Response Teams
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Palongkhali union in Rohingya camp number 17, Block A of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 4, 4Ext., 5, 8W, 18, 20 and 20Ext. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Rohingya Camp-17, Block-A	ii. Ward No.: 1
iii. Name of Union: Palongkhali	iv. Name of the Upazila: Ukhiya
v. Water Status: Available	vi. Water Source: Pipe water supply, Deep tube-well
vii. Distance from UZHQ: 11 Km	

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

viii. GPS Coordinates	Latitude Value: 21.201034° N Longitude Value: 92.144921° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	Rohingya camp 17 connecting Road
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period: 2023-2024	
Estimated total cost of component: 9,835,159.85 (Tk.)	

[D&SC and Field survey, 2022]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Rohingya camp 17, Block A of Palongkhali union of Ukhiya Upazila Under Cox's Bazar District. The site location is relatively a high plain land and accessible through



vehicles as of 12ft wide Rohingya Camp 17 connecting road is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Ukhiya
Union	Palongkhali
Ward No.	1
Rohingya Camp No.	17
Block/Sub-Block	A
GPS Coordinates	21.201034° N and 92.144921° E
Distance from Upazila HQ	11 km
Nearby major road	Rohingya Camp 17 Connecting Road
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2022]

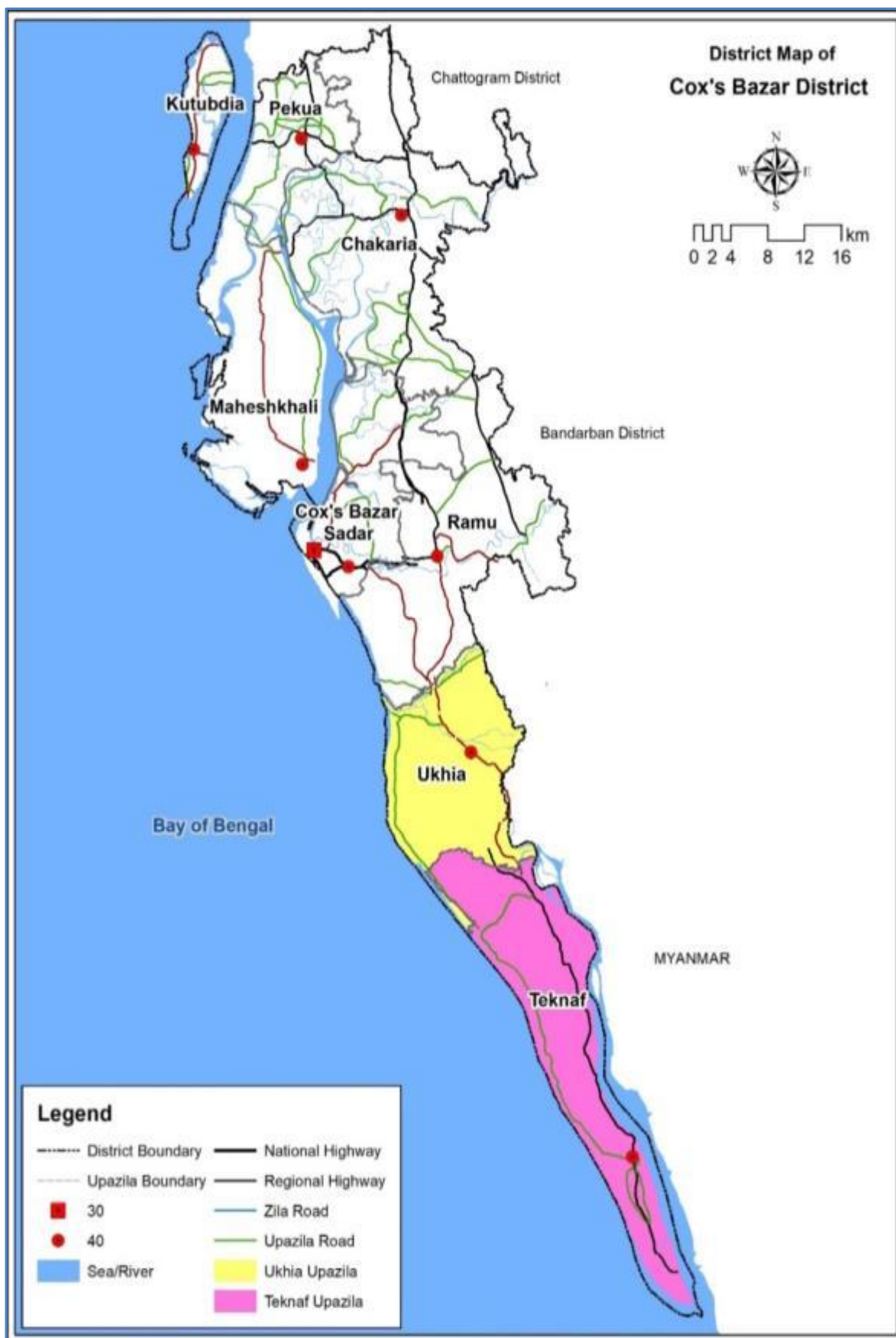


Figure 1.4.1: District Map with project location

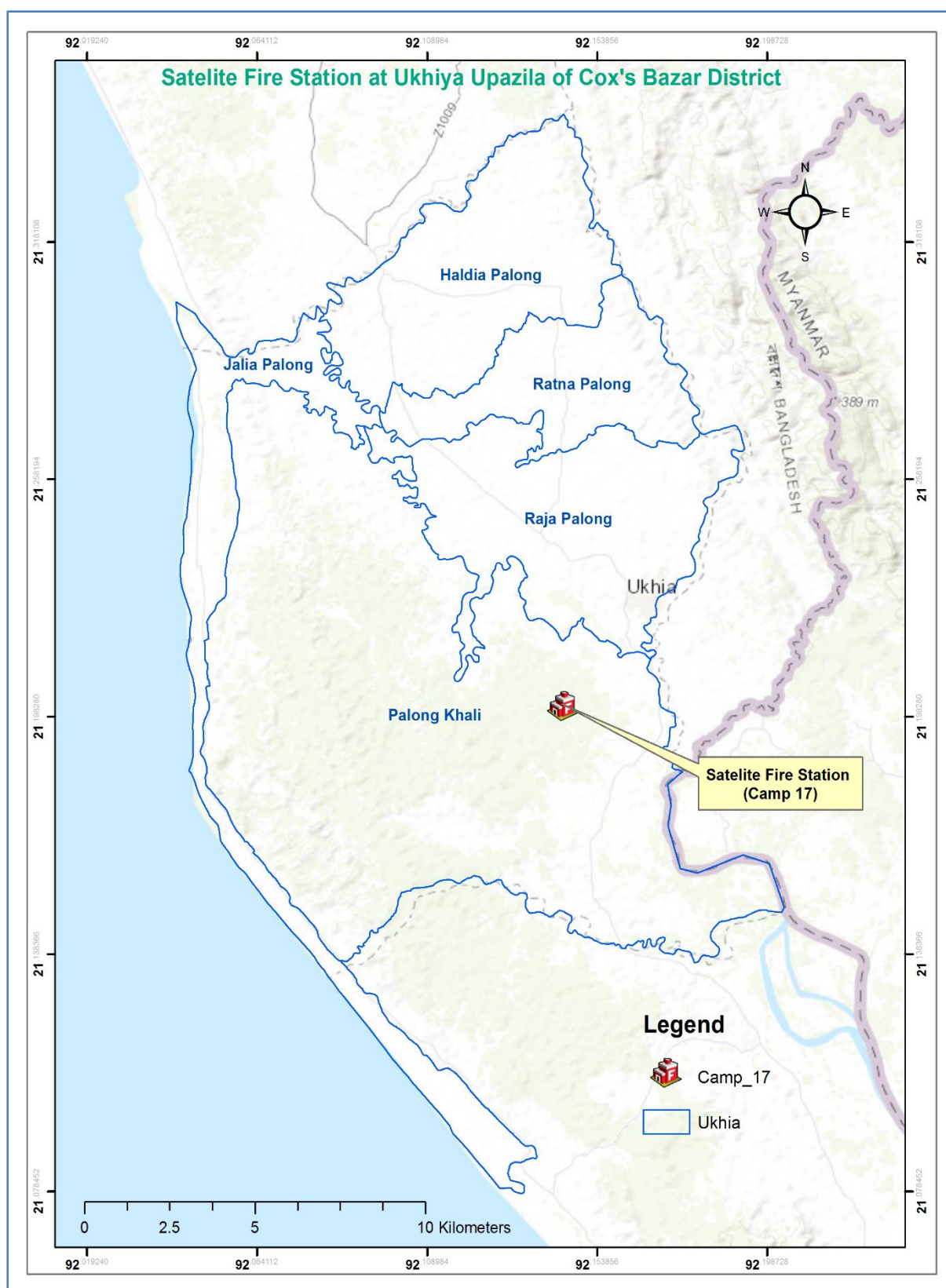


Figure 1.4.2: Upazila Map with project location

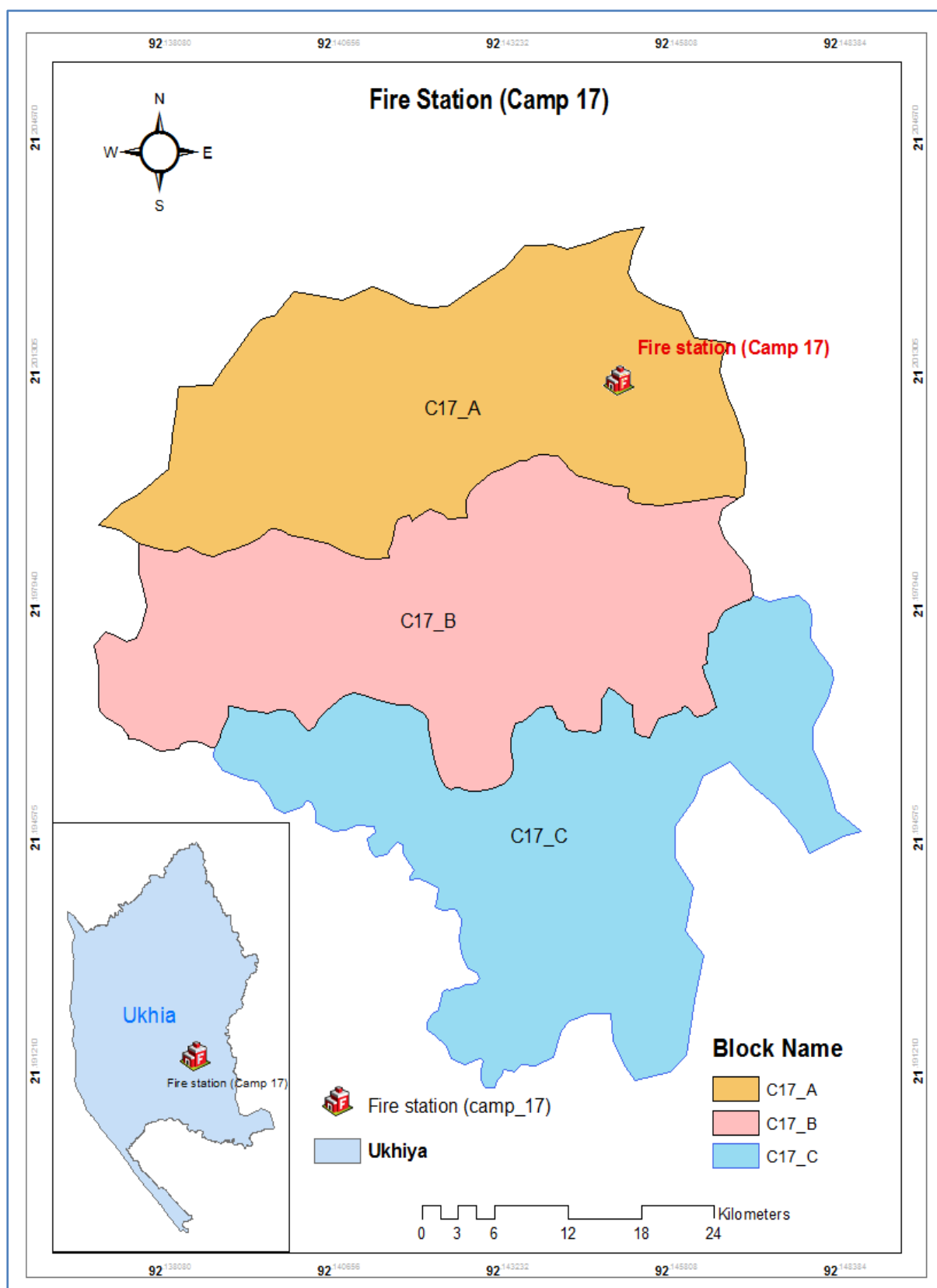


Figure 1.4.3: Location map of Satellite fire station

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	Camp 4 Mother care room (15m), Training room (20m)
South side	Camp road (5m), BRAC wash block (10m), Water tank (10m)
East side	Vegetation (10m), Camp 5 area (50m)
West side	Mother & Child Care Center (50m), Vegetation (70m), Camp 20 Ext. area (100m)

[Sources of data: Field survey, 2022]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Satellite Fire station 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 26 July 2022 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 14 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Rohingya Camp 17, Block-A and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 26 July 2022 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 warehouse for firefighting equipment and Satellite fire stations) 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 sited allocated by Camp in Charge (CiC) where no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. One mother health care center needs to be replaced due to sub-project construction. Some earth excavation work will be involved, so air, noise and dust pollution will be occurred within a small-scale during construction period. Top soil in agricultural land will be avoided without any failure in earthwork and that productive part of the soil will be conserved and replaced, if underneath soil is taken from any agricultural land. At least 12 nos. small or mature trees will be fallen down during the pre-construction phase. Within 1 km area there are nothing but camp settlements and few social institutions. To the north side Camp 4 Mother care room (15m), Training room (20m); to the south side Camp connecting road (5m), BRAC wash block (10m), Water tank (10m); to the east side some Vegetation (10m), Camp 5 area (50m) and; to the west side Mother & Child Care Center (50m), Vegetation (70m), Camp 20 Ext. area (100m) 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 piling 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 piling 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routes and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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.

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,

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, at least 12 nos. small or mature trees need to be cut in the target location. As a mitigation and management measures 50 nos. trees will be planted around the sub-project site which monetary budget has been included in the Environmental BOQ. 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs

and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted. Besides adopting appropriate fall prevention measures, such as, installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use, serviceability, and integrity of the necessary PPE is to be carried out. 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 and DRPs. Contractors' employed site managers and safeguard supervisors or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive 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 Ukhiya 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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

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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

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

Name of Community/Local Area: Rohingya Camp 17, Block A.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One warehouse for firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 1546.58 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Rohingya camp 17, Block-A area. To the north side Camp 4 Mother care room (15m), Training room (20m); to the south side Camp connecting road (5m), BRAC wash block (10m), Water tank (10m); to the east side some Vegetation (10m), Camp 5 area (50m) and; to the west side Mother & Child Care Center (50m), Vegetation (70m), Camp 20 Ext. area (100m) are located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

The proposed Sub-project area for the construction of Satellite fire station is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and



biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side Camp 4 Mother care room (15m), Training room (20m); to the south side Camp connecting road (5m), BRAC wash block (10m), Water tank (10m); to the east side some Vegetation (10m), Camp 5 area (50m) and; to the west side Mother & Child Care Center (50m), Vegetation (70m), Camp 20 Ext. area (100m) are present on the surrounding area 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 screening form is given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Fire Service office building will be constructed within the boundary of an existing Rohingya camp area of Camp 17, Block-A at Ukhiya Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.58 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

The sub-project area is situated in Rohingya Camp 17, Block-A of Rajapalong union under Ukhiya Upazila. The sub-project area is located at 21.201034° N and 92.144921° E. The distance from the Upazila headquarter is about 11 km. Nearby major road is 18 feet HBB Army Road.

Land ownership

Land is owned by Government.

Expected construction period: 1 Year

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 pre-existing satellite fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north side Camp 4 Mother care room (15m), Training room (20m); to the south side Camp connecting road (5m), BRAC wash block (10m), Water tank (10m); to the east side some Vegetation (10m), Camp 5 area (50m) and; to the west side Mother & Child Care Center (50m), Vegetation (70m), Camp 20 Ext. area (100m) are located. However, there is no chance of disturbance during this improvement activity. However there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

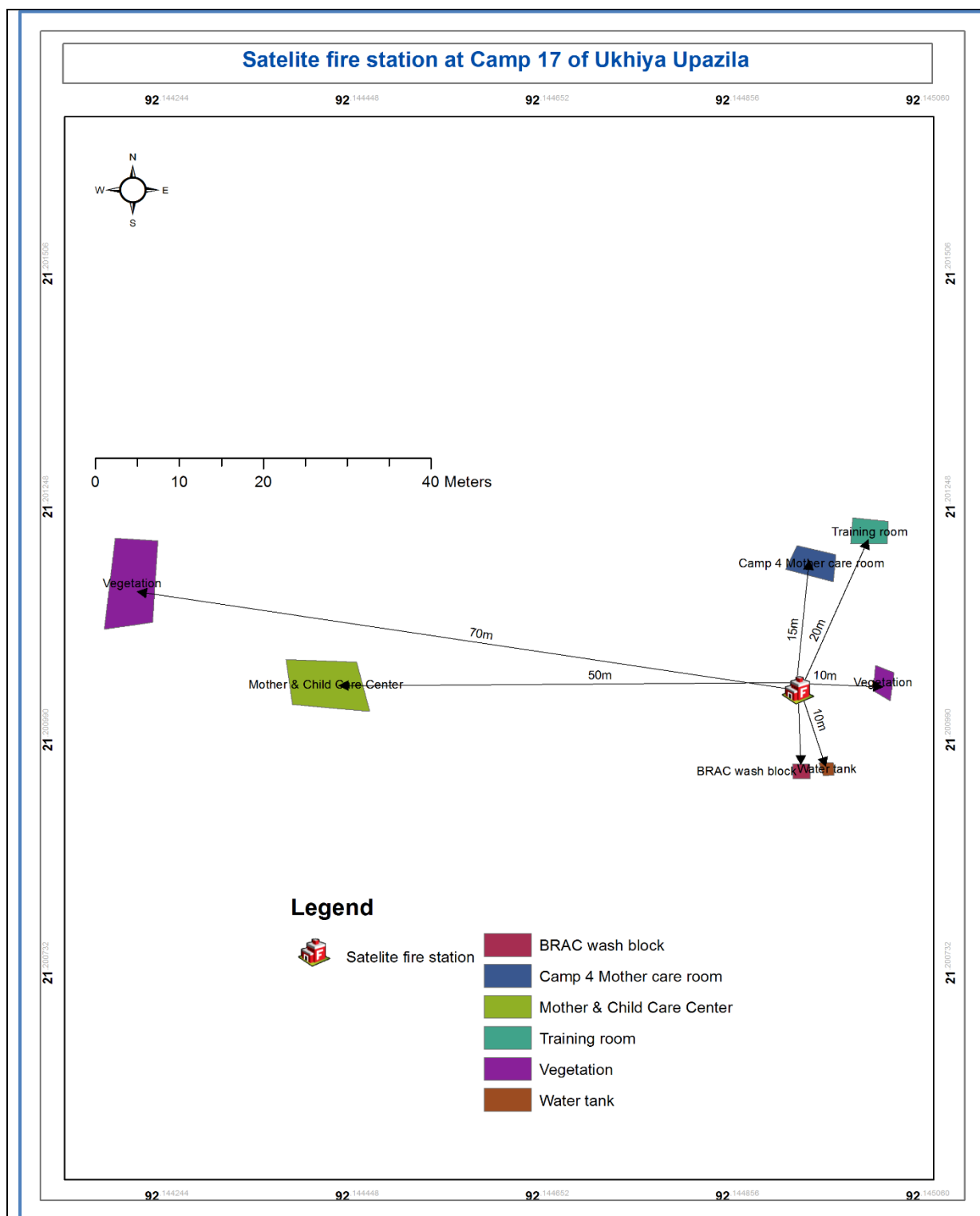
B.1: Environmental feature of sub-project location

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:

To the north side Camp 4 Mother care room (15m), Training room (20m); to the south side Camp connecting road (5m), BRAC wash block (10m), Water tank (10m); to the east side some Vegetation (10m), Camp 5 area (50m) and; to the west side Mother & Child Care Center (50m), Vegetation (70m), Camp 20 Ext. area (100m) are located.

There are no sensitive environmental, cultural, archaeological 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 around this location. Several mosques, learning centers and DRP settlement were found during the survey. Other than some trees found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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 650-800ft (Field survey, 2022). DRP people usually use pipe water supply by DPHE and 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 *Data source: DPHE Test Report, 2022 (Water samples collected and tested at DPHE laboratory) The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.
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 small trees are located in the subproject area since there is already an established Satellite fire 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): HBB 12 feet Rohingya camp 17 connecting road is present on the north side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand iii) Cement iv) aggregates v) metals vi) water vii) concretes viii) Bamboo & wood from mobilized materials and other electro-mechanical equipment and ix) clay are the most common type of building material used in construction.
Identification of access road for transportation (Yes/No): HBB 12 feet Rohingya camp 17 connecting road is present on the north side. It is possible to carry the construction materials on this road to the construction site.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found

during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

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

Around 1546.58 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.
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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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)

Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.

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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc., Risk of	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.	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
	crime, Access of students, children, animals, etc.)		• Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by 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 low	• 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	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
			(helmets, safety belts, masks, gloves and boot) by workers depending on nature of work. Further guidance on demolition works and wastes management is given in 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.	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- Bins and/ or skips should be emptied regularly and waste/ debris should be 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.	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in noise producing equipment	Weekly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			Ear protection devices for the workers & site staffs should be available in site during construction period.		and sound barriers, Noise 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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly
	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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
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.
	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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Warehouses for FSCD (LGED/EMCRP/W02): Satellite Fire Station of Rohingya Camp 17, Block A**

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	Selected site will be far away from any water bodies or natural flow path to avoid the flash flood or any kind of	PIU & Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - 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/ DRPs, 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 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



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		kept on site. Fire Service officials must be consulted before any construction work starts.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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.	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
		• Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Decommissioning during the project	The impacts are similar to those listed in	Provision for proper mitigation measures and monitoring to minimize or reduce the environmental and social impacts	Contractor	Environmental Consultant of



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
implementation period (including site clearance after the construction)	construction stage: • Pollution from waste materials • Health & Safety risks to workers and local community/DRPs	during decommissioning are anticipated to be similar to those identified for the construction phase. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.		PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan:

The Contractor shall develop a demolition plan 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 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 Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area, preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u> Water samples are to be collected from the Tube well at labor shed area for laboratory analysis of	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	different parameters such as PH, arsenic, Iron, Chloride, Hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
	Subtotal Bill: Environmental facilities			300,000.00



Cost of H&S Measures under COVID 19 Situations

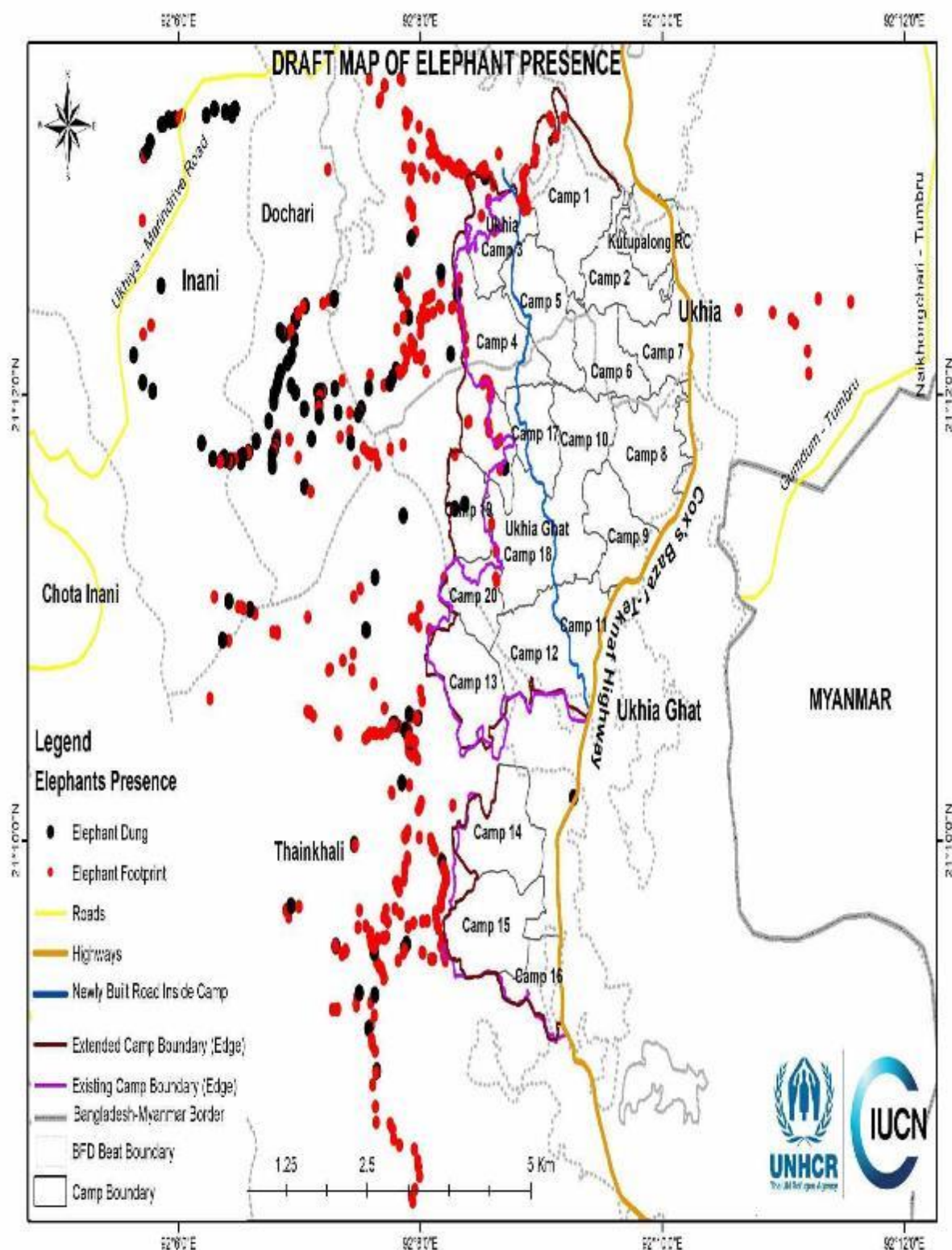
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 17, Block A).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of warehouse for firefighting equipment and Satellite fire station Package Number : EMCRP/W2

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 : ১২:৪০ PM

তারিখ : ২৬/০৭/২২

উপ-প্রকল্প/কমপোনেন্ট এর নাম : Construction of warehouse for firefighting equipment and Satellite fire station in Ukhiya Upazila

মত বিনিময় স্থান : At the selected place of the concerned satellite fire station.

ইউনিয়ন : Palongkhali ওয়ার্ড নং : ০১ ভাঙ্গাঘর : Ukhiya উপজেলা : উখিয়া জেলা : কক্সবাজার

সাব প্রকল্প নং : EMCRP/W-2 ক্যাম্পের নাম : Camp-17, Block-A

অংশগ্রহণকারীদের হাফিজা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	ব্লক/সাব ব্লক নং	স্বাক্ষর / চিহ্নসহ
১	আব্দুল্লাহ আলম	২২	পুরুষ (DRP)	৬৩৬	
২	মোঃ মোস্তাফিজ	২৭	পুরুষ (DRP)	৫২	
৩	মোঃ আমীর	২২	পুরুষ (DRP)	H109	
৪	মোঃ ইদরিস	২৮	পুরুষ (DRP)	H109-A	
৫	মোঃ ফাহিম	২৭	পুরুষ (DRP)	H109	
৬	আব্দুল্লাহ আলম	২২	পুরুষ (DRP)	H109-A	
৭	মোঃ মোস্তাফিজ	২২	পুরুষ (DRP)	H109-A	
৮	মোঃ ইদরিস	৪০	পুরুষ (DRP)	H-107-A	
৯	মোঃ মোস্তাফিজ	৪০	পুরুষ (DRP)	H-109-A	
১০	আব্দুল্লাহ আলম	২০	পুরুষ (DRP)	H-109-A	
১১	মোঃ ফাহিম	২৭	পুরুষ (DRP)	H-109-A	
১২	আব্দুল্লাহ আলম	৪০	পুরুষ (DRP)	H-109-A	
১৩	আব্দুল্লাহ আলম	৪০	পুরুষ (DRP)	H-109-A	
১৪	আব্দুল্লাহ আলম	৪২	পুরুষ (DRP)	H-109-A	

Public consultation participants' list

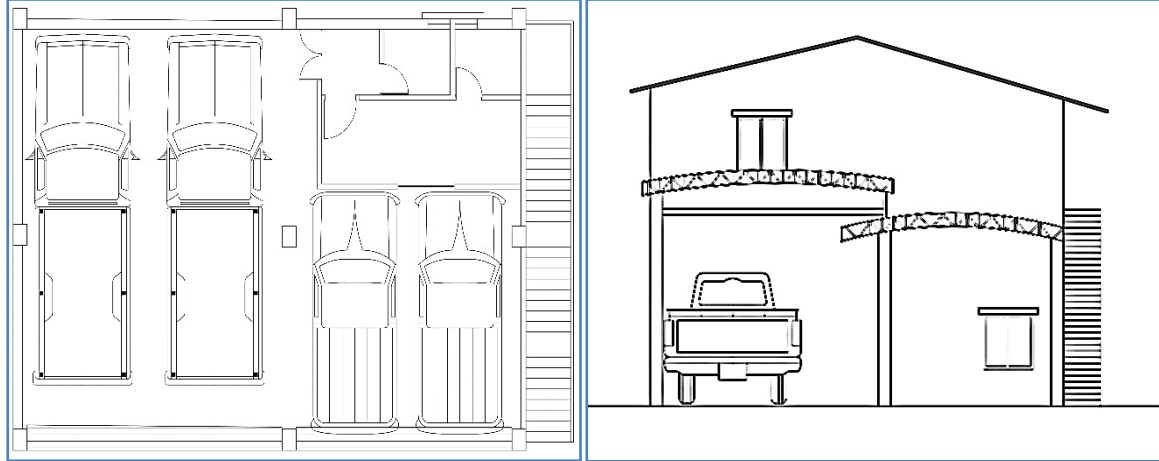


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya
and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of
Rohingya Camp-18, Block-E
Union: Palongkhali; Upazila: Ukhiya
District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

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ACRONYMS

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
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank



1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Palongkhali union in Rohingya camp number 18, Block E of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 8W, 10, 12,17, 19 and 20. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Rohingya Camp-18, Block-E	ii. Ward No.: 1
iii. Name of Union: Palongkhali	iv. Name of the Upazila: Ukhiya
v. Water Status: Available	vi. Water Source: Pipe water supply, Deep tube-well
vii. Distance from UZHQ: 12 Km	

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

viii. GPS Coordinates	Latitude Value: 21.186956°N Longitude Value: 92.145682° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	Rohingya camp 18 connecting Road (SMEP Road)
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period: 2023-2024	
Estimated total cost of component: 9,835,159.85 (Tk.)	

[D&SC and Field survey, 2022]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Rohingya camp 18, Block E of Palongkhali union of Ukhiya Upazila Under Cox's Bazar District. The site location is relatively a high plain land and accessible through



vehicles as of 20 ft wide Rohingya Camp 18 connecting road (SMEP Road) is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Ukhiya
Union	Palongkhali
Ward No.	1
Rohingya Camp No.	18
Block/Sub-Block	E
GPS Coordinates	21.186956°N and 92.145682° E
Distance from Upazila HQ	12 km
Nearby major road	Rohingya camp 18 connecting Road (SMEP Road)
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2022]

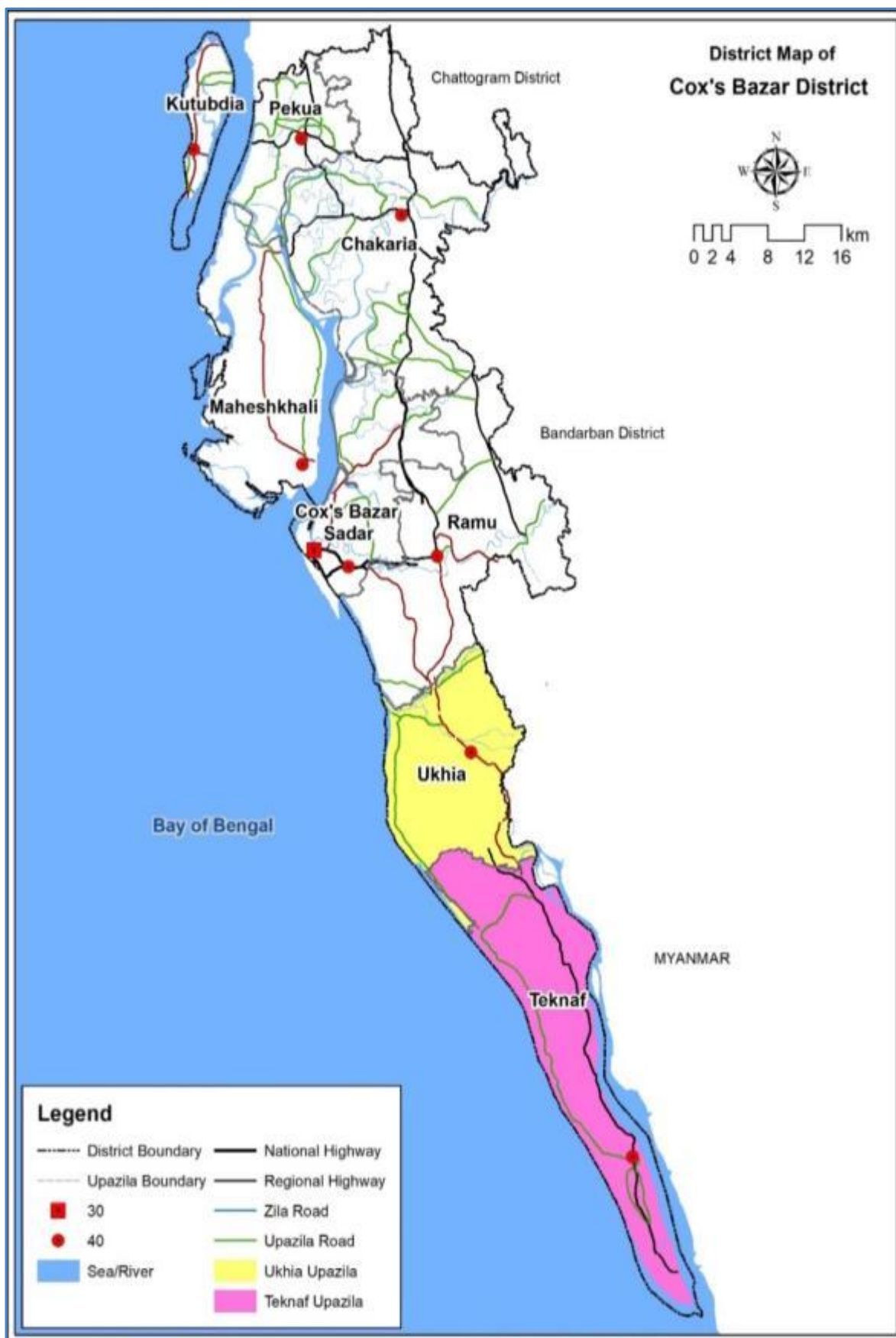


Figure 1.4.1: District Map with project location

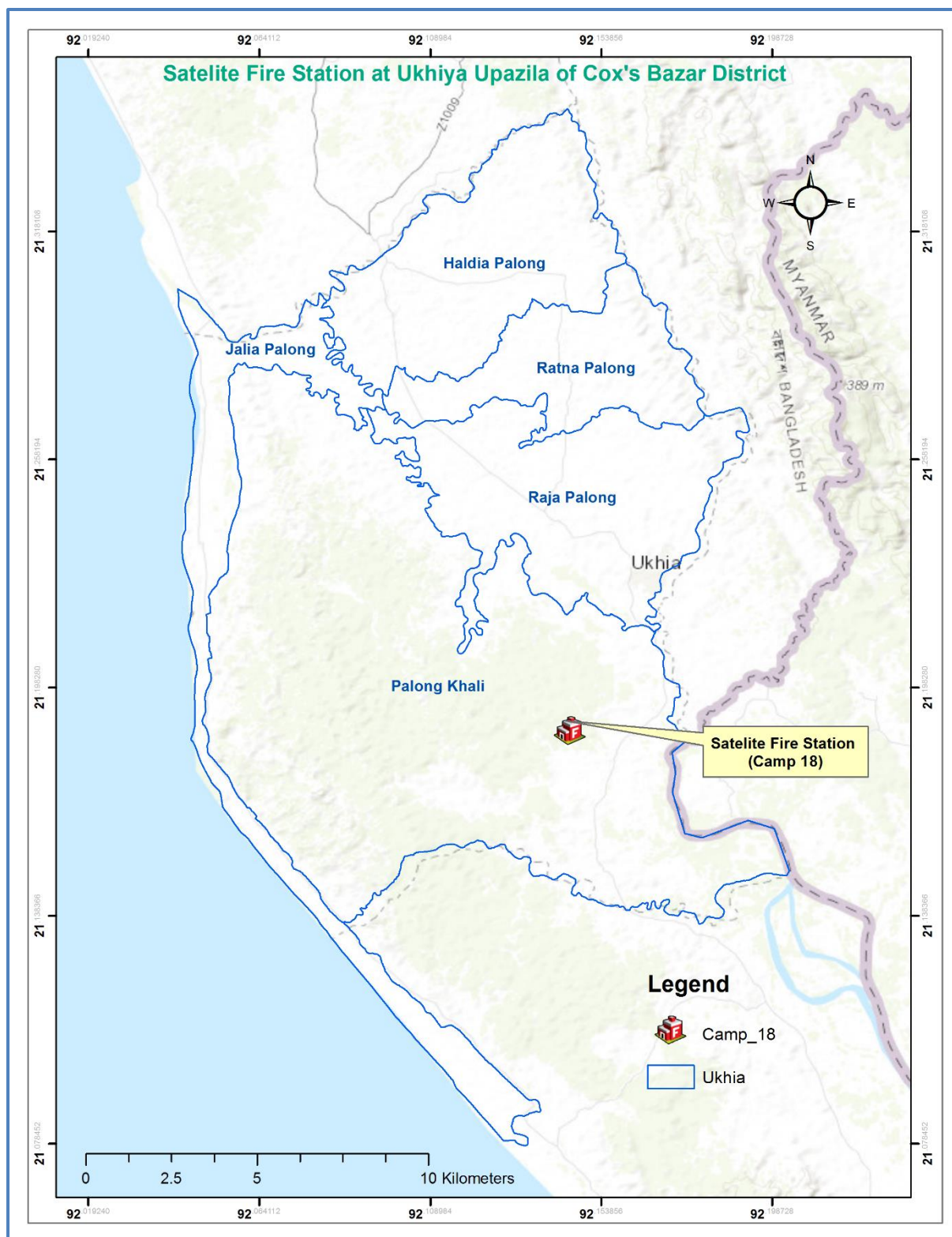


Figure 1.4.2: Upazila Map with project location

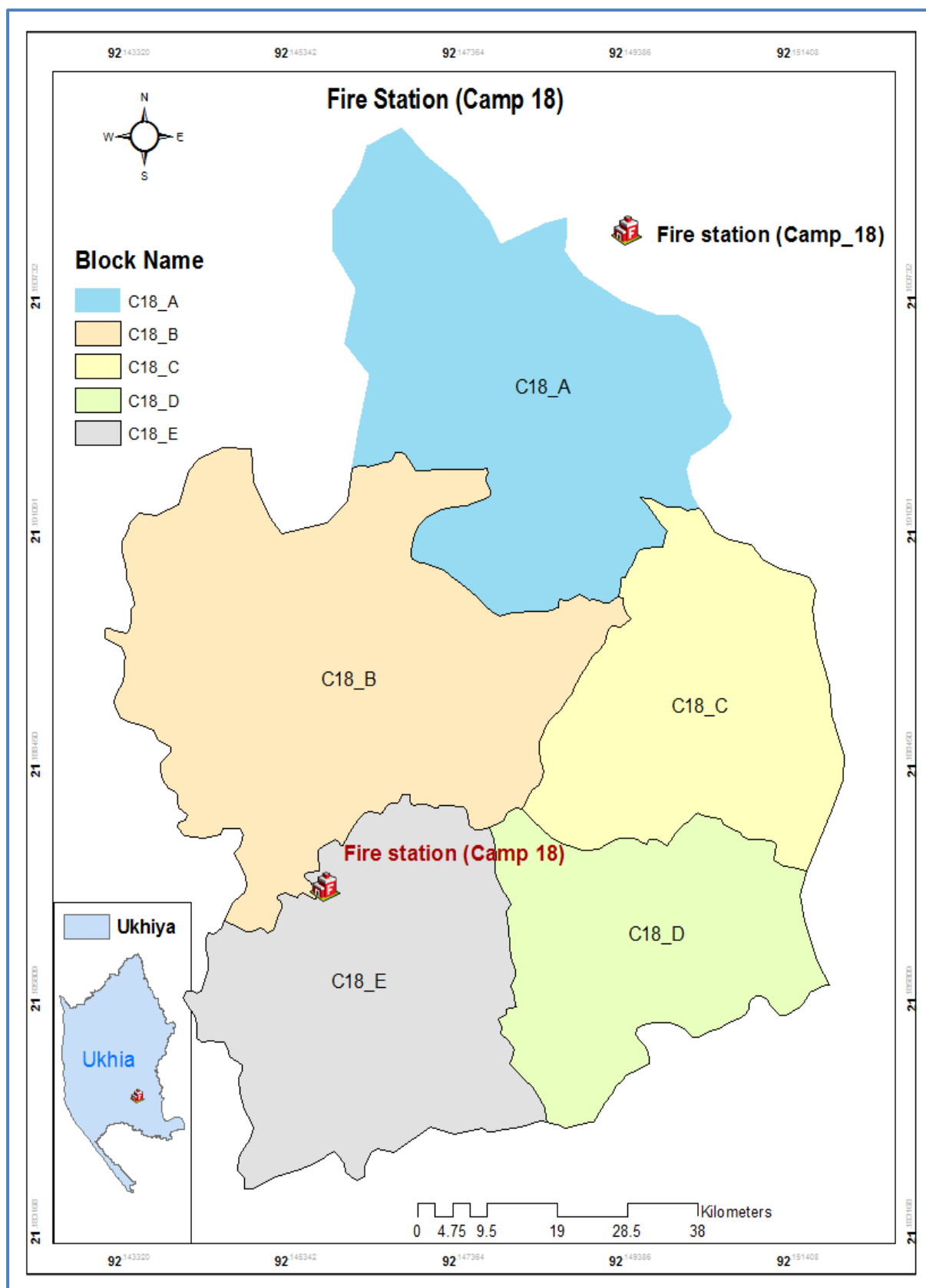


Figure 1.4.3: Location map of Satellite fire station

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	Learning center (20m), Shop (25m), Mosque & Madrasah (50m), DRP settlement (55m), PHD Health post (100m), S.S Health post (300m), CiC office (500m)
South side	Cable yard (15m), Health Post (50m), DRP settlement (70m)
East side	Camp 12 area (10m), Existing U-drain (20m), Learning center (30m), DRP settlement (50m)
West side	Camp 20 Ext. area (10m), SKUS Learning Center (20m), SMEP Road (25m), Camp 17 area (30m), BDRCS wash block (40m), Chorra (45m), Mosque (50m), DRP settlement (55m), Red cross clinic (300m)

[Sources of data: Field survey, 2022]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Satellite Fire station 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 02 August 2022 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 19 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Rohingya Camp 18, Block-E and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 02 August 2022 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 warehouse for firefighting equipment and Satellite fire stations) 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 fire station will be constructed within selected sited allocated by Camp in Charge (CiC) where no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. One learning center and a wash block needs to be replaced due to sub-project construction. Some earth excavation work will be involved, so air, noise and dust pollution will be occurred within a small-scale during construction period. Top soil in agricultural land will be avoided without any failure in earthwork and that productive part of the soil will be conserved and replaced, if underneath soil is taken from any agricultural land. Small or mature trees will not be fallen down during the pre-construction phase. Within 1 km area there are nothing but camp settlements and few social institutions. To the north side Learning center (20m), Shop (25m), Mosque & Madrasah (50m), DRP settlement (55m), PHD Health post (100m), S.S Health post (300m), CiC office (500m); to the south side Cable yard (15m), Health Post (50m), DRP settlement (70m); to the east side Camp 12 area (10m), Existing U-drain (20m), Learning center (30m), DRP settlement (50m) and; to the west

side Camp 20 Ext. area (10m), SKUS Learning Center (20m), SMEP Road (25m), Camp 17 area (30m), BDRCS wash block (40m), Chorra (45m), Mosque (50m), DRP settlement (55m), Red cross clinic (300m) 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 piling 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 piling 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routes and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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.

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy 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.

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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, small or mature trees will not be cut in the target location. Nonetheless 50 nos. trees will be planted around the sub-project site which monetary budget has been included in the Environmental BOQ. 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted. Besides adopting appropriate fall prevention measures, such as, installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use, serviceability, and integrity of the necessary PPE is to be carried out. 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 ESMP and the responsibilities lie on all the responsible parties or institutions directly involved with or oversee the construction works.

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

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive 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 Ukhiya 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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



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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

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

Name of Community/Local Area: Rohingya Camp 18, Block E.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One warehouse for firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 1546.58 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Rohingya camp 17, Block-A area. To the north side Learning center (20m), Shop (25m), Mosque & Madrasah (50m), DRP settlement (55m), PHD Health post (100m), S.S Health post (300m), CiC office (500m); to the south side Cable yard (15m), Health Post (50m), DRP settlement (70m); to the east side Camp 12 area (10m), Existing U-drain (20m), Learning center (30m), DRP settlement (50m) and; to the west side Camp 20 Ext. area (10m), SKUS Learning Center (20m), SMEP Road (25m), Camp 17 area (30m), BDRCS wash block (40m), Chorra (45m), Mosque (50m), DRP settlement (55m), Red cross clinic (300m) are located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

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

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side Learning center (20m), Shop (25m), Mosque & Madrasah (50m), DRP settlement (55m), PHD Health post (100m), S.S Health post (300m), CiC office (500m); to the south side Cable yard (15m), Health Post (50m), DRP settlement (70m); to the east side Camp 12 area (10m), Existing U-drain (20m), Learning center (30m), DRP settlement (50m) and; to the west side Camp 20 Ext. area (10m), SKUS Learning Center (20m), SMEP Road (25m), Camp 17 area (30m), BDRCS wash block (40m), Chorra (45m), Mosque (50m), DRP settlement (55m), Red cross clinic (300m) are present on the surrounding area 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 screening form is given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Fire Service office building will be constructed within the boundary of an existing Rohingya camp area of Camp 18, Block-E at Ukhiya Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.58 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

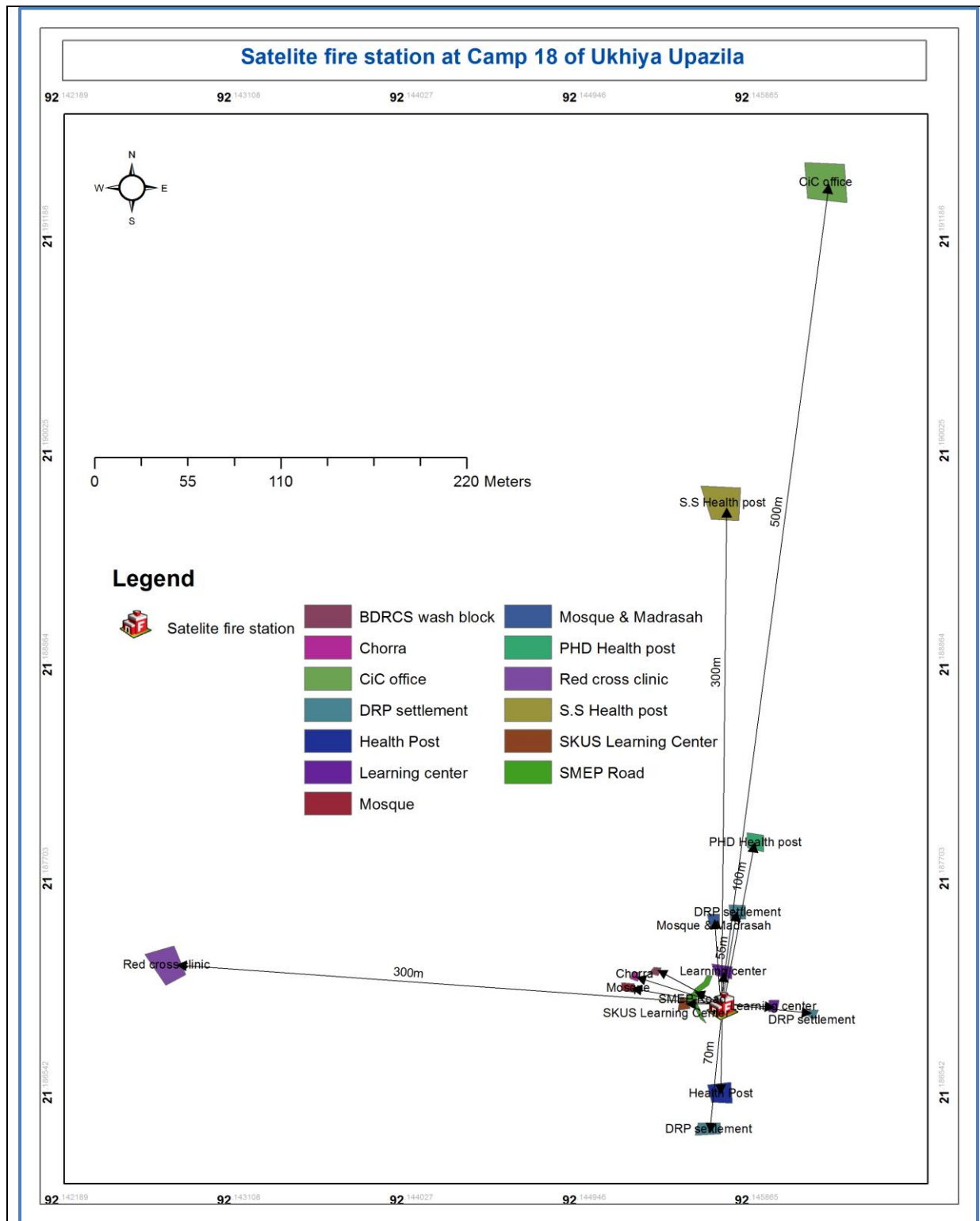
The sub-project area is situated in Rohingya Camp 18, Block-E of Rajapalong union under Ukhiya Upazila. The sub-project area is located at 21.186956°N and 92.145682° E. The distance from the Upazila headquarter is about 12 km. Nearby major road is 20 feet wide camp connecting road (SMEP Road).

Land ownership Land is owned by Government.
Expected construction period: 1 Year
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 pre-existing satellite fire service station, but influence area should consider nearly half a kilometer radius around the proposed site. To the north side Learning center (20m), Shop (25m), Mosque & Madrasah (50m), DRP settlement (55m), PHD Health post (100m), S.S Health post (300m), CiC office (500m); to the south side Cable yard (15m), Health Post (50m), DRP settlement (70m); to the east side Camp 12 area (10m), Existing U-drain (20m), Learning center (30m), DRP settlement (50m) and; to the west side Camp 20 Ext. area (10m), SKUS Learning Center (20m), SMEP Road (25m), Camp 17 area (30m), BDRCS wash block (40m), Chorra (45m), Mosque (50m), DRP settlement (55m), Red cross clinic (300m) are located. However, there is no chance of disturbance during this improvement activity. However, there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby. Within the influence area of the subproject no historical sites were identified. 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: To the north side Learning center (20m), Shop (25m), Mosque & Madrasah (50m), DRP settlement (55m), PHD Health post (100m), S.S Health post (300m), CiC office (500m); to the south side Cable yard (15m), Health Post (50m), DRP settlement (70m); to the east side Camp 12 area (10m), Existing U-drain (20m), Learning center (30m), DRP settlement (50m) and; to the west side Camp 20 Ext. area (10m), SKUS Learning Center (20m), SMEP Road (25m), Camp 17 area (30m), BDRCS wash block (40m), Chorra (45m), Mosque (50m), DRP settlement (55m), Red cross clinic (300m) are located. There are no sensitive environmental, cultural, archaeological 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 vegetation, chorra around the site around this location. Several mosques, learning centers and DRP settlement were found during the survey. Other than some trees found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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 this camp area. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Deep groundwater table (drinkable) varies from 700-800ft (Field survey, 2022). DRP

people usually use pipe water supply by DPHE and 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

*Data source: DPHE Test Report, 2022 (Water samples collected and tested at DPHE laboratory)
The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.

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 small trees and shrubs are located in the subproject area since there is already an established Satellite fire 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):

HBB 20 feet Rohingya camp 18 connecting road is present on the west side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.

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

Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.

Possible location of labor camps:

Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.

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

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

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

HBB 20 feet Rohingya camp 18 connecting road is present on the west side. It is possible to carry the construction materials on this road to the construction site.

Location identification for raw material storage:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.

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

Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

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

Around 1546.58 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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 chorras and u-drain 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.
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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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)

Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.

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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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.	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
			- All precautions to store chemicals/oil/fuel properly so that no chance of spill. - Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. - Monitor water quality according to the environmental management plan.			
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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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, - 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.	Contractor, Environmental specialist of D&SC	List of selected sites; Identified sources and storage place of materials.	During Design Stage
	Demolishing of an existing structure	Under the sub-project intervention, the overall score is low	- 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	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
			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 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)	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	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of waste management activity; Waste	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	due to poor quality drinking water)		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 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.		disposal record.	
	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	Contractor, Environmental specialist of D&SC	Complaints from community; Regular inspection of materials transport	Before and during construction phase



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			in the middle of construction period. Safety & protection gears, first aid box etc. should be available in the site during construction period.		vehicles.	
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 construction period.	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in noise producing equipment and sound barriers, Noise Level following decibel meter (dB)	Weekly
	Air Quality Conducting works at dry season and moving large quantity of materials may	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.	Contractor, Environmental specialist of D&SC	Location of stockpiles, Covering of trucks, Records of air quality	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.		- 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.		inspection, Numbers of complaints from sensitive receptors, Heavy equipment and pollution control devices, Maintain records	
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
					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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
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.
	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



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Warehouses for FSCD (LGED/EMCRP/W02): Satellite Fire Station of Rohingya Camp 18, Block E**

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	Selected site will be far away from any water bodies or natural flow path to avoid the flash flood or any kind of	PIU & Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - 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/ DRPs, 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 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



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		kept on site. Fire Service officials must be consulted before any construction work starts.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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.	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
		• Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Decommissioning during the project	The impacts are similar to those listed in	Provision for proper mitigation measures and monitoring to minimize or reduce the environmental and social impacts	Contractor	Environmental Consultant of



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
implementation period (including site clearance after the construction)	construction stage: • Pollution from waste materials • Health & Safety risks to workers and local community/DRPs	during decommissioning are anticipated to be similar to those identified for the construction phase. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.		PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan:

The Contractor shall develop a demolition plan 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 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 Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area, preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u> Water samples are to be collected from the Tube well at labor shed area for laboratory analysis of	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	different parameters such as PH, arsenic, Iron, Chloride, Hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
Subtotal Bill: Environmental facilities				300,000.00



Cost of H&S Measures under COVID 19 Situations

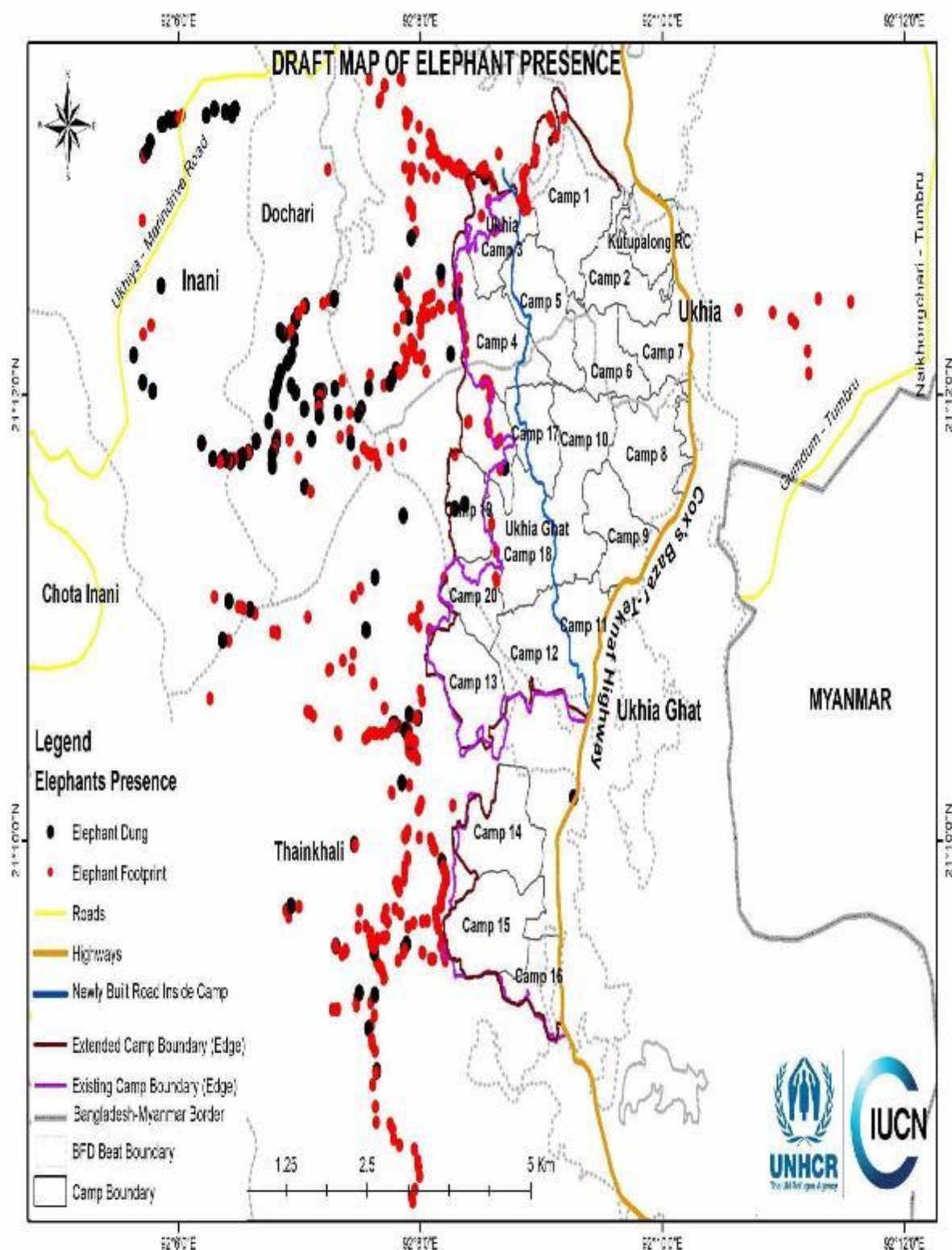
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 18, Block E).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of warehouse for firefighting equipment and Satellite fire station

Package Number : EMCRP/W2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাটি সেবির প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময় : 12:24 PM

তারিখ : 02/08/2022

উপ-প্রকল্প/কমপোনেন্ট এর নাম : Construction of Warehouse for firefighting equipment and Satellite fire station

মত বিনিময় স্থান : Beside the selected satellite fire station site,

ইউনিয়ন : পানছাঙ্গা ওয়ার্ড নং : 01 ডাকঘর : 33121-8920 উপজেলা : উত্তরা চন্দ্রা জেলা : কক্সবাজার

সাব প্রকল্প নং : EMCRP/W-2

ক্যাম্পের নাম : Camp-18, Block-E/M-12

অংশগ্রহণকারীদের ছবি (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	ব্লক/সাব ব্লক নং	স্বাক্ষর / টিপসই
০১	আঃ ইব্রাহিম	৫০	পুরুষ (DRP)	M-11	
০২	আঃ বাকিরুল	২৫	পুরুষ (DRP)	M-11	
০৬	আঃ ইব্রাহিম	৫০	পুরুষ (DRP)	M-10	
০৪	আঃ ইব্রাহিম	৫০	পুরুষ (DRP)	M-11	
০৫	আঃ ইব্রাহিম	১৫	পুরুষ (DRP)	M-12	
০৬	ইব্রাহিম আলী	৫৫	পুরুষ (DRP)	M-12	
০৭	আব্দুল্লাহ মাহমুদ	১৫	পুরুষ (DRP)	M-19	
০৮	আঃ ইব্রাহিম	২৫	পুরুষ (DRP)	M-19	
০৯	আব্দুল্লাহ উদ্দিন	২০	পুরুষ (DRP)	M-13	
১০	ইব্রাহিম	১৫	পুরুষ (DRP)	M-13	
১১	আব্দুল্লাহ আলী	২০	পুরুষ (DRP)	M-11	

Construction of warehouse for firefighting equipment and Satellite fire station Package Number : EMCRP/W2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মানসিক সেবায় প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময় : 12:45 PM

তারিখ : 02/06/2022

উপ-প্রকল্প/কমপোনেন্ট এর নাম : Construction of Warehouse for Fire Fighting and Satellite Fire Station

মত বিনিময় স্থান : Bende the Camp-18, Sub-Block-M-10

ইউনিয়ন : পশ্চিমবঙ্গী ওয়ার্ড নং : 01 ডাকঘর : Ukung-4750 উপজেলা : উজিরা থানা : কক্সবাজার

পাঠ্য প্যাকেজ নং : EMCRP/W-2

ক্যাম্পের নাম : Camp-18, Block-E/M-12

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	ব্লক/সাব ব্লক নং	স্বাক্ষর / টিপসই
১.	মোহাম্মদ হুজিরা	২৬	নারী (DRP)	B-M-10	
২.	মুহাম্মদ হুজিরা	৬০	"	B-M-10	
৩.	মুহাম্মদ হুজিরা	২৭	নারী (DRP)	B-M-10	
৪.	মুহাম্মদ হুজিরা	৬২	নারী (DRP)	B-M-10	
৫.	মুহাম্মদ হুজিরা	৬৫	নারী (DRP)	B-M-10	
৬.	মুহাম্মদ হুজিরা	৬২	নারী (DRP)	B-M-10	
৭.	মুহাম্মদ হুজিরা	৬০	"	M-12	
৮.	মুহাম্মদ হুজিরা	৬২	"	M-11	

Public consultation participants' list

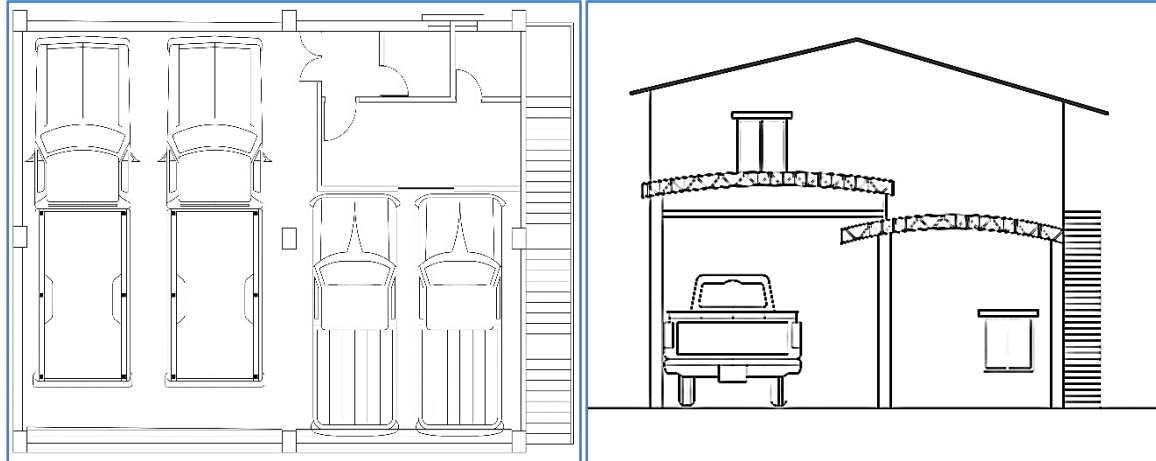


Government of The People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Co-operatives
Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762

IDA Credit No. 5561-BD



ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.

Under Package No. EMCRP/W2

Component Name: Construction of warehouse for firefighting equipment and Satellite fire station of Rohingya Camp-25, Block-D
Union: Hnila; Upazila: Teknaf
District: Cox's Bazar

Funded by:



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

Design and Supervision Consultancy:



Development Design Consultants Ltd.

August 2023

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ACRONYMS

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
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSCD	Fire Service and Civil Defense
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
MPSC	Multi-purpose Community and Service Center
NDRCC	National Disaster Response Coordination Center
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank



1. INTRODUCTION

1.1 Project background

An estimated 730,000¹ people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033². This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained 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 of drainage structures, 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, construction of firefighting/search and rescue warehouses, 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 the improvement of fire service under the project

Warehouse for firefighting equipment and Satellite fire station will be owned by the Department of Fire Service and Civil Defence, which 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 Cox's Bazar district from the last wave 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

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

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

vulnerability. One of the notable hazards without a doubt is fire which have claimed hundreds of lives in the past decade. 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 crore³. In Chittagong division alone, 147 number of incidents were reported as per NDRCC⁴. 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 construction of warehouse for firefighting equipment and Satellite fire station at Ukhiya and Teknaf are among the target initiatives, which will enhance the capacity of FSCD to cater the services as well as reduce the potential hazards stemming from dilapidated building structure.

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 population.

Under the package of LGED/EMCRP/W2, a Construction of warehouse for firefighting equipment and Satellite fire station will be constructed under Hnila union in Rohingya camp number 25, Block D of Teknaf Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding area of Rohingya camp 24 along with host community. Relevant significant features of the sub-project area and the proposed fire service architectural features 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

Package Name: EMCRP/W2: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District.	
Component Details:	
i. Place: Rohingya Camp-25, Block-D	ii. Ward No.: 8
iii. Name of Union: Hnila	iv. Name of the Upazila: Teknaf
v. Water Status: Available	vi. Water Source: Pond, Deep tube-well
vii. Distance from UZHQ: 15 Km	

³ The Daily Star; Front Page (February 10, 2020)

⁴ Nirapad: Monthly Hazard Incident Report (April,2021)

viii. GPS Coordinates	Latitude Value: 20.977880° N Longitude Value: 92.244450° E
ix. Communication Source	Radio & Mobile Network
x. Owner of land	Government
xi. Tribal people	No tribal people found in the catchment area of the Sub-project
xii. Connecting Road	Alikhali to Tulabagan Road
xiii. Land acquisition	Not required
Subproject Intervention: 1. 1 storied building with total required land is 1,546.58sq.ft. 2. Length 45.11 feet, Width 34.18 feet 3. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition). 4. The 1 st floor consists of store room (Dimension: 10825mmX4975mm) and 1 st Roof will be Color Tin Shed	
Implementing Agency: Local Government Engineering Department (LGED)	
Expected construction period: 2023-2024	
Estimated total cost of component: 9,835,159.85 (Tk.)	

[D&SC and Field survey, 2023]

Table 1.3.2: Proposed Fire service architectural features of the Sub-project

Fire Service station in Cox's Bazar Municipality	
Feature type	Quantity
Total Floor Area (ft. ²)	1,546.58
Number of Floors	2
Store Room	1
Toilet (male)	1
Toilet (Female)	1
Car parking area	1
Drinking Water Facility	Yes
Maintenance Room	Yes
Water Tank	Yes

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 Rohingya camp 25, Block D of Hnila union of Teknaf Upazila Under Cox's Bazar District. The site location is relatively a flat plain land and accessible through vehicles as of



12ft wide HBB road named Alikhali to Tulabagan Road is present near the site which connects with all major roads in the sub-district area. The location details of the Sub-project have been summarized in Table 1.4.1. The district map with project location, Upazila map with project location, Location map of warehouse for firefighting equipment and Satellite fire station shown in Figure 1.4.1, Figure 1.4.2 and Figure 1.4.3 respectively.

Table 1.4.1: Location Details of the Sub-project

Division	Chattogram
District	Cox's Bazar
Upazila	Teknaf
Union	Hnila
Ward No.	8
Rohingya Camp No.	25
Block/Sub-Block	D
GPS Coordinates	20.977880° N and 92.244450° E
Distance from Upazila HQ	15 km
Nearby major road	Alikhali-Tulabagan Road
Nearby river/canal	No mentionable feature

[Sources of data: D&SC Field survey, 2023]

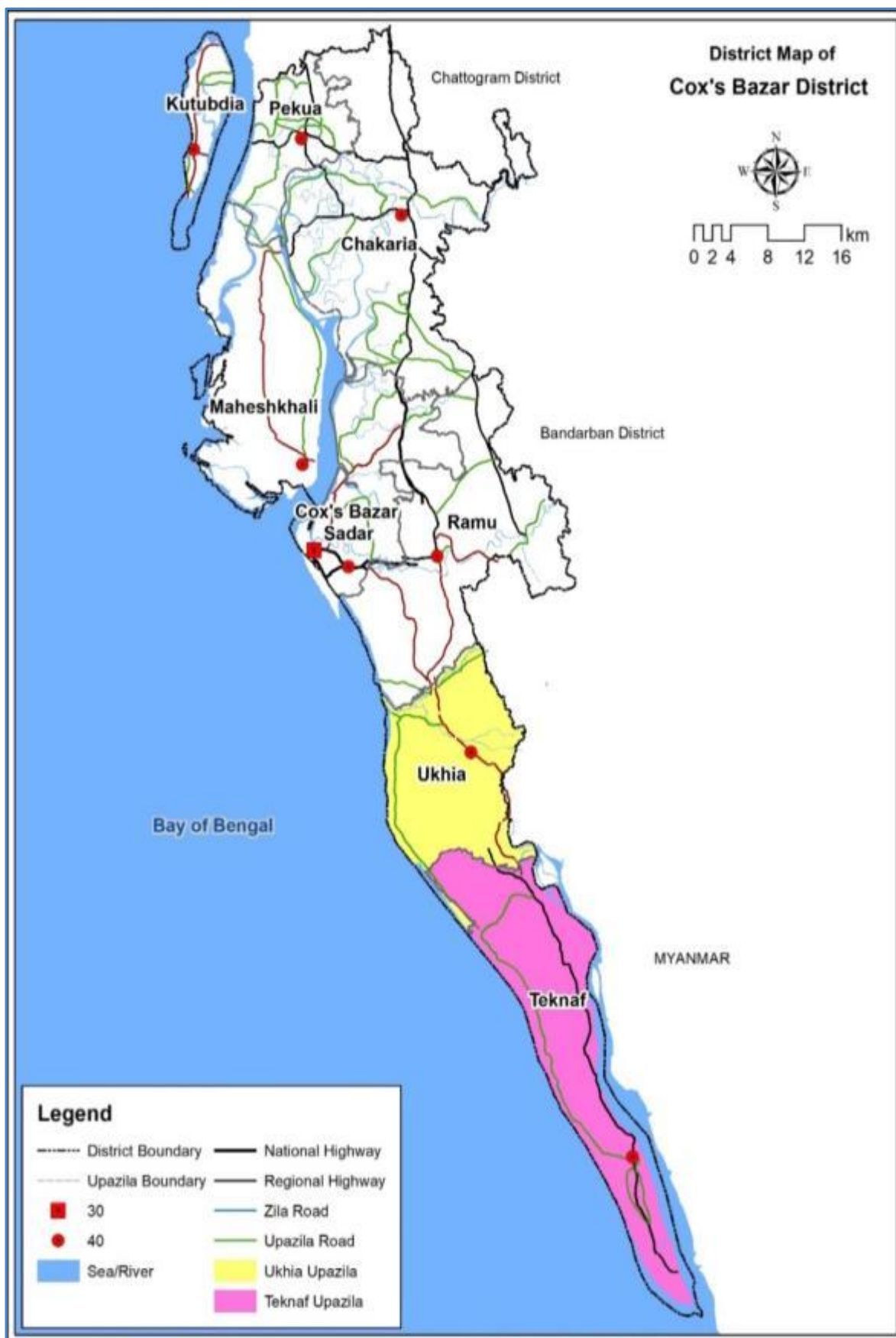


Figure 1.4.1: District Map with project location

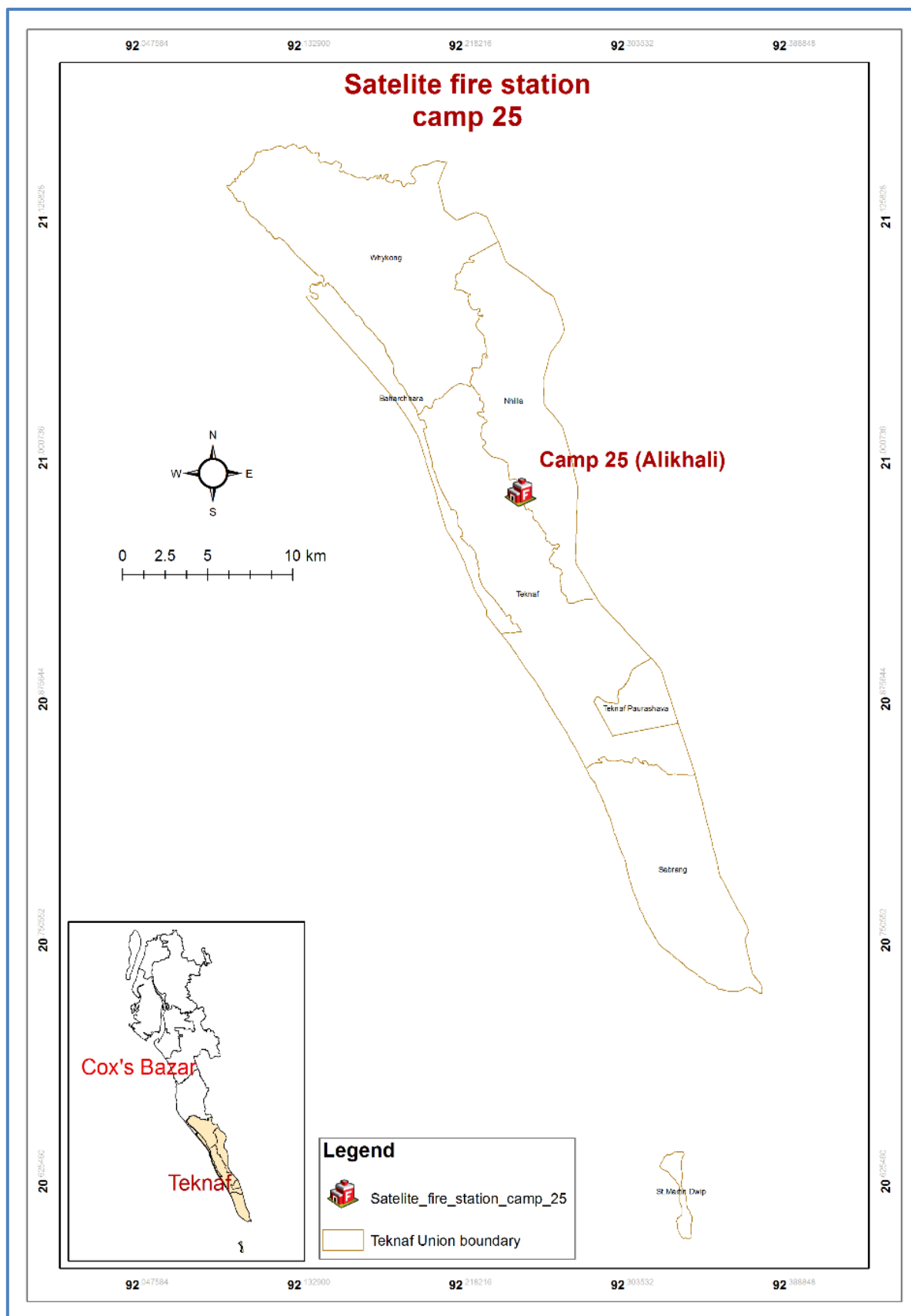


Figure 1.4.2: Upazila Map with project location

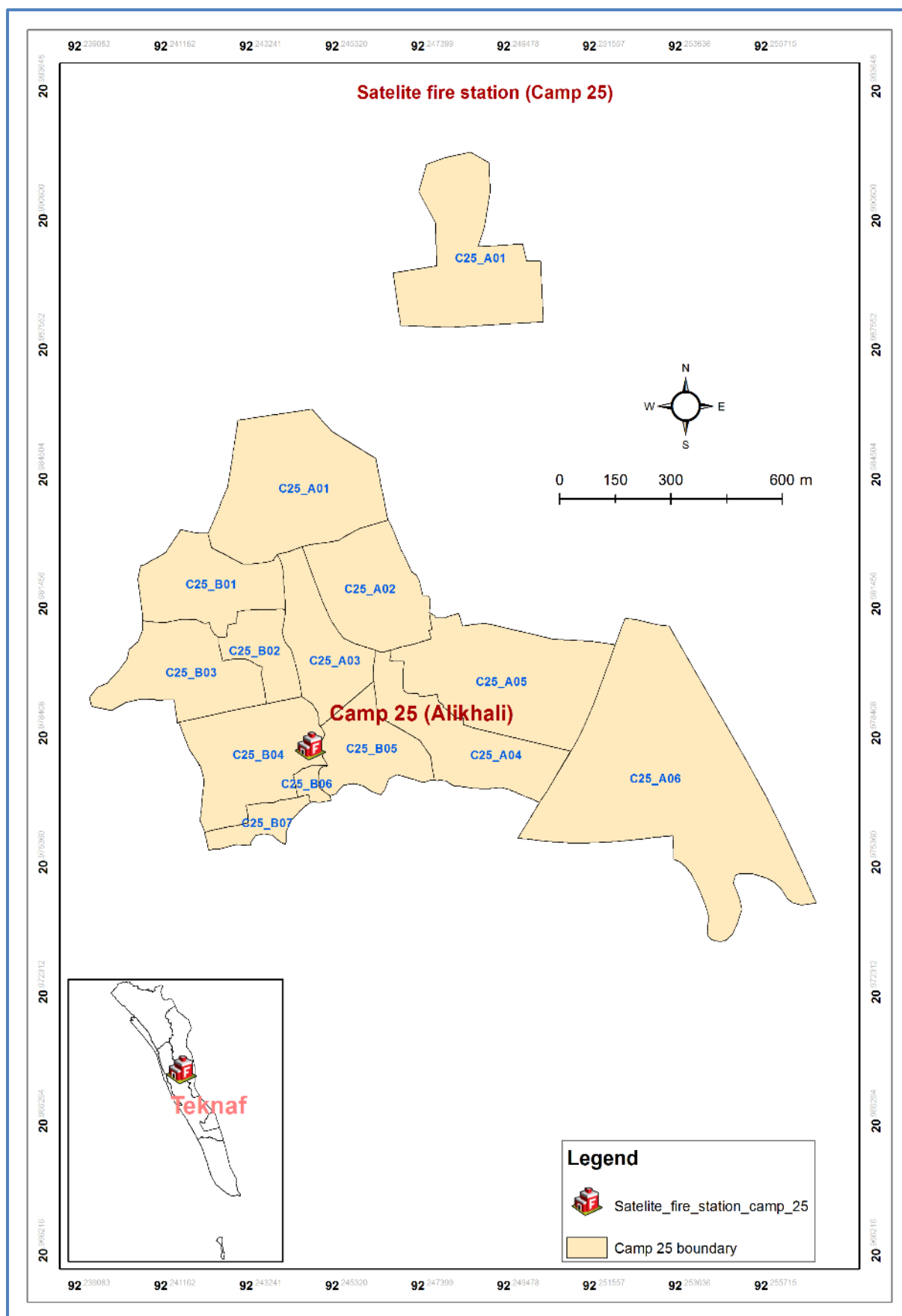


Figure 1.4.3: Location map of Satellite fire station

1.5 Boundary of the Sub-Project Site

The important features or establishments around the Sub-project site, mostly within one km radial distance from the site which might face direct/indirect impacts from the construction works. This has been summarized in Table 1.5.1. Photographs showing present condition of the Sub-project area and location of construction area has 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	NGO Learning Center (500m),
South side	APBN Police camp (40m), Mosque (100m), DRP camp (100m), BRAC Learning Center (400m)
East side	DRP Mosque (50m), Alikhali jame mosque (70m), Graveyard (150m), Anando Learning Center (150m), BRAC Learning Center (180m)
West side	IRC Child Learning Center (30m), Mosque (80m), Graveyard (100m)

[Sources of data: Field survey, 2023]



Figure 1.5.1: Present condition of the Sub-project area



Figure 1.5.2: Proposed location of Fire service station 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 26 August 2023 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 15 persons, and they were mostly Rohingya population. The participants were selected from different age tiers of stakeholders. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In some cases, Camp in Charge (CiC) were present in a separate consultation even consulted over phone in order to leave them on the same page as well and harnessing them from their points of views. Their concerns and comments were very critical for this intervention development also for the safeguard screening as well, 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 by CiC office only. This location in particular has no major complications and is in relevance with the CiC office authority currently. Present Camp in Charge has suggested to start the development works as early as possible.

Refer to Figure 2.1.1 and Appendix-5 for selected photographs of the participatory public consultation held at site of the warehouse for firefighting equipment and Satellite fire station of Rohingya Camp 25, Block-D and 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, 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:

- With fire events occurring more and more often in refugee camps, understanding these incidents becomes critical.
- Connecting roads for satellite fire station should be more widening and freer from any types of obstructions in the camp area.
- 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.
- Lack of adequate spaces for training of their officers/ staff.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during 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 warehouse for firefighting equipment and Satellite fire station from both the technical and social point of view.
- The station should have a bigger capacity to sufficiently cater the services to the Rohingya camp areas.
- The participants have expressed their greater interest for this satellite fire station 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 maintain safe work 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 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 26 August 2023 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 warehouse for firefighting equipment and Satellite fire stations) 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 sited allocated by Camp in Charge (CiC) 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. Top soil in agricultural land will be avoided without any failure in earthwork and that productive part of the soil will be conserved and replaced, if underneath soil is taken from any agricultural land. Within 1 km area there are nothing but camp settlements and few social institutions. To the north side an NGO Learning Center (500m); to the south side APBN Police camp (40m), Mosque (100m), DRP camp (100m), BRAC Learning Center (400m); to the east side DRP Mosque (50m), Alikhali jame mosque (70m), Graveyard (150m), Anando Learning Center (150m), BRAC Learning Center (180m) and; to the west side IRC Child Learning Center (30m), Mosque (80m), Graveyard (100m) 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. Falling from height is a conceivable risk at site, whenever a worker is exposed to the hazard of falling from more than two meters. 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 currently. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and

informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur.

Moreover, 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 area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank⁵ 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.

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

⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf>

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.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones have 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 the area. Temperature has increased and thus has medium impact on the area and Thunder storm has been seen to have increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the area.

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. Separate toilets for male and female, building water tank for water supply in the satellite fire station, solar power as energy sources are suggested to be incorporated in the design and to be implemented as part of the construction works of the service center. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here. As well as tree plantation is suggested to subside the effect of precipitation anomaly along the warehouse for firefighting equipment and Satellite fire station 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 warehouse for firefighting equipment and Satellite fire station will be constructed on a high plain land where some matured vegetation is found. Due to the construction activities of this Sub-project, trees will not need to be cut in the target location. Nonetheless 50 nos. trees will be planted around the sub-project site which monetary budget has been included in the Environmental BOQ. Further, APBN police camp and 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 must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted. Besides adopting appropriate fall prevention measures, such as, installing of guardrails and toe boards at the edge of any fall hazard area, providing ladders

and scaffolds and fall prevention devices including safety belt, full body harnesses with shock absorbing lanyards, etc., appropriate training in use, serviceability, and integrity of the necessary PPE is to be carried out. 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 Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures 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/W2 has also been added in the BOQ. An allocation for some environmental enhancement 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 ESMP and the responsibilities lie on all the responsible parties or institutions directly involved with or oversee the construction works.

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

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident



Engineer will ensure that contractors are adherent with every suggestive 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 Teknaf will play a vital role in upholding the proper monitoring and supervision of civil works and associated project activities, including social and environmental safeguards in and around the sub-project sites. 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, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

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

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

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

**Appendix-1: Filled in Environmental Screening Form**

Sub-Project Description Form: (Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya & Teknaf Upazila of Cox's Bazar District.)

Name of Sub-Project: Construction of warehouse for firefighting equipment and Satellite fire stations in Ukhiya and Teknaf Upazila of Cox's Bazar District. (LGED/EMCRP/W2)

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

Estimated total cost of sub-project (in Taka): 9,835,159.85 Tk.

Estimated construction period duration: 1 Year

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

District: Cox's Bazar

Sub-District: Teknaf

Union: Hnila

Name of Community/Local Area: Rohingya Camp 25, Block D.

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One warehouse for firefighting equipment and Satellite fire station Steel Frame G+1-storey building will be constructed within target location.

Estimated footprint / land area for this sub-project is 1546.58 sq. feet

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.): Proposed construction works for this Satellite Fire Station will be constructed within an identified location on Rohingya camp 25, Block-D area. To the north side an NGO Learning Center (500m); to the south side APBN Police camp (40m), Mosque (100m), DRP camp (100m), BRAC Learning Center (400m); to the east side DRP Mosque (50m), Alikhali jame mosque (70m), Graveyard (150m), Anando Learning Center (150m), BRAC Learning Center (180m) and; to the west side IRC Child Learning Center (30m), Mosque (80m), Graveyard (100m) are located. Being in a camp location, surrounding area is mostly inhabited by DRP along with NGO offices and social institutions as mosque and learning centers etc.

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. DRP community representatives as Majhi and other Rohingya people attended in the participatory public consultation meeting. They do not have any objection to the construction this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure social services. The public consultation meeting results confirmed that presence of this Satellite fire station will increase the emergency responses during fire events in the Rohingya camp area. This will also make way to reduce the severity of damage caused by fire. They also requested to keep provision of post-disaster services and facilities in sanitation and hygiene.

The proposed Sub-project area for the construction of Satellite fire station is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and



biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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

During construction period solid waste will be generated due to construction works 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 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. To the north side an NGO Learning Center (500m); to the south side APBN Police camp (40m), Mosque (100m), DRP camp (100m), BRAC Learning Center (400m); to the east side DRP Mosque (50m), Alikhali jame mosque (70m), Graveyard (150m), Anando Learning Center (150m), BRAC Learning Center (180m) and; to the west side IRC Child Learning Center (30m), Mosque (80m), Graveyard (100m) are present on the surrounding area 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 screening form is given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

Fire Service office building will be constructed within the boundary of an existing Rohingya camp area of Camp 25, Block-D at Teknaf Upazila under Cox's Bazar District, which will typically be used as a warehouse for firefighting equipment and Satellite fire station (office-storage-service) structure having all the required facilities and service areas ingrained. Usually, this option follows the construction of a 1- story building with total required land area is 1,541.58 sq. ft whereas Length 45.11 feet and Width 34.18 feet. Ground floor consists of car parking area, one room, 2 toilets (1 male & 1 female) and 2 fire hydrants (The position of the fire hydrant will be adjusted according to the field condition) as well as the 1st floor consists of store room and 1st Roof will be Color Tin Shed.

Sub-project Location:

The sub-project area is situated in Rohingya Camp 25, Block-D of Hnila union under Teknaf Upazila. The sub-project area is located at 20.977880° N and 92.244450° E. The distance from the Upazila headquarter is about 15 km. Nearby major road is 12 feet wide Alikhali to Tulabagan Road.

Land ownership

Land is owned by Government.

Expected construction period: 1 Year

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 pre-existing satellite fire service station, but influence area should consider nearly half a kilometer radius around the proposed site.

To the north side an NGO Learning Center (500m); to the south side APBN Police camp (40m), Mosque (100m), DRP camp (100m), BRAC Learning Center (400m); to the east side DRP Mosque (50m), Alikhali jame mosque (70m), Graveyard (150m), Anando Learning Center (150m), BRAC Learning Center (180m) and; to the west side IRC Child Learning Center (30m), Mosque (80m), Graveyard (100m) are located. However, there is no chance of disturbance during this improvement activity. However, there is no scope to be affected by the activities. Few trees will be affected by this works but in a minor manner. No mentionable eco concerned establishment, neither any socio-cultural site is located nearby.

Within the influence area of the subproject no historical sites were identified. Currently, there is no evidence of presence of elephants in the subproject influence area (checked with local IUCN representative).

Section B: Environmental Screening

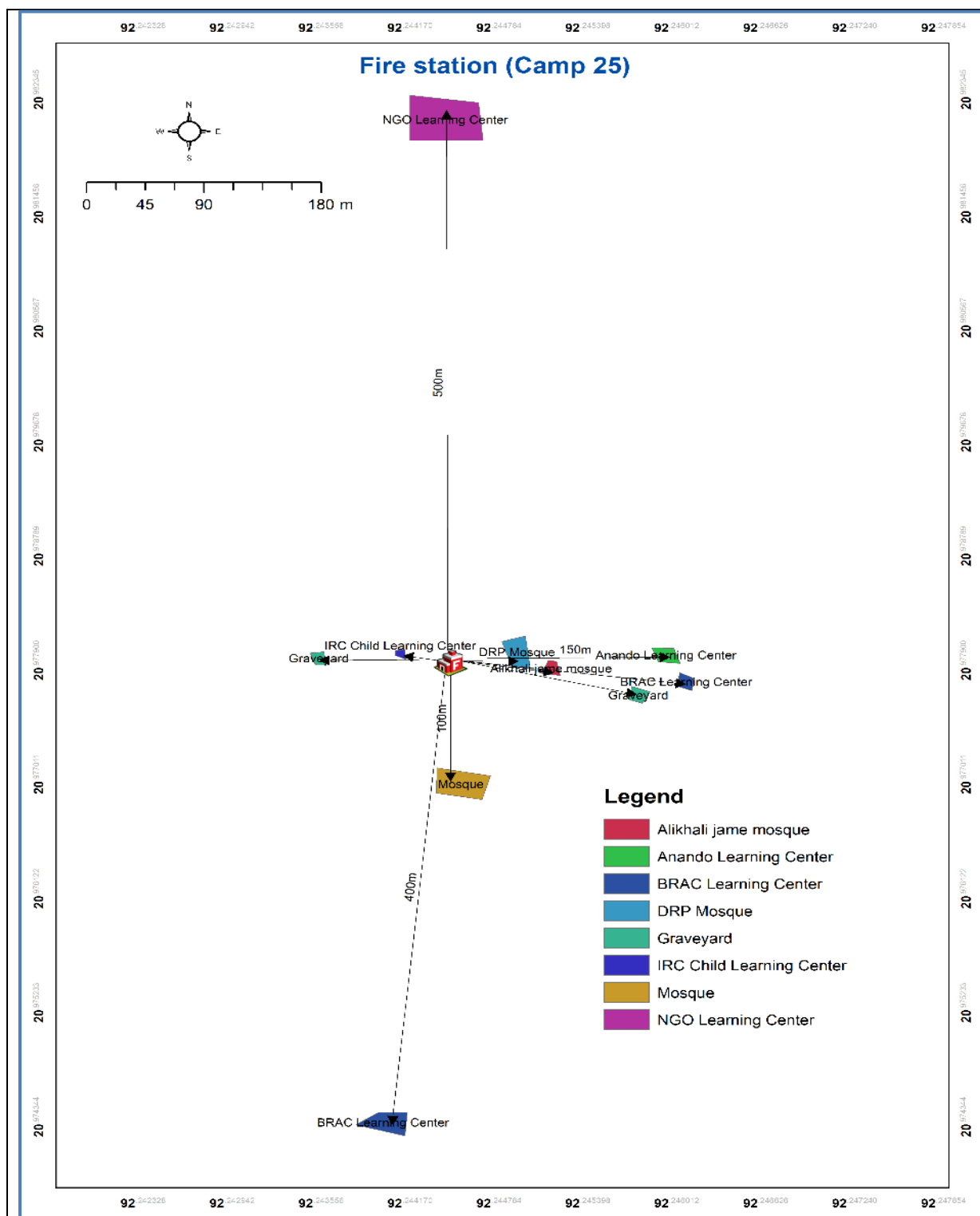
B.1: Environmental feature of sub-project location

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:

To the north side an NGO Learning Center (500m); to the south side APBN Police camp (40m), Mosque (100m), DRP camp (100m), BRAC Learning Center (400m); to the east side DRP Mosque (50m), Alikhali jame mosque (70m), Graveyard (150m), Anando Learning Center (150m), BRAC Learning Center (180m) and; to the west side IRC Child Learning Center (30m), Mosque (80m), Graveyard (100m) are located.

There are no sensitive environmental, cultural, archaeological 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, khals and ponds around this location. Several mosques, learning centers and DRP settlement were found during the survey. Other than some agricultural land found, these will 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 DRP community and within existing camp 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:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites at different parts of Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated, and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. 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 rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

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

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

N/A (the sub-project will be constructed in a high plain land and within an identified camp 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 650 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Deep groundwater table (drinkable) varies from 350-700ft (Field survey, 2022). DRP 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

*Data source: DPHE Test Report, 2023 (Water samples collected and tested at DPHE laboratory)
The results of the parameters tested in the laboratories for the provided sub-projects are mostly within the national standards for potable water.

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 some small trees are located in the subproject area since there is already an established Satellite fire 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):

12 feet wide HBB Alikhali to Tulabagan Road is present on the north side of the sub-project location. It is possible to carry the necessary materials and equipment on this road to the construction site.

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

Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.

Possible location of labor camps:

Labor camp can be established alongside the sub-project location. However, this will have to be done with the consent of CiC authority under a mutual agreement, with the supervision of the Engineer in charge.

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

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

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

12 feet wide HBB Alikhali to Tulabagan Road is present on the north side. It is possible to carry the construction materials on this road to the construction site.

Location identification for raw material storage:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with CiC authority.

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

Earth/ mud, plastics, unused metals, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand,

bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Some salvage materials from road excavation may be generated at some places on the road. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 6 kg during the pre-construction phase.

B.3: Construction Phase

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 150 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 2 kg daily.

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

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

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

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

Around 1546.58 sq. feet land is required for the sub-project establishment.

There is reasonable vegetation around the sub-project area. The vegetation will not be affected by construction work. The open area inside the camp 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 due to 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. 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 hilly 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 satellite fire station will be equipped with full facilities for conducting basic services to targeted people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. Fecal sludge will be produced from toilets that may require 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 and higher amount of wastes including organic kitchen wastes will be produced during the emergency period. All these wastes will be stored in covered plastic bins temporarily and later will be disposed off in a designated place away from the camp site and any water bodies, and covered with layers of soil in a periodic manner so that no odor, water and soil quality impacts are generated. Plastic, polythene and other non-biodegradable wastes must be separated from the organic/ biodegradable wastes before disposing off underneath the soil and CiC authority should be made aware of this separation and disposal procedure.
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 new 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 Satellite fire station will improve the social safety condition of the DRP community of the catchment area by providing better rescue service, short-term employment opportunities, etc. which would eventually ensure development in both personal and societal level and improved 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 camp 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)

Low. The proposed site is already disturbed due to the presence of the camp. No evidence of endangered species was found.

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 camp area. A HBB road named Army Road connects the sites with main road. The roads are mainly used for pedestrian access and light vehicles like bicycles, three wheelers etc. therefore, during operation period traffic congestion is not expected. However, if not properly maintained and supervised, low effects of noise and air pollution will be occurred, primarily because of the noise and emission from vehicular movement and 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.

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 warehouse for firefighting equipment and Satellite fire station (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 high 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. - DRP settlements, connecting roads, mosques, etc. are located nearby the proposed location so labor camp needs to be set up in such a location that any types of interventions are not disturbed in any way.	Contractor, Environmental specialist of D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals,	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	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
	bitumen etc., Risk of crime, Access of students, children, animals, etc.)		the Environmental Specialist of D&SC. • Proper covering of dust producing materials with polythene sheet, • Proper fencing around the storage area in order to be secure, to minimize the risk of crime and to be safe from access by 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.			
	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	Contractor, Environmental specialist of D&SC	Complaints from DRPs community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Construction works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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 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 DRPs 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	Contractor, Environmental specialist of D&SC	Number of complaints from stakeholders, Use of silencers in	Weekly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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 construction period.		noise producing equipment and sound barriers, Noise 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	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	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	reversible by mitigation measures.				records	
	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 cut. - Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, Environmental specialist of D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly
	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.,	Contractor, Environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			- Ensure adequate supply of drinking water. - Sanitation facilities for male & female workers separately.			
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.
	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	Contractor monitored by Consultant and PMU	Worksite is restored to original conditions;	Over the completion of Works



Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			that forms part of the bidding document.			
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, CiC Officials, Consultant and PMU	Complaints from DRP 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 Warehouses for FSCD (LGED/EMCRP/W02): Satellite Fire Station of Rohingya Camp 25, Block D**

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 Selection & implementing interventions: Human-elephant conflict	Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	Selected site will be far away from any water bodies or natural flow path to avoid the flash flood or any kind or	PIU & Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - 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/ DRPs, 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 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



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Dust	- Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. - Provision of using water sprinklers to dust control. - Construction materials should be covered properly while carrying in vehicles to the site. - Vehicle movement will be controlled on haul roads/access roads for limiting dust generation.	Contractor	Environmental Consultant of PIU, PSC
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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		kept on site. Fire Service officials must be consulted before any construction work starts.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement and operation of heavy machineries and equipment. - Local community will be trained up about traffic management and awareness.	Contractor	Environmental 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.	Contractor	Environmental Consultant of PIU, PSC



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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.	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
		• Proper Emergency evacuation response plan will exist in sub-project area. • Appropriate fall prevention measures while working at heights, such as, installing of guardrails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds, use of fall prevention or protection devices including safety belt, full body harnesses with shock absorbing lanyards, etc. shall be taken in place, in conjunction with appropriate training in use, serviceability, and integrity of the necessary PPEs. • 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		



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.	Fire Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odors and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	Preventative maintenance schedule should be followed.	Fire Service 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 Service and Civil Defense	UNO, Upazila Chairman of Upazila Parishad
Decommissioning during the project	The impacts are similar to those listed in	Provision for proper mitigation measures and monitoring to minimize or reduce the environmental and social impacts	Contractor	Environmental Consultant of



Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
implementation period (including site clearance after the construction)	construction stage: • Pollution from waste materials • Health & Safety risks to workers and local community/DRPs	during decommissioning are anticipated to be similar to those identified for the construction phase. • Proper and safe sealing of septic tanks required • Solar panels and batteries need to be sold or disposed properly • Third party monitoring of air quality as well as on receiving land and water bodies, may be undertaken, if the condition of those components seems to be significantly worse.		PIU/D&SC, XEN, Cox's Bazar, PSC.

Demobilization and Waste Management Plan (if required):

The Contractor shall develop a demolition plan 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 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 Enhancement Works in BOQ****Proposed Cost of Environmental Mitigation and Healthy Safety Enhancement Works for construction of Satellite fire station in Rohingya camp**

In consideration to the environmental impact's mitigation and healthy safety measures for each sub-project, the following items and cost are proposed to include in BOQ. Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site, Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase should be engaged around the sub-project site and as per direction of E-I-C.

SI No.	Description of item	Quantity	Unit price	Total amount
1.	<u>First Aid Box:</u> Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.	2 nos.	@6500	13,000
2.	<u>Tree plantation</u> Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area, preferably around the site or at both sides of the nearby Road 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 grown.	50 nos.	@ Tk. 1,000	50,000
3.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility installed waste bin (02 no. of organic waste and 02 no. of inorganic waste disposal facility) and as per direction of the E-I-C.	2 nos.	LS @ Tk. 10,000	20,000
4.	<u>Water Test of Drinking water samples:</u> Water samples are to be collected from the Tube well at labor shed area for laboratory analysis of	1 no.	LS @ Tk. 5,000	5,000



SI No.	Description of item	Quantity	Unit price	Total amount
	different parameters such as PH, arsenic, Iron, Chloride, Hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of the E-I-C. (Including the cost of actual fees for testing from reputed laboratory and report) as desired by E-I-C.			
5.	<u>Working labour shed:</u> Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 50,000	50,000
6.	<u>Health safety warning sign:</u> Health safety warning sign at the site office and as per direction of the E.I.C.	LS	LS@ Tk. 5000	5,000
7.	<u>Site Cleaning and preparation</u> 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.	LS	LS @ Tk. 10,000	10,000
8.	<u>Providing Safety gear</u> Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets as per direction of E.I.C.	15 Sets	LS @ Tk. 5000 of each set	75,000
9.	<u>Temporary Sanitary Latrine</u> 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.	@ Tk. 20,000	40,000
10.	<u>Campsite water supply facilities:</u> Preferably 1 no. of tube well at the labor campsite (Depending on the site condition, D&S consultant will assist the contractor for selecting the option) to the entire satisfaction of E-I-C.	1 no.	@ Tk. 20,000	20,000
11.	<u>Water filter</u> Supplying of best quality Water Filter (32 liters) including and extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C	3 nos.	@ Tk. 4000	12,000
Subtotal Bill: Environmental facilities				300,000.00



Cost of H&S Measures under COVID 19 Situations

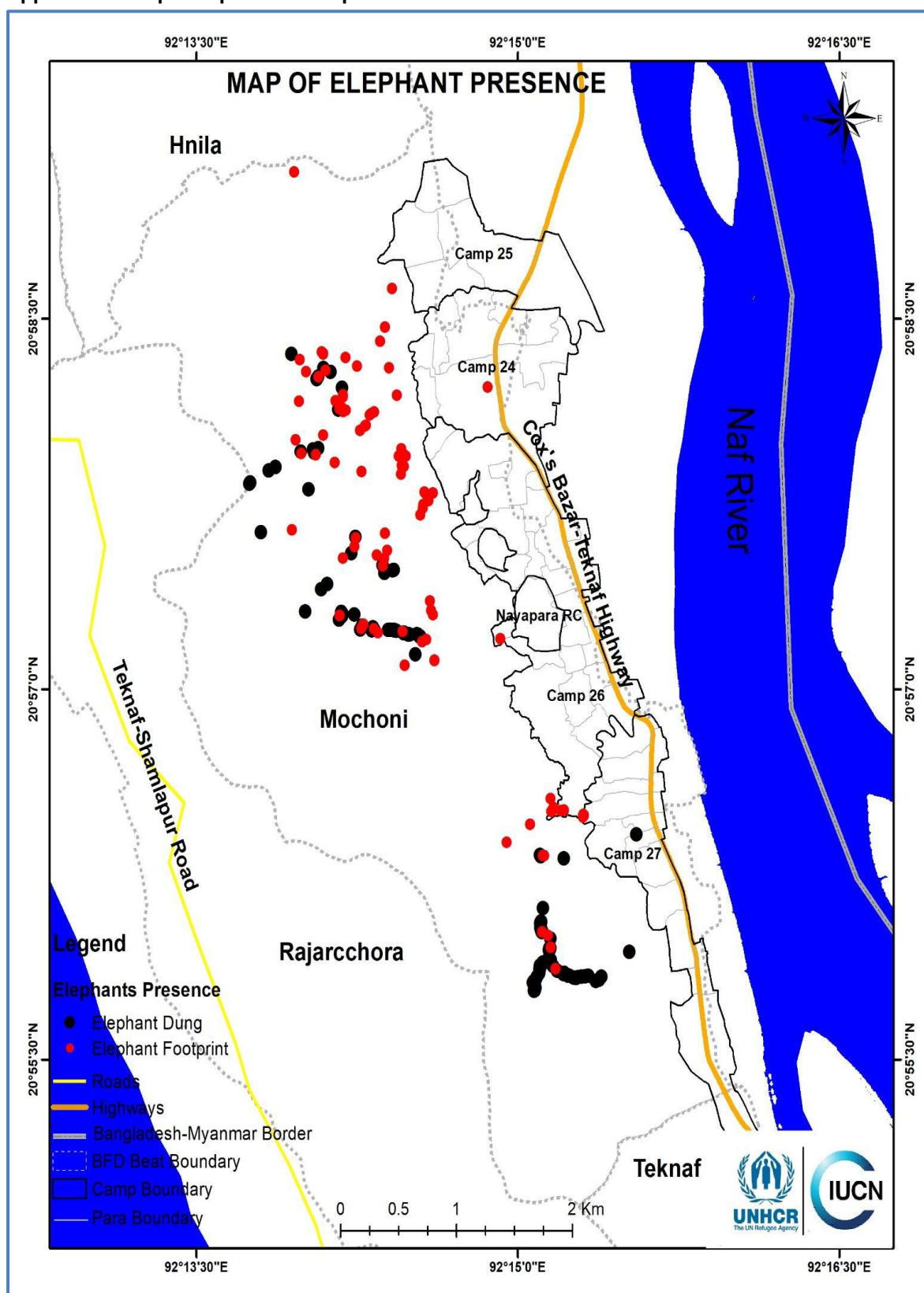
Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 works for 270 active working days (9 months) in a contract period for one site under this package (EMCRP/AF/W02-Construction of Satellite Fire Station at Rohingya Camp 25, Block D).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	54		68	50.00	122	6,100.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office



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				
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	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	360	12,600.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							94,275.00	

Appendix-4: Elephant presence map



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

Appendix-5: Public consultation participants' list

Construction of Warehouse for Firefighting Equipment and Satellite Fire Station

Package Number : EMCRP/W2

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

সময় : 4:30 pm তারিখ : 26/08/2023

উপ-প্রকল্প/কমপোনেন্ট এর নাম : Satellite Fire Station - Camp - 25

মত বিনিময় স্থান : মুসফির বৃহত্তর দোকান-৩ সামল-২৫, Block-D, Sub block-D10

ইউনিয়ন : নিমার ওয়ার্ড নং : ৬ ডাকঘর : নিমা-৪৭৬৩ উপজেলা : টেকনাফ জেলা : কক্সবাজার

সাব প্রকল্প নং : EMCRP-W-2 ক্যাম্পের নাম : Camp-25

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	রুক/সাব রুক নং	স্বাক্ষর / টিপসই
০১	হুমায়ুন জামান	২৭	পুরুষ (DRP)	S/b-D10	Humayun
০২	সাহ আলম	৬৫	u	u	Sah Alam
০৬	শ্রীঃ সিত্তান	৪০	u	u	Sitthan
০৪	মাসুমুর রহমান	২৫	u	u	Masumur
০৫	হাবিব হিমা	৪২	u	u	Habib
০৬	হাদিস আলম	৬০	u	u	Hadiss
০৭	শ্রীঃ আসবাব	৫২	u	u	Asabab
০৮	কাল্প হিমা	২৭	u	u	Kalunna
০৯	শ্রীঃ মাহুদ	২৯	u	u	Mahud
১০	আবুল হাফিজ	৬২	u	u	A.Hafiz
১১	মিশর আলম	৪৫	u	u	Mishar
১২	শ্রীঃ পার্বীজ	৬৭	u	u	Parvaz
১৬	শ্রীঃ জাহাঙ্গীর	৪০	u	u	Jahangir
১৪	ইমাম মোহাম্মদ	৬৫	u	u	Imam
১৫	শ্রীঃ রাজু	২৭	u	u	Raju

Public consultation participants' list