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)




ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Hazi Guramia Govt. Primary School
Educational Institution ID: 91412011584
Village: Muchakhola; Union: Palongkhali; Upazila: Ukhiya;
District: Cox's Bazar

Funded by:

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Development Design Consultants Ltd.

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

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

1.2 Rationale of Site Selection for resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025, under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster

shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Palongkhali union of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Mucharkhola, Jabunia, Notun Mucharkhola, Bottoli and Jamtoli. Typical rural settings of the area offer farmer to be in the prime professional engagement, while the businessmen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 1,020 households, containing 4,930 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Hazi Guramia GPS
Educational Institute ID	91412011584
District	Cox's Bazar
Upazila	Ukhiya
Union	Palongkhali
Owner of land	GPS
Catchment household	1,020
Catchment Population	4,930 (Male: 2,416, Female: 2,514)
Profession	Farmer 80%, Businessman 10% and others 10%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Mucharkhola, Jabunia, Notun Mucharkhola, Bottoli and Jamtoli.
Tribal people	200 tribal people in the catchment area
Connecting road	One 250m long muddy school linking road connected with nearby HBB road named Mucharkhola road on the east side.
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Hazi Guramia GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floor	3

Number of classroom	3
Teachers room	1
First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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

1.4 Location of Sub-Project

The Sub-project is located in the South-East side of Ukhiya Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 8ft wide mud road of nearly 250 m in length, which is connected to the Mucharkhola road. Mucharkhola Jame Mosque is located within 500m distance on the north, one hill is at 50m on the south, a khal named Palongkhali khal is at 500m distance on the east and a graveyard is within 20m on hill at the west side of the proposed location. The location has the geographical position 21.149583N and 92.13925E, and is nearly 14 km away from the Upazila HQ.

The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar

Upazila	Ukhiya
Union	Palongkhali
GPS position	21.149583 N and 92.13925 E
Distance from Upazila HQ	14 km
Nearby major road	12ft. wide HBB Mucharkhola road
Nearby river/canal	One khal named Palongkhali khal is located on 0.5 km east of the sub project
North side	Ramu upazila
South side	Teknaf Upazila
East side	Naf river and Naikhongchori Upazila of Bandarban District
West side	Bay of Bengal

[Sources of data: Field survey, September, 2021]

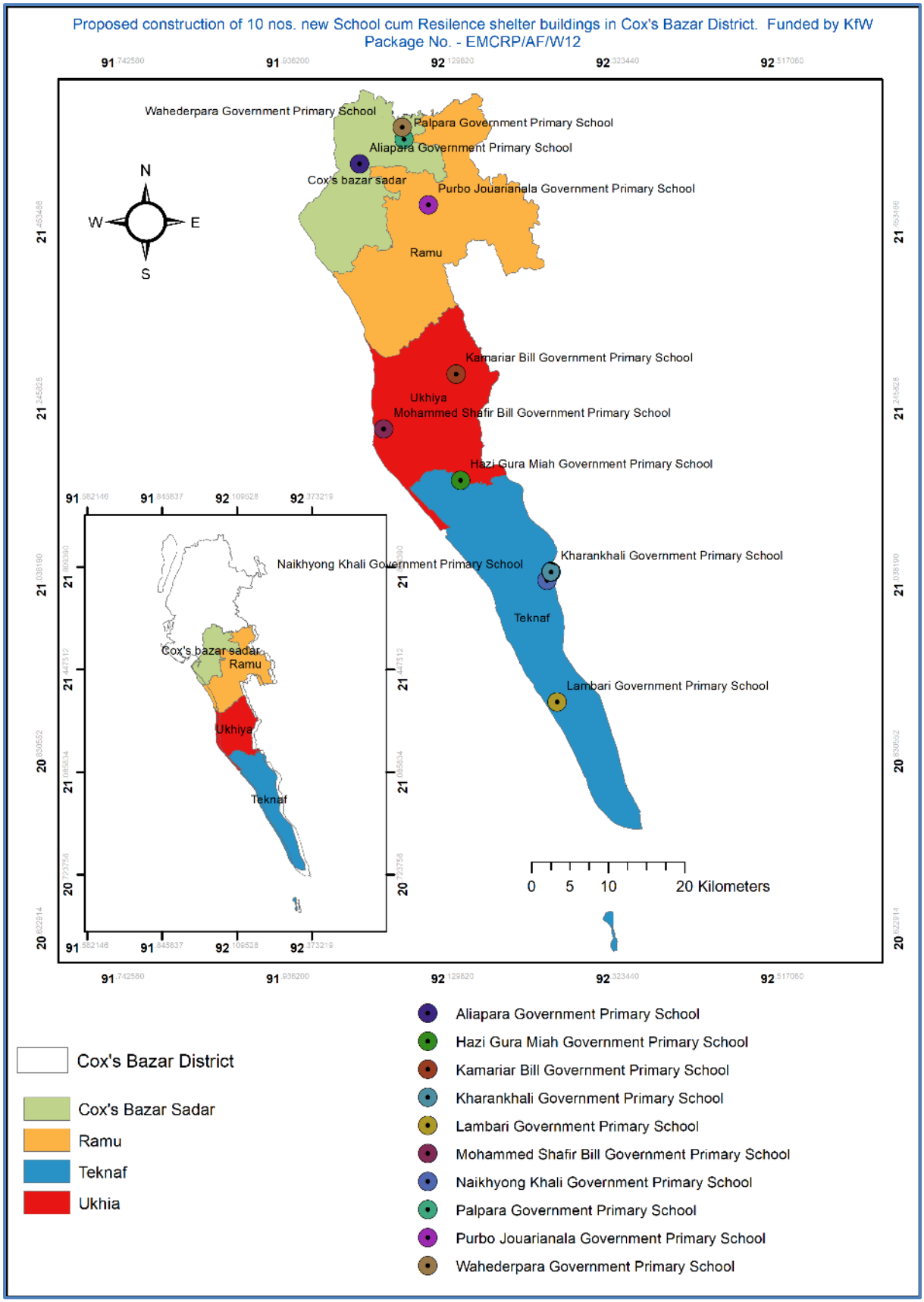


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

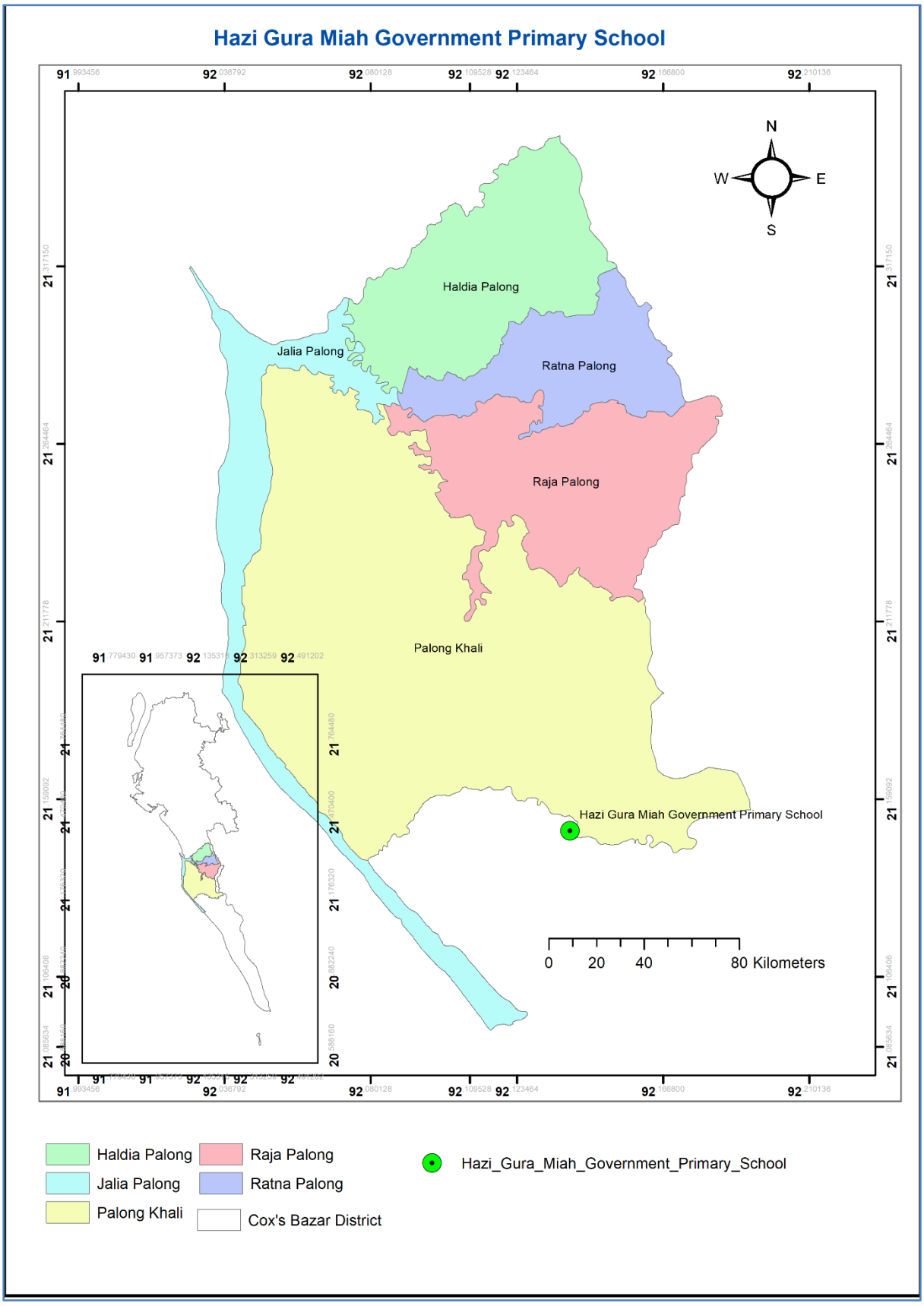


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

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

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Mucharkhola Jame Mosque (500m), New Mucharkhola Jame Mosque (1km)
South side	Hill (50m), Old Mucharkhola Jame Mosque cum Forkania Madrasah & graveyard (400m), Jmburia Jame Mosque (600m)
East side	Palongkhali khal (500m)
West side	Hill (5m), Mucharkhola graveyard (10m), Graveyard on hill (20m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Present condition of the proposed site and surrounding area



Figure 1.5.2: Location of the construction site

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 27 September 2021 in and around the Sub-project component 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 10 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Hazi Guramia GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate toilet facilities.

- Lack of the availability of dry foods and ready-made clothes during the disastrous events.
- Inadequacy of toilet facilities- separately for male and female.

2.3 Suggestions and recommendations of the participants

The participants presented the following suggestions and recommendations (summary):

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.
- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 27 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project (construction of new school cum resilience shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. This resilience shelter will be constructed within an existing school boundary so no agricultural land/ activities or fish farming will directly be disturbed due to the construction of the sub project. Some human settlements are found at 5 meters on north side and at 5 meters on west side of the school building. There are 3 mosques found within the catchment area (nearly 400meter, 500meter and 600 meter distance). There are 2 graveyards within the proposed location, one is on hill at 20m west and another is at 400m south named old Mucharkhola graveyard. A khal named Palongkhali khal is located on 500m east side of the sub project area. No significant disturbances to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials, etc. 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. Some earth excavation work will be involved, so air, noise and dust pollution will be occurred within a small-scale during the 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. Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effects 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance may also trigger habitat loss.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also, rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also, forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.

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

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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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 shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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

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

The proposed cyclone shelter will be constructed on a plain land where some vegetation is found on the western side. A madrasa named Mucharkhola Forkania Madrasa is located at 400m south side and one graveyard is located on hill at 20m west of the sub-project. Further, some human settlements are found at 5m north side and 5m west side area might get affected during the construction period with the generated debris and dust, though for the time being. Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.

c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement is to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols has to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

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

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4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

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

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system.

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 88 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Hazi Guramia GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)

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

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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: Mucharkhola

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilient Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, a one storied school building is located on north side and 2 nos. toilets are located on east side of the school boundary. The new school cum resilience building will be constructed on the open spaces at the west side. Mucharkhola Jame Mosque is located within 500m on the north, one hill is at 50m on the south, a khal named Palongkhali khal is at 500m on the east and a graveyard is within 20m on hill at the west side of the proposed location. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

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

During construction period solid waste will be generated due to construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. A road named Court Bazar-Ukhiya Road is passing near the sub-project area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On north side Mucharkhola Jame Mosque (500m), New Mucharkhola Jame Mosque (1km); on south side Hill (50m), Old Mucharkhola Jame Mosque cum Forkania Madrasah & graveyard (400m), Jmburia Jame Mosque (600m); on east side Palongkhali khal at 500m and on west side Hill (5m), Mucharkhola graveyard (10m), Graveyard on hill (20m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

Some human settlements within 5 meter and agricultural lands are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose Resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3 story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Ratnapalong Union under Ukhiya Upazila of Cox's Bazar district. The sub-project area is located at 21.149583 N and 92.13925 E. The distance from the Upazila headquarter is about 14 km. Nearby major road is Mucharkhola Road. Total available land area of this sub-project is 40 decimals. The school code is.91412011584

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site. There is a one-story building being used for classrooms. An open place located at west side. The new one will be constructed here.

Mucharkhola Jame Mosque is located within 500m on the north, one hill is at 50m on the south, a khal named Palongkhali khal is at 500m on the east and on west side Hill (5m), Mucharkhola graveyard (10m), Graveyard on hill (20m) of the proposed location. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having sufficient distance from the proposed site. Besides these components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

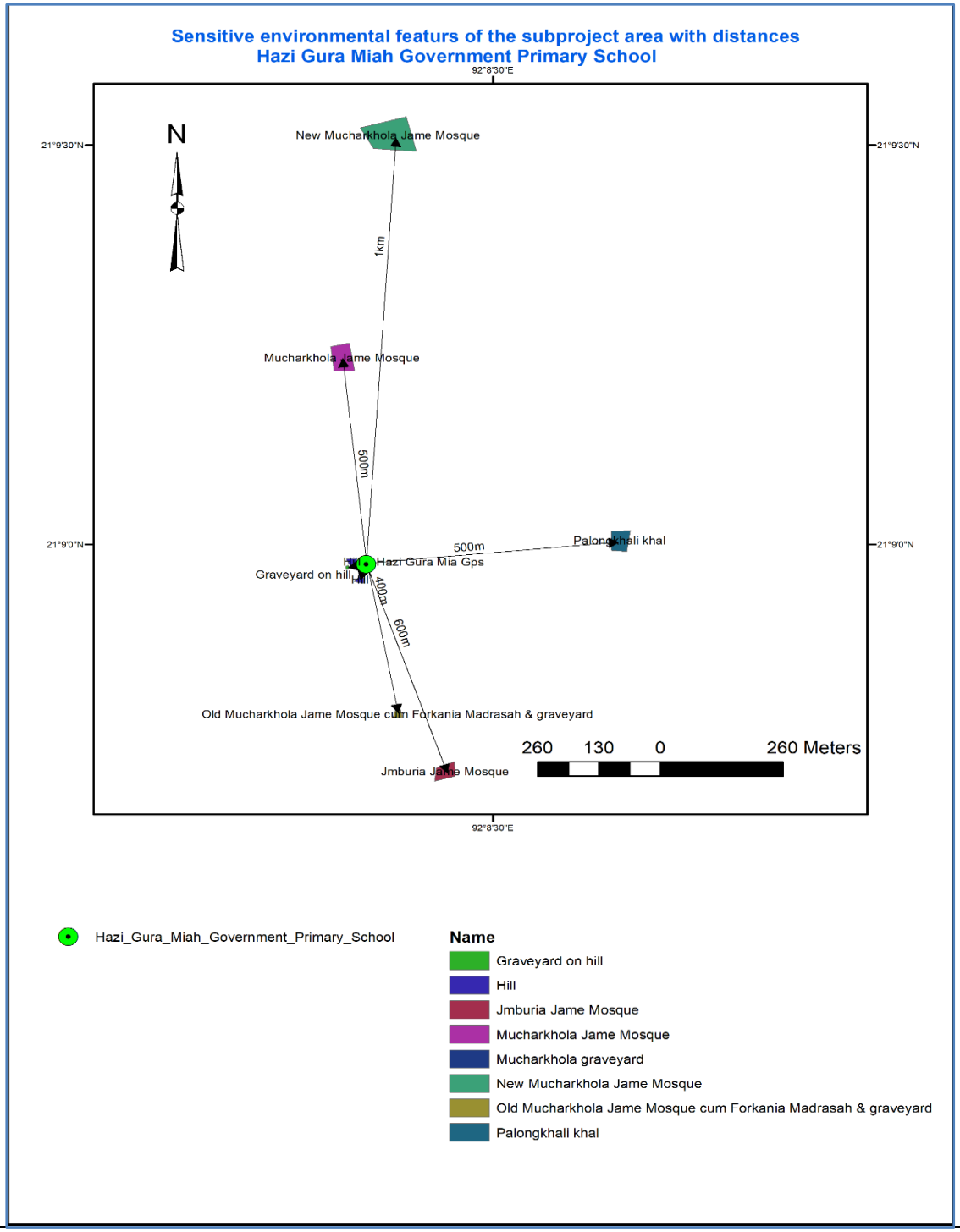
Section B: Environmental Screening

***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:

Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side Mucharkhola Jame Mosque (500m), New Mucharkhola Jame Mosque (1km); on south side Hill (50m), Old Mucharkhola Jame Mosque cum Forkania Madrasah & graveyard (400m), Jmburia Jame Mosque (600m); on east side Palongkhali khal at 500m and on west side Hill (5m), Mucharkhola graveyard (10m), Graveyard on hill (20m) but there is no scope to be affected significantly by the construction activities.

There is no sensitive environmental, cultural, archaeological sites exists within the catchment area of this sub-project. A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, madrasa, high school and human settlement were found during the survey. Those will not be affected by the construction works, as the activities will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting.

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. No deep tubewell is found within the school boundary. In the sub-project area, deep groundwater is salt and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 650-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. Two ponds are found adjacent to the sub-project area but no disturbance or modification is anticipated by the sub-project.

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

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete

patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A HBB road named Mucharkhola road is passing by the east side of the sub-project. It is connected to Cox's Bazar-Teknaf highway. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: No tubewells are found within the school boundary. Students are consuming drinking water from nearby households. Local people are collected water from confined deep tubewells for year-round. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first at pre-construction stage to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: On east side within the existing school boundary.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): A HBB road named Mucharkhola road is the main way for transportation of raw/construction materials. It is located on the east side of the sub-project site.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local Communities. Considering the criteria, east side within the school boundary would be a good. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from

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

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):
Solid waste: Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc.
Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 10 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp.

Liquid waste: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 3 kg per day, which would be reduced in weight in course of time.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):
Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction.
Quantity: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:
Around 289.54 sq. meter soil land is required for the sub-project establishment.

There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.

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 one khal named Palongkhali khal is at 500m on east side which is clearly outside of the construction area and 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 subproject site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent HBB road as well as the marine drive; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution works are intensified for the sheltered people. 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 school cum resilience shelter building will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies are present within the sub-project boundary area, and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) There is no protected area in or around the sub-project sites, and no known areas of ecological interest, except a pond located at 300m south from the working site boundary which will not be affected by any activities within the school premises. In fact, there is none of the activities usually taken place in a school site during the operation phase which may potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 a locality. A muddy road connects the site with the mucharkhola road. The road is 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 loose soil 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 and Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 might negatively	Contractor, Environmental Specialists of PIU and 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
			affect surface and ground water. • Monitor water quality according to the environmental management plan.			
2.Pre-construction Phase	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Constructio n works.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	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 off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	Contractor, Environmental Specialists of PIU and 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
	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 (in terms of access and distance from their living place) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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.	Contractor, Environmental Specialists of PIU and 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
	Accidents	Under the sub-project intervention the overall score is low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	Under the sub-project	• Damp down exposed soil and any sand stockpiled on site by spraying with water during	Contractor, Environmental	Location of stockpiles,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	intervention the overall score is low.	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.	Specialists of PIU and D&SC	Covering of trucks, Records 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 Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 Specialists of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly
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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic. • All imported materials are to be removed and	Contractor, Environmental Specialists of PIU/D&SC, XEN, Cox's Bazar.	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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.			
	Odor & waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor; and monitored by Consultant of D&SC and PIU	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 of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	-Do-	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 • Consultation meeting with nearby residents and other	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

		stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.			
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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made. • No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an	-Do-	Contractor	Environmental Consultant of PIU, PSC

		unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-	Site Preparation: Soil	• Selected site will be sufficiently away from any water	-Do-	PIU & Contractor	Environmental

Construction Stage	Erosion; Alteration of natural drainage	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.			Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works,	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.	Contractor	Environmental Consultant of PIU, D&SC

		noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).			
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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will discuss with traffic management authorities and take site specific traffic management	-Do-	Contractor	Environmental Consultant of PIU, PSC

		measures to avoid traffic jam and any unwanted incidents or accidents.			
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction work starts.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual	-Do-	Contractor	Social Development Specialist and Gender

	local residents	harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour forces. • Labor code of conduct is to be disclosed through consultation.			Specialist of PIU, PSC
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.	-Do-		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during	Preparation of a waste management plan covering the following aspects and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's	Contractor	Environmental Consultant of PIU, PSC

	construction.	• Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.	EHS General Guidelines		
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter;	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

	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 types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas. • Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks.	p.94-100)		

		• Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE.	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

		• 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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

	community	imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Waste Management Plan (as guided in IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).
- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.

- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000 Tk.*24 months*(1/10 one	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			shelter). (Net payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person (twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted along the periphery of the proposed site at an interval of 10	10 nos.	@ Tk. 1000 for each tree.	10,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	feet.			
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**488,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting

Hazi Gura Miah Government Primary School (GPS)

Package Number: EMCRP/AF/W12

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Additional Financing

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

তারিখ: 29/02/2022 ইং

EMCRP/AF/W12

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১	মো. রহমান আলেপীর	২৪	পুরুষ	মোহাড়খোলা	
২	স্বামীত কুমার পুয়া	৪৫	১	ঃ	
৩	লামরাউ চাকমা	২২	যুবা	১	Camrau chakma
৪	জালা উদ্দিন	৪৫	পুরুষ	১	
৫	কেফায়েত উল্লা	৪৪	১	১	কেফায়েত উল্লা
৬	ছাদেকুল হক	৪২	১	১	ছাদেকুল হক
৭	নুরুল আলম	৪৮	১	১	নুরুল আলম
৮	আবুল কাশেম	৩১	১	১	আবুল কাশেম
৯	মো. সেলিম	৩১	১	১	সেলিম
১০	পুরুষ দেবী চাকমা	২১	মহিলা	১	পুরু

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Kamariarbill Govt. Primary School
Educational Institution ID: 412010205
Village: Kamariarbill; Union: Ratnapalong; Upazila: Ukhiya;
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

1.2 Rationale of Site Selection for resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025,

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

under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Ratnapalong union of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Kamariarbill, Jafor Pollanpara, Uttar Pukuria and Goyalmara. Typical rural settings of the area offer farmers to be in the prime professional engagement, while the businessmen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 3,775 households, containing 18,500 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Kamariarbill GPS
Educational Institute ID	412010205
District	Cox's Bazar
Upazila	Ukhiya
Union	Ratnapalong
Owner of land	GPS
Catchment household	3,775
Catchment Population	18,500 (Male: 9,065, Female: 9,435)
Profession	Farmer 75%, Businessman 10%, Day labor 5% and others 10%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Kamariarbill, Jafor Pollanpara, Uttar Pukuria and Goyalmara
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	6.5ft. wide and 75m long HBB school linking road connected with nearby main 18 ft wide BCC road named Court bazar-Ukhiya road (Yousuf Ali Sarak) on the south side.
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Kamariarbill GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floor	3

Number of classroom	3
Teachers room	1
First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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

1.4 Location of Sub-Project

The Sub-project is located in the East side of Ukhiya Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 6.5ft wide HBB road of nearly 75m in length, which is connected to the Yousuf Ali road. Kamariarbill central jame mosque and graveyard as well as a pond are situated within 300m influences on the south side of the proposed location. Surroundings of this proposed area are enclosed by agricultural land. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Ukhiya

Union	Ratnapalong
GPS position	21.274444 N and 92.133889 E
Distance from Upazila HQ	5 km
Nearby major road	Court Bazar-Ukhiya road (Yousuf Ali Sarak)
Nearby river/canal	Kamariarbill jame mosque adjacent to a big pond is found within 300m distance and Uttar Pukuria choto Khal is located at 1 km on the south from the sub-project site component.
North side	Ramu upazila
South side	Teknaf Upazila
East side	Naf river and Naikhongchori Upazila of Bandarban District
West side	Bay of Bengal

[Sources of data: Field survey, September, 2021]

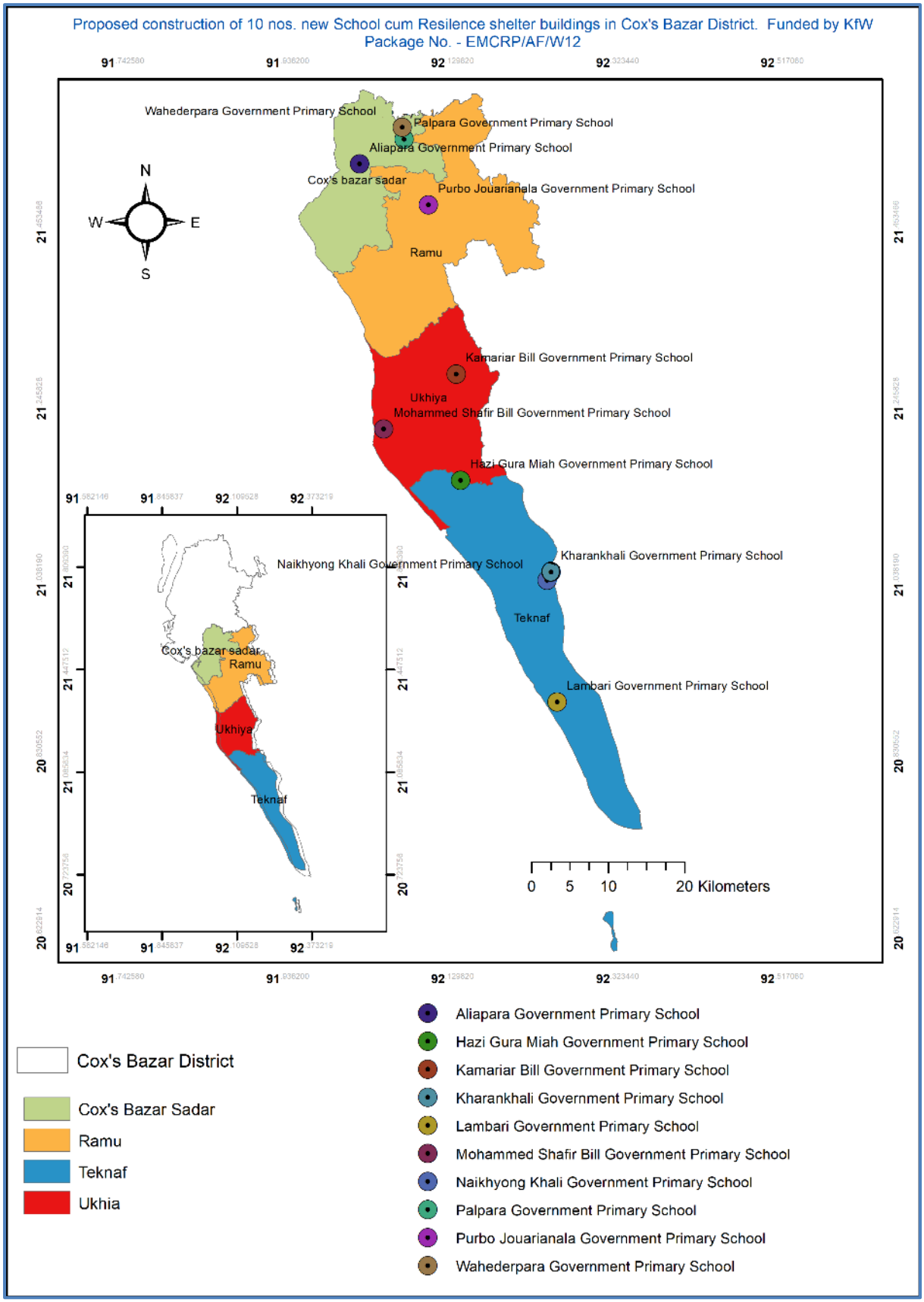


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

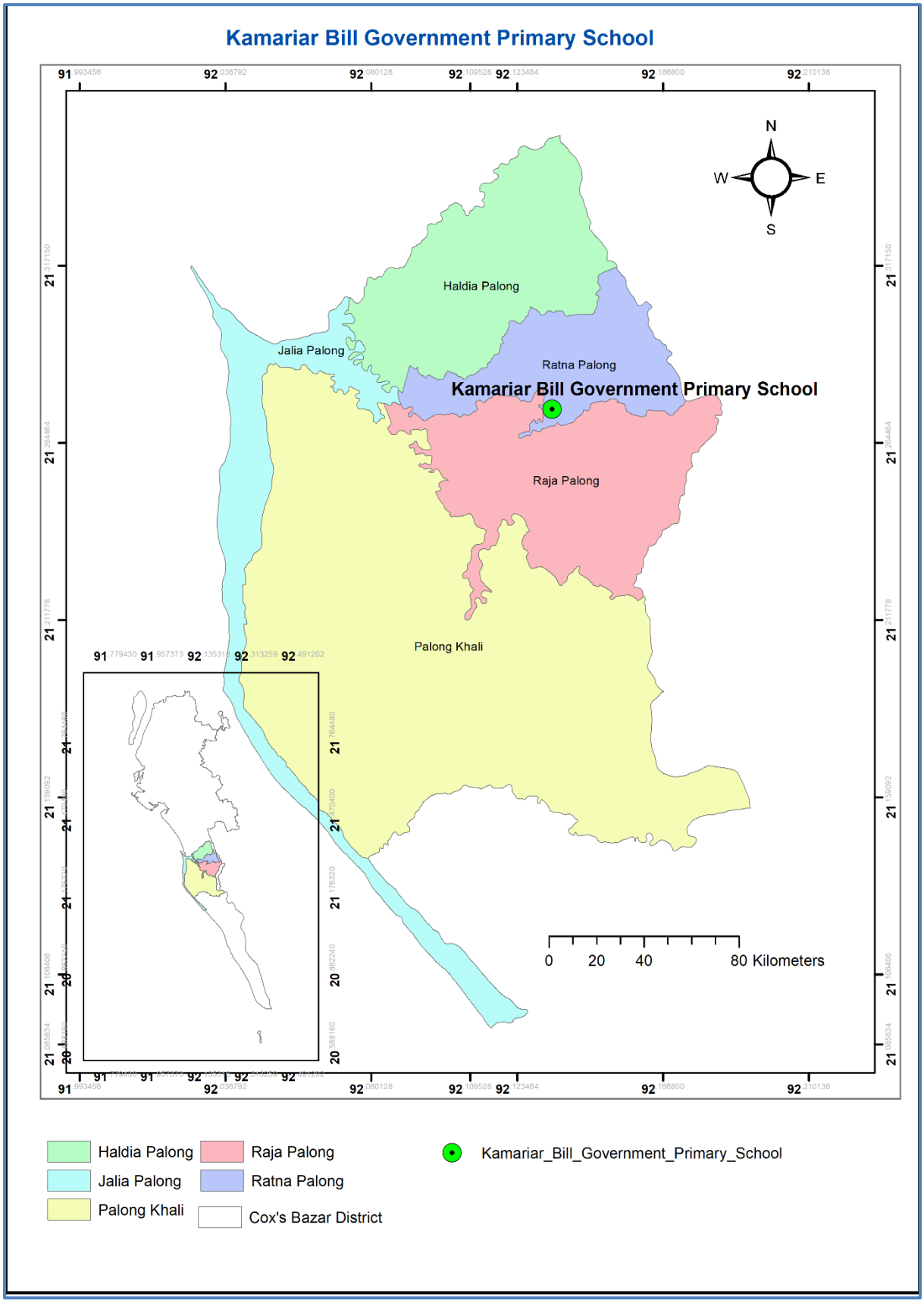


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

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

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Kamariarbil new jame mosque (850m), Haru Fakirpara jame mosque & graveyard (1km)
South side	Kamariarbil central jame mosque & graveyard (300m), pond (300m), Uttor Pukuria choto khal (1km)
East side	Households (150m)
West side	West Kamariarbil new jame mosque & graveyard (700m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Present condition of the proposed site and surrounding area



Figure 1.5.2: Location of the construction site (the one-story old building shown on the picture will be demolished and replaced by the proposed building)

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 27 September 2021 at 03:00PM in and around the Sub-project component 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 17 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Kamariarbill GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate toilet facilities.

- Lack of the availability of dry foods and ready-made clothes during the disastrous events.
- Inadequacy of toilet facilities- separately for male and female.

2.3 Suggestions and recommendations of the participants

The participants presented the following suggestions and recommendations (summary):

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for thisresilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.
- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 27 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project (construction of new school cum resilience shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The resilience shelter will be constructed within an existing school boundary demolishing/replacing an existing structure, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. Only 6.5ft wide HBB road of nearly 75m in length is connected to the Court Bazar-Ukhiya Road (Yousuf Ali Sarak). Some agricultural land is found at all side which are adjacent to the school boundary. A human settlement is found at alongside the proposed site which is outside from school boundary.

Some human settlements are found at 150m on east side as well as there are important socioeconomic and sensitive features located within 1km from the sub project, on north side Kamariarbill new jame mosque (850m), Haru Fakirpara jame mosque & graveyard (1km); on south side Kamariarbill central jame mosque & graveyard (300m), pond (300m), Uttor Pukuria choto khal (1km and on west side West Kamariarbill new jame mosque & graveyard (700m). 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. No disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials, etc. 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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effect generated from pilling and drilling may also trigger landslides and 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss.

Demolition works may pose similar impacts as construction activities; but health safety measures for the workers will be the prime concern during this period. Existing structures within the school boundary which need to be demolished are primarily brick built (with casting ceiling) containing no such insulation or materials having asbestos. As these are government structures, were built previously under the supervision of engineers from government agencies, using ACM (Asbestos Containing Materials) was also restricted all through the period in government construction sites, and absence of those hazardous materials in these structures has been confirmed as such by the

respective Upazila Engineer (Government Engineer), and therefore, no specific mitigation measures is planned on this ACM issue.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).
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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also, rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also, forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

[3] 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. And the mass migration will lead to man-made disaster which also can aggravate the climate change impacts in that area.

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.

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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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 shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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

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

The proposed cyclone shelter will be constructed on a plain land where some vegetation is found on the western side and southern side. Due to the construction activities of this Sub-project, 2-3nos. of trees (big and medium size) will be cut down and as a mitigation measure, 15 nos. of trees will be planted in the periphery of the school. A mosque named Kamariarbill central jame mosque and adjacent a pond is located at 300m at south side of the sub-project. Further, some human settlements are found at 150m east side area might get affected during the construction period with the generated debris and dust, though for the time being. Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and

construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

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

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

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

There will be several tiers in monitoring framework to ensure the proper implementation of ESMP. Contractors, throughout the construction or implementation period, must ensure that environmental and social risks and impacts are minimized effectively while working at sites and adequate health and safety measures are put in place not only for their workers but also for the surrounding communities and DRPs. Contractors' employed site managers and safeguard

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

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed

grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be the at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system.

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 93 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Kamariarbill GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)

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

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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

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

Name of Community/Local Area: Kamariarbill

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilience Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, two-storied school building and 2 nos. toilets are located on east side of the school boundary. A relatively plain land is on the north side within the school boundary where an old school building is situated. It will be demolished and the new one will be constructed there. Surrounding sides of this proposed location is covered by agricultural land. One building structured settlement is found of outside from the school boundary. A 10 ft. wide HBB village connecting road is passing by the east side and it is connected to the main road. No Important environmental features are found within the sub-project. Some agricultural land is found on north and west side, adjacent to the school boundary. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because

of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to demolishing an old building and construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. A road named Court Bazar-Ukhiya Road is passing near the sub-project area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On north side Kamariarbill new jame mosque (850m), Haru Fakirpara jame mosque & graveyard (1km); on south side Kamariarbill central jame mosque & graveyard (300m), pond (300m), Uttor Pukuria choto khal (1km); Households at 150m on the east side and on west side West Kamariarbill new jame mosque & graveyard (700m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

Some human settlements and agricultural lands are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).
Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose Resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3 story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Ratnapalong Union under Ukhiya Upazila of Cox's Bazar district. The sub-project area is located at 21.274444 N and 92.133889 E. The distance from the Upazila headquarter is about 5 km. Nearby major road is Court Bazar-Ukhiya Road. A 10 ft. wide HBB village connecting road passes by the sub-project site, which is connected between main road. Total available land area of this sub-project is 40 decimals. The school code is.412010205

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site. There is an old structure building which will be replaced by the proposed new multipurpose school building within the same boundary.

At north side, Kamariarbill new jame mosque (850m), Haru Fakirpara jame mosque & graveyard (1km); at south side Kamariarbill central jame mosque & graveyard (300m), pond (300m), Uttor Pukuria choto khal (1km); at east side Households within at 150m and at west side West Kamariarbill new jame mosque & graveyard (700m) are located of the sub-project area. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having sufficient distance from the proposed site. Besides these components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

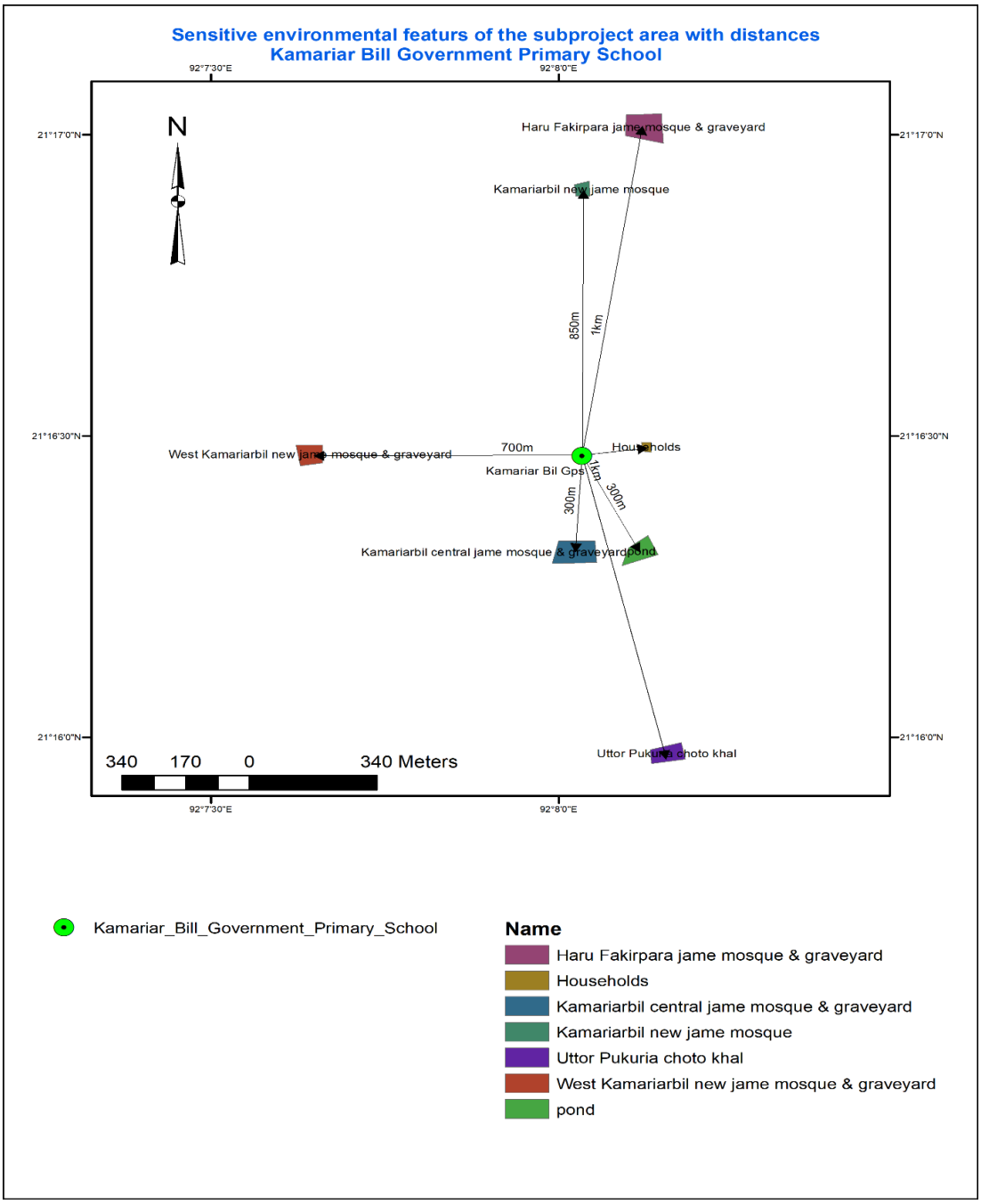
Section B: Environmental Screening

***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:

Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side Kamariarbill new jame mosque (850m), Haru Fakirpara jame mosque & graveyard (1km); at south side Kamariarbill central jame mosque & graveyard (300m), pond (300m), Uttor Pukuria choto khal (1km); at east side households at 150m and at west side West Kamariarbill new jame mosque & graveyard (700m) but there is no scope to be affected significantly by the construction activities.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, madrasa, high school and human settlement were found during the survey. Those will not be affected by the construction works, as the activities will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. One deep tubewells is found within the school boundary. The depth is about 750 feet. Teachers and students consume water from this tube-well. They are reportedly suffer from different water borne diseases at times. In the sub-project area, deep groundwater is salt and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. Two ponds are found adjacent to the sub-project area but no disturbance or modification is anticipated by the sub-project.

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

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation: Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A BCC road (Yousuf Ali Sarak) is passing by the south side of the sub-project. It is connected to Cox's Bazar-Teknaf highway. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: One deep tube-well is found within the school boundary and aquifer depth is about 700 feet. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first at pre-construction stage to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: Private land of Darbesh Ali at Kamarialbill which is adjacent to the proposed location and at west side from the existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): About 18ft. BCC Court Bazar-Ukhiya Road (Yousuf Ali Sarak) is the main way for transportation of raw/construction materials. It is located on the south side of the sub-project site.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should

be consulted with local Communities. Considering the criteria, south side within the school boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.

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

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

B.3: Construction Phase

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

Solid waste: Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 8 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp.

Liquid waste: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.

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

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

Quantity: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.

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

Around 289.54 sq. meter soil land is required for the sub-project establishment.

There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.

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 one pond found at 300m and one khal named Uttor Pukuria choto khal is at 1km on south side which is clearly outside of the construction area and 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 sub-project site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent HBB road; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution works are intensified for the sheltered people. 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 school cum resilience shelter building will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies are present within the sub-project boundary area, and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) There is no protected area in or around the subproject sites and no known areas of ecological interest, except a pond located at 300m south from the working site boundary which will not be affected by any activities within the school premises. In fact, there is none of the activities usually taken place in a school site during the operation phase which may potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 a locality. A HBB road connects the site with the main road. The road is 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 loose soil 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 and Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 might negatively affect surface and ground water. • Monitor water quality according to the	Contractor, Environmental Specialists of PIU and 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
			environmental management plan.			
2.Pre-construction Phase	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Constructio n works.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	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 off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	Contractor, Environmental Specialists of PIU and 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
	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 (in terms of access and distance from their living place) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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.	Contractor, Environmental Specialists of PIU and 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
	Accidents	Under the sub-project intervention the overall score is low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	Under the sub-project	• Damp down exposed soil and any sand stockpiled on site by spraying with water during	Contractor, Environmental	Location of stockpiles,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	intervention the overall score is low.	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.	Specialists of PIU and D&SC	Covering of trucks, Records 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 Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 Specialists of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly
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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic. • All imported materials are to be removed and	Contractor, Environmental Specialists of PIU/D&SC, XEN, Cox's Bazar.	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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.			
	Odor & waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor; and monitored by Consultant of D&SC and PIU	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 of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	-Do-	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 • Consultation meeting with nearby residents and other	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.			
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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made.	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime	Project ESMF (Table 8.2: ESMP	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).	Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.		D&SC
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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		roads/access roads for limiting dust generation.			
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction 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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		forces. • Labor code of conduct is to be disclosed through consultation.			
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.	-Do-		
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • 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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	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.	• Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal sludge from latrines is to be undertaken properly, if	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and local community	management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		be ensured. • Water tanks should be cleaned properly at least once in a quarter.			

Waste Management Plan (as guided by the IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For demolition only:

- All electric, gas, water, sewer, and other energy services or power lines shall be capped/blinded and/or otherwise cut before the commencement of demolition work;

- For any existing facilities with ACM (Asbestos Containing Materials), it is necessary to develop an asbestos management plan beforehand, which clearly identifies the locations through survey where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities. Handling of asbestos and removal or disposal of the same will be carried out with the direct supervision and guidance of an experienced expert.
- All asbestos, insulation materials, glass and other hazardous materials and substances must not be stored within the structure to be demolished;
- Openings and weak flooring shall be prominently marked or barricaded before the commencement of demolition. Operators of machinery and equipment and workers involved in demolition work shall be informed of such hazardous location;
- Demolition work shall commence from the top of a structure and progress downward;
- Proper entrances of adequate strength to protect workers from falling materials shall be erected for access into the structure;
- The entire demolition site shall be effectively barricaded with appropriate safety signs displayed;
- The lower floor where demolition wastes are collected shall be properly barricaded and guarded to prevent materials from ricocheting and injuring workers or passer-by;
- Excessive debris shall not be allowed to accumulate inside a demolished structure. All demolition waste and debris shall be cleared from the work site on a daily basis.
- Refuse containers shall be provided at worksite for the storage of demolition waste and debris.

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).
- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.

- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000 Tk.*24 months*(1/10 one	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			shelter). (Net payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person(twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles.	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 15 nos. of trees need to be replanted along the periphery of the proposed site at an interval of 10	15 nos.	@ Tk. 1000 for each tree.	15,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	feet.			
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**493,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting

Kamariar Bill Government Primary School
Package Number: EMCRP/AF/W12

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Additional Financing
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

সময়: বেলা ৬:০০ ঘটিকা — তারিখ: 29/09/2022 ইং
স্থানের নাম: কামারিয়ার বিল সরকারি প্রাথমিক বিদ্যালয়
সুব আইডি নম্বর: নন৪২২০২০২০৫
যে বিষয়ের উপর: বিদ্যালয়ের ২য় তলা
গ্রাম: কামারিয়ার বিল ওয়ার্ড নং: ০৫ ইউনিয়ন: রত্নাপালং উপজেলা: রত্নাপালং
Ukhiya জেলা: কক্সবাজার
সাব প্রজেক্ট নং: EMCRP/AF/W12

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১	নুরুল ইসলাম	৬১	পুরুষ	কামারিয়ার বিল	
২	রোশেদা বেগম	৪২	মহিলা	মরিচ্যা পালং	
৩	রফিক আহমদ	৩২	পুরুষ	কামারিয়ার বিল	
৪	দিলদার আলম	৩৮	পুরুষ	কামারিয়ার বিল	
৫	মো: জাহেদ হোসেন	৪২	পুরুষ	কামারিয়ার বিল	
৬	ইউনুছ	৩০	পুরুষ	কামারিয়ার বিল	
৭	ফরহেনা আলী	৪৬	পুরুষ	কামারিয়ার বিল	
৮	মোহাম্মদ নুরুল আমিন	৫৮	পুরুষ	কামারিয়ার বিল	
৯	মোহাম্মদ জাকির	৪৮	পুরুষ	কামারিয়ার বিল	
১০	মোহাম্মদ আলম	৫২	পুরুষ	কামারিয়ার বিল	
১১	ফকির আহমদ	৬৩	পুরুষ	কামারিয়ার বিল	
১২	আবিদ হোসেন	৩৪	পুরুষ	"	
১৩	কামাল উদ্দিন	৫৬	"	"	
১৪	আবিদুল আলম	৬২	"	"	
১৫	মোহাম্মদ হোসেন	৩০	"	"	
১৬	মোহাম্মদ আইয়ুব	৪০	পুরুষ	"	
১৭	মোহাম্মদ আলী	৪৫	"	"	

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Kharangkhali Govt. Primary School
Educational Institution ID: 91412060110
Village: Kharangkhali; Union: Whykong; Upazila: Teknaf
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

1.2 Rationale of Site Selection for resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025,

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

under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Whykhong union of Teknaf Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Kharangkhali, Nachorpara, Moheshkhaliapara, Godarpara and Notunpara. Typical rural settings of the area offer farmers to be in the prime professional engagement, while the businessmen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 1,545 households, containing 7,500 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Kharangkhali GPS
Educational Institute ID	91412060110
District	Cox's Bazar
Upazila	Teknaf
Union	Whykong
Owner of land	GPS
Catchment household	1,545
Catchment Population	7,500 (Male: 3,760, Female: 3,740)
Profession	Farmer 80%, Businessman 10%, Fisherman 5%, and others 5%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Kharangkhali, Nachorpara, Moheshkhaliapara, Godarpara and Notunpara
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	Kharangkhali road
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Kharangkhali GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floors	3
Number of classrooms	3
Teachers room	1

First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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 on the North side of Teknaf Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through Kharangkhali road which is connected to the Cox's Bazar-Teknaf highway. One Buddhist Mondir at 10m, a Pond at 10m on north side and Jatikoron buddhist temple is located at 100m on north west side of the proposed location. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Teknaf
Union	Whykong
GPS position	21.041778 N and 92.245694 E
Distance from Upazila HQ	25 km

Nearby major road	Cox's Bazar- Teknaf highway
Nearby river/canal	One pond is located at 10m distance on north side, a chorra is at 300m on south side, a chorra is at 100m and Naf river is at 800m distance on east side and a pond is at 400m on west side of the sub-project component.
North side	Ukhiya Upazila
South side	Bay of Bengal
East side	Naf river and Arakan State of Myanmar
West side	Bay of Bengal

[Sources of data: Field survey, September, 2021]

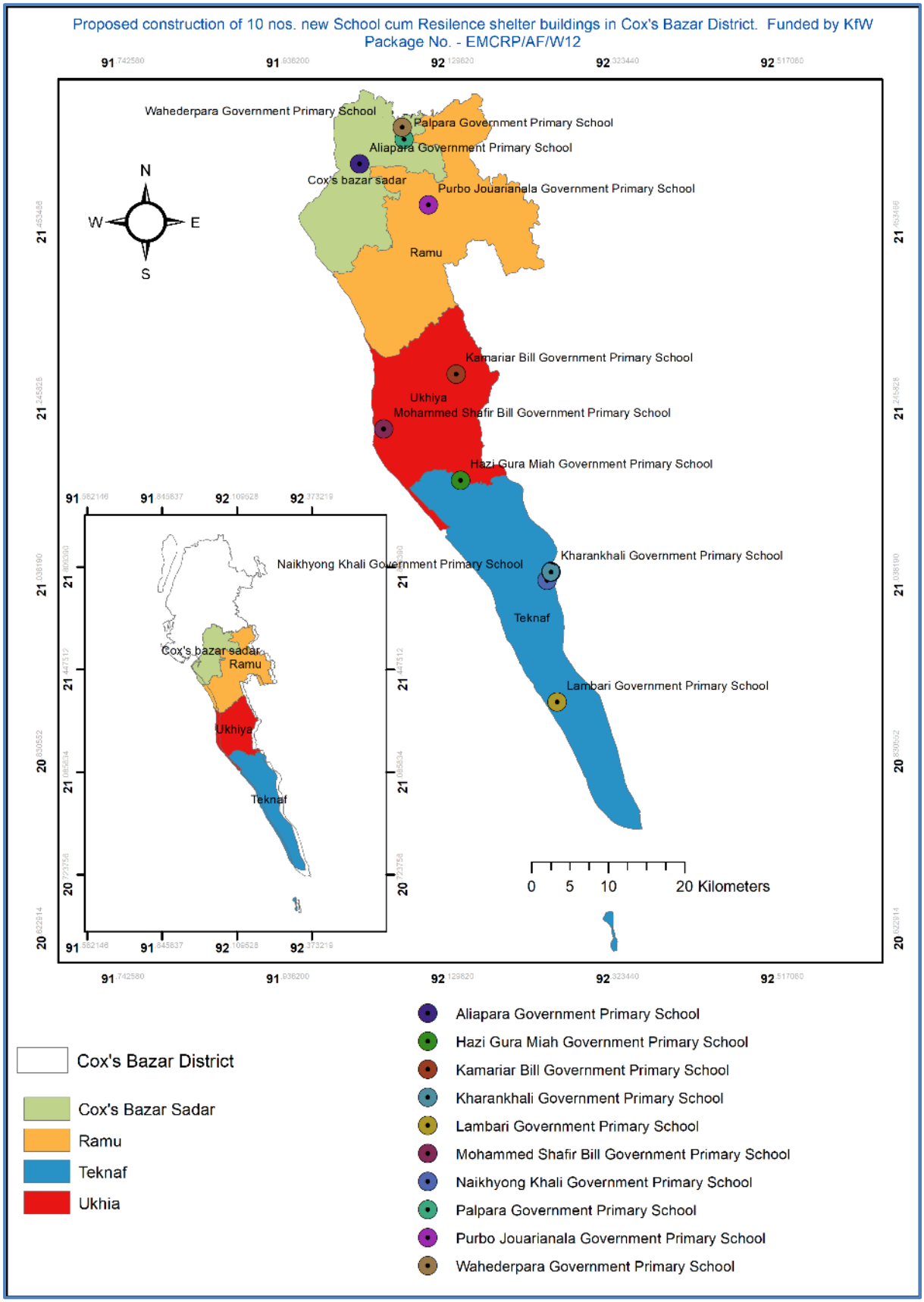


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

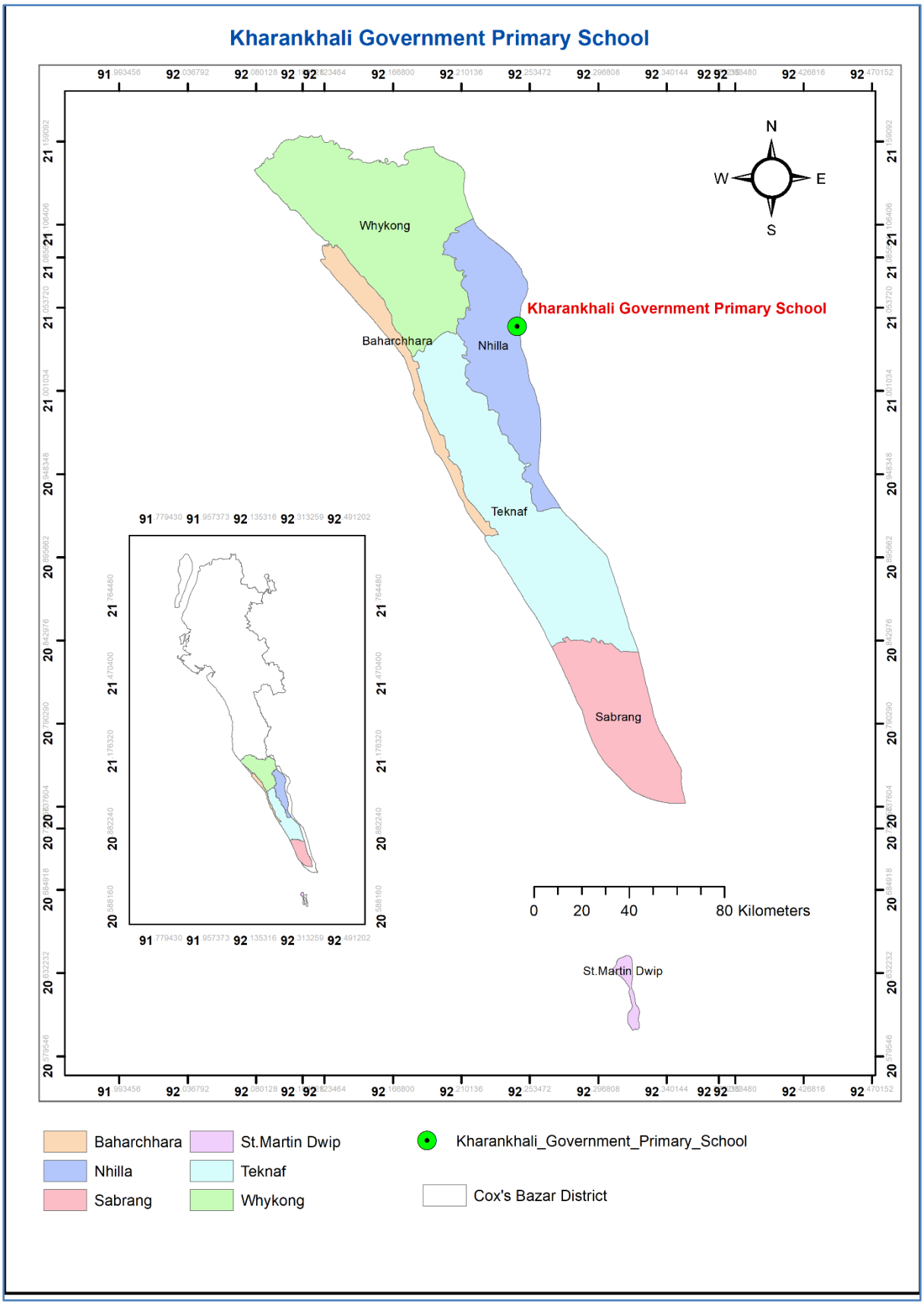


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

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

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Buddhist Mondir (10m), Pond (10m), Jatikoron buddhist temple (100m north west)
South side	Chorra (300m), Salt field (300m)
East side	BGB camp (100m), Naf river (800m), chora (100m)
West side	Buddhist Mondir (200m), Ayesha Jame Mosque (400m), Pond (400m), Graveyard (400m), Kharangkhali bazar (700m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Present condition of the proposed site and surrounding area



Figure 1.5.2: Location of the construction site (the one-story building shown on the picture will be demolished and replaced by the proposed building)

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 September 2021 in and around the Sub-project component 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 local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Kharangkhali GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate toilet facilities.

- Lack of the availability of dry foods and ready-made clothes during the disastrous events.
- Inadequacy of toilet facilities- separately for male and female.

2.3 Suggestions and recommendations of the participants

The participants presented the following suggestions and recommendations (summary):

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.
- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 29 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project (construction of new school cum resilience shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The new School cum Resilience shelter building will be constructed within an existing school boundary demolishing/replacing an existing building structure, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. Within the close proximity (100m) to the sub-project site, a Buddhist Mondir is at 10m and one Pond is found at 10m on the north side. Another Buddhist religious center named Jatikoron buddhist temple is found at 100m on north-western side from the proposed site boundary. A 10ft wide HBB school connecting road is passed on the north side. Human settlement is found at 100m south side. There are two chorra, one is located at 300m on south and another is located at 100m on east side from the sub-project location. One mosque named Ayesha jame mosque is located at 400m, a grave is at 400m and Kharangkhali bazar is located at 700m on west side of the sub-project. BGB camp also found at 100m as well as Naf river is located within at 800m on east side of the sub-project. Within the close proximity of the proposed construction site, agri/paddy land on all sides (10-25m) except north side is located. No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day in and around the site, proper fencing around the working area, safe storage of materials, etc.

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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effect generated from pilling and drilling may also trigger landslides and 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss. All these impacts can only be prevented or minimized by adopting measures delineated into the ESMP and good practice engineering and site management.

Demolition works may pose similar impacts as construction activities; but health safety measures for the workers will be the prime concern during this period. Existing structures within the school boundary which need to be demolished are primarily brick built (with casting ceiling) containing no such insulation or materials having asbestos. As these are government structures, were built previously under the supervision of engineers from government agencies, using ACM (Asbestos Containing Materials) was also restricted all through the period in government construction sites, and absence of those hazardous materials in these structures has been confirmed as such by the

respective Upazila Engineer (Government Engineer), and therefore, no specific mitigation measures is planned on this ACM issue.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also, rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also, forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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

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

including tree planation in sub-project areas, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.

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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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 shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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

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

The proposed cyclone shelter will be constructed on a plain land where some vegetation is found on the west side. Due to the construction activities of this Sub-project, any number of trees (small and medium size) will not be cut down except some bushes but due to aesthetic appearances 10 nos. of trees will be planted in the periphery of the school. Some important socio-environmental features, such as the Buddhist Mondir is at 10m, a Pond is located at 10m on north side, a Buddhist Mondir named Jatikoron buddhist temple is located at 100m on north-west side of the sub-project. A chorra is located at 300m and expanding salt field is also located at 300m on south side of the sub-project

location. BGB camp is at 100m, another chorra is at 100m and Naf river is at 800m also identified on east side of the sub-project. A Buddhist Mondir is found at 200m, one mosque named Ayesha Jame Mosque is at 400m, a Pond is at 400m, a Graveyard is at 400m and a bazar named Kharangkhali bazar is located at 700m on west side from the proposed site might get affected during the construction period with the generated noise, debris and dust, though for the time being. As part of the standard mitigation measures and site management practices, Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs

of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

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

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

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

Monitoring, as such, is required to ensure that the mitigation and enhancement measures are being properly implemented and at the same time, to determine whether the benefits of these measures

are being realized over time. A comprehensive monitoring framework is suggested in Project ESMF and the responsibilities lie on all the responsible parties or institutions directly involved with or oversee the construction works.

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

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to

solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.

- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 88 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Kharangkhali GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)

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

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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

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

Name of Community/Local Area: Kharangkhali

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilience Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, one-stored buildings; a wash block (2 units), a kitchen and one-story abandoned old building are found. An existing abandoned one stored old structure will be demolished during pre-construction period and the new one will be constructed there. 10 ft wide HBB school linking road on north that connected with Kharangkhali road. A Buddhist temple named Mahadebarkshita Buddhist Mondir is located at 10m on north side and within the close proximity of the proposed construction site, agri/paddy land on all four sides except north side is located. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to demolishing an old building and construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. A 10ft. wide and 55m length HBB school linking road is passing on north side the sub-project area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On the north side Buddhist Mondir (10m), Pond (10m); on north-western side one Buddhist temple named Jatikoron buddhist mondir is at 100m; on south side Chorra (300m), Salt field (300m); on east side BGB camp (100m), chorra (100m), Naf river (800m) and on west side Buddhist Mondir (200m), Ayesha Jame Mosque (400m), Pond (400m), Graveyard (400m), Kharangkhali bazar (700m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples, graveyards and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

Some human settlements and agricultural lands are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:
A Multipurpose Resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3- story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for

pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Whykong Union under Teknaf Upazila of Cox's Bazar district. The sub-project area is located at 21.041778 N and 92.245694 E. Catchment village of this sub-project area a*re* Kharangkhali, Nachorpara, Moheshkhaliapara, Godarpara and Notunpara. The distance from the Upazila headquarter is about 25 km. A 10 ft. wide HBB and 55m long school connecting road joined by the sub-project site on north side. Total available land area of this sub-project is 40 decimals. The school code is.91412060110

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site. There is an old structure which will be replaced by the proposed new multipurpose school building within the same boundary.

At north side, Buddhist Mondir (10m), Pond (10m); on north-western side one Buddhist temple named Jatikoron buddhist mondir is at 100m; at south side Chorra (300m), Salt field (300m); at east side BGB camp (100m), chorra (100m), Naf river (800m) and at west side Buddhist Mondir (200m), Ayesha Jame Mosque (400m), Pond (400m), Graveyard (400m), Kharangkhali bazar (700m) are located of the sub-project area. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having sufficient distance from the proposed site. Besides these components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

Section B: Environmental Screening

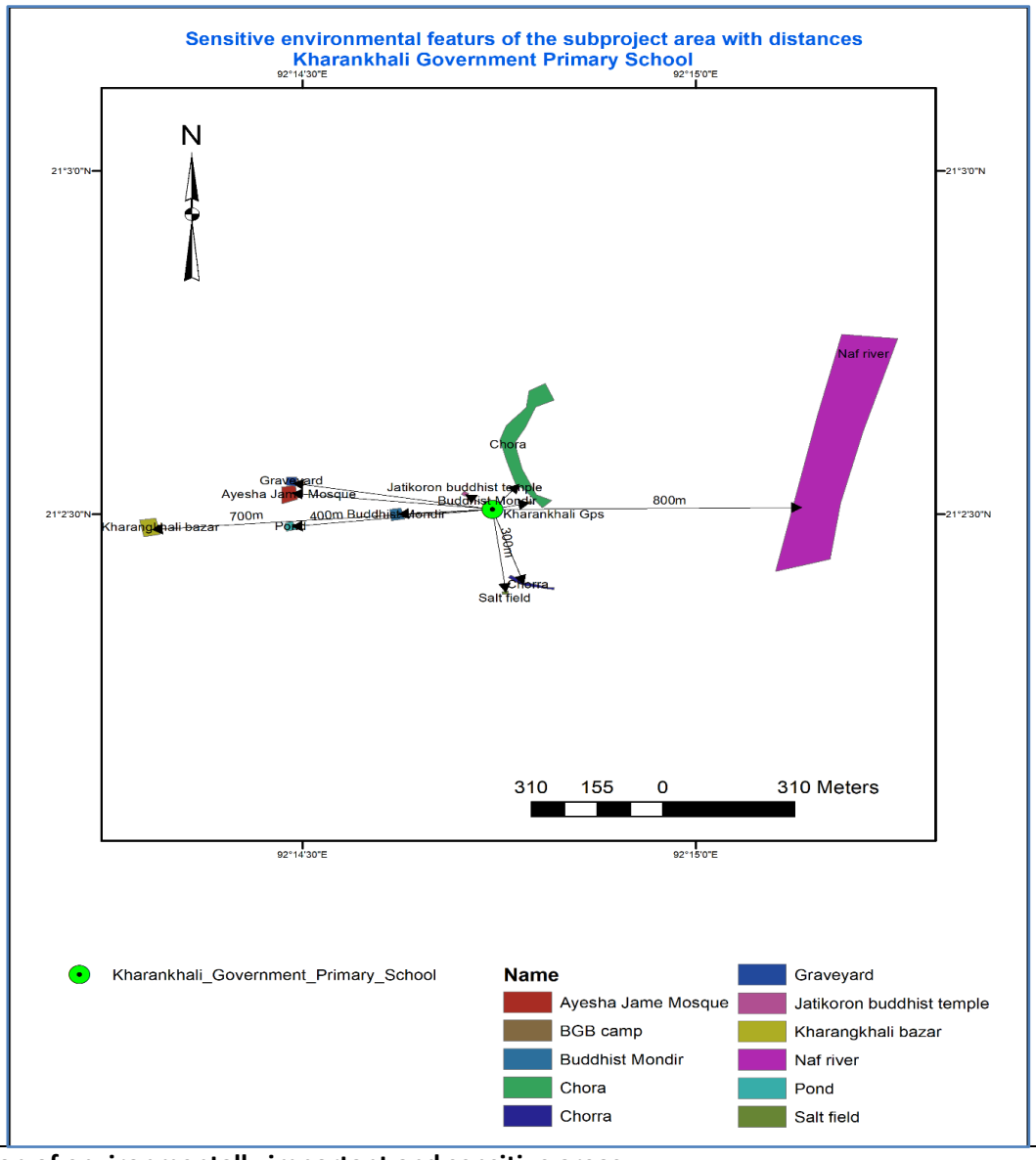
***B.1*: Environmental feature of sub-project location**

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:

Some important socioeconomic, cultural, religious or sensitive features located within 1km from the

sub project site, such as north side Buddhist Mondir (10m), Pond (10m); on north-western side one Buddhist temple named Jatikoron buddhist mondir is at 100m; at south side Chorra (300m), Salt field (300m); at east side BGB camp (100m), chorra (100m), Naf river (800m) and at west side Buddhist Mondir (200m), Ayesha Jame Mosque (400m), Pond (400m), Graveyard (400m), Kharangkhali bazar (700m) but there is no scope to be affected significantly by the construction activities.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below:



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, madrasa, high school and human settlement were found during the survey. Those will not be affected by the construction works, as the activities will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. One deep tube-well is found within the school boundary. The depth is about 600 feet. Teachers and students consume water from this tube-well. They are reportedly suffer from different water borne diseases at times. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-700ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes.

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

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation: Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A 10ft. wide HBB school linking road is joined on the north side of the sub-project. It is connected with Kharangkhali road. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: One deep tube-well is found within the school boundary and depth is about 600 feet. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: On the north side within the existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): A 10ft. wide HBB school linking road is the main way for transportation of raw/construction materials. It is located on north side of adjacent sub-project site and connected to the Kharangkhali road.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should

be consulted with local Communities. Considering the criteria, west side within the school boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.

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

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

B.3: Construction Phase

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

Solid waste: Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 10 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp.

Liquid waste: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.

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

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

Quantity: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.

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

Around 289.54 sq. meter soil land is required for the sub-project establishment.

There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.

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 two ponds and two chorra are found which is clearly outside of the construction area and 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 subproject site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent BC road; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution works are intensified for the sheltered people. 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 school cum resilience shelter will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies are present within the sub-project boundary area, and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) There is no protected area in or around the subproject sites, and no known areas of ecological interest. In fact, none of the usual activities taken place in a school site during the operation phase is likely to potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 locality. A HBB road connects the sites with main road. 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 loose soil being dispersed around during the dry weather, and accidents may occur due to bad condition of the access roads 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 and Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 might negatively affect surface and ground water. • Monitor water quality according to the	Contractor, Environmental Specialists of PIU and 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
			environmental management plan.			
2.Pre-construction Phase	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Constructio n works.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	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 off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	Contractor, Environmental Specialists of PIU and 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
	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 (in terms of access and distance from their living place) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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.	Contractor, Environmental Specialists of PIU and 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
	Accidents	Under the sub-project intervention the overall score is low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	Under the sub-project	• Damp down exposed soil and any sand stockpiled on site by spraying with water during	Contractor, Environmental	Location of stockpiles,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	intervention the overall score is low.	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.	Specialists of PIU and D&SC	Covering of trucks, Records 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 Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 Specialists of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly
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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic. • All imported materials are to be removed and	Contractor, Environmental Specialists of PIU/D&SC, XEN, Cox's Bazar.	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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.			
	Odor & waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor; and monitored by Consultant of D&SC and PIU	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 of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	-Do-	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 • Consultation meeting with nearby residents and other	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.			
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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made.	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime	Project ESMF (Table 8.2: ESMP	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).	Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.		D&SC
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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		roads/access roads for limiting dust generation.			
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction 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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		forces. • Labor code of conduct is to be disclosed through consultation.			
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.	-Do-		
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • 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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	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.	• Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal sludge from latrines is to be undertaken properly, if	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and local community	management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		be ensured. • Water tanks should be cleaned properly at least once in a quarter.			

Waste Management Plan (as guided in IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For demolition only:

- All electric, gas, water, sewer, and other energy services or power lines shall be capped/blinded and/or otherwise cut before the commencement of demolition work;

- For any existing facilities with ACM (Asbestos Containing Materials), it is necessary to develop an asbestos management plan beforehand, which clearly identifies the locations through survey where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities. Handling of asbestos and removal or disposal of the same will be carried out with the direct supervision and guidance of an experienced expert.
- All asbestos, insulation materials, glass and other hazardous materials and substances must not be stored within the structure to be demolished;
- Openings and weak flooring shall be prominently marked or barricaded before the commencement of demolition. Operators of machinery and equipment and workers involved in demolition work shall be informed of such hazardous location;
- Demolition work shall commence from the top of a structure and progress downward;
- Proper entrances of adequate strength to protect workers from falling materials shall be erected for access into the structure;
- The entire demolition site shall be effectively barricaded with appropriate safety signs displayed;
- The lower floor where demolition wastes are collected shall be properly barricaded and guarded to prevent materials from ricocheting and injuring workers or passer-by;
- Excessive debris shall not be allowed to accumulate inside a demolished structure. All demolition waste and debris shall be cleared from the work site on a daily basis.
- Refuse containers shall be provided at worksite for the storage of demolition waste and debris.

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).
- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.

- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35,000Tk.*24 months*(1/10 one	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			shelter). (Net payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person (twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles.	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees	10 nos.	@ Tk. 1000 for each tree.	10,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	need to be replanted along the periphery of the proposed site at an interval of 10 feet.			
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**488,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting

Kharankhali Government Primary School
Package Number: EMCRP/AF/W12

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Additional Financing
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

EMCRP/AF/W12

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
০২.	মোহাম্মদ রিয়াজ উদ্দিন	৫৫	পুরুষ	খারংখালীর খাল	
০২.	হিফুসুইনং	৫৫	"	খারংখালী-	
০৩.	গোলাম হোসেন	৬০	"	নতুর পাড়া	
০৪	মোঃ সোলেমান	৪০	"	"	
০৫.	মোহাম্মদ হোসেন	৪১	"	"	
০৬.	সাহাবুদ্দোজা	৩৯	"	"	
০৭.	কফিল উদ্দিন	৫৫	"	"	
০৮.	সৈয়দ হোসেন	৬০	"	"	
০৯.	ইদ্রিস	৪২	মহিলা	খারংখালী-	
১০.	ফাতেমা	৫৫	"	"	
১১.	মেনমিং	৪০	"	"	
১২.	উমামাহ	৫২	"	"	
১৩.	মেবের	৪২	"	"	
১৪.	হীরা মহিং	৬২	"	"	
১৫.	নুরুল আমিন	৫৫	পুরুষ	"	

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Lambari Govt. Primary School
Educational Institution ID: 91412060304
Village: Mitha Panir Chara; Union: Teknaf Sadar; Upazila: Teknaf
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

1.2 Rationale of Site Selection for resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025,

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

under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Teknaf Sadar union of Teknaf Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Mitha Panir Chara, Habir Chara and Dargar Chara. Typical rural settings of the area offer fishermen to be in the prime professional engagement, while the farmer stands 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 2,780 households, containing 14,510 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Lambari GPS
Educational Institute ID	91412060304
District	Cox's Bazar
Upazila	Teknaf
Union	Teknaf Sadar
Owner of land	GPS
Catchment household	2,780
Catchment Population	14,510 (Male: 5,800, Female: 8,710)
Profession	Fisherman 55%, Farmer 40%, Businessman 2%, and others 3%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Mitha Panir Chara, Habir Chara and Dargar Chara
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	6.5 ft. wide HBB and 60m length school linking road on east side connected with sea beach road
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Lambari GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floors	3
Number of classrooms	3

Teachers room	1
First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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 on the south-east side of Teknaf Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 6.5ft wide HBB school access road on the east side which is connected to the sea beach road. Mitha panir chara community clinic is situated within the school boundary. Two madrasahs named Umme Hani Girl's Madrasah and Ashrafia Kachemul Ulum Kaomi Madrasah & Mosque are situated within 100m as well as Mithapanir chara graveyard is at 150m on the south side of the proposed location. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Teknaf

Union	Teknaf Sadar
GPS position	20.889028 N and 92.252972 E
Distance from Upazila HQ	6 km
Nearby major road	Lengurbill road
Nearby river/canal	Mitha panir chara is located at 50m distance on north side and Bay of Bengal is at 800m on west side of the sub-project component.
North side	Ukhiya Upazila
South side	Bay of Bengal
East side	Naf river and Arakan State of Myanmar
West side	Bay of Bengal

[Sources of data: Field survey, September, 2021]

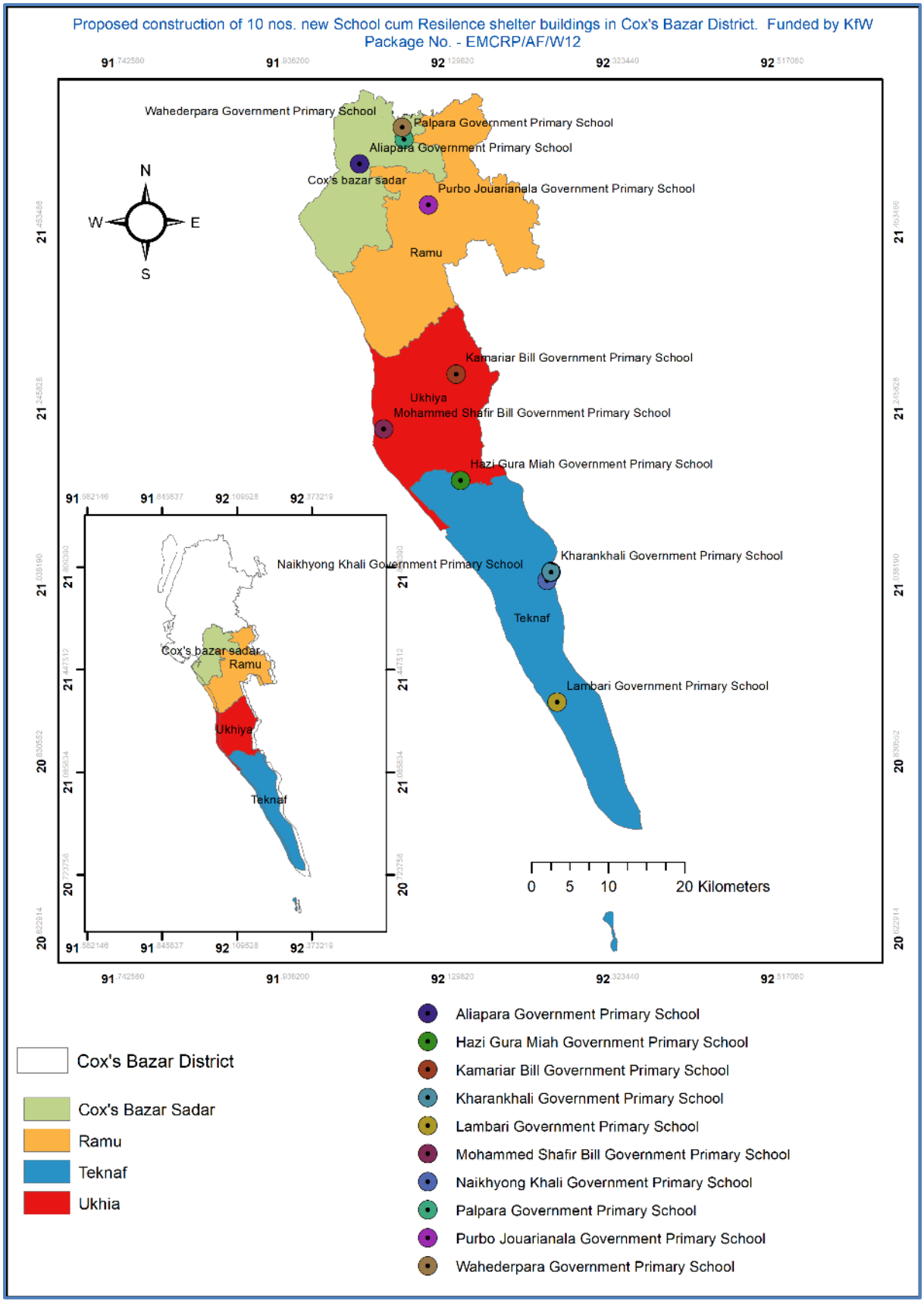


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

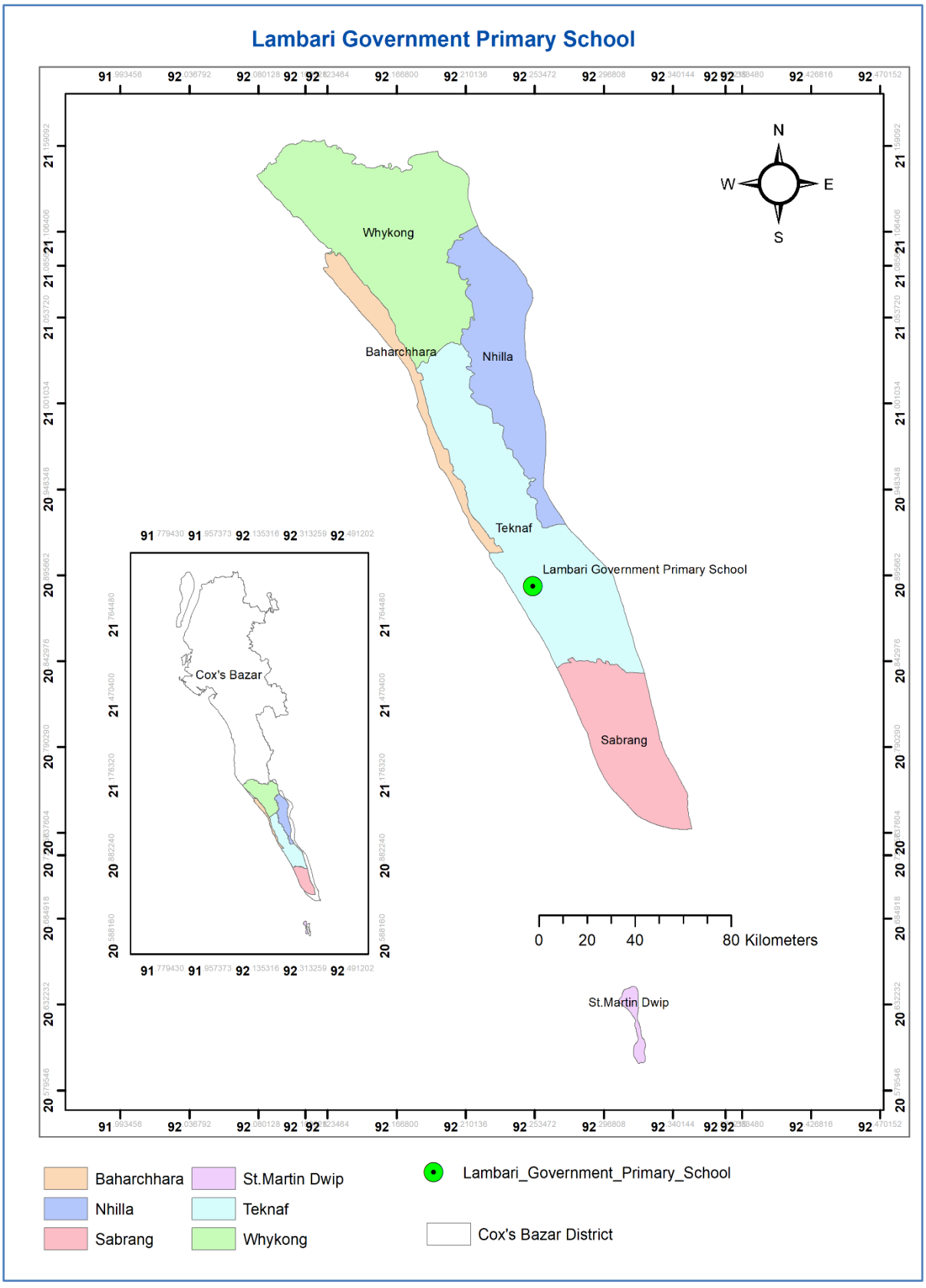


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

The important features or establishments around the proposed site, mostly within one km radial distance from the site which might face direct impacts from the construction works, have been

summarized in **Table 1.5.1**. Photographs showing present condition of the proposed site and location of construction area have been shown in **Figure 1.5.1** and **1.5.2** respectively.

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Mitha Panir chorra (50m), Baitul Mamur Jame Mosque (500m)
South side	Umme Hani Girls Madrasah (100m), Ashrafia Kashemul Ulum Jame mosque & Madrasah (100m), Mitha Panir Chorra graveyard (150m)
East side	Mitha Panir chorra jame mosque (500m), Jumpara jame mosque (900m), Teknaf hill (950m), Teknaf game reserve (950m)
West side	Marine drive (790m), Bay of Bengal (800m)

[Sources of data: Field survey, September, 2021]





Figure 1.5.1: Present condition of the proposed site and surrounding area





Figure 1.5.2: Access road to the site and proposed location for construction works

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 September 2021 in and around the Sub-project component 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 17 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Lambari GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate toilet facilities.

- Lack of the availability of dry foods and ready-made clothes during the disastrous events.
- Inadequacy of toilet facilities- separately for male and female.

2.3 Suggestions and recommendations of the participants

In summary, the participants presented the following suggestions and recommendations:

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.
- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 29 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project site is located adjacent to a nationally designated area (locally designated as Teknaf Game Reserve, a part of Teknaf Wildlife Sanctuary, located at nearly 1 km distance from the proposed site), which is classified as an important bird and biodiversity area and falls within IUCN Management Class IV, and is identified according to the Integrated Biodiversity Assessment Tool (IBAT). Information regarding this site is updated latest in 2014 by the Bangladesh Forest Department, and final status is not determined on IBAT website. However, in recent years huge numbers of development works have been taken place in the surrounding areas of the proposed site due to the aftermath effects of the massive influx (nearly 0.75 million at a time) of Rohingya people in Cox's Bazar, and this drastic burden of people and their activities have changed the environment non-conducive for birds or other wild species. Thousands of Aid workers are now living across the areas and the expansion of tourist areas/activities have got an immense thrust. Therefore, forest and trees are alarmingly disappeared from the areas, people's movement and activities become rampant, and the appearance of protective or biodiversity areas is no longer visible in the areas. During the consultation events with the local people, similar opinion has been emerged from their observation. They opined that different migratory birds were observed in the areas even in 5/6 years back, which are no longer appeared, primarily due to the drastic environmental degradation, and activities and movement of overburdened population in the areas. Even the local people are unware of the existence of any nationally designated protective site in the areas and responsibilities they need to uphold. As the school site is a government owned property, and outsiders' interventions or access are very limited in the site, the school site still has got some matured vegetation around, but beyond that all the surrounding areas are now unscrupulously inhabited. The site has a HBB access road, which could easily be used for carrying construction materials to the site, and vehicles used for carrying the materials and the unloading process will not cause any harm to any local people or any other faunal species, as the school-connecting road is wide enough for pick-up or lorries in getting access to the site and work will progress during the day time only and the school has wide land areas for material stocking.

The new School cum Resilience shelter building will be constructed within an existing school boundary, so 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. Mitha panir chara community clinic is situated within the school boundary. There are two madrasahs, one is Umme Hani Girl's Madrasah and another is Ashrafia Kachemul Ulum Kaomi Madrasah cum Mosque situated within 100m on south side. Mitha panir chara graveyard is also located at 150m on south side. A mosque named Baitul mamur jame mosque is found at 500m north side, Mitha panir chara jame mosque is located at 500m, jumpara mosque is at 900m, Teknaf hill is at 950m and Teknaf game reserve is located at 950m on east of the sub-project. One khal named Mitha panir chara khal is located on 50m north and the Bay of Bengal is located at 800m west of the sub project. Some human settlements are found within 50m south and west side of adjacent school boundary. No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system including

restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials, etc. 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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effects 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 disposal/leakage of pollutants to the surface/ground water bodies. Clearing of trees, bushes or any type of vegetation may put impact on floral species, though which is very less likely as there are sufficient open spaces for construction and associated works within the school boundary. However, all the impacts can only be prevented or minimized by adopting measures delineated into the ESMP and good practice engineering and site management.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. 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

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

people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also, forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.

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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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 shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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

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

The proposed cyclone shelter will be constructed on a plain land where some vegetation is found on the west side. Due to the construction activities of this Sub-project, no trees (whether small and medium size) will not be cut down but due to aesthetic appearances 10 nos. of trees will be planted in the periphery of the school. Some important socio-environmental features, such as the Mitha panir chara community clinic is situated within the school boundary. There are two madrasahs, one is Umme Hani Girl's Madrasah and another is Ashrafia Kachemul Ulum Kaomi Madrasah cum Mosque situated within 100m on south side. Mitha panir chara graveyard is also located at 150m on south side of the sub-project. One khal named Mitha panir chara khal is located on 50m north of the sub project. Some human settlements are found within 50m at north side and west side from the proposed site might get affected during the construction period with the generated noise, debris and dust, though for the time being. As part of the standard mitigation measures and site management practices, Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. As the surrounding areas of the site is already heavily inhabited and birds (including migratory) or any wild species are nearly disappeared from the areas, no specific mitigation measures could be suggested in restoring the biodiversity aspect; rather the contractor must comply that no further degradation by the project activities will take place in the areas, e.g. contractor will not cut off any trees (or compensate if required), work during the day time only, suppress dust with regular sprinkling of water and so on. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the

Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

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

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

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

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

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

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the

complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system.

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 88 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Lambari GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)

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

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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

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

Name of Community/Local Area: Naikhyongkhali

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilience Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, there are a two-story building, two tin shed building, an existing one-story school cum cyclone shelter, a community clinic, 3 nos. of Tubewells and 4 nos. of toilets. Total land area of this site is about 137 decimals. A 6.5 ft wide and 60m length school linking HBB road on east side and the nearby major road is Lengurbill road located within 50m on the east side of the sub-project. Umme Hani girl's madrasah and Ashrafia Kachemul ulum Kaomi madrasah cum mosque are located within 100m on south side of the sub-project. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

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

During construction period solid waste will be generated due to construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On the north side Mitha Panir chorra (50m), Baitul Mamur Jame Mosque (500m); on south side Umme Hani Girls Madrasah (100m), Ashrafia Kashemul Ulum Jame mosque & Madrasah (100m), Mitha Panir Chorra graveyard (150m); on east side Mitha Panir chorra jame mosque (500m), Jumpara jame mosque (900m), Teknaf hill (950m), Teknaf game reserve (950m) and on west side Marine drive (790m), Bay of Bengal (800m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples, graveyards and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

Some human settlements are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose Resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3- story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class

rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Teknaf Sadar Union under Teknaf Upazila of Cox's Bazar district. The sub-project area is located at 20.889028 N and 92.252972 E. Catchment village of this sub-project area a*re* Mitha Panir Chara, Habir Chara and Dargar Chara. The distance from the Upazila headquarter is about 6 km. Total available land area of this sub-project is 137 decimals. The school code is.91412060304

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site.

At north side Mitha Panir chorra (50m), Baitul Mamur Jame Mosque (500m); at south side Umme Hani Girls Madrasah (100m), Ashrafia Kashemul Ulum Jame mosque & Madrasah (100m), Mitha Panir Chorra graveyard (150m); at east side Mitha Panir chorra jame mosque (500m), Jumpara jame mosque (900m), Teknaf hill (950m), Teknaf game reserve (950m) and at west side Marine drive (790m), Bay of Bengal (800m) are located of the sub-project area. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having sufficient distance from the proposed site. Besides these components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

Section B: Environmental Screening

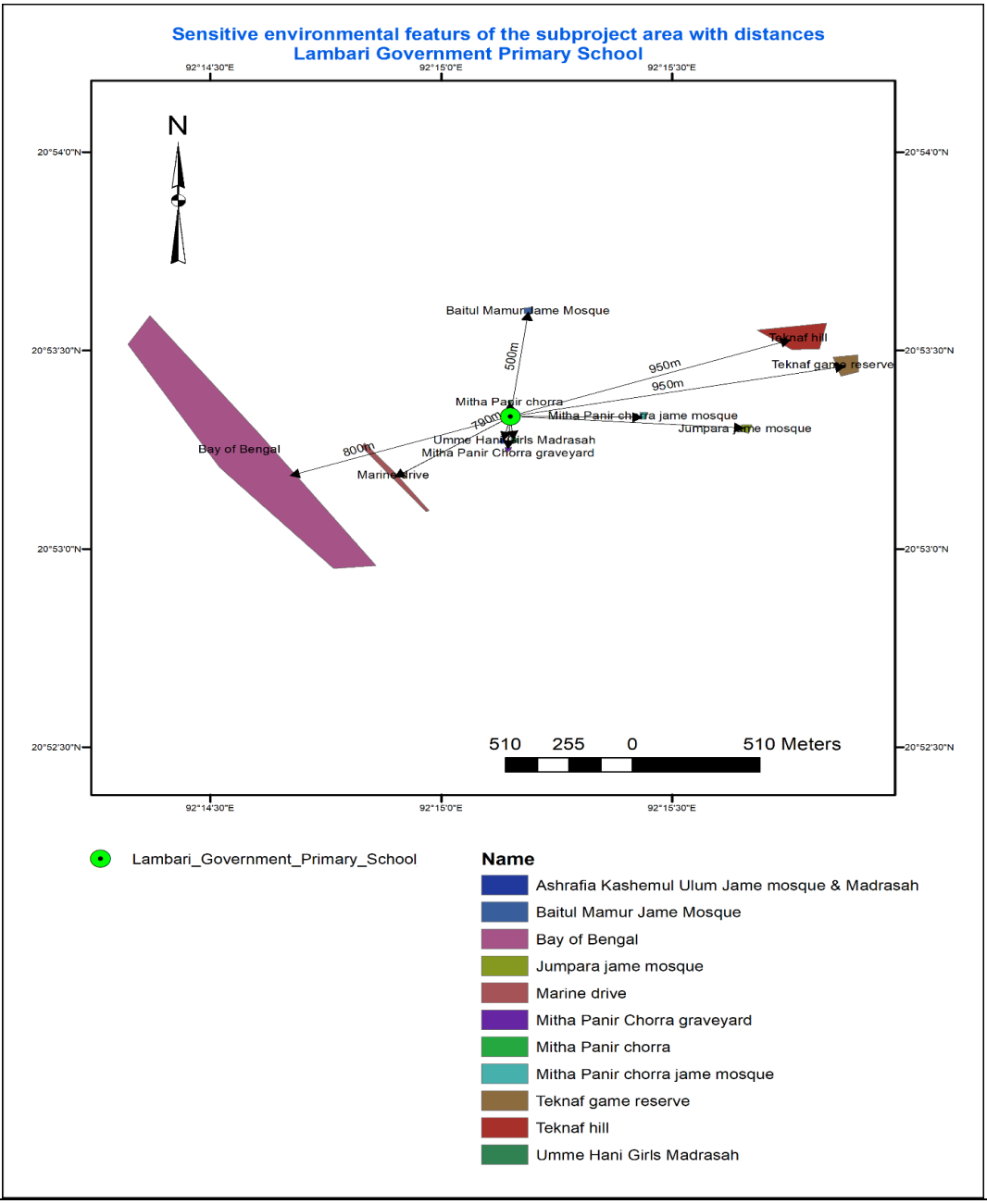
***B.1*: Environmental feature of sub-project location**

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:

Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side Mitha Panir chorra (50m), Baitul Mamur Jame Mosque (500m); at south side Umme Hani Girls Madrasah (100m), Ashrafia Kashemul Ulum Jame mosque & Madrasah (100m), Mitha Panir Chorra graveyard (150m); at east side Mitha Panir chorra jame mosque (500m), Jumpara jame mosque (900m), Teknaf hill (950m), Teknaf game reserve (950m) and at west side

Marine drive (790m) and the Bay of Bengal (800m) but there is no scope to be affected significantly by the construction activities.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below:



Location of environmentally important and sensitive areas:

The site is located adjacent to a nationally designated area, which is classified as an important bird and biodiversity area and is IUCN Management Class IV, which is identified according to the Integrated Biodiversity Assessment Tool (IBAT). There is also some matured vegetation around the site. Several mosques, madrasa, high school, community clinic and human settlement were found during the survey. Those will not be affected by the construction works (or might have very insignificant effects), as the activities will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. Two number of shallow Tubewell and one deep tube-well is found within the school boundary. The shallow Tubewell depth is about 10-12ft and the deep Tubewell depth is about 670 feet. But these tubewells are not working properly. Teachers and students consume water from these shallow tube-wells. They are reportedly suffer from different water borne diseases at times. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-700ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes.

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

681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works. .
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): About 18ft. wide BC Lengurbill Road is passing by the east side of the sub-project. It is connected with Cox's Bazar-Teknaf highway. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Two numbers of shallow Tubewell and one deep tube-well is found within the school boundary. The shallow Tubewell depth is about 10-12ft and the deep Tubewell depth is about 670 feet. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: On west side within the existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): About 18ft. wide BC Lengurbill Road is the main way for transportation of raw/construction materials. It is located on east side of adjacent sub-project site and connected to the Cox's Bazar –

Teknaf highway.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local Communities. Considering the criteria, west side within the school boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during preconstruction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 8 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp. **Liquid waste**: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 289.54 sq. meter soil land is required for the sub-project establishment. There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.Due to construction activities of this Sub-project, no tree will be cut down.
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 one khal named Mitha panir chara khal is at 50m on north side and the Bay of Bengal is located at 800m on west side which are clearly outside of the construction area and 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 subproject site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent BC road; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution works are intensified for the sheltered people. 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 school cum resilience shelter building will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies are present within the sub-project boundary area, and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) The site is located adjacent to a nationally designated area, which is classified as an important bird and biodiversity area and is IUCN Management Class IV, which is identified according to the Integrated Biodiversity Assessment Tool (IBAT). Recent survey and consultation with the local communities has confirmed that the area has already been turned out to be a semi-urban populated setting due to the recent development spree for tourism and influx of Rohingya population. However, none of the usual activities taken place in a school site during the operation phase is likely to potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 locality. A HBB road connects the sites with main road. 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 loose soil being dispersed around during the dry weather, and accidents may occur due to bad condition of the access roads 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 and Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 might negatively	Contractor, Environmental Specialists of PIU and 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
			affect surface and ground water. • Monitor water quality according to the environmental management plan.			
2.Pre-construction Phase	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Constructio n works.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	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 off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	Contractor, Environmental Specialists of PIU and 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
	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 (in terms of access and distance from their living place) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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.	Contractor, Environmental Specialists of PIU and 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
	Accidents	Under the sub-project intervention the overall score is low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	Under the sub-project	• Damp down exposed soil and any sand stockpiled on site by spraying with water during	Contractor, Environmental	Location of stockpiles,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	intervention the overall score is low.	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.	Specialists of PIU and D&SC	Covering of trucks, Records of air quality inspection, Numbers of complaints from sensitive receptors, Heavy equipment and pollution control devices, Maintain records	
	Biodiversity (The site is located adjacent to a nationally designated area, which is classified as an important bird and biodiversity	Under the sub-project intervention the overall score is low.	• Prohibit employees from cutting of trees for firewood and any other reasons. • 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. • If endangered or any migratory bird species are found during the implementation period in the	Contractor, Environmental Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	area and is IUCN Management Class IV, which is identified according to the Integrated Biodiversity Assessment Tool (IBAT) and the place is already devoid of migratory birds' species which were found some 4/5 years back)		area, clay nests will be installed on nearby trees. • Noise reducing working procedure described in the ESMP shall be implemented very strictly to minimize the effects as much as possible.			
	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 Specialists of PIU and 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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic. • 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, Environmental Specialists of PIU/D&SC, XEN, Cox's Bazar.	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; and monitored by Consultant of D&SC and PIU	Complaints from communities	Site inspection daily / weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Vegetation	Under the issue the overall score is low.	• After construction work, all structures need to be removed and the area shall be top soiled and re-grassed using the guidelines set out in the re-vegetation specification that forms part of the bidding document.	Contractor; monitored by Consultant of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	-Do-	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 • Consultation meeting with nearby residents and other	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.			
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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made.	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime	Project ESMF (Table 8.2: ESMP	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).	Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.		D&SC
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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		roads/access roads for limiting dust generation.			
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction 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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		forces. • Labor code of conduct is to be disclosed through consultation.			
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.	-Do-		
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • 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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	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.	• Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and local community	shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		in a quarter.			

Waste Management Plan (as guided in IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).

- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.
- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000 Tk.*24 months*(1/10 one shelter). (Net	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person(twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles.	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted along the periphery of the proposed site at an interval of 10 feet.	10 nos.	@ Tk. 1000 for each tree.	10,000

Sl no.	Description of item	Quantity	Unit price	Total amount
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**488,420**

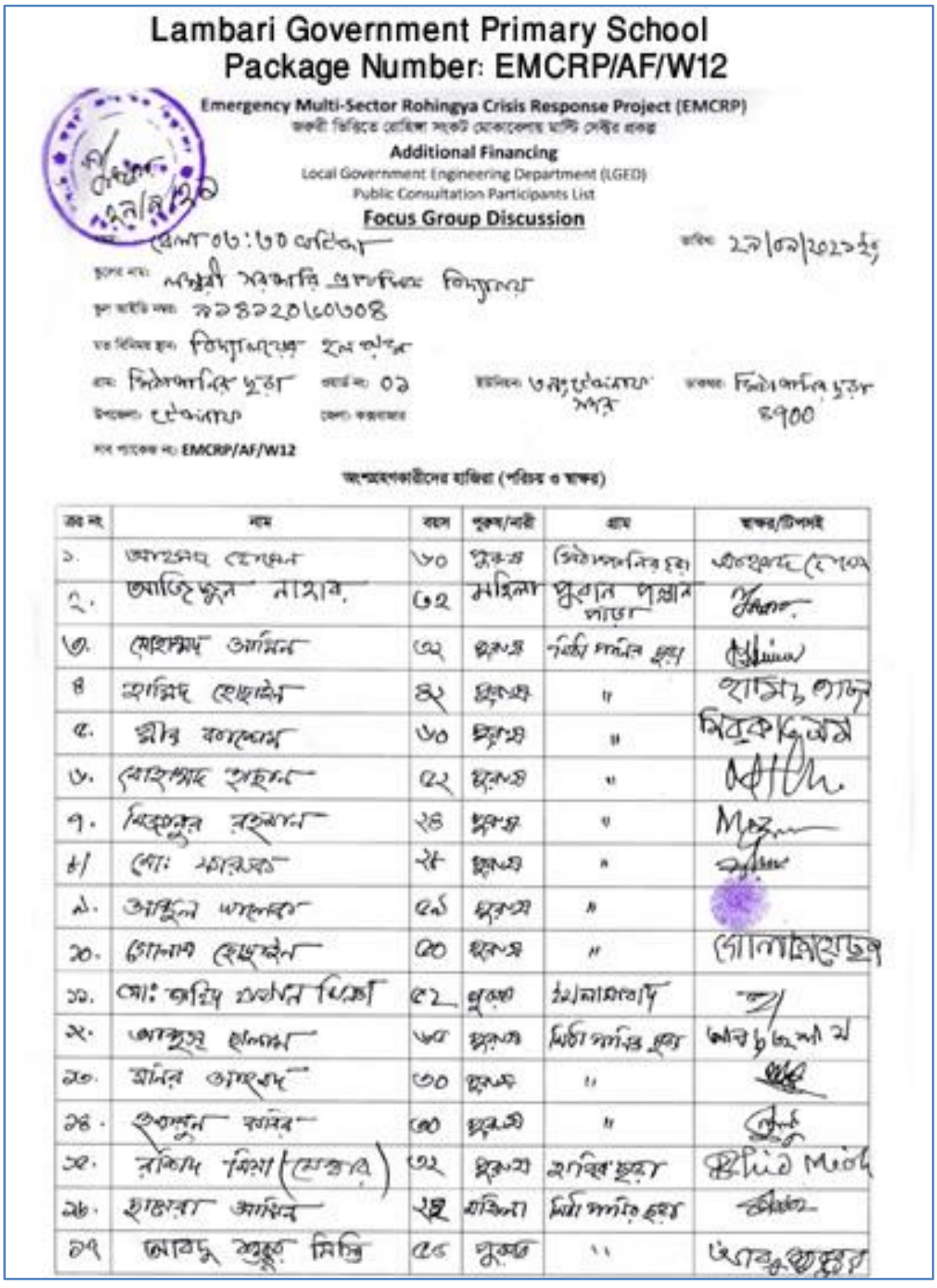
Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting



Lambari Government Primary School
Package Number: EMCRP/AF/W12

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Additional Financing

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১.	আবুল হোসেন	৬০	পুরুষ	নিউ কলনির হাট	
২.	আতিকুন নাহার	৩২	মহিলা	পুরান পল্লান পাড়া	
৩.	মোহাম্মদ আমিন	৩২	পুরুষ	দক্ষিণ পশ্চিম চর	
৪	হামিদ হোসেন	৪২	পুরুষ	"	
৫.	ফরিদ বদরুল	৬০	পুরুষ	"	
৬.	মোহাম্মদ ইসলাম	৩২	পুরুষ	"	
৭.	মিজানুর রহমান	২৪	পুরুষ	"	
৮।	মোঃ ফারুক	২৮	পুরুষ	"	
৯.	আবুল খালেক	৫৯	পুরুষ	"	
১০.	গোলাম হোসেন	৫০	পুরুষ	"	
১১.	মোঃ রফিক মেম্বার	৫২	পুরুষ	ইউনিয়ন	
১২.	আবুল হালদার	৬৫	পুরুষ	দক্ষিণ পশ্চিম চর	
১৩.	আমির আহমদ	৩০	পুরুষ	"	
১৪.	আবদুল কাদির	৩০	পুরুষ	"	
১৫.	রফিক মিয়া (মেম্বার)	৩২	পুরুষ	চরফিরা চর	
১৬.	হাফেজা আমিন	২৫	মহিলা	দক্ষিণ পশ্চিম চর	
১৭	আবদু আহুর মিস্ত্রি	৫৫	পুরুষ	"	

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Mohammad Shofirbill Govt. Primary School
Educational Institution ID: 91412010105
Village: Mohammad Shofirbill; Union: Jaliapalong; Upazila: Ukhiya;
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

1.2 Rationale of Site Selection for resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025,

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

under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Jaliapalong union of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Middle Mohammad Shofirbill, North Mohammad Shofirbill and South Mohammad Shofirbill. Typical rural settings of the area offer farmers to be in the prime professional engagement, while the fishermen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 1,222 households, containing 5,500 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed resilience shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Mohammad Shofirbill GPS
Educational Institute ID	99412010105
District	Cox's Bazar
Upazila	Ukhiya
Union	Jaliapalong
Owner of land	GPS
Catchment household	1,222
Catchment Population	5500 (Male: 2800, Female: 2700)
Profession	Farmer 50%, Fisherman 20%, Businessman 10%, Driver 10% and others 10%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Middle Mohammad Shofirbill, North Mohammad Shofirbill and South Mohammad Shofirbill
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	10 ft. wide HBB road is connected from Marine drive on west side through School to LGED road on east side
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Mohammad Shofirbill GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floor	3
Number of classroom	3

Teachers room	1
First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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

1.4 Location of Sub-Project

The Sub-project is located in the North-West side of Ukhiya Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 10ft wide HBB road of nearly 450 m in length, which is connected to the LGED road. Marine drive, Inani sea beach and Bay of Bengal are situated within 20m influences on the east side of the proposed location. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Ukhiya
Union	Jaliapalong
GPS position	21.2103 N and 92.04886 E

Distance from Upazila HQ	17 km
Nearby major road	Cox's Bazar- Teknaf marine drive
Nearby river/canal	The Bay of Bengal is located at 20m distance on west side of the sub-project component.
North side	Ramu upazila
South side	Teknaf Upazila
East side	Naf river and Naikhongchori Upazila of Bandarban District
West side	Bay of Bengal

[Sources of data: Field survey, September, 2021]

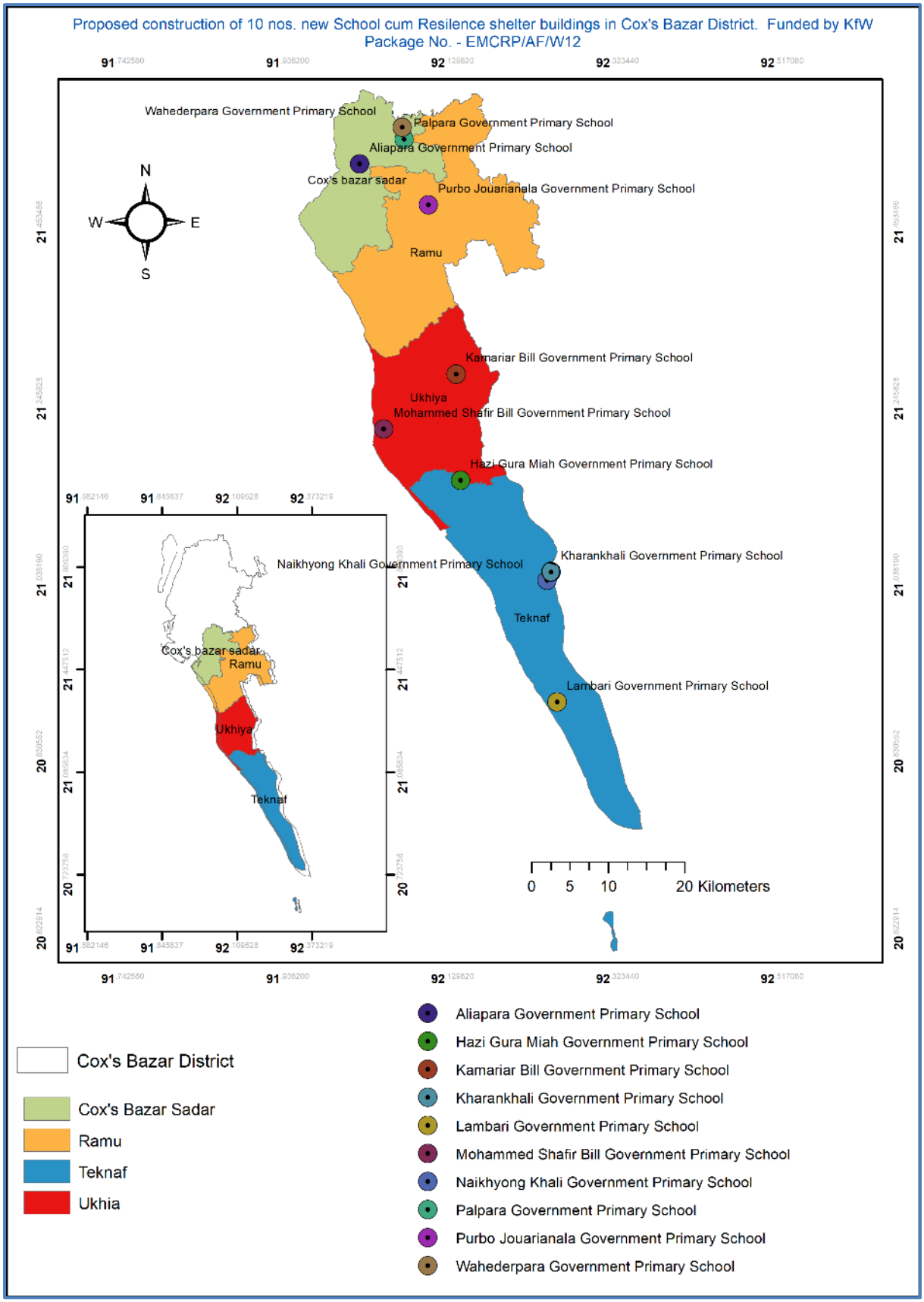


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

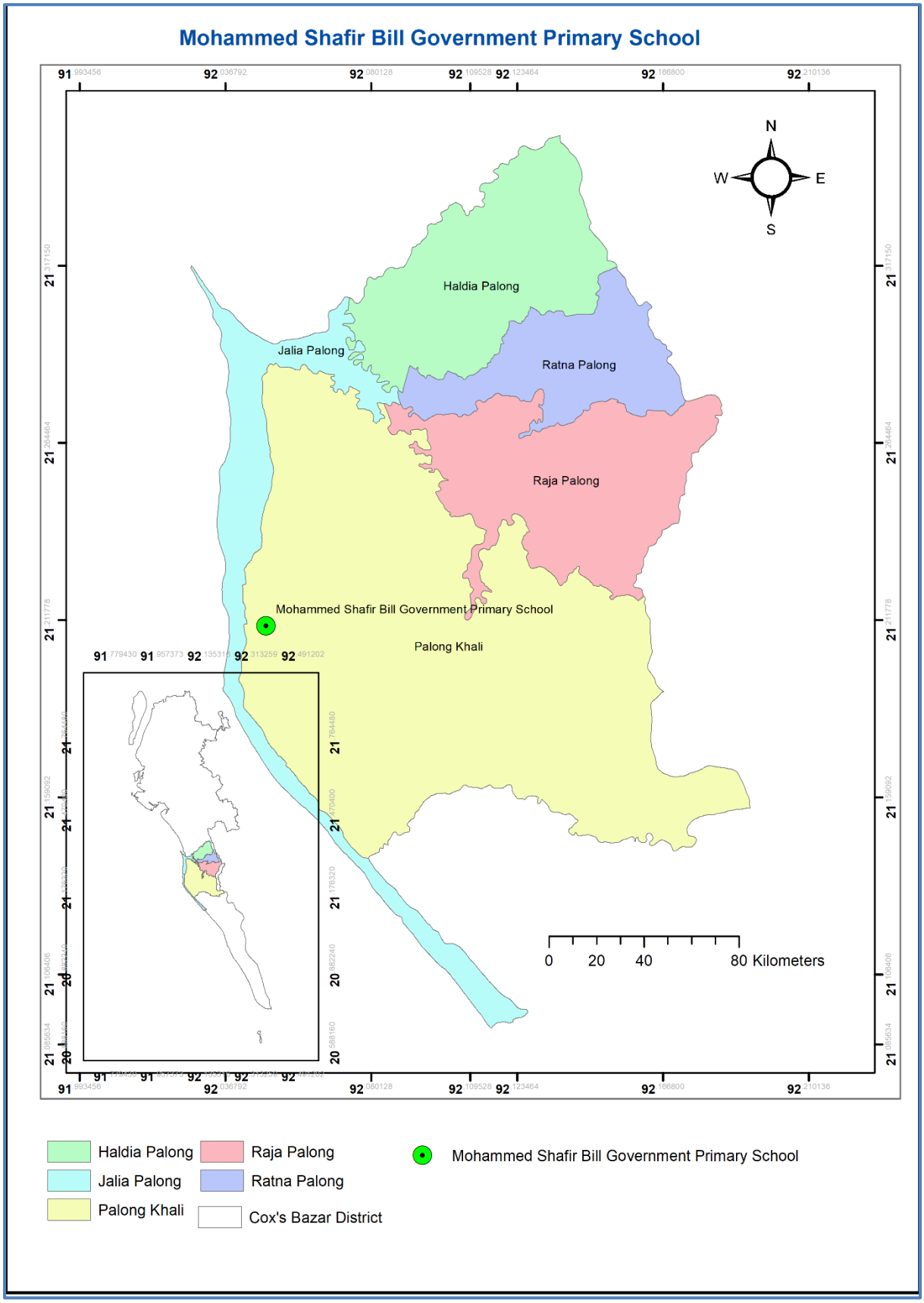


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

The important features or establishments around the proposed site, mostly within one km radial distance from the site which might face direct impacts from the construction works, have been summarized in **Table 1.5.1**. Photographs showing present condition of the proposed site and location of construction area have been shown in **Figure 1.5.1**.

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Palonki restaurant (20m), Md. Shofirbill old jame mosque (300m), Hotel Royal Tulip (400m), Uttor Md. Shofirbil old graveyard (700m), Mahatir chorra (800m)
South side	Baitul Mamur Jame Mosque (400m), Paner chorra (400m), Baitur Rahman Jame Mosque (900m), Dokhin Md. Shofirbil Rahmania Madrasah (900m), Dokhin Md. Shofirbil graveyard (1km)
East side	Inani hill (350m), Shilbon chorra (500m), Nouka Badha Chorra (900m), Haramer jhiri (950m), Inani choto khal (1km)
West side	Marine drive (10m), Inani beach (15m), Bay of Bengal (20m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Location of the construction site and the access road

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 27 September 2021 in and around the Sub-project component 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 20 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Mohammad Shofirbill GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate and separate (for male and female) toilet facilities.

- Lack of the availability of dry foods and ready-made clothes during the disastrous events.

2.3 Suggestions and recommendations of the participants

In summary, the participants presented the following suggestions and recommendations:

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.
- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 27 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The site is located adjacent to a protected area/nationally designated area, named as 'Inani National Park' which is identified according to the Integrated Biodiversity Assessment Tool (IBAT). The proposed site is located by the Cox's Bazar-Teknaf Marine Drive Highway, and the Inani National Park is separated from the site and other tourism infrastructures by the Cox's Bazar-Teknaf LGED road. Information regarding this site is updated latest in 2014 by the Bangladesh Forest Department, and final status is not determined on IBAT website. However, in recent years huge numbers of development works have been taken place in the surrounding areas of the proposed site due to the aftermath effects of the massive influx (nearly 0.75 million at a time) of Rohingya people in Cox's Bazar, and this drastic burden of people and their activities have changed the entire environmental settings in the area. Thousands of Aid workers are now living across the areas and the expansion of tourist areas/activities have got an immense thrust. Therefore, forest and trees are alarmingly disappeared from the areas, people's movement and activities become rampant, and the appearance of protective nature is no longer visible in the areas. During the consultation events with the local people, similar opinion has been emerged from their observation. They opined that vegetation cover in the areas has disappeared drastically in recent years, primarily due to the drastic environmental degradation, and activities and movement of overburdened population in the areas. Even the local people are unaware of the existence of any nationally designated protective site in the areas and responsibilities they need to uphold. The site has a HBB access road, which could easily be used for carrying construction materials to the site, and vehicles used for carrying the materials and the unloading process will not cause any harm to any local people or any other faunal species, as the school-connecting road is wide enough for pick-up or lorries in getting access to the site and work will progress during the day time only and the school has barren lands in surrounding areas for material stocking.

The new School cum Resilience shelter building will be constructed within an existing school boundary demolishing/replacing an existing structure, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project.

Some human settlements are found at 100m on east side as well as there are important socioeconomic and sensitive features located within 1km from the sub project, on north side Palonki restaurant (20m), Md. Shofirbill old jame mosque (300m), Hotel Royal Tulip (400m), Uttor Md. Shofirbil old graveyard (700m), Mahatir chorra (800m); on south side Baitul Mamur Jame Mosque (400m), Paner chorra (400m), Baitur Rahman Jame Mosque (900m), Dokhin Md. Shofirbil Rahmania Madrasah (900m), Dokhin Md. Shofirbil graveyard (1km); on east side Inani hill (350m), Shilbon chorra (500m), Nouka Badha Chorra (900m), Haramer jhiri (950m), Inani choto khal (1km) and on west side Marine drive (10m), Inani beach (15m), Bay of Bengal (20m). 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. No disturbance to all the nearby establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict

construction site management system including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials, etc. 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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effect generated from pilling and drilling may also trigger landslides and 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss.

Demolition works may pose similar impacts as construction activities; but health safety measures for the workers will be the prime concern during this period. Existing structures within the school boundary which need to be demolished are primarily brick built (with casting ceiling) containing no such insulation or materials having asbestos. As these are government structures, were built previously under the supervision of engineers from government agencies, using ACM (Asbestos Containing Materials) was also restricted all through the period in government construction sites, and absence of those hazardous materials in these structures has been confirmed as such by the respective Upazila Engineer (Government Engineer), and therefore, no specific mitigation measures is planned on this ACM issue.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.

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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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

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

shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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

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

The proposed cyclone shelter will be constructed on a plain land where some vegetation is found on the southern side. A restaurant named Palonki is located at 20m north side of the sub-project. Further, some human settlements are found at 100m east side area might get affected during the construction period with the generated debris and dust, though for the time being. Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. As the surrounding areas of the site has already become a barren land areas, no specific mitigation measures could be suggested in restoring at this point; rather the contractor must comply that no further degradation by the project activities will take place in the areas, e.g. contractor will not cut off any trees (or compensate if required), work during the day time only, suppress dust with regular sprinkling of water and so on. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the new School cum Resilience shelter building will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small

rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

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

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

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

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4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

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

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the

complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system.

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 88 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Mohammad Shofirbill GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)

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

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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

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

Name of Community/Local Area: Mohammad Shofirbill

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilience Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, a temporary tin shed school building and a hand washing block are located on east side and a toilet is found on north side. An existing abandoned 2 stored old structure will be demolished during pre-construction period and the new one will be constructed there. Marine drive, Inani sea beach and Bay of Bengal are located within 20m on the west side of the sub-project. A restaurant named Palonki is located at 20m and Mohammad Shofirbill old Jame Mosque at 300m on north side and agricultural land at 10m and Inani hill are on east side of the sub-project. Some human settlements are found at 370m east side of the sub-project. A 10 feet HBB road is passing by the south side and it is connected to the LGED road. No Important environmental features are found within the sub-project. Some agricultural land is found on north and west side, adjacent to the school boundary. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster

services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to demolishing an old building and construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. A road named LGED road is passing near the sub-project area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On the north side Palonki restaurant (20m), Md. Shofirbill old jame mosque (300m), Hotel Royal Tulip (400m), Uttor Md. Shofirbil old graveyard (700m), Mahatir chorra (800m); on south side Baitul Mamur Jame Mosque (400m), Paner chorra (400m), Baitur Rahman Jame Mosque (900m), Dokhin Md. Shofirbil Rahmania Madrasah (900m), Dokhin Md. Shofirbil graveyard (1km); on east side Inani hill (350m), Shilbon chorra (500m), Nouka Badha Chorra (900m), Haramer jhiri (950m), Inani choto khal (1km) and on west side Marine drive (10m), Inani beach (15m), Bay of Bengal (20m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.
Some human settlements and agricultural lands are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose Resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3- story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Jaliapalong Union under Ukhiya Upazila of Cox's Bazar district. The sub-project area is located at 21.2103 N and 92.04886 E. The distance from the Upazila headquarter is about 17 km. Nearby major road is Marine drive. A 10 ft. wide HBB road passes by the sub-project site, which is connected between Marine drive and the LGED road. Total available land area of this sub-project is 30.60 decimal. The school code is.91412010105

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site. There is an old structure which will be replaced by the proposed new multipurpose school building within the same boundary.

At north side, Palonki restaurant (20m), Md. Shofirbill old jame mosque (300m), Hotel Royal Tulip (400m), Uttor Md. Shofirbil old graveyard (700m), Mahatir chorra (800m); at south side Baitul Mamur Jame Mosque (400m), Paner chorra (400m), Baitur Rahman Jame Mosque (900m), Dokhin Md. Shofirbil Rahmania Madrasah (900m), Dokhin Md. Shofirbil graveyard (1km); at east side Inani hill (350m), Shilbon chorra (500m), Nouka Badha Chorra (900m), Haramer jhiri (950m), Inani choto khal (1km) and at west side Marine drive (10m), Inani beach (15m), Bay of Bengal (20m) are located of the sub-project area. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having sufficient distance from the proposed site. Besides these

components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

Section B: Environmental Screening

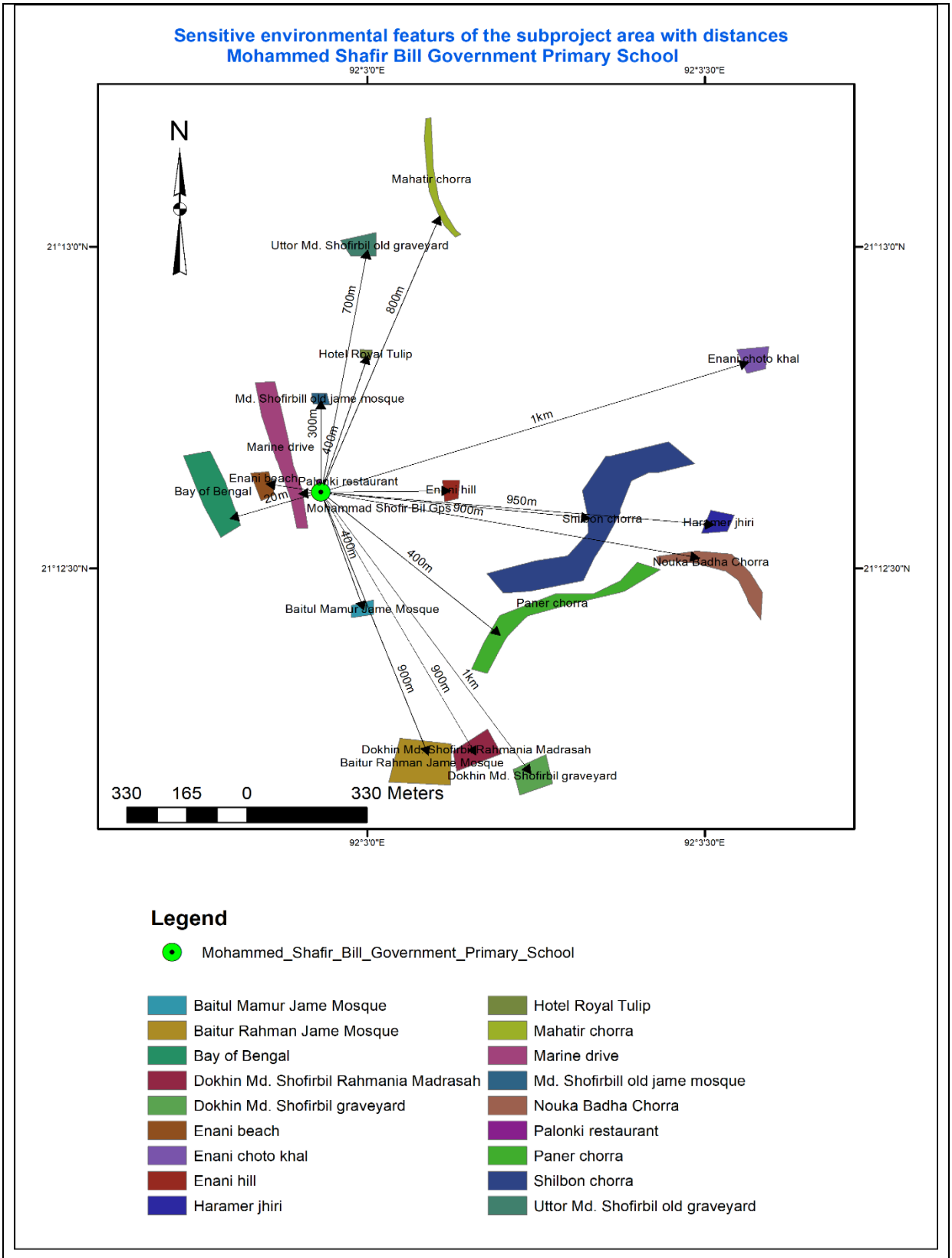
***B.1*: Environmental feature of sub-project location**

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:

Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side Palonki restaurant (20m), Md. Shofirbill old jame mosque (300m), Hotel Royal Tulip (400m), Uttor Md. Shofirbil old graveyard (700m), Mahatir chorra (800m); at south side Baitul Mamur Jame Mosque (400m), Paner chorra (400m), Baitur Rahman Jame Mosque (900m), Dokhin Md. Shofirbil Rahmania Madrasah (900m), Dokhin Md. Shofirbil graveyard (1km); at east side Inani hill (350m), Shilbon chorra (500m), Nouka Badha Chorra (900m), Haramer jhiri (950m), Inani choto khal (1km) and at west side Marine drive (10m), Inani beach (15m), Bay of Bengal (20m) but there is no scope to be affected significantly by the construction activities.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below:



Location of environmentally important and sensitive areas:

The site is located adjacent to a protected area/nationally designated area, which is identified according to the Integrated Biodiversity Assessment Tool (IBAT). There is some matured vegetation found in the area. Several mosques, restaurants, hotels, other educational institutions and human

settlement were found during the survey. Those will not be affected by the construction works (or might have very insignificant effects), as the activities will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. One shallow tube-well is found within the school boundary. The shallow depth is about 10 feet. Teachers and students consume water from this shallow tube-well. They are reportedly suffer from different water borne diseases at times. In the sub-project area, deep groundwater is salty but arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 650-800ft (Field survey, 2021). Local people usually use

deep tube-well water for drinking and other domestic purposes. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A 10ft. wide HBB road is passing by the south side of the sub-project. It is connected between marine drive and LGED road. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: One shallow tube-well is found within the school boundary and aquifer depth is about 10 feet. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: Adjacent to the Marine drive on the west side of existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.

Identification of access road for transportation (Yes/No): About 18ft. Marine drive road is the main way for transportation of raw/construction materials. It is located on west side of adjacent sub-project site and connected to the Cox's Bazar – Teknaf.
Location identification for raw material storage: Private land of Abul Hasan and Md. Moinuddin at Mohammad Shofirbill village on north side of school boundary. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during preconstruction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 10 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp. **Liquid waste**: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 289.54 sq. meter soil land is required for the sub-project establishment. There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.
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 two chorras named Mahatir chorra at 800m on north side and another Paner chorra at 400m on south side are found which are clearly outside of the construction area and 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 thesub project site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent HBB road as well as Marine drive; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution work is intensified for the sheltered people. 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 school cum resilience shelter building will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
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 near surface water bodies like the Bay of Bengal is located at 20m on west side from the sub-project boundary area and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) The site is located adjacent to a protected area/nationally designated area, which is identified according to the Integrated Biodiversity Assessment Tool (IBAT). Recent survey and consultation with the local communities has confirmed that the area has already been turned out to be a semi-urban populated setting due to the recent development spree for tourism and influx of Rohingya population. However, none of the usual activities taken place in a school site during the operation phase is likely to potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 situated near to a locality. A HBB road connects the sites with the LGED road and Marine drive. The roads are mainly used for pedestrian access and by 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 loose soil being dispersed around during the dry weather, and accidents may occur due to bad condition of the access roads 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 climate resilient multi-purpose disaster shelter cum primary school (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 might negatively	Contractor, Environmental Specialists of PIU and 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
			affect surface and ground water. • Monitor water quality according to the environmental management plan.			
2.Pre-construction Phase	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Constructio n works.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	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 get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc. • Spills/ hazardous substances should be disposed off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	Contractor, Environmental Specialists of PIU and 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
	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 (in terms of access and distance from their living place) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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.	Contractor, Environmental Specialists of PIU and 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
	Accidents	Under the sub-project intervention the overall score is low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	Under the sub-project	• Damp down exposed soil and any sand stockpiled on site by spraying with water during	Contractor, Environmental	Location of stockpiles,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	intervention the overall score is low.	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.	Specialists of PIU and D&SC	Covering of trucks, Records of air quality inspection, Numbers of complaints from sensitive receptors, Heavy equipment and pollution control devices, Maintain records	
	Biodiversity (The site is located adjacent to a protected area/nationally designated area, which is identified according to the	Under the sub-project intervention the overall score is low.	• Prohibit employees from cutting of trees for firewood any other reasons.. • 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. • Noise reducing working procedure described in the ESMP shall be implemented very strictly to	Contractor, Environmental Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Integrated Biodiversity Assessment Tool (IBAT); the construction works may cause nuisance to the wild species though recent survey has confirmed the area having no faunal/ endangered birds' species in wilderness)		minimize the effects as much as possible.			
	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	Contractor, Environmental Specialists of PIU and 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
			jackets, Masks, Gloves, Helmets, Uniforms etc., • 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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic. • 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; Environmental Specialists of PIU/D&SC, XEN, Cox's Bazar.	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; and monitored by Consultant of D&SC and PIU	Complaints from communities	Site inspection daily / weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Vegetation	Under the issue the overall score is low.	• After construction work, all structures need to be removed and the area shall be top soiled and re-grassed using the guidelines set out in the re-vegetation specification that forms part of the bidding document.	Contractor; monitored by Consultant of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	-Do-	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 • Consultation meeting with nearby residents and other	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.			
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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made.	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime	Project ESMF (Table 8.2: ESMP	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).	Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.		D&SC
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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		roads/access roads for limiting dust generation.			
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction 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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		forces. • Labor code of conduct is to be disclosed through consultation.			
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.	-Do-		
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • 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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	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.	• Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal sludge from latrines is to be undertaken properly, if	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and local community	management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		be ensured. • Water tanks should be cleaned properly at least once in a quarter.			

Waste Management Plan (as guided in IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For demolition only:

- All electric, gas, water, sewer, and other energy services or power lines shall be capped/blinded and/or otherwise cut before the commencement of demolition work;
- For any existing facilities with ACM (Asbestos Containing Materials), it is necessary to develop an asbestos management plan beforehand, which clearly identifies the locations through survey where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release

fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities. Handling of asbestos and removal or disposal of the same will be carried out with the direct supervision and guidance of an experienced expert.

- All asbestos, insulation materials, glass and other hazardous materials and substances must not be stored within the structure to be demolished;
- Openings and weak flooring shall be prominently marked or barricaded before the commencement of demolition. Operators of machinery and equipment and workers involved in demolition work shall be informed of such hazardous location;
- Demolition work shall commence from the top of a structure and progress downward;
- Proper entrances of adequate strength to protect workers from falling materials shall be erected for access into the structure;
- The entire demolition site shall be effectively barricaded with appropriate safety signs displayed;
- The lower floor where demolition wastes are collected shall be properly barricaded and guarded to prevent materials from ricocheting and injuring workers or passer-by;
- Excessive debris shall not be allowed to accumulate inside a demolished structure. All demolition waste and debris shall be cleared from the work site on a daily basis.
- Refuse containers shall be provided at worksite for the storage of demolition waste and debris.

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).
- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.
- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.

- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000 Tk.*24 months*(1/10 one	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			shelter). (Net payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person(twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles.	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted along the periphery of the proposed site at an interval of 10	10 nos.	@ Tk. 1000 for each tree.	10,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	feet.			
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**488,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting

Mohammed Shafir Bill Government Primary School
Package Number: EMCRP/AF/W12

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

Focus Group Discussion

সময়: বেলা ১২:৪৫ মিনিট — তারিখ: ২৭/০৯/২০২১ইং
স্কুলের নাম: মোহাম্মদ শফিরবিল সরকারি প্রাথমিক বিদ্যালয়
স্কুল আইডি নম্বর: ১৯৪৯২০২০১০৫
যে বিষয়ের উপর: বিদ্যালয় প্রকল্প
গ্রাম: শফির বিল — ওয়ার্ড নং: ০৭ — ইউনিয়ন: হলদিয়াপালং — জেলা: কক্সবাজার
উপজেলা: উখিয়া
সাব প্যাকেজ নং: EMCRP/AF/W12

অংশগ্রহণকারীদের তালিকা (শিক্ষক ও অভিভাবক)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
০১	জনাব বদি উল আলম	৩৯	পুরুষ	[illegible]	Badi Alam
০২	মুহাম্মদ আয়তাব হোসাইন H.T.	৫০	পুরুষ	পশ্চিম পালংখালি	[illegible]
০৩	মাওঃ কামাল উদ্দীন	৪৮	"	মো: শফিরবিল	[illegible]
০৪	জনাব মোহাম্মদ আলম	৬৫	"	"	[illegible]
০৫	" মোহাম্মদ জোহির	৬৫	"	"	[illegible]
০৬	" মোহাম্মদ সলিম	৭০	"	"	[illegible]
০৭	" হাজীনুর আহমদ	৭৫	"	"	[illegible]
০৮	" বেলাল উদ্দীন	৩৮	"	"	বেলাল
০৯	" হাফেজ বেলাল উদ্দীন	৩৩	"	"	বেলাল
১০	" শফির আলম	৩৯	"	"	[illegible]
১১	" রেহেনা আক্তার	৩১	নারী	"	রোহেনা
১২	" আফেরা খেয়া	২৮	"	"	[illegible]
১৩	" সাবিনা আক্তার	৩৫	"	"	সাবিনা আক্তার
১৪	" আনোয়ারা বেগম	৩৭	"	"	আনোয়ারা
১৫	" নাসিমা আক্তার	২৫	"	"	নাসিমা
১৬	" ওস ওর সাইফুদ্দীন	৩৩	পুরুষ	মোনাইরপাড়া	[illegible]
১৭	সাইফুরা বেগম রুনা	৩৩	মহিলা	মোনাইরপাড়া	[illegible]

Mohammed Shafir Bill Government Primary School
Package Number: EMCRP/AF/W12

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় বহুখাতে সেক্টর প্রকল্প
Additional Financing
Local Government Engineering Department (LGED)
Public Consultation Participants List
Focus Group Discussion

সময়: বেলা ১২:৩৫ ঘটিকা — তারিখ: 29/০২/২০২২ ইং
স্থানের নাম: মোহাম্মদ শফির বিল সরকারি প্রাথমিক বিদ্যালয়
মূল আইডি নাম: ২২৬২০২০২০৫
যে বিষয়ে হবে: বিদ্যালয় প্রাঙ্গণ
গ্রাম: উত্তর শফির বিল — ওয়ার্ড নং: ০৭ — ইউনিয়ন: কুতুবদিয়াপাড়া — উপজেলা: উখিয়া — জেলা: কক্সবাজার
প্যাকেজ নং: EMCRP/AF/W12

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১৮	মমতেজা আক্তার	৪৪	মহিলা	ইসলাম	
১৯	ইয়াছমিন আক্তার	২৭	মহিলা	কোট বাজার	
২০	নুরুল আমিন	২৫	পুরুষ	মোহাম্মদ	

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Mohammad Shofirbill Govt. Primary School
Educational Institution ID: 91412060204
Village: Naikhyongkhali; Union: Hnila; Upazila: Teknaf
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

1.2 Rationale of Site Selection for Resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025, under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration

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

Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Hnila union of Teknaf Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding village of Naikhyongkhali. Typical rural settings of the area offer farmers to be in the prime professional engagement, while the businessmen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 1,830 households, containing 9,000 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Naikhyongkhali GPS
Educational Institute ID	91412060204
District	Cox's Bazar
Upazila	Teknaf
Union	Hnila
Owner of land	GPS
Catchment household	1,830
Catchment Population	9,000 (Male: 4,050, Female: 4,950)
Profession	Farmer 60%, Businessman 20%, Fisherman 5%, and others 15%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Naikhyongkhali
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	10 ft. wide BC road named Ali Akbarpara-Rozarpara-Moricchaghona road on south side connected with Cox's Bazar-Teknaf Highway
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Naikhyongkhali GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floors	3
Number of classrooms	3

Teachers room	1
First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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 on the North side of Teknaf Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 10ft wide BC road on the south side which is connected to the LGED road. Moulavibazar and Dighirpar jame mosques are situated within 20m influences on the east side of the proposed location. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Teknaf
Union	Hnila
GPS position	21.032083 N and 92.240611 E

Distance from Upazila HQ	22 km
Nearby major road	Cox's Bazar- Teknaf highway
Nearby river/canal	Moulavir khal is located at 400m distance on north side, Dokhiner Guda khal is at 600m on south side and Naf river is at 1km on east side of the sub-project component.
North side	Ukhiya Upazila
South side	Bay of Bengal
East side	Naf river and Arakan State of Myanmar
West side	Bay of Bengal

[Sources of data: Field survey, September, 2021]

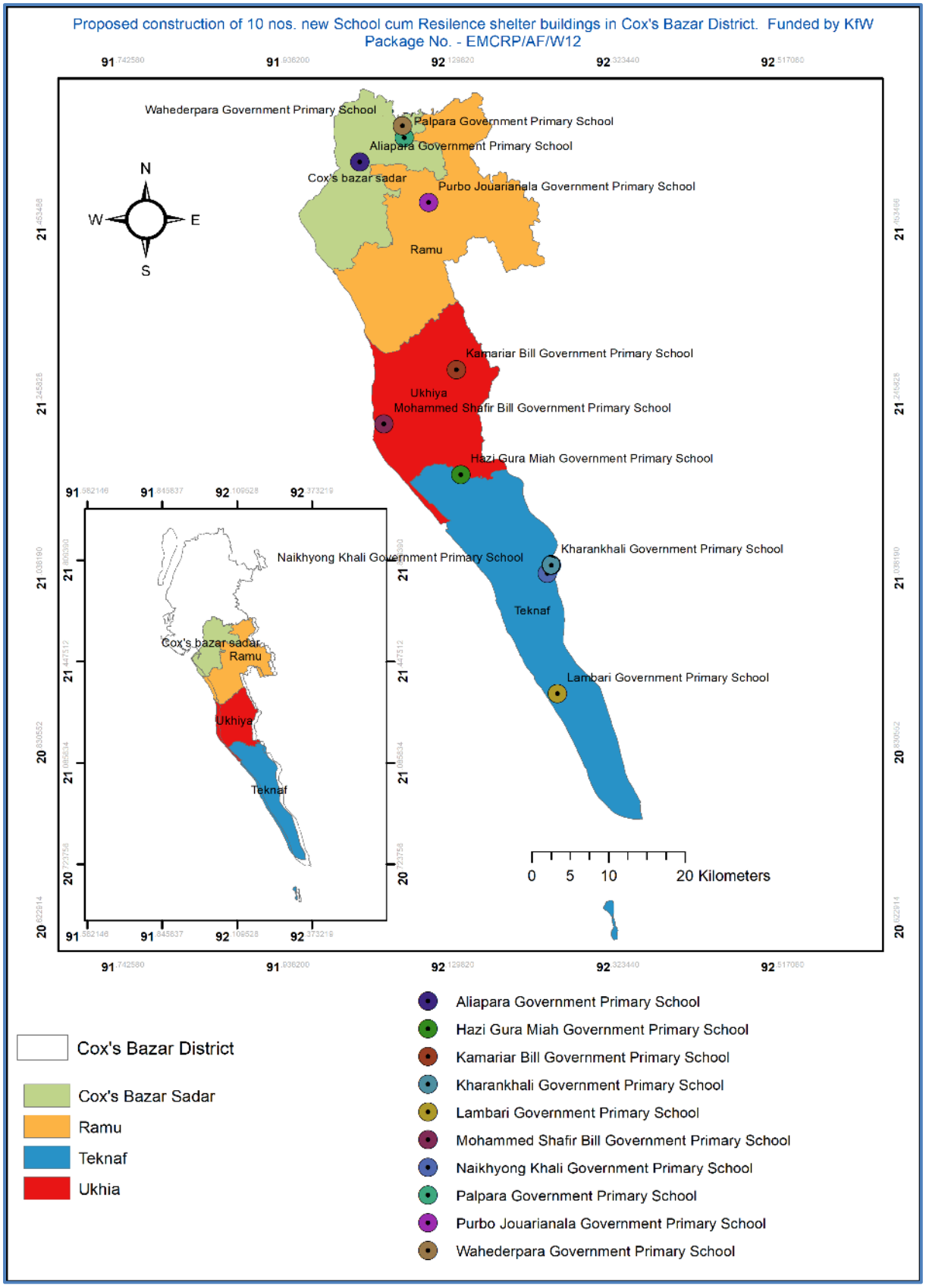


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

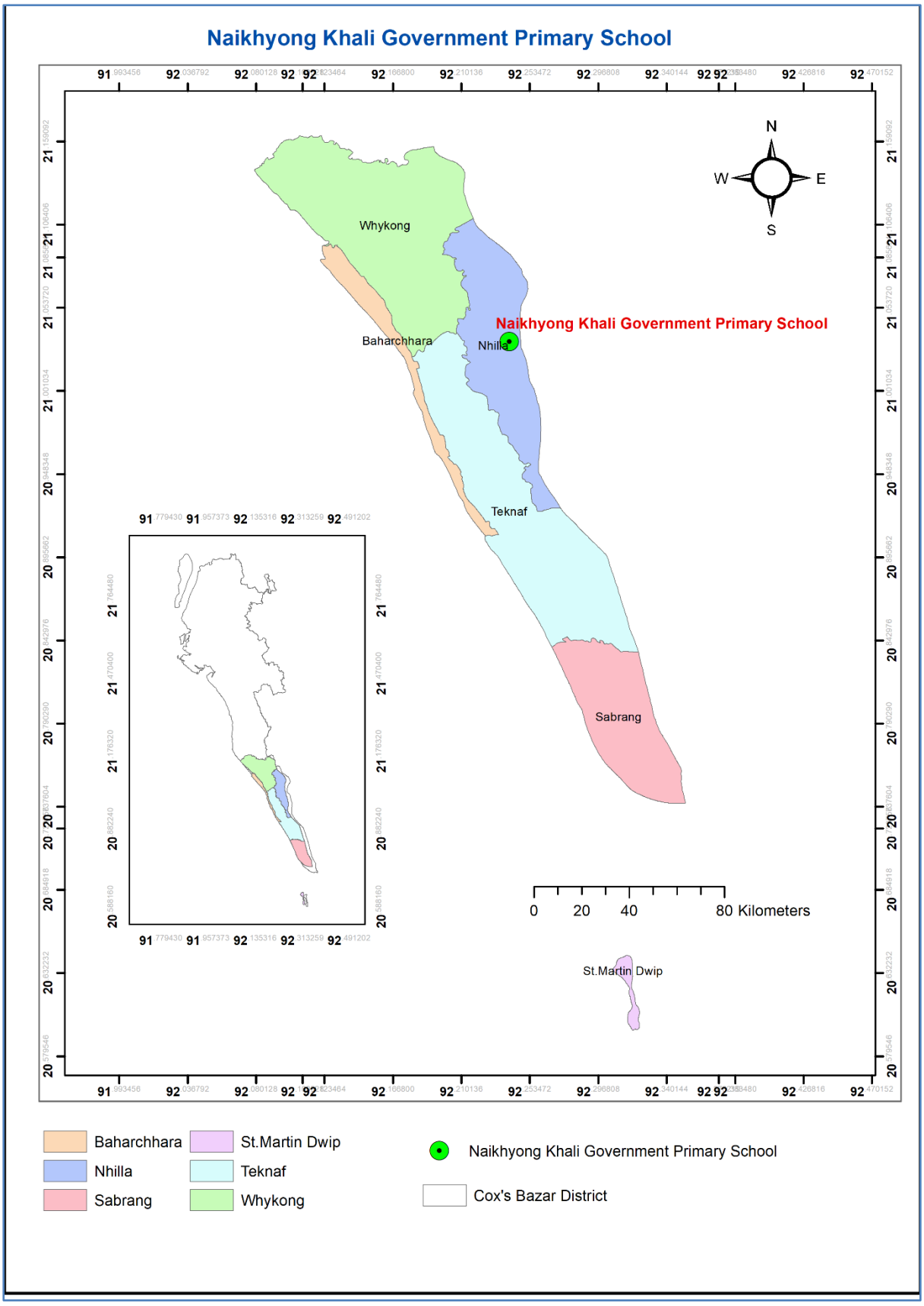


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

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

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Jamiria Darul Quran Madrasah (300m), Moulavi Bazar central jame Mosque (300m), Moulavir khal (400m), Buddhist crematorium (350m)
South side	Naikhyongkhali Dokhinpara jame mosque (400m), Dokhin guda khal (600m)
East side	Moulavi Bazar (20m), Dighirpar Jame Mosque (25m), Surjer Hansi clinic (150m), Gawchia Jame mosque & Madrasah (200m), Muslim para jame mosque (300m), Naf river (1km)
West side	Naikhyongkhali Junior High School (50m), Konarpara Jame Mosque cum Hefzakhana & Orphanage (60m), Ideal Academy (100m), Naikhyongkhali graveyard (200m), Ali Akborpara Community clinic (300m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Present condition of the proposed site and surrounding area



Figure 1.5.2: Location of the construction site (the one-story building shown on the picture will be demolished and replaced by the proposed building)

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 September 2021 in and around the Sub-project component 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 34 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Naikhyongkhali GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate toilet facilities.
- Lack of the availability of dry foods and ready-made clothes during the disastrous events.
- Inadequacy of toilet facilities- separately for male and female.

2.3 Suggestions and recommendations of the participants

In summary, the participants presented the following suggestions and recommendations:

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.

- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 29 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project (construction of new school cum resilience shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The new School cum Resilience shelter building will be constructed within an existing school boundary demolishing/replacing an existing structure, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. Within the close proximity (100m) to the sub-project site, Moulavibazar is found at 20m and Dighirpar jame mosque at 25m east side, Naikhyongkhali Junior High School is found at 50m, Konarpara jame mosque cum Hefzakhana and Orphanage at 60m and Ideal Academy at 100 west side and two clusters of settlement at 75m north and 50m west side from the proposed site boundary. A 10ft wide BC road is connected to the villages with Ali Akbarpara-Rozarpara-Morichhaghona. Another human settlement is found at 150m south-western side from the site. There are two khals, one Moulavir khal is located at 400m north and another Dokhiner guda khal is located at 600m south from sub-project. One madrasah named Jamiria Darul Quran Madrasah is at 300m, Moulavi Bazar central jame Mosque is at 300m and Buddhist crematorium is at 350m on north of the sub-project. Naikhyongkhali Dokhinpara jame mosque is at 400m on south side, a clinic named Surjer Hansi clinic at 150m, Gawchia Jame mosque & Madrasah at 200m, Muslimpara jame mosque at 300m and Naf river at 1km on east side and Naikhyongkhali graveyard at 200m & a clinic named Ali Akborpara Community clinic at 300m on west side of the sub-project. No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site,

and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day in and around the site, proper fencing around the working area, safe storage of materials, etc.

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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effect generated from pilling and drilling may also trigger landslides and 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss. All these impacts can only be prevented or minimized by adopting measures delineated into the ESMP and good practice engineering and site management.

Demolition works may pose similar impacts as construction activities; but health safety measures for the workers will be the prime concern during this period. Existing structures within the school boundary which need to be demolished are primarily brick built (with casting ceiling) containing no such insulation or materials having asbestos. As these are government structures, were built previously under the supervision of engineers from government agencies, using ACM (Asbestos Containing Materials) was also restricted all through the period in government construction sites, and absence of those hazardous materials in these structures has been confirmed as such by the respective Upazila Engineer (Government Engineer), and therefore, no specific mitigation measures is planned on this ACM issue.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also, rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also, forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.
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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, solar power as energy sources are suggested to

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

be incorporated in the design and to be implemented as part of the construction works of the shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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

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

The proposed cyclone shelter will be constructed on a plain land where some vegetation is found on the west side. Due to the construction activities of this Sub-project, any number of trees (small and medium size) will not be cut down but due to aesthetic appearances 10 nos. of trees will be planted in the periphery of the school. Some important socio-environmental features, such as the Moulavibazar is found at 20m and Dighirpar jame mosque at 25m east side, Naikhyongkhali Junior High School is found at 50m, Konarpara jame mosque cum Hefzakhana and Orphanage at 60m and Ideal Academy at 100 west west side and two clusters of settlement at 75m north and 50m west side and another human settlement is found at 150m south-western side from the site. One madrasah named Jamiria Darul Quran Madrasah is at 300m, Moulavi Bazar central jame Mosque is at 300m and Buddhist crematorium is at 350m on north, a clinic named Surjer Hansi clinic at 150m, Gawchia Jame mosque & Madrasah at 200m, Muslimpara jame mosque at 300m and Naikhyongkhali graveyard at 200m & another clinic named Ali Akborpara Community clinic at 300m on west from the proposed site might get affected during the construction period with the generated noise, debris and dust, though for the time being. As part of the standard mitigation measures and site management practices, Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the

required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and

awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.

c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement is to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols has to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

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

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

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

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system.

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 88 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Naikhyongkhali GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)

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

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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: Naikhyongkhali

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilience Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

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

Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, there are a two-story building, a tin shed school building, a one-story abandoned old building, a shaheed Minar, one deep Tubewell and, a toilet (2 units). An existing abandoned one stored old structure will be demolished during pre-construction period and the new one will be constructed there. 10 ft wide BC village connecting road on south side and Cox's Bazar-Teknaf highway located within 20m on the east side of the sub-project. Moulavibazar and Dighirpar jame mosque are located within 25m on east side and Naikhyongkhali Junior High School, Konarpara jame mosque cum orphanage and Ideal Academy are located within 100m on west side of the sub-project. Otherwise, No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because

of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to demolishing an old building and construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. A BC road named Ali Akbarpara-Rozarghona-Moricchaghona road is passing near the sub-project area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On the north side Jamiria Darul Quran Madrasah (300m), Moulavi Bazar central jame Mosque (300m), Moulavir khal (400m), Buddhist crematorium (350m); on south side Naikhyongkhali Dokhinpara jame mosque (400m), Dokhin guda khal (600m); on east side Moulavi Bazar (20m), Dighirpar Jame Mosque (25m), Surjer Hansi clinic (150m), Gawchia Jame mosque & Madrasah (200m), Muslim para jame mosque (300m), Naf river (1km) and on west side Naikhyongkhali Junior High School (50m), Konarpara Jame Mosque cum Hefzakhana & Orphanage (60m), Ideal Academy (100m), Naikhyongkhali graveyard (200m), Ali Akborpara Community clinic (300m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples, graveyards and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.
Some human settlements and agricultural lands are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose Resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3- story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Hnila Union under Teknaf Upazila of Cox's Bazar district. The sub-project area is located at 21.032083 N and 92.240611 E. Catchment village of this sub-project area is Naikhyongkhali. The distance from the Upazila headquarter is about 22 km. A 10 ft. wide BC road passes by the sub-project site, which is connected with Cox's Bazar-Teknaf highway. Total available land area of this sub-project is 45 decimals. The school code is.91412060204

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site. There is an old structure which will be replaced by the proposed new multipurpose school building within the same boundary.

At north side, Jamiria Darul Quran Madrasah (300m), Moulavi Bazar central jame Mosque (300m), Moulavir khal (400m), Buddhist crematorium (350m); at south side Naikhyongkhali Dokhinpara jame mosque (400m), Dokhin guda khal (600m); at east side Moulavi Bazar (20m), Dighirpar Jame Mosque (25m), Surjer Hansi clinic (150m), Gawchia Jame mosque & Madrasah (200m), Muslim para jame mosque (300m), Naf river (1km) and at west side Naikhyongkhali Junior High School (50m), Konarpara Jame Mosque cum Hefzakhana & Orphanage (60m), Ideal Academy (100m), Naikhyongkhali graveyard (200m), Ali Akborpara Community clinic (300m) are located of the sub-project area. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction

activities due to having sufficient distance from the proposed site. Besides these components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

Section B: Environmental Screening

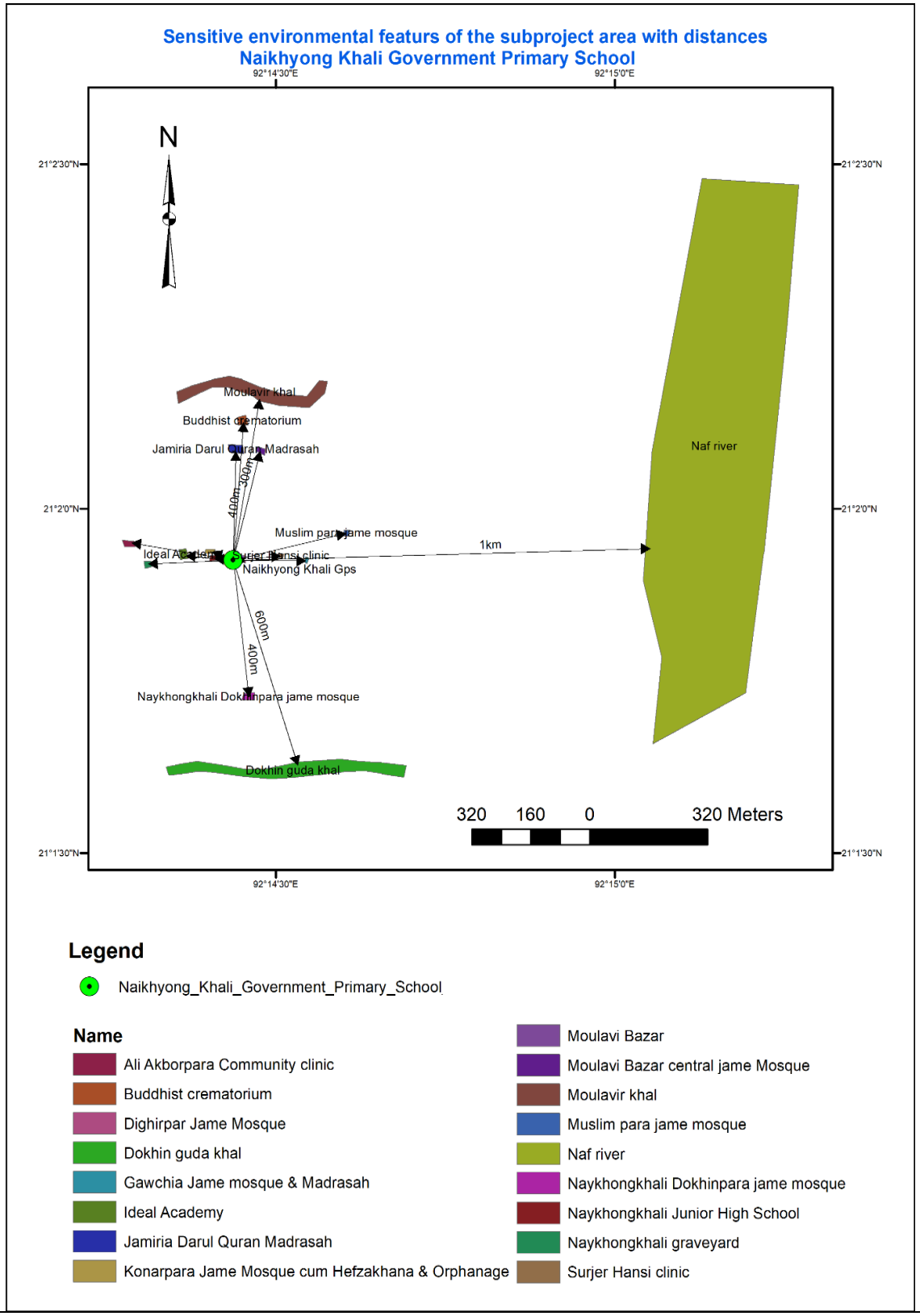
***B.1*: Environmental feature of sub-project location**

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:

Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side, Jamiria Darul Quran Madrasah (300m), Moulavi Bazar central jame Mosque (300m), Moulavir khal (400m), Buddhist crematorium (350m); at south side Naikhyongkhali Dokhinpara jame mosque (400m), Dokhin guda khal (600m); at east side Moulavi Bazar (20m), Dighirpar Jame Mosque (25m), Surjer Hansi clinic (150m), Gawchia Jame mosque & Madrasah (200m), Muslim para jame mosque (300m), Naf river (1km) and at west side Naikhyongkhali Junior High School (50m), Konarpara Jame Mosque cum Hefzakhana & Orphanage (60m), Ideal Academy (100m), Naikhyongkhali graveyard (200m), Ali Akborpara Community clinic (300m) but there is no scope to be affected significantly by the construction activities.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below:



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, madrasa, high school and human settlement were found during the survey. Those will not be affected by the construction works, as the activities will

be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. One deep tube-well is found within the school boundary. The depth is about 650 feet. Teachers and students consume water from this tube-well. They are reportedly suffer from different water borne diseases at times. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-700ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes.

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

681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.
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): About 10ft. wide BC road is passing by the south side of the sub-project. It is connected with Cox's Bazar-Teknaf highway. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: One deep tube-well is found within the school boundary and aquifer depth is about 650 feet. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: Private land of Liakat Ali, Shamsul Alam Hydari at Naikhyongkhali village which is adjacent to the existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): About 10ft. wide BC Ali Akbarpara-Rozarghona-Moricchaghona village connecting road is the main way for transportation of raw/construction materials. It is located on south side of adjacent sub-

project site and connected to the Cox's Bazar – Teknaf highway.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local Communities. Considering the criteria, south side within the school boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during preconstruction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 12 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp. **Liquid waste**: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 289.54 sq. meter soil land is required for the sub-project establishment. There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.
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 two khals named Moulavir khal at 400m on north side and another Dokhiner Guda khal at 600m on south side are found which are clearly outside of the construction area and 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 subproject site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent BC road; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution works are intensified for the sheltered people. 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 school cum resilience shelter building will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies are present within the sub-project boundary area, and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) There is no protected area in or around the sub-project sites, and no known areas of ecological interest. In fact, none of the usual activities taken place in a school site during the operation phase is likely to potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 locality. A BC road connects the sites with main road. 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 loose soil being dispersed around during the dry weather, and accidents may occur due to bad condition of the access roads 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 and Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 Specialists of PIU and 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	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	Material storage area for construction (Creating dust/ air pollution, Spillage of liquid/ hazardous substances i.e. oil,	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 Specialists of PIU and 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
	paint, chemicals, bitumen etc., Risk of 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 off 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 (in terms of access and distance from their living place) 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.	Contractor, Environmental Specialists of PIU and 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
			• 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 off 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 low.	• 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 Specialists of PIU and D&SC	Complaints from community; Regular inspection of materials transport vehicles.	Before and during construction phase

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
3. Construction Phase	**Noise Impacts**	Under the sub-project intervention the overall score is low.	• Avoid high noise making activities during active school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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 create dusts and increase in concentration of vehicle related	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	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles, Covering of trucks, Records of air quality inspection, Numbers of complaints from sensitive receptors, Heavy	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.		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.		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 Specialists of PIU and 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	• Prevent excessive noise. • Construction staff are to make use of the facilities provided for them (e.g. fires for cooking).	Contractor, Environmental Specialists of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
		score is low.	• 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.		walkways signage, and metal sheets placed at project location;	
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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic.	Contractor, Environmental Specialists of PIU/D&SC, XEN, Cox's Bazar.	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			• 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.			
	Odor & waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor; and monitored by Consultant of D&SC and PIU	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 of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	-Do-	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 • Consultation meeting with nearby residents and other	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.			
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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made.	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime	Project ESMF (Table 8.2: ESMP	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).	Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.		D&SC
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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		roads/access roads for limiting dust generation.			
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction 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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		forces. • Labor code of conduct is to be disclosed through consultation.			
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.	-Do-		
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • 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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	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.	• Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal sludge from latrines is to be undertaken properly, if	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and local community	management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		be ensured. • Water tanks should be cleaned properly at least once in a quarter.			

Waste Management Plan (as guided in IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For demolition only:

- All electric, gas, water, sewer, and other energy services or power lines shall be capped/blinded and/or otherwise cut before the commencement of demolition work;

- For any existing facilities with ACM (Asbestos Containing Materials), it is necessary to develop an asbestos management plan beforehand, which clearly identifies the locations through survey where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities. Handling of asbestos and removal or disposal of the same will be carried out with the direct supervision and guidance of an experienced expert.
- All asbestos, insulation materials, glass and other hazardous materials and substances must not be stored within the structure to be demolished;
- Openings and weak flooring shall be prominently marked or barricaded before the commencement of demolition. Operators of machinery and equipment and workers involved in demolition work shall be informed of such hazardous location;
- Demolition work shall commence from the top of a structure and progress downward;
- Proper entrances of adequate strength to protect workers from falling materials shall be erected for access into the structure;
- The entire demolition site shall be effectively barricaded with appropriate safety signs displayed;
- The lower floor where demolition wastes are collected shall be properly barricaded and guarded to prevent materials from ricocheting and injuring workers or passer-by;
- Excessive debris shall not be allowed to accumulate inside a demolished structure. All demolition waste and debris shall be cleared from the work site on a daily basis.
- Refuse containers shall be provided at worksite for the storage of demolition waste and debris.

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).
- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.

- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000 Tk.*24	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			months*(1/10 one shelter). (Net payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person(twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of	10 nos.	@ Tk. 1000 for each tree.	10,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.			
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**488,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting

Naikhyong Khali Government Primary School (GPS)
Package Number: EMCRP/AF/W12

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

Focus Group Discussion

সময়: বেলা ১০:৪০ মিনিট — তারিখ: ২২/০২/২০২৫ ইং
স্থানের নাম: নাইক্ষ্যংখালী সরকারি প্রাথমিক বিদ্যালয়
সাব ডিভিশন নাম: ২৭৪১২০৬০২০৮
যে বিভিন্ন ধরণ: বিদ্যালয় প্রাঙ্গণ
গ্রাম: নাইক্ষ্যংখালী — ওয়ার্ড নং: 02 — ইউনিয়ন: হীলা — উপজেলা: হীলা ৪৭৮২
উপজেলা: টেকনাফ — জেলা: কক্সবাজার
চুক্তি প্যাকেজ নং: EMCRP/AF/W12

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১	মোহাম্মদ আকলস খা/লি	৪৩	পুরুষ	পশ্চিম চিকোদাং পাড়া	
২	রোহেনা খাতুন ন ক/লি	৪৫	মহিলা	নাইক্ষ্যংখালী	
৩	আখিন	৪৬	মহিলা	আদারংখালী	
৪	মোহাম্মদ নাসির উদ্দিন	৪৭	পুরুষ	হোগ্যাঢ় ডোবা	
৫	মোহাম্মদ তাহির ইসলাম	৪০	পুরুষ	নাইক্ষ্যংখালী	
৬	নুর মোহাম্মদ	৩৬	পুরুষ	নাইক্ষ্যংখালী	
৭	মোহাম্মদ হোসাইন	৩০	পুরুষ	মাঝি ডোবা	
৮	আনোয়ারা বেগম	২৮	মহিলা	আদারংখালী	
৯	তাহমিনা মেহেরাজ হোসেন	২৬	মহিলা	নাইক্ষ্যংখালী	
১০	ওসমান গনি	৩৩	পুরুষ	নাইক্ষ্যংখালী	
১১	কামাল উদ্দিন	৪৫	পুরুষ	নাইক্ষ্যংখালী	
১২	নুরুল আমিন	৪০	পুরুষ	নাইক্ষ্যংখালী	
১৩	আবুল কাশেম মাঝি	৪৭	পুরুষ	নাইক্ষ্যংখালী	
১৪	আবুল হোসাইন	৫৭	পুরুষ	নাইক্ষ্যংখালী	
১৫	মো. আবদুস সাত্তার	৪০	পুরুষ	নাইক্ষ্যংখালী	
১৬	মোহাম্মদ ইয়াছিন	৫৫	পুরুষ	নাইক্ষ্যংখালী	
১৭	মো. ইসলাম	৩৫	পুরুষ	নাইক্ষ্যংখালী	

Naikhyong Khali Government Primary School (GPS)
Package Number: EMCRP/AF/W12

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

Focus Group Discussion

তারিখ: ২৭/০৭/২০২১ইং

সময়: বেলা ১০:৪০ মিনিট

স্থানের নাম: নাইক্ষ্যংখালী সরকারি প্রাথমিক বিদ্যালয়

ইউনিয়ন পরিষদ: বিদ্যালয় প্রাঙ্গণ

গ্রাম: নাইক্ষ্যংখালী ওয়ার্ড নং: 02 ইউনিয়ন: হ্নীলা উপজেলা: হ্নীলা

উপজেলা: টেকনাফ জেলা: কক্সবাজার

সাব প্যাকেজ নং: EMCRP/AF/W12

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১	আবদুল গফুর	৫৮	পুরুষ	নাইক্ষ্যংখালী	
২	মোহাম্মদ আবদুল	৪২	পুরুষ	নাইক্ষ্যংখালী	
৩	নুরুল ইসলাম মাস্টার	৫৫	পুরুষ	নাইক্ষ্যংখালী	
৪	ইমাম হোসেন	৪০	পুরুষ	নাইক্ষ্যংখালী	
৫	নুরুল ইসলাম	৪২	পুরুষ	নাইক্ষ্যংখালী	
৬	জিয়াদ খান	৩৪	পুরুষ	নাইক্ষ্যংখালী	
৭	মুবারক হোসেন	৪২	পুরুষ	নাইক্ষ্যংখালী	
৮	দিলু হোসেন	৪৫	পুরুষ	নাইক্ষ্যংখালী	
৯	শামসুল হোসেন	৩৩	মহিলা	নাইক্ষ্যংখালী	
১০	হুমায়ন আহমদ	৪৪	মহিলা	নাইক্ষ্যংখালী	
১১	আমেনা খাতুন	৪৫	মহিলা	নাইক্ষ্যংখালী	
১২	ফাতেমা বেগম	৩৫	মহিলা	নাইক্ষ্যংখালী	
১৩	রোহিনা বেগম	৪০	মহিলা	নাইক্ষ্যংখালী	
১৪	সৈয়দুল আহমেদ	৫০	পুরুষ	নাইক্ষ্যংখালী	
১৫	হাবিব উল্লাহ	৪০	পুরুষ	নাইক্ষ্যংখালী	
১৬	আনিসুর রহমান	৫২	পুরুষ	নাইক্ষ্যংখালী	
১৭	আবুল খায়ের	৬০	পুরুষ	নাইক্ষ্যংখালী	

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Palpara Govt. Primary School
Educational Institution ID: 99412030305
Village: Middle Shiapara; Union: Eidgaon; Upazila: Cox's Bazar Sadar
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

1.2 Rationale of Site Selection for resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025,

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

under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Jaliapalong union of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Middle Shiapara, Uttar Shiapara, Kaniar chara, Konapara and Palpara. Typical rural settings of the area offer farmers to be in the prime professional engagement, while the businessmen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 1,700 households, containing 8,800 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Palpara GPS
Educational Institute ID	99412030305
District	Cox's Bazar
Upazila	Cox's Bazar Sadar
Union	Eidgaon
Owner of land	GPS
Catchment household	1,700
Catchment Population	8,850 (Male: 4514, Female: 4336)
Profession	Farmer 80%, Businessmen 10% and others 10%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Middle Shiapara, Uttar Shiapara, Kaniar chara, Konapara and Palpara
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	12 ft. wide BC Shiapara Road connecting with Eidgaon-Baisari road on south side
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Palpara GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floor	3
Number of classroom	3

Teachers room	1
First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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

1.4 Location of Sub-Project

The Sub-project is located in the North-East side of Cox's Bazar Sadar Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 12ft wide BC Shiapara Road which is connected to the Eidgaon-Baisari road. Middle Shiapara jame mosque and graveyard are situated within 30m influences on the east side of the proposed location. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Cox's Bazar Sadar
Union	Eidgaon
GPS position	21.550556 N and 92.072778 E

Distance from Upazila HQ	35 km
Nearby major road	Eidgaon-Baisari road
Nearby river/canal	Kaniar chorra is located at 300m distance on north side and Eidgaon khal is located at 860m on west side of the sub-project component.
North side	Chakaria Upazila
South side	Ramu Upazila and The Bay of Bengal
East side	Ramu Upazila
West side	Maheshkhali channel, Maheshkhali Upazila, and The Bay of Bengal

[Sources of data: Field survey, September, 2021]

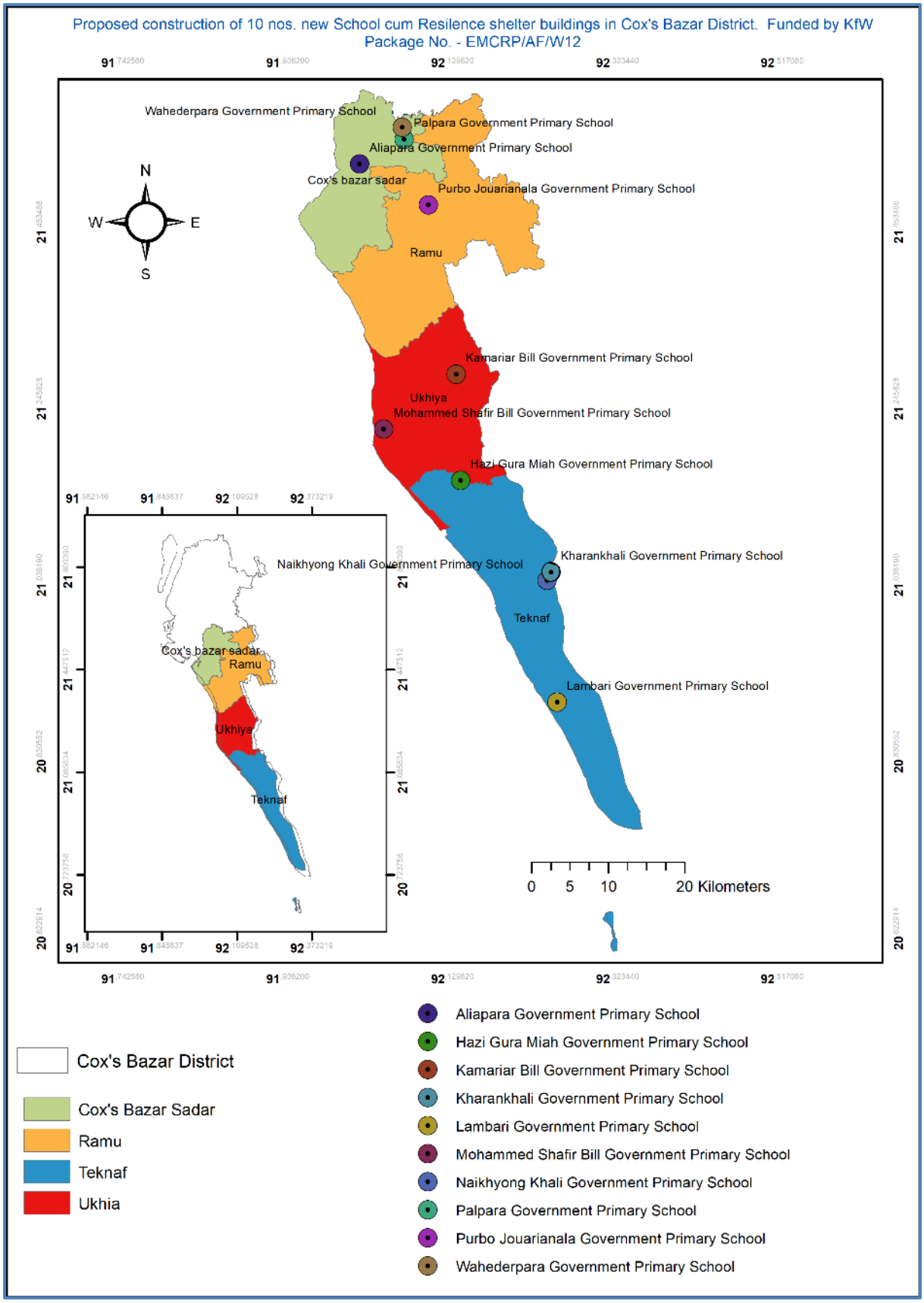


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

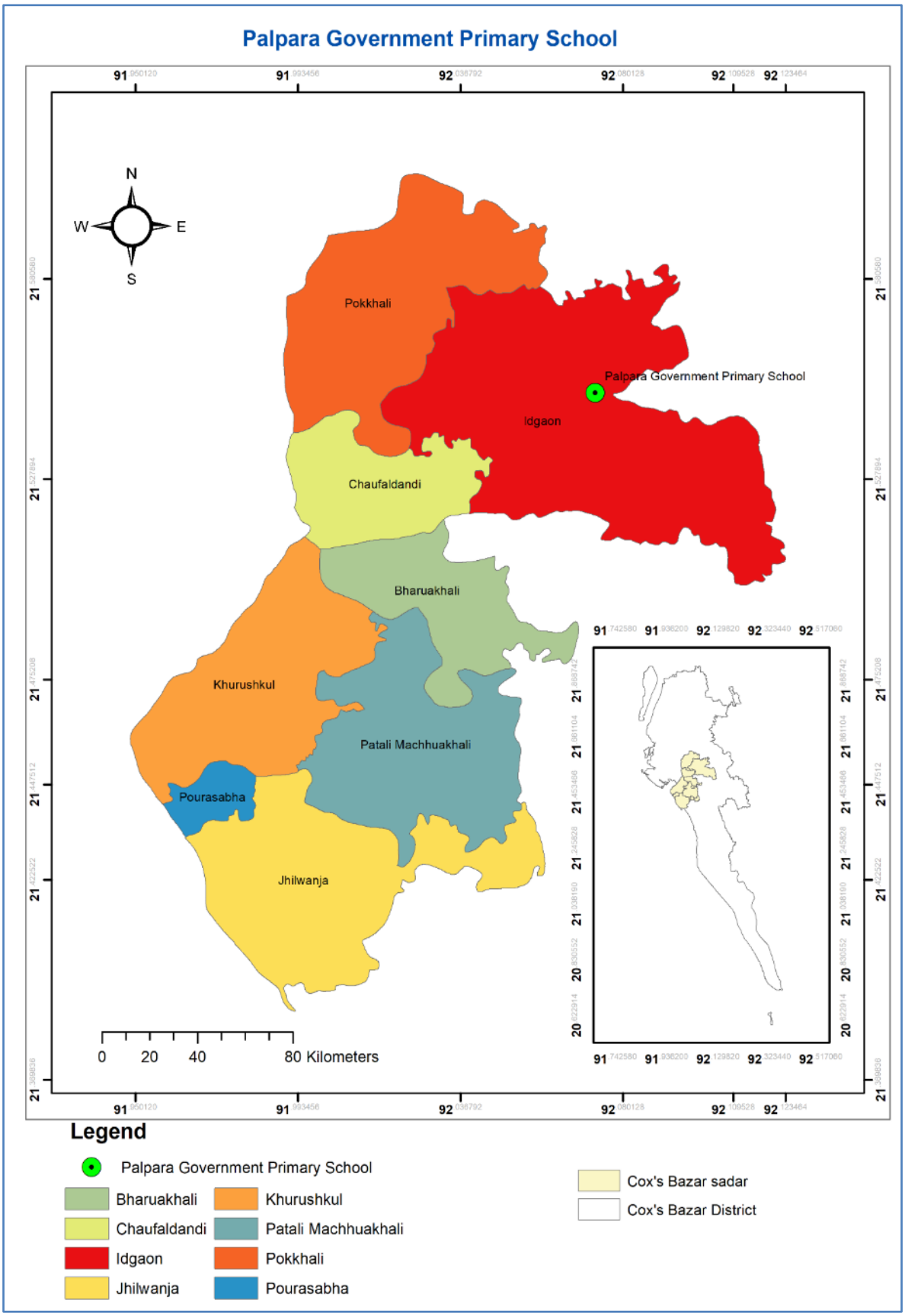


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

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

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Al-Nur Jame Mosque (250m), Kaniar chorra (300m), Vomariaghona Forest Office (900m), Eidgah adarsha shikkha niketon (700m north west)
South side	Konarpara graveyard (200m), Bar-Awliya Mazar Shorif (750m), Bar-Awliya jame Mosque cum Hefzakhana and graveyard(760m), Eidgah precadet school (400m), West vaditola central mosque (500m)
East side	Middle Shiyapara Jame Mosque and graveyard (30m), Konarpara Jame Mosque (500m), Social Forest (1km), Vomariaghona range hill (1km), Halim-Bin Abi Talib Madrashah (1km)
West side	Palpara Jagannath Mondir (800m), Palpara crematorium (820m), Palpara Kali Mondir (850m), Eidgaon Khal (860m), Kaniar chorra Jame Mosque (900m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Present condition of the proposed site and surrounding area



Figure 1.5.2: Location of the construction site (the one-story building shown on the picture will be demolished and replaced by the proposed building)

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 28 September 2021 in and around the Sub-project component 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 17 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Palpara GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate toilet facilities.
- Lack of the availability of dry foods and ready-made clothes during the disastrous events.
- Inadequacy of toilet facilities- separately for male and female.

2.3 Suggestions and recommendations of the participants

In summary, the participants presented the following suggestions and recommendations:

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.

- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 28 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project (construction of new school cum resilience shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The new School cum Resilience shelter building will be constructed within an existing school boundary demolishing/replacing an existing structure, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. Within the close proximity of the proposed construction site, agri/paddy land on all four sides (5-10m) except east side, Middle Shiapara mosque cum graveyard (30m) on the east and a road (5m) is located. Some settlements (250m north and 300m south-east) are found around the sub-project area. Kaniar chorra is located at 300m on north side and a khal named Eidgaon khal is situated 860m west on the sub-project area and Vomariaghona forest office is situated at 900m on the north side. There are found some religious establishments such as Al-Nur jame mosque at 250m on north side, Konarpara graveyard at 200m, Eidgaon precadet school at 400m, West vaditola central mosque at 500m and Bar Awlia Mazar Sharif at 750m on south side, Konarpara jame mosque at 500m on east side and Kaniar chara jame mosque at 900m, Palpara Jagannath mandir at 800m, Palpara Kali mandir at 850m as well as Palpara crematorium at 820m on west side 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. No significant disturbance to all these establishments/features is anticipated due to construction

activities for having sufficient distance from the construction site, and strict construction site management system including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials, etc.

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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effects generated from pilling and drilling may also trigger landslides and 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss.

Demolition works may pose similar impacts as construction activities; but health safety measures for the workers will be the prime concern during this period. Existing structures within the school boundary which need to be demolished are primarily brick built (with casting ceiling) containing no such insulation or materials having asbestos. As these are government structures, were built previously under the supervision of engineers from government agencies, using ACM (Asbestos Containing Materials) was also restricted all through the period in government construction sites, and absence of those hazardous materials in these structures has been confirmed as such by the respective Upazila Engineer (Government Engineer), and therefore, no specific mitigation measures is planned on this ACM issue.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.
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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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

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

shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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

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

The disaster shelter will be constructed on an existing old school building, there is no extra class room for teaching purposes, so as a mitigation measure new temporary school facilities should be constructed by the contractor within the south side of school boundary. No agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. Due to the construction activities of this Sub-project, 3-4nos. of trees (small and medium size) will be cut down and as a mitigation measure, 20 nos. of trees will be replanted in the periphery of the school. A mosque named middle Shiapara mosque cum graveyard (30m) and a road (5m) is located on the east side of the sub-project. Some settlements are found around of the proposed site might get affected during the construction period with the generated noise, debris and dust, though for a small period of time. As part of the standard mitigation measures and site management practices, Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the

responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

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

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

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

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

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

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM (GRM)

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system.

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 98 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Palpara GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)**Implementing Agency/Agencies**: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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

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

Name of Community/Local Area: Middle Shiapara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilience Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

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

Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, there are found a temporary tin shed class room, a shallow Tubewell, a toilet and some plum trees. An existing one stored old school building will be demolished during pre-construction period and the new one will be constructed there. Middle Shiapara jame mosque & graveyard are situated within 30m on east side of the sub-project. Al-nur jame mosque is found at 250m on north side and Konarpara graveyard is located at 200m on south side of the sub-project. A 12 feet road is passing on the east side and it is connected to the LGED road named Eidgaon-Baisari road. No Important environmental features are found within the sub-project. Some agricultural land is found on all sides except east side, adjacent to the school boundary. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because

of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to demolishing an old building and construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. A road named Shiapara road is passing on east side of the sub-project area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On the north side Al-Nur Jame Mosque (250m), Kaniar chorra (300m), Vomariaghona Forest Office (900m), Eidgah adarsha shikkha niketon (700m north west); on south side Konarpara graveyard (200m), Eidgaon precadet school (400m), West vaditola central mosque (500m), Bar-Awliya Mazar Shorif (750m), Bar-Awliya jame Mosque cum Hefzakhana and graveyard(760m); on east side Middle Shiyapara Jame Mosque and graveyard (30m), Konarpara Jame Mosque (500m), Social Forest (1km), Vomariaghona range hill (1km), Halim-Bin Abi Talib Madrashah (1km) and on west side Palpara Jagannath Mondir (800m), Palpara crematorium (820m), Palpara Kali Mondir (850m), Eidgaon Khal (860m), Kaniar chorra Jame Mosque (900m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.
Some human settlements on north side and agricultural lands on all sides except east side are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).
Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3- story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Eidgaon Union under Cox's Bazar Sadar Upazila of Cox's Bazar district. The sub-project area is located at 21.550556 N and 92.072778 E. The distance from the Upazila headquarter is about 35 km. Nearby major road is LGED road named Eidgaon-Baisari road. A 12 ft. wide Shiapara road passes by the sub-project site. Total available land area of this sub-project is 25 decimals. The school code is.99412030305

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site. There is an old structure which will be replaced by the proposed new multipurpose school building within the same boundary.

At north side Al-Nur Jame Mosque (250m), Kaniar chorra (300m), Vomariaghona Forest Office (900m), Eidgah adarsha shikkha niketon (700m north west); at south side Konarpara graveyard (200m), Eidgaon precadet school (400m), West vaditola central mosque (500m), Bar-Awliya Mazar Shorif (750m), Bar-Awliya jame Mosque cum Hefzakhana and graveyard(760m); at east side Middle Shiyapara Jame Mosque and graveyard (30m), Konarpara Jame Mosque (500m), Social Forest (1km), Vomariaghona range hill (1km), Halim-Bin Abi Talib Madrashah (1km) and at west side Palpara Jagannath Mondir (800m), Palpara crematorium (820m), Palpara Kali Mondir (850m), Eidgaon Khal (860m), Kaniar chorra Jame Mosque (900m) are located of the sub-project area. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having

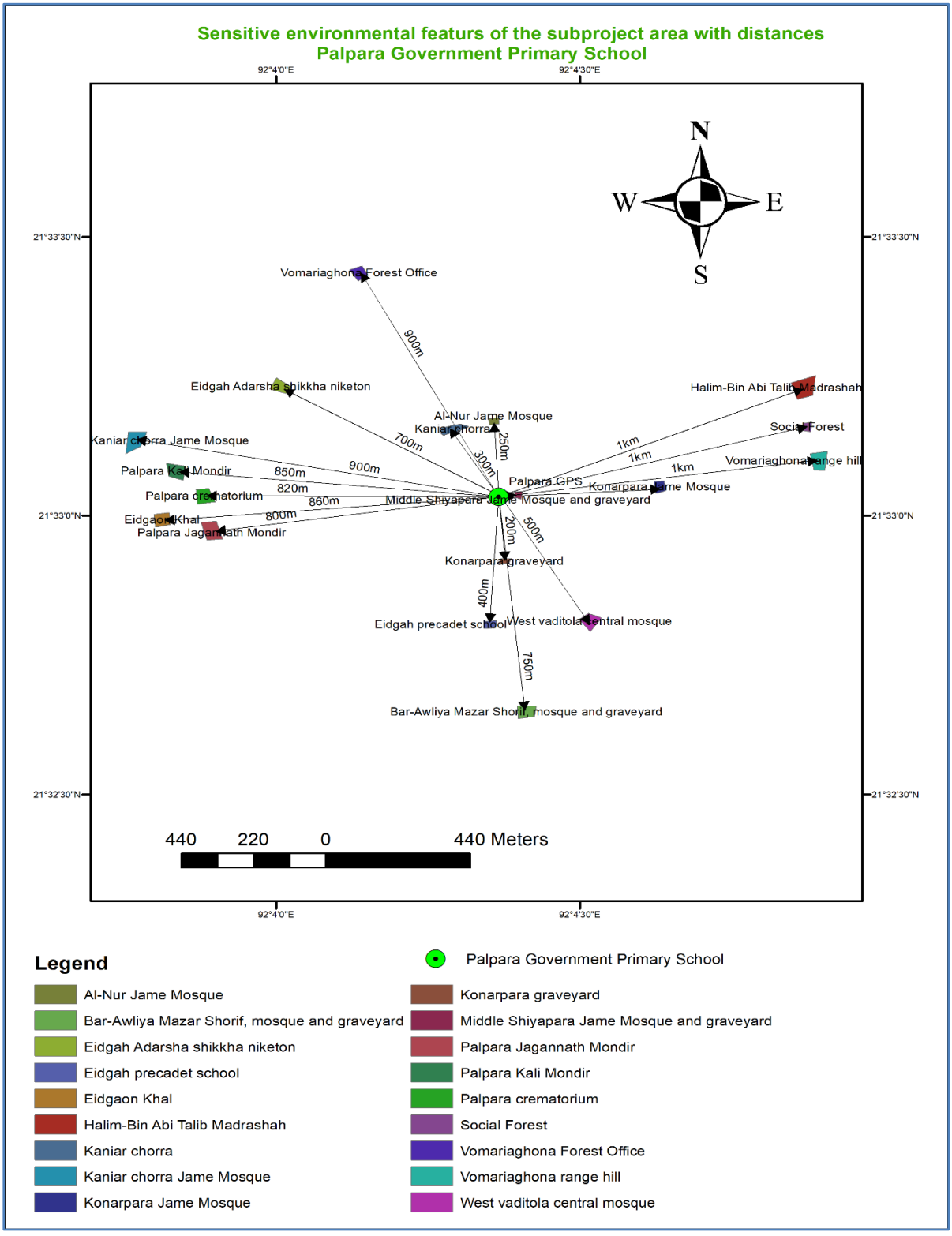
sufficient distance from the proposed site. Besides these components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

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:
Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side Al-Nur Jame Mosque (250m), Kaniar chorra (300m), Vomariaghona Forest Office (900m), Eidgah adarsha shikkha niketon (700m north west); at south side Konarpara graveyard (200m), Eidgaon precadet school (400m), West vaditola central mosque (500m), Bar-Awliya Mazar Shorif (750m), Bar-Awliya jame Mosque cum Hefzakhana and graveyard(760m); at east side Middle Shiyapara Jame Mosque and graveyard (30m), Konarpara Jame Mosque (500m), Social Forest (1km), Vomariaghona range hill (1km), Halim-Bin Abi Talib Madrashah (1km) and at west side Palpara Jagannath Mondir (800m), Palpara crematorium (820m), Palpara Kali Mondir (850m), Eidgaon Khal (860m), Kaniar chorra Jame Mosque (900m) but there is no scope to be affected significantly by the construction activities.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below:



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, graveyard, madrasah, high school and human settlement were found during the survey. Those will not be affected by the construction works, as the activities will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. One shallow tube-well is found within the school boundary. The shallow depth is about 240-270 feet. Teachers and students consume water from this shallow tube-well. They are reportedly suffer from different water borne diseases at times. In the sub-project area, deep groundwater is salty but arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 700-850ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.19mg/l, TDS-23.40 to 325 mg/l, EC -25.7 to

681µs/cm, Fe-0.5 to 7.6 mg/l and As-Nil (IWM Study Report, 2020)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A 12ft. wide Shiapara road is passing by the east side of the sub-project. It is connected with LGED road named Eidgaon-Baisari road. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: One shallow tube-well is found within the school boundary and aquifer depth is about 250-300 feet. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: Private land of Shahidul Haque at Shiapara which is adjacent to the existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): About 12ft. wide Shiapara road is the main way for transportation of raw/construction materials. It

is located on eastside of the adjacent sub-project site and connected to the Eidgaon-Baisari road.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local Communities. Considering the criteria, north side within the school boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during preconstruction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 10 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp. **Liquid waste**: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 289.54 sq. meter soil land is required for the sub-project establishment. There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.
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 Kaniar chorra is located at 300m on north side and Eidgaon khal is located at 860m on west side, which are clearly outside of the construction area and 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 aquatic species. There are some terrestrial flora species around the subproject site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent HBB road; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution works are intensified for the sheltered people. 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 school cum resilience shelter building will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
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 near surface water bodies of the sub-project boundary area except Kaniar chorra at 300m on north side and Eidgaon khal at 860m on west side are located and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) There is no protected area in or around the subproject sites, and no known areas of ecological interest. In fact, none of the usual activities taken place in a school site during the operation phase is likely to potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 situated near to a locality. A BC road connects the sites with the LGED road

named Eidgaon-Baisari road. The roads are mainly used for pedestrian access and by 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 loose soil being dispersed around during the dry weather, and accidents may occur due to bad condition of the access roads 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 and Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 might negatively	Contractor, Environmental Specialists of PIU and 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
			affect surface and ground water. • Monitor water quality according to the environmental management plan.			
2.Pre-construction Phase	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Constructio n works.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	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 off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	Contractor, Environmental Specialists of PIU and 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
	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 (in terms of access and distance from their living place) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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.	Contractor, Environmental Specialists of PIU and 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
	Accidents	Under the sub-project intervention the overall score is low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	Under the sub-project	• Damp down exposed soil and any sand stockpiled on site by spraying with water during	Contractor, Environmental	Location of stockpiles,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	intervention the overall score is low.	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.	Specialists of PIU and D&SC	Covering of trucks, Records 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 Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 Specialists of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly
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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic.	Contractor, Environmental Specialists of PIU and D&SC	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			• 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.			
	Odor & waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor; and monitored by Consultant of D&SC and PIU	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 of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		higher priority in recruitment.			
Pre-Construction Stage	Stakeholders Engagement	• All the project stakeholders will be consulted • Separate community level consultation meeting with the potentially affected HHs • Consultation meeting with nearby residents and other stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.	-Do-	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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-	Site Selection for	• Workers camp, site office and stack yard should be	-Do-	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Construction Stage	workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made. • No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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.			Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	project).	for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.			
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.	Contractor	Environmental Consultant of PIU, D&SC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).			
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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction work starts.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement and operation of heavy machineries and	Project ESMF (Table 8.2: ESMP	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		equipment. • Local community will be trained up about traffic management and awareness.	Guideline for Multi-Purpose Disaster Shelter; p.94-100)		
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour forces. • Labor code of conduct is to be disclosed through consultation.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers	-Do-		

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.			
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas. • Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared and relevant staff shall be trained through mock-up drills.			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE.	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• 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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage: • Pollution from	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	waste materials. • Health & Safety risks to workers and local community	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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
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.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Waste Management Plan (as guided in IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For demolition only:

- All electric, gas, water, sewer, and other energy services or power lines shall be capped/blinded and/or otherwise cut before the commencement of demolition work;
- For any existing facilities with ACM (Asbestos Containing Materials), it is necessary to develop an asbestos management plan beforehand, which clearly identifies the locations through survey where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities. Handling of asbestos and removal or disposal of the same will be carried out with the direct supervision and guidance of an experienced expert.
- All asbestos, insulation materials, glass and other hazardous materials and substances must not be stored within the structure to be demolished;
- Openings and weak flooring shall be prominently marked or barricaded before the commencement of demolition. Operators of machinery and equipment and workers involved in demolition work shall be informed of such hazardous location;
- Demolition work shall commence from the top of a structure and progress downward;
- Proper entrances of adequate strength to protect workers from falling materials shall be erected for access into the structure;
- The entire demolition site shall be effectively barricaded with appropriate safety signs displayed;
- The lower floor where demolition wastes are collected shall be properly barricaded and guarded to prevent materials from ricocheting and injuring workers or passer-by;
- Excessive debris shall not be allowed to accumulate inside a demolished structure. All demolition waste and debris shall be cleared from the work site on a daily basis.
- Refuse containers shall be provided at worksite for the storage of demolition waste and debris.

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).

- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.
- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000 Tk.*24	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			months*(1/10 one shelter). (Net payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person(twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of	20 nos.	@ Tk. 1000 for each tree.	20,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	trees need to be replanted along the periphery of the proposed site at an interval of 10 feet.			
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**498,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting

Palpara Government Primary School
Package Number: EMCRP/AF/W12

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Additional Financing
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

EMCRP/AF/W12

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
০১	জনাব, নুরুল আলম	৫০	পুরুষ	কালিয়াড়া	
০২	" আলম কান্তি দত্ত	৪৭	"	পিরলীপট্টী	
০৩	" রেনুকা কানন	৪১	নারী	পালপাড়া	
০৪	" মিঠুরানী কানন	৪২	"	কালিপাড়া	
০৫	" মোহাম্মদ নুর	৪৫	পুরুষ	কালিয়াপাড়া	
০৬	" আবদুল কুদ্দুস	৫০	"	কালিয়াপাড়া	
০৭	" জিয়াউল হক	২৮	"	কালিয়াপাড়া	
০৮	মোহাম্মদ নুরুল হক	৬২	"	কালিয়াপাড়া	
০৯	মোহাম্মদ মনজুর আলম	৪০	"	কালিয়াপাড়া	
১০	মোহাম্মদ সোলতান আহমদ	২৮	"	কালিয়াপাড়া	
১১	মোহাম্মদ রফিকুল	৪০	"	কালিয়াপাড়া	
১২	[illegible]	৪৫	নারী	কালিয়াপাড়া	
১৩	[illegible]	৪২	"	কালিয়াপাড়া	
১৪	মোহাম্মদ মাইনুল	২৯	পুরুষ	কালিয়াপাড়া	
১৫	মোহাম্মদ শহিদুল্লাহ	৬৮	"	কালিয়াপাড়া	
১৬	মোহাম্মদ জিয়াউল	৫০	"	কালিয়াপাড়া	
১৭	মোহাম্মদ হাফিজ	৪০	"	কালিয়াপাড়া	

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Purbo Joarianala Govt. Primary School
Educational Institution ID: 412049004
Village: Purbo Joarianala; Union: Joarianala; Upazila: Ramu
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

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

1.2 Rationale of Site Selection for resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025, under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster

shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Joarianala union of Ramu Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Purbo Joarianala, VIP Paharpara, Forest office para and Murapara. Typical rural settings of the area offer farmers to be in the prime professional engagement, while the businessmen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 1,578 households, containing 7,100 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Purbo Joarianala GPS
Educational Institute ID	412049004
District	Cox's Bazar
Upazila	Ramu
Union	Joarianala
Owner of land	GPS
Catchment household	1,578
Catchment Population	7,100 (Male: 3,560, Female: 3,540)
Profession	Farmer 65%, Businessman 15%, Employee 10% and others 10%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Purbo Joarianala, VIP Paharpara, Forest office para and Murapara
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	15ft. wide BC Joarianala-Bangdaba-Baisari road on east side connected with Arakan road
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Purbo Joarianala GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floors	3
Number of classrooms	3
Teachers room	1
First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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 on the east side of Ramu Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 15ft wide BC village road on the east side which is connected to the Arakan road. Upazila headquarter is at a distance of nearly 5.5km from the site. One mosque named Baitul Falah jame mosque cum graveyard is situated within 10m on west side of the proposed location. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Ramu
Union	Joarianala
GPS position	21.473333 N and 92.101389 E
Distance from Upazila HQ	5.5 km
Nearby major road	Joarianala-Bangdaba-Baisari road
Nearby river/canal	Old vora khal is situated on the adjacent of school boundary and sonaichori khal is at 300m distance on south side of the sub-project component.
North side	Chakaria and Cox's Bazar Sadar Upazila
South side	Ukhiya and Naikhyongchhari Upazila
East side	Naikhyongchhari Upazila
West side	Cox's Bazar Sadar and the Bay of Bengal

[Sources of data: Field survey, September, 2021]

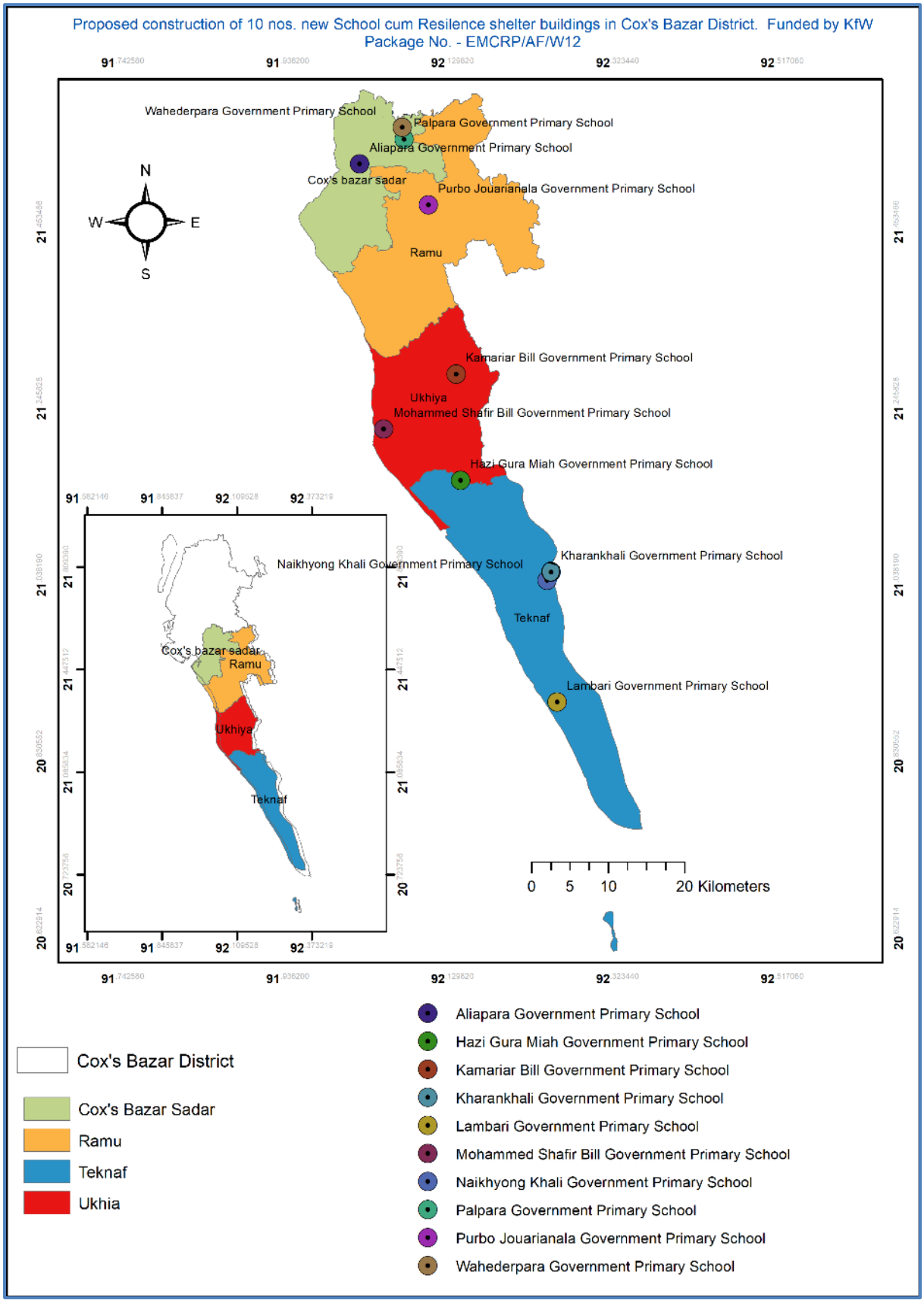


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

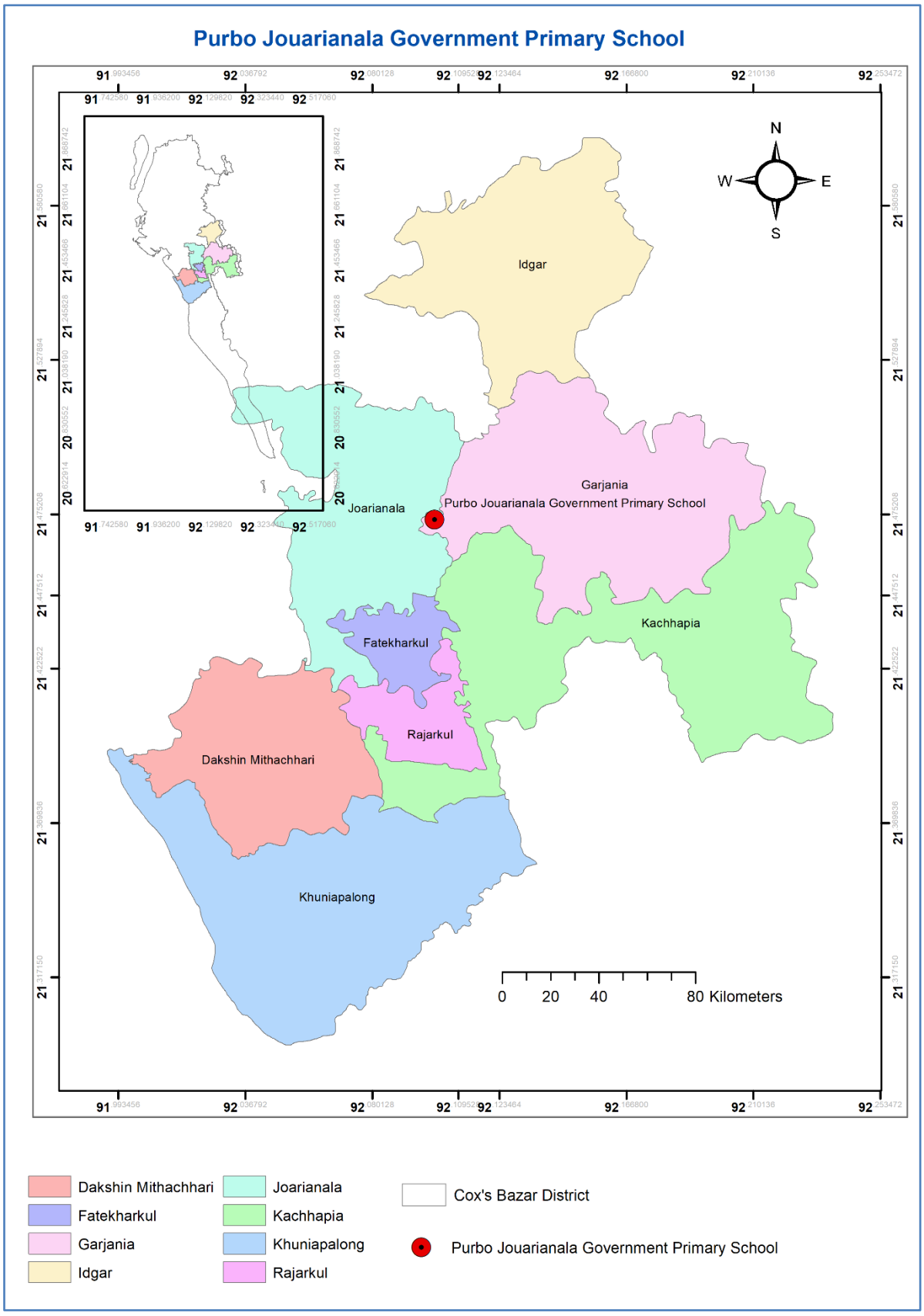


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

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

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Old Vora khal (5m), Baitul Falah jame mosque (40m), Shikdar para jame mosque (400m north east), Purbo Morapara hill (1km)
South side	Sonaichori khal (300m), Moulavipara Jame Mosque (500m), Joarianala Bazar (1km)
East side	Purbo Shikderpara jame mosque & graveyard (400m), East joarianala jame mosque (400m), Purbopara Jame mosque (800m), Joarianala range office (1km), Forest office jame mosque (1km), Painyachori chorra (1km), Painyachori hill (1km), Horin khaoya hill (1km),
West side	Baitul-Falah graveyard (10m), Joarianala Emdadul Ulum Madrasah (400m), Arakan road (400m), Raingarpara mosque (700m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Present condition of the proposed site and surrounding area



Figure 1.5.2: Location of the construction site

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 September 2021 in and around the Sub-project component site. As part of the impact assessment, participatory public consultation was conducted in that area by the field level staffs, and consultants from PIU and D&SC. The consultation meeting was attended by 18 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Purbo Joarianala GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate toilet facilities.

- Lack of the availability of dry foods and ready-made clothes during the disastrous events.

2.2 Issues Raised by the Participants

In summary, the participants presented the following suggestions and recommendations:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children at the sites during construction works.
- Inadequate toilet facilities.
- Lack of the availability of dry foods and ready-made clothes during the disastrous events.
- Inadequacy of toilet facilities- separately for male and female.

2.3 Suggestions and recommendations of the participants

The participants presented the following suggestions and recommendations (summary):

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.
- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 26 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project (construction of new school cum resilience shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The new School cum Resilience shelter building will be constructed within an existing school boundary, so 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. A khal named Puratan vora khal (fish farming project) is situated at north side adjacent to the school boundary. Another khal named Sonaichori khal is located at 300m on south side of the sub project. Baitul Falah jame mosque is found at 40m on north side as well as graveyard is at 10m on west side and Shikdar para jame mosque is located at 400m on north-eastern side of sub-project. There are found three mosques Purbo Shikderpara jame mosque cum graveyard at 400m, Purbopara Jame mosque at 800m, East jarinala jame mosque at 400m and Joarianala forest range office at 1km on east side of the sub-project. A 15ft. BC village connecting road is passing on south side from the targeted location. Some settlements (150m north and 100m east) are found around the sub-project area. No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials, etc. 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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effects 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance may also trigger habitat loss. All these impacts can only be prevented or minimized by adopting measures delineated into the ESMP and good practice engineering and site management.

Demolition works may pose similar impacts as construction activities; but health safety measures for the workers will be the prime concern during this period. Existing structures within the school boundary which need to be demolished are primarily brick built (with casting ceiling) containing no such insulation or materials having asbestos. As these are government structures, were built previously under the supervision of engineers from government agencies, using ACM (Asbestos Containing Materials) was also restricted all through the period in government construction sites, and absence of those hazardous materials in these structures has been confirmed as such by the respective Upazila Engineer (Government Engineer), and therefore, no specific mitigation measures is planned on this ACM issue.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also,

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

rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also, forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.

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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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 shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

Considering the environmental settings of the sub-project area, it can be assumed that possible impacts would be largely construction-related, and could be addressed through adoption of good

engineering practices; good housekeeping; better *in-situ* construction materials management; and observance of health and safety protocols during the implementation period.

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

The proposed cyclone shelter will be constructed on a plain land where some bushes is found on the south side. Due to the construction activities of this Sub-project, trees (small and medium size) will not be cut down but due to aesthetic appearances 10 nos. of trees will be planted in the periphery of the school. Some important socio-environmental features, such as a fish farming project is situated at 10m north and two clusters of human settlement is found at (150m north and 100m east) from the sub-project area, Baitul Falah jame mosque cum graveyard is found within 40m of the construction site, which might get affected during the construction period with the generated debris and dust, though for a small duration. As part of the standard mitigation measures and site management practices, Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction

induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

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

Following the additional health and safety measures presented in that guideline, sub-project specific BOQ items have been inserted to supplement the budget considering the country-specific situation,

capacities, and scope of interventions. The additional cost to Health and Safety Measures under COVID 19 situation is shown in Appendix-3.

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

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

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

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

the field. Local Engineers from LGED and PIU safeguards specialists shall ascertain that contractors cleaning and reclamation works after the decommissioning of sites/ end of construction works are perfectly done, and will also suggest for punitive measures against the contractors if any negligence or indifference is found in following the ESMP to the fullest effectiveness.

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points

(member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system.

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 88 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Purbo Joarianala GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)

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

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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

District: Cox's Bazar **Sub-District**: Ramu **Union**: Joarianala

Name of Community/Local Area: Purbo Joarianala

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

One Multipurpose Resilience Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

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

Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, there are a two-story building, an existing one-story school building, 3 nos. of Tubewells and 2 toilets. Total land area of this site is about 40 decimals. Baitul Falah jame mosque and graveyard is situated within 40m of the sub-project. There are two mosques named Joarianala Emdadul Ulum Madrasah at 400m and Raingarpara mosque at 700m are found on west side of the sub-project. A 10 ft wide Miajipara school linking HBB road on north side and the nearby major road is Loarianala-Bangdaba-Baishari road located within 5m on the south side of the sub-project. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities.Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because

of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On the north side Puratan Vora khal (5m), Purbo Morapara hill (1km), Shikdar para jame mosque (400m north east), Baitul falah jame mosque (40m); on south side Sonaichori khal (300m), Moulavipara Jame Mosque (500m), Joarianala Bazar (1km); on east side Purbo Shikderpara jame mosque & graveyard (400m), East jarinala jame mosque (400m), Purbopara Jame mosque (800m), Joarianala range office (1km), Forest office jame mosque (1km), Painyachori chorra (1km), Painyachori hill (1km), Horin khaoya hill (1km) and on west side Baitul-Falah graveyard (10m), Joarianala Emdadul Ulum Madrasah (400m), Arakan road (400m), Raingarpara mosque (700m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples, graveyards and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

Some human settlements are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below.

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose Resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3- story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Joarianala Union under Ramu Upazila of Cox's Bazar district. The sub-project area is located at 21.473333 N and 92.101389 E. Catchment village of this sub-project area are Purbo Joarianala, VIP Paharpara, Forest office para and Murapara. The distance from the Upazila headquarter is about 5.5 km. Total available land area of this sub-project is 40 decimals. The school code is.412049004

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site.

At north side Puratan Vora khal (5m), Purbo Morapara hill (1km), Shikdar para jame mosque (400m north east), Baitul falah jame mosque (40m); at south side Sonaichori khal (300m), Moulavipara Jame Mosque (500m), Joarianala Bazar (1km); at east side Purbo Shikderpara jame mosque & graveyard (400m), East jarinala jame mosque (400m), Purbopara Jame mosque (800m), Joarianala range office (1km), Forest office jame mosque (1km), Painyachori chorra (1km), Painyachori hill (1km), Horin khaoya hill (1km) and at west side Baitul-Falah graveyard (10m), Joarianala Emdadul Ulum Madrasah (400m), Arakan road (400m), Raingarpara mosque (700m) are located of the sub-project area. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having sufficient distance from the proposed site. Besides these components, no

other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

Section B: Environmental Screening

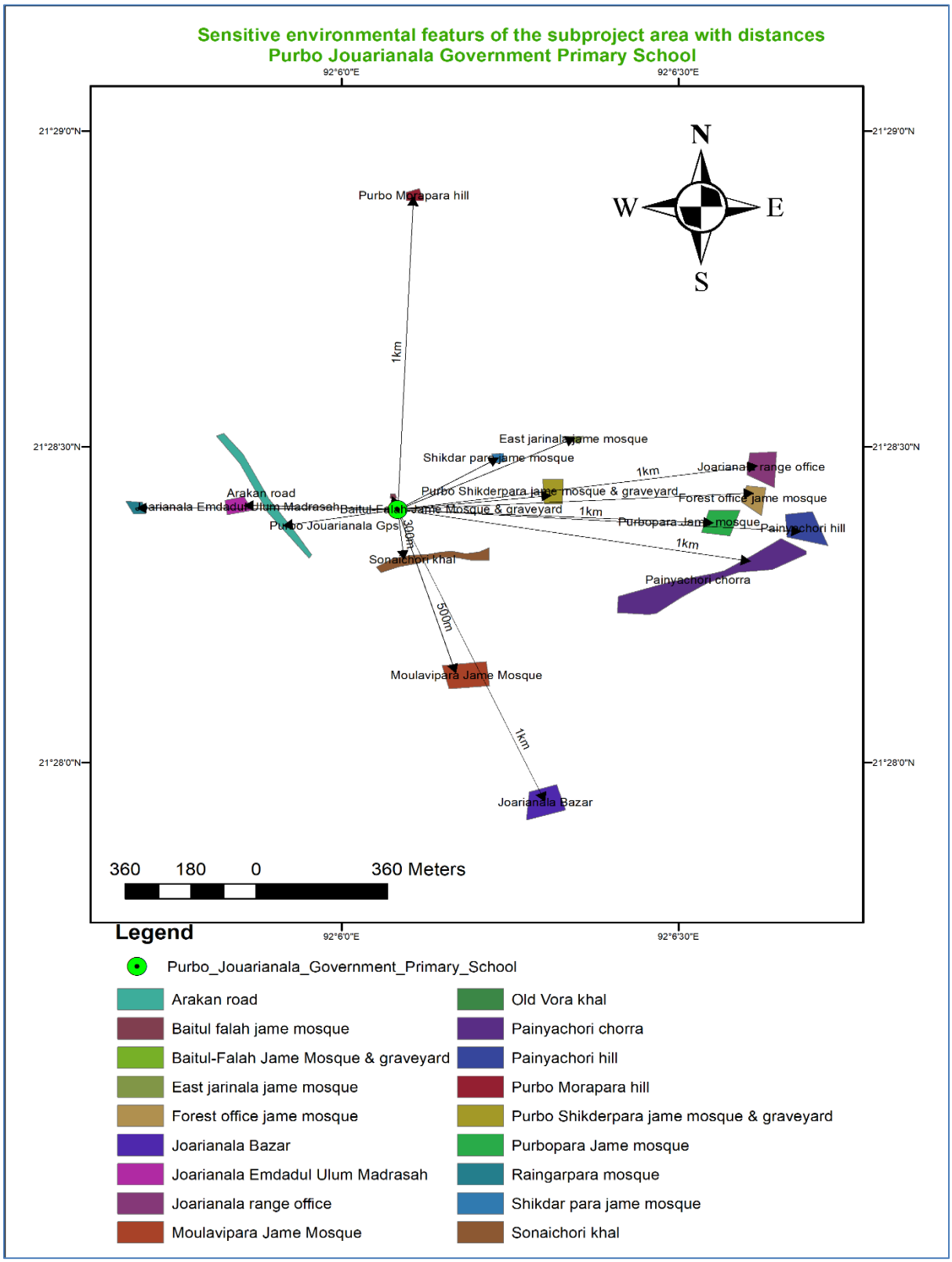
***B.1*: Environmental feature of sub-project location**

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:

Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side Puratan Vora khal (5m), Purbo Morapara hill (1km), Shikdar para jame mosque (400m north east), Baitul falah jame mosque (40m); at south side Sonaichori khal (300m), Moulavipara Jame Mosque (500m), Joarianala Bazar (1km); at east side Purbo Shikderpara jame mosque & graveyard (400m), East jarinala jame mosque (400m), Purbopara Jame mosque (800m), Joarianala range office (1km), Forest office jame mosque (1km), Painyachori chorra (1km), Painyachori hill (1km), Horin khaoya hill (1km) and at west side Baitul-Falah graveyard (10m), Joarianala Emdadul Ulum Madrasah (400m), Arakan road (400m), Raingarpara mosque (700m) but there is no scope to be affected significantly by the construction activities.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below:



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, graveyard, madrasa, shops and human settlement were found during the survey. Those will not be affected by the construction works, as the activities

will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. Two shallow Tubewells and one deep tube-well are found within the school boundary. The shallow Tubewell depth is about 60-70ft and the deep Tubewell depth is about 660 feet. But the shallow tube well is not working properly. Teachers and students consume water from these shallow tube-wells. They are reportedly suffer from different water borne diseases at times. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 500-700ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes.

Groundwater quality: pH-5.17 to 8.57, DO-2.26 to 8.20mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.5 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A 15ft. wide BC Joarianala-Bangdaba-Baisari road is passing by the south side of the sub-project. It is connected with Arakan road. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Two shallow Tubewells and one deep tube-well are found within the school boundary. The shallow Tubewell depth is about 60-70ft and the deep Tubewell depth is about 660 feet. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: On north side within the existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): About 15ft. wide BC Joarianala-Bangdaba-Baisari road is the main way for transportation of

raw/construction materials. It is located on south side of adjacent sub-project site and connected to the Arakan road.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local Communities. Considering the criteria, north side within the school boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during preconstruction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 8 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp. **Liquid waste**: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 289.54 sq. meter soil land is required for the sub-project establishment. There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.
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) One khal named Puratan vora khal is at 5m on north side which is adjacent to the construction are, might be affected due to dust, noise and by construction waste or debris and Sonaichori khal is located at 300m on south side which are clearly outside of the construction area and 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 aquatic species. There are some terrestrial flora species around the subproject site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent BC road; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution work is intensified for the sheltered people. 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 school cum resilience shelter building will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) One surface water bodies are present within the sub-project boundary area, and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) There is no protected area in or around the subproject sites, and no known areas of ecological interest. In fact, none of the usual activities taken place in a school site during the operation phase is likely to potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 locality. A BC road connects the sites with Arakan road. 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 loose soil being dispersed around during the dry weather, and accidents may occur due to bad condition of the access roads 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 and Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 might negatively	Contractor, Environmental Specialists of PIU and 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
			affect surface and ground water. • Monitor water quality according to the environmental management plan.			
2.Pre-construction Phase	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Constructio n works.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	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 off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	Contractor, Environmental Specialists of PIU and 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
	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 (in terms of access and distance from their living place) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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.	Contractor, Environmental Specialists of PIU and 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
	Accidents	Under the sub-project intervention the overall score is low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	Under the sub-project	• Damp down exposed soil and any sand stockpiled on site by spraying with water during	Contractor, Environmental	Location of stockpiles,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	intervention the overall score is low.	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.	Specialists of PIU and D&SC	Covering of trucks, Records 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 Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 Specialists of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly
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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic. • All imported materials are to be removed and	Contractor, Environmental Specialists of PIU/D&SC, XEN, Cox's Bazar.	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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.			
	Odor & waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor; and monitored by Consultant of D&SC and PIU	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 of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	-Do-	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 • Consultation meeting with nearby residents and other	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.			
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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made.	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime	Project ESMF (Table 8.2: ESMP	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).	Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.		D&SC
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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		roads/access roads for limiting dust generation.			
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction 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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		forces. • Labor code of conduct is to be disclosed through consultation.			
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.	-Do-		
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • 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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	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.	• Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal sludge from latrines is to be undertaken properly, if	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and local community	management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		be ensured. • Water tanks should be cleaned properly at least once in a quarter.			

Waste Management Plan (as guided by the IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For demolition only:

- All electric, gas, water, sewer, and other energy services or power lines shall be capped/blinded and/or otherwise cut before the commencement of demolition work;

- For any existing facilities with ACM (Asbestos Containing Materials), it is necessary to develop an asbestos management plan beforehand, which clearly identifies the locations through survey where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities. Handling of asbestos and removal or disposal of the same will be carried out with the direct supervision and guidance of an experienced expert.
- All asbestos, insulation materials, glass and other hazardous materials and substances must not be stored within the structure to be demolished;
- Openings and weak flooring shall be prominently marked or barricaded before the commencement of demolition. Operators of machinery and equipment and workers involved in demolition work shall be informed of such hazardous location;
- Demolition work shall commence from the top of a structure and progress downward;
- Proper entrances of adequate strength to protect workers from falling materials shall be erected for access into the structure;
- The entire demolition site shall be effectively barricaded with appropriate safety signs displayed;
- The lower floor where demolition wastes are collected shall be properly barricaded and guarded to prevent materials from ricocheting and injuring workers or passer-by;
- Excessive debris shall not be allowed to accumulate inside a demolished structure. All demolition waste and debris shall be cleared from the work site on a daily basis.
- Refuse containers shall be provided at worksite for the storage of demolition waste and debris.

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).
- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.

- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000 Tk.*24 months*(1/10	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			one shelter). (Net payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C	20 persons	Approx. @ Tk. 1000.per person(twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted along the periphery of the proposed site at an interval of 10 feet.	10 nos.	@ Tk. 1000 for each tree.	10,000

Sl no.	Description of item	Quantity	Unit price	Total amount
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**488,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting



Purbo Jouarianala Government Primary School
Package Number: EMCRP/AF/W12

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Additional Financing
Local Government Engineering Department (LGED)
Public Consultation Participants List
Focus Group Discussion

EMCRP/AF/W12

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১.		৫৪	পুরুষ	পূর্ব জোয়ারিয়ানালা	
২.		৫৮	নারী	ঐ	
৩।		৪৮	পুরুষ	ঐ	
৪		৭৫	ঐ		
৫					
৬।		৪৩	নারী	ঐ	
৭।		৬২	পুরুষ	ঐ	
৮.		৬৮	নারী	ঐ	
৯.		৩১	পুরুষ	ঐ	
১০		৩৫	ঐ	ঐ	
১১		৪৮	নারী	ঐ	
১২		৫৫	পুরুষ	ঐ	
১৩		৫০	ঐ	ঐ	
১৪		৫০	ঐ	ঐ	
১৫।		৪৫	ঐ	ঐ	
১৬।		৩৭	ঐ	ঐ	
১৭।		৩৫	ঐ	ঐ	
১৮		৫৫	ঐ	UG. Ramu	

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Wahederpara Govt. Primary School
Educational Institution ID: 91412070306
Village: Khodaibari; Union: Islamabad; Upazila: Cox's Bazar Sadar
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

1.2 Rationale of Site Selection for resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025, under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different

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

coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Jaliapalong union of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Khodaibari, Wahederpara, West Gazalia and Awliabad. Typical rural settings of the area offer farmers to be in the prime professional engagement, while the fishermen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 432 households, containing 2,160 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	Wahederpara GPS
Educational Institute ID	91412070306
District	Cox's Bazar
Upazila	Cox's Bazar Sadar
Union	Islamabad
Owner of land	GPS
Catchment household	432
Catchment Population	2,160 (Male: 1,085, Female: 1,075)
Profession	Farmer 70%, fishermen 15% and others 15%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Khodaibari, Wahederpara, West Gazalia and Awliabad
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	1m wide muddy Road connecting with Arakan road on west side
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Wahederpara GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floor	3
Number of classroom	3
Teachers room	1
First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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

1.4 Location of Sub-Project

The Sub-project is located in the North-East side of Cox's Bazar Sadar Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 1m wide muddy Road which is connected to the Arakan road. A mosque named Baitul ijjat jame mosque is found at 100m on north side and Dokhinpar pond at 20m & Wahederpara jame mosque at 300m on south east side of the proposed location. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Cox's Bazar Sadar
Union	Islamabad
GPS position	21.564417 N and 92.070611 E
Distance from Upazila HQ	33 km
Nearby major road	Arakan road
Nearby river/canal	Dokhinpar pond is located at 20m distance on south side, Eidgaon khal at 300m on east side and Hasher dighi pond at 50m on west side of the sub-project component.
North side	Chakaria Upazila
South side	Ramu Upazila and The Bay of Bengal
East side	Ramu Upazila
West side	Maheshkhali channel, Maheshkhali Upazila, and The Bay of Bengal

[Sources of data: Field survey, September, 2021]

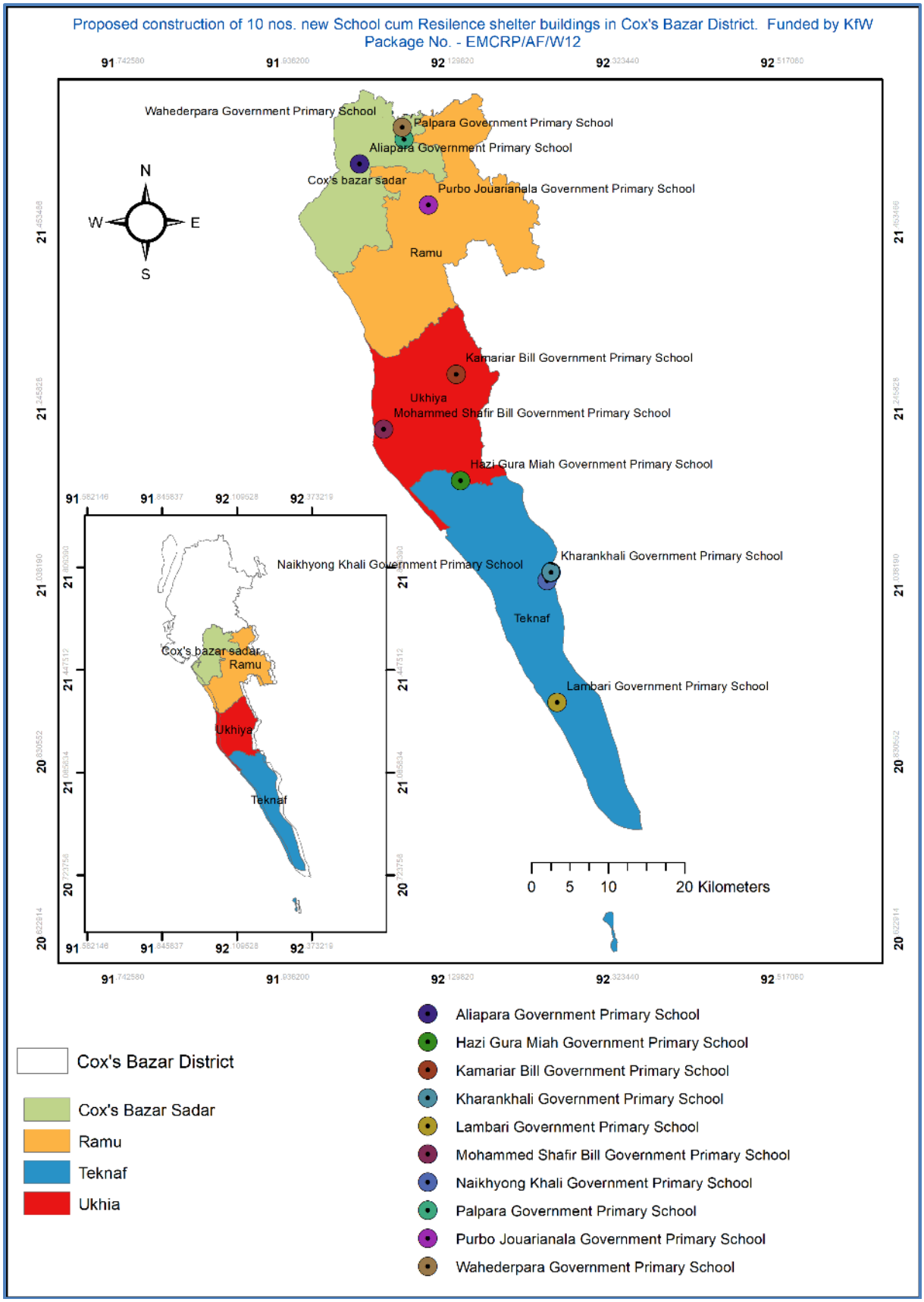


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

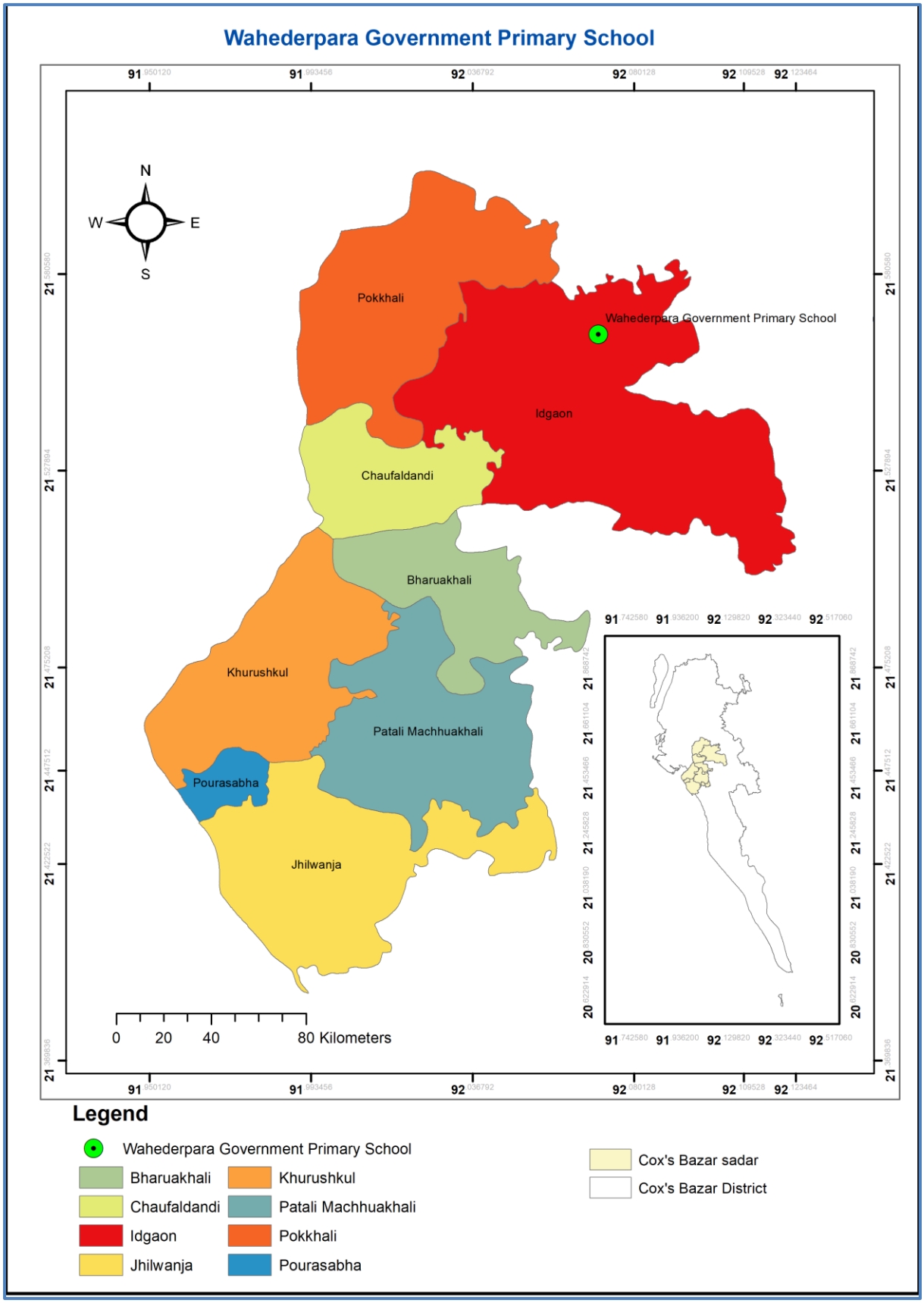


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

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

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Daladoya Central Jame Mosque & graveyard (500m), Brick field (550m), Baitul ijjat jame mosque (100m)
South side	Dokhinpar pond (20m), A.G Lutful Kabir Madrasah (500m), A.G Lutful Kabir Jame Mosque & Hefzakhana (530m), South Jamiul kala Jame Mosque (1km), Kania chara jamo mosque(500m), Wahederpara jame mosque (300m south east)
East side	Brac School (200m), Eidgaon khal (300m)
West side	Arakan road (10m), Hasher dighi pond(50m), Hasher Dighi Jame Mosque (55m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Present condition of the proposed site and surrounding area



Figure 1.5.2: Location of the construction site (the tin shed building shown on the picture will be demolished and replaced by the proposed building)

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 28 September 2021 in and around the Sub-project component 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 11 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Wahederpara GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed

manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.
- Inadequate and separate (for male and female) toilet facilities.
- Lack of the availability of dry foods and ready-made clothes during the disastrous events.

2.3 Suggestions and recommendations of the participants

In summary, the participants presented the following suggestions and recommendations:

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.
- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 28 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project (construction of new school cum resilience shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The new Resilience shelter building will be constructed within an existing school boundary demolishing/replacing an existing structure, so 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. There are found some socio environmental establishments' such as Baitul ijjat jame mosque at 100m, Daladoya Central Jame Mosque & graveyard at 500m and a Brick field at 550m on north side of the sub-project. Two ponds are found within close proximity (Dokhinpar pond at 20m on south and Hasher dighi pond at 50m on west) of the construction site. Another central mosque named Wahederpara jame mosque at 300m on south east side and Hasher Dighi Jame Mosque at 55m on west side are located of the sub-project. Some human settlements are found within 200m on all side except south side of adjacent to the school boundary. No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials, etc. 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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effects 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance may also trigger habitat loss.

Demolition works may pose similar impacts as construction activities; but health safety measures for the workers will be the prime concern during this period. Existing structures within the school boundary which need to be demolished are primarily brick built (with corrugated Tin Sheet on the ceiling) containing no such insulation or materials having asbestos. As these are government structures, were built previously under the supervision of engineers from government agencies, using ACM (Asbestos Containing Materials) was also restricted all through the period in government construction sites, and absence of those hazardous materials in these structures has been confirmed as such by the respective Upazila Engineer (Government Engineer), and therefore, no specific mitigation measures is planned on this ACM issue.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also, rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also, forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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.

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

Considering the general climate change effects in Cox's Bazar area and offsetting the aggravating environmental situation due to the mass arrival of Rohingya communities, several specific measures including tree planation in sub-project areas, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in the vicinity of the subproject. Temperature has increased 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.

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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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 shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

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

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

The new School cum Resilience shelter building will be constructed within an existing school boundary so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. Due to the construction activities of this Sub-project, 4-5nos. of trees (small and medium size) will be cut down and as a mitigation measure, 25 nos. of trees will be replanted in the periphery of the school. There is a school named Brac School is situated on east side (200m) and some mosques named Baitul ijjat jame mosque at 100m on north side, Wahederpara jame mosque at 300m on south east side and Hasher Dighi Jame Mosque at 55m on west side are located of the sub-project. Dokhinpar pond at 20m on south side and Hasher dighi pond at 50m on west side of the sub-project area. These establishments 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 wastes management procedure and regular adoption of dust and noise control measures (spraying

of water at least twice a day) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. 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. As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept onsite as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

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

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

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

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

Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers, guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress

committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **05 Lac & 03 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Wahederpara GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)
Implementing Agency/Agencies: Local Government Engineering Department (LGED)
Estimated total cost of sub-project (in Taka): 463,510,000 Tk.
Estimated construction period duration: 24 months
Estimated Operation and Maintenance period (life of sub-project): 15 years
District: Cox's Bazar **Sub-District**: Cox's Bazar Sadar **Union**: Islamabad
Name of Community/Local Area: Khadaibari
Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilience Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:
Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, there are found existing two-storied school building, old tin shed school building, a wash block, dust bin and some trees. An existing tin shed old school building will be demolished during pre-construction period and the new one will be constructed there. Baitul ijjat jame mosque at 100m, Daladoya Central Jame Mosque & graveyard at 500m and a Brick field at 550m on north side of the sub-project. Two ponds are found within close proximity (Dokhinpar pond at 20m on south and Hasher dighi pond at 50m on west) of the construction site. Another central mosque named Wahederpara jame mosque at 300m on south east side and Hasher Dighi Jame Mosque at 55m on west side are located of the sub-project. A 1m muddy road is passing on the south side and it is connected to the Arakan road. Some agricultural land is found on all sides except west side adjacent to the school boundary. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments
People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to demolishing an old tin shed building and construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. Nearby major road named Arakan road is passing on west side of the sub-project area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On the north side Baitul ijjat jame mosque (100m), Daladoya Central Jame Mosque & graveyard (500m), Brick field (550m); on south side Dokhinpar pond (20m), A.G Lutful Kabir Madrasah (500m), A.G Lutful Kabir Jame Mosque & Hefzakhana (530m), South Jamiul kala Jame Mosque (1km), Kania chara jame mosque(500m); on south eastern side Wahederpara jame mosque (300m); on east side Brac School (200m), Eidgaon khal (300m) and on west side Arakan road (10m), Hasher dighi (50m), Hasher Dighi Jame Mosque (55m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

Some human settlements and agricultural lands are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below.

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3- story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be

constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Eidgaon Union under Cox's Bazar Sadar Upazila of Cox's Bazar district. The sub-project area is located at 21.564417 N and 92.070611 E. The distance from the Upazila headquarter is about 33 km. Nearby major road is LGED road named Arakan road. A 1m wide muddy road passes by the sub-project site. Total available land area of this sub-project is 40 decimals. The school code is.91412070306

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site. There is an old structure which will be replaced by the proposed new multipurpose school building within the same boundary.

At north side Baitul ijjat jame mosque (100m), Daladoya Central Jame Mosque & graveyard (500m), Brick field (550m); at south side Dokhinpar pond (20m), A.G Lutful Kabir Madrasah (500m), A.G Lutful Kabir Jame Mosque & Hefzakhana (530m), South Jamiul kala Jame Mosque (1km), Kania chara jame mosque(500m); at south eastern side Wahederpara jame mosque (300m); at east side Brac School (200m), Eidgaon khal (300m) and at west side Arakan road (10m), Hasher dighi (50m), Hasher Dighi Jame Mosque (55m) are located of the sub-project area. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having sufficient distance from the proposed site. Besides these components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

Section B: Environmental Screening

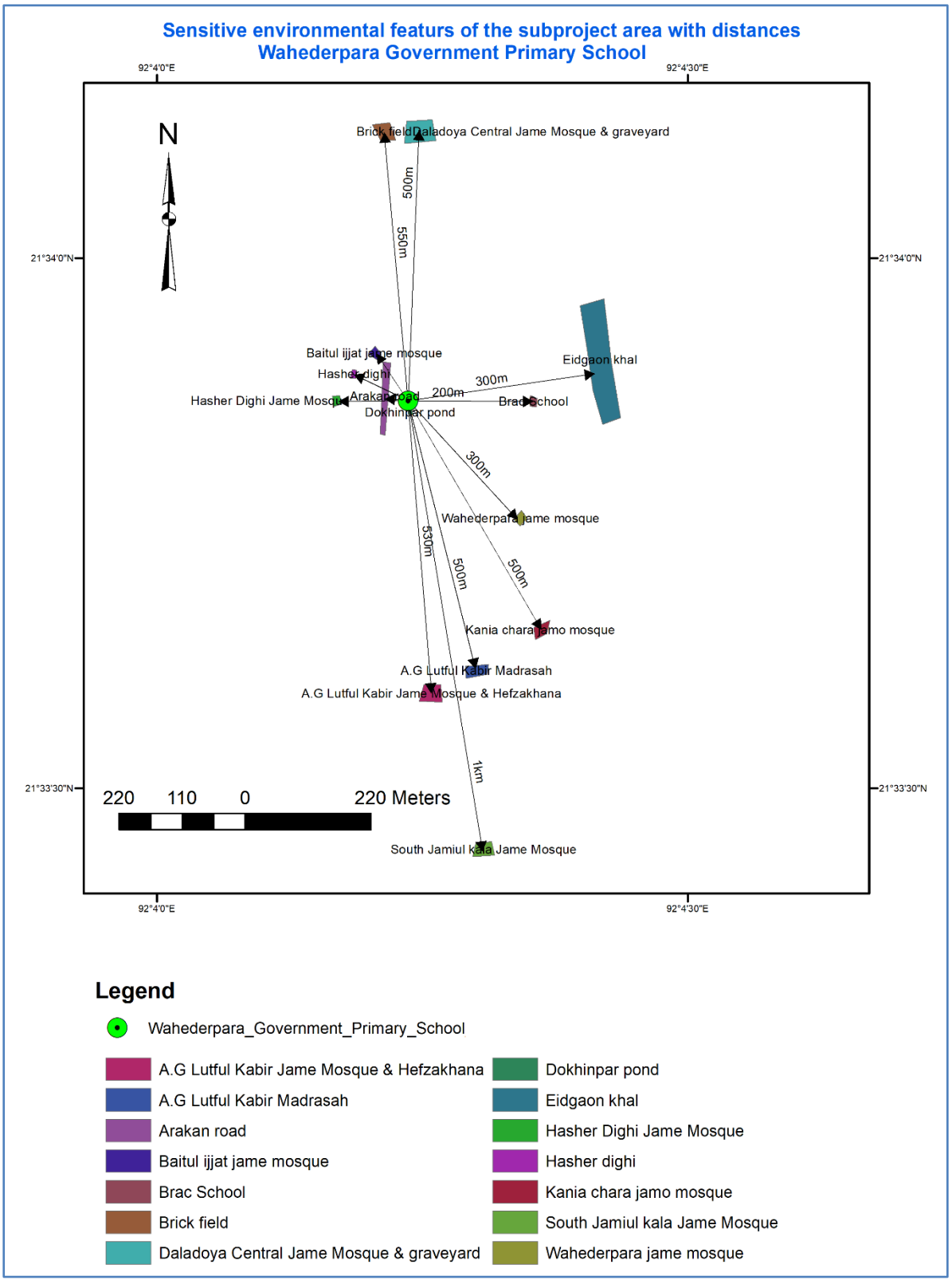
***B.1*: Environmental feature of sub-project location**

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:

Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side Baitul ijjat jame mosque (100m), Daladoya Central Jame Mosque & graveyard (500m), Brick field (550m); at south side Dokhinpar pond (20m), A.G Lutful Kabir Madrasah (500m), A.G Lutful Kabir Jame Mosque & Hefzakhana (530m), South Jamiul kala Jame Mosque (1km), Kania chara jame mosque(500m); at south eastern side Wahederpara jame mosque (300m); at east side Brac School (200m), Eidgaon khal (300m) and at west side Arakan road (10m), Hasher dighi (50m), Hasher Dighi Jame Mosque (55m) but there is no scope to be affected significantly by the construction activities.

A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below:



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some tinny and matured vegetation around the site. Several mosques, madrasa, high school, college, bazar and human settlement were found during the survey. Those will not be affected by the construction works, as the activities will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the consultation meeting.

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. No tube-well is found within the school boundary. In the sub-project area, deep groundwater is salty but arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 650-850ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.19mg/l, TDS-23.40 to 325 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.6 mg/l and As-Nil (IWM Study Report, 2020)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.

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

N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A 1m wide muddy road is passing by the south side of the sub-project. It is connected with Arakan road and It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: No tube-well is found within the school boundary. Students are collecting water from outside of the school boundary. But during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: On the south side within existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): About 20ft. BC Arakan Road is the main way for transportation of raw/construction materials. It is located on west side of the adjacent sub-project site.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local Communities. Considering the criteria, north side within the school boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during preconstruction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction

site. However, in order to approximate the quantity, it is estimated that nearly 10 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp.

Liquid waste: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):
Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction.
Quantity: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:
Around 289.54 sq. meter soil land is required for the sub-project establishment.

There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.

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 Eidgaon khal is located at 300m on east side, which are clearly outside of the construction area and 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 aquatic species. There are some terrestrial flora species around the subproject site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:
The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.

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

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:
No traffic movement impacts 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 this school and while passing over the adjacent HBB road; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution works are intensified for the sheltered people. 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 school cum resilience shelter building will be equipped with full facilities for conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
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 near surface water bodies of the sub-project boundary area except Eidgaon khal at 300m on east side is located and no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species

directly or by induced development: (High/Medium/Low with description) There is no protected area in or around the subproject sites, and no known areas of ecological interest. In fact, none of the usual activities taken place in a school site during the operation phase is likely to potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 situated near to a locality. A muddy road connects the sites with the Arakan road. The roads are mainly used for pedestrian access and by 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 loose soil being dispersed around during the dry weather, and accidents may occur due to bad condition of the access roads 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 and Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 might negatively affect surface and ground water.	Contractor, Environmental Specialists of PIU and 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
			• Monitor water quality according to the environmental management plan.			
2.Pre-construction Phase	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance.
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Constructio n works.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	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 off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	Contractor, Environmental Specialists of PIU and 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
	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 (in terms of access and distance from their living place) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without the prior permission of the Environmental Specialist. • Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. • Construction of sanitary latrine with septic tank for both male and female workers and staffs. • Construction of the first tube well for drinking water and providing water filters for further ensuring access to the safe drinking water. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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.	Contractor, Environmental Specialists of PIU and 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
	Accidents	Under the sub-project intervention the overall score is low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	Under the sub-project	• Damp down exposed soil and any sand stockpiled on site by spraying with water during	Contractor, Environmental	Location of stockpiles,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.	intervention the overall score is low.	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.	Specialists of PIU and D&SC	Covering of trucks, Records 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 Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 Specialists of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly
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. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic. • All imported materials are to be removed and	Contractor, Environmental Specialists of PIU/D&SC, XEN, Cox's Bazar.	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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.			
	Odor & waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor; and monitored by Consultant of D&SC and PIU	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 of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		higher priority in recruitment.			
Pre-Construction Stage	Stakeholders Engagement	• All the project stakeholders will be consulted • Separate community level consultation meeting with the potentially affected HHs • Consultation meeting with nearby residents and other stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.	-Do-	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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	interventions: Generation of ESHS issues.	package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made. • No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.			
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.	Contractor	Environmental Consultant of PIU, D&SC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).			
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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will discuss with traffic management authorities and take site specific traffic	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		management measures to avoid traffic jam and any unwanted incidents or accidents.			
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction work starts.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter;	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		management and awareness.	p.94-100)		
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour forces. • Labor code of conduct is to be disclosed through consultation.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be	-Do-		

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		oriented about the same.			
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas. • Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • Fire extinguishers will be located at identified fire	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	points around the site. The extinguishers must be appropriate to the nature of the potential fire. • This sub project will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and local community	sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• 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.			

Waste Management Plan (as guided by the IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For demolition only:

- All electric, gas, water, sewer, and other energy services or power lines shall be capped/blinded and/or otherwise cut before the commencement of demolition work;
- For any existing facilities with ACM (Asbestos Containing Materials), it is necessary to develop an asbestos management plan beforehand, which clearly identifies the locations through survey where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities. Handling of asbestos and removal or disposal of the same will be carried out with the direct supervision and guidance of an experienced expert.
- All asbestos, insulation materials, glass and other hazardous materials and substances must not be stored within the structure to be demolished;
- Openings and weak flooring shall be prominently marked or barricaded before the commencement of demolition. Operators of machinery and equipment and workers involved in demolition work shall be informed of such hazardous location;
- Demolition work shall commence from the top of a structure and progress downward;
- Proper entrances of adequate strength to protect workers from falling materials shall be erected for access into the structure;
- The entire demolition site shall be effectively barricaded with appropriate safety signs displayed;
- The lower floor where demolition wastes are collected shall be properly barricaded and guarded to prevent materials from ricocheting and injuring workers or passer-by;
- Excessive debris shall not be allowed to accumulate inside a demolished structure. All demolition waste and debris shall be cleared from the work site on a daily basis.
- Refuse containers shall be provided at worksite for the storage of demolition waste and debris.

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).
- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)

- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.
- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000 Tk.*24 months*(1/10 one shelter). (Net payment excluding Tax &VAT).	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person(twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted along the periphery of the proposed site at an interval of 10 feet.	25 nos.	@ Tk. 1000 for each tree.	25,000
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**503,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	12 nos. for each site		N/A	400.00	12	4,800.00	For labors who work in close contact, 12 in each site

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

Appendix-4: List of Participants in the Consultation meeting

Wahederpara Government Primary School
Package Number: EMCRP/AF/W12

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Additional Financing
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

EMCRP/AF/W12

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১	জহুরা খাতুন	৫০	পুরুষ	পালপাড়া	
২	মো: আইনুল	৩২	"	ব. মাইক পাড়া	
৩	মোরিমা আকতার	৪০	মহিলা	কক্সবাজার	
৪	আফিয়া আকতার	৩০	"	মাঝির ঘাটা	
৫	আহমাদুল পারভীন	৩০	"	খুরুলুন	
৬	আনি খাতুন	৩০	"	কক্সবাজার	
৭	রিপাকুর রহমান	২৭	পুরুষ	মোদাইকপী	
৮	রোকসানা আকতার	৩২	মহিলা	ওয়াহেদর পাড়া	রোকসানা আক্তার
৯	আরিফা আকতার	২১	"	"	আরিফা আক্তার
১০	নাসিমা আকতার	২৮	"	"	নাসিমা আক্তার
১১	ছেনুয়ারা আকতার	৪২	"	"	ছেনুয়ারা

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)





ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Construction of 10 nos. new School cum Resilience shelter buildings in Cox's Bazar District, under the Package No. EMCRP/AF/W12

Component: Aliapara Govt. Primary School
Educational Institution ID: 99412030105
Village: Aliapara; Union: Chawfaldandi; Upazila: Cox's Bazar Sadar
District: Cox's Bazar

Funded by:

Government of the People's Republic of Bangladesh & KfW

Design and Supervision Consultancy:

Development Design Consultants Ltd.

March-2022

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ACRONYMS

BOQ	Bill of Quantities
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Brick
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UE	Upazila Engineer
UNHCR	The United Nations High Commissioner for Refugees
VAT	Value-Added Tax
WB	World Bank

1. INTRODUCTION

1.1 Project background

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

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, construction of drainage facilities, rubber dams for irrigation, jetty rehabilitation, climate-resilient primary schools/disaster shelters, and climate-resilient community service centers/disaster shelters, climate-resilient access and evacuation roads and footpaths, awareness program for sanitation as well as lightning protection systems, solar street lights, nano-grids, firefighting/search and rescue warehouses. The project is being implemented under the financial grant assistance from the World Bank; but part of the enlisted schemes (2 work-packages) under the additional financing of the project is being financed by German Investment and Development Bank (KFW). 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). Additionally, this particular work-package will comply with the policy, legal or thematic instruments of KFW, in relation to different safeguards aspects as they are financing the implementation of the package.

1.2 Rationale of Site Selection for Resilience shelters under the project

LGED conducted a needs assessment of the entire coastal area including the district of Cox's Bazar with the objective of improving the coverage of accessible multipurpose disaster shelters by 2025, under a World Bank funded project named 'Emergency 2007 Cyclone Recovery and Restoration

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

Project (ECRRP)'. This analysis shows that 7,124 multipurpose shelters will be needed by 2025 of which 4,760 will be needed by 2020 to improve the disaster resilience of the population across all fourteen coastal districts. LGED itself with the support from World Bank has constructed 352 new shelters and rehabilitated 459 existing shelters under the ECRRP project and now implementing the rehabilitation and newly construction works of 1000 multipurpose disaster shelters in different coastal districts of Bangladesh under the ongoing MDSP (Multipurpose Disaster Shelter Project) project. The sites for these shelters have been selected based on the need of local communities and their opinions, prevailing socio-economic conditions, and availability of land in the areas (within a government school boundary). As the shelters are to be used as primary schools, land sufficiency for other facilities (e.g., playground) within the school boundary and available funding have always been considered while selecting the best option among the five different building options developed under the project ECRRP. All these shelter construction options are fully aligned with the directives given in the 'Cyclone Shelter Construction, Maintenance and Management Policy 2011' of Bangladesh Government.

As the construction of targeted numbers of multipurpose disaster shelters across the coastal districts is a phased implementation process expected to be carried out under different projects or programs of Bangladesh government, every single site for rehabilitation or construction of shelter is selected in priority basis, considering the need for rational distribution and availability of other means in the areas. Though MDSP is implementing certain numbers of multipurpose disaster shelters in different Upazila of Cox's Bazar District, unprecedented addition of nearly a million DRPs in Ukhiya and Teknaf Upazilas has undermined the previously counted needs for local residents. In order to meet the overwhelmed requirement of sheltering these huge numbers of DRPs in the face of disasters, EMCRP has come up with the intervention to construct/rehabilitate additional numbers of disaster shelters within those school boundaries that could provide sufficient land areas for shelter facilities and local residents are ready to act responsibly with necessary taking care/maintenance through the school management committee, such as, cleaning and maintenance of solar panel, changing of waters in batteries at certain intervals, and so on. All these shelter cum schools will be complementing the numbers of disaster shelters being implemented under MDSP or other government initiatives for the entire population of the areas.

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 and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population. The makeshift shelters accommodating the displaced population are highly vulnerable to natural disasters, like cyclone and flooding. In order to withstand the loss or casualty in the face of those disastrous events and widen the coverage of vulnerable people and assets with further provision of resilient structural and non-structural measures, new School cum Resilience shelter building will be constructed or rehabilitated in certain locations. These climate resilient disaster shelters will cater services for neighboring catchment population both from the displaced Rohingya community and the host group.

Under the package of LGED/EMCRP/AF/W12, a new School cum Resilience shelter building will be constructed in Jaliapalong union of Ukhiya Upazila under Cox's Bazar district. The catchment area of the subproject comprises the surrounding villages of Aliapara, Hyderpara, Shikdarpara, Madborpara, Purba Maispara and Gonarpara. Typical rural settings of the area offer farmers to be in the prime professional engagement, while the fishermen stand 2nd in option. The proposed new School cum Resilience shelter building would have to provide refuge to nearly 1,900 households, containing 9,500 members in total, which is much higher in numbers than the standard capacity of 1300 people to get resorted in the proposed disaster shelter. However, in practical, these types of shelters can accommodate as many as 3000 people for a shorter disaster period though in congestion and the old school buildings would share some burdens, if required. Relevant significant features of the sub-project area and the proposed disaster shelter have been tabulated in Table 1.3.1 and 1.3.2.

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

Name of the sub project	**Aliapara GPS**
Educational Institute ID	99412030105
District	Cox's Bazar
Upazila	Cox's Bazar Sadar
Union	Chawfaldandi
Owner of land	GPS
Catchment household	1,900
Catchment Population	9,500 (Male: 4,940, Female: 4,560)
Profession	Farmer 75%, Fishermen 15% and others 10%
Structural Design Option	Option 1 (Rectangular Steel Frame 3-storey building (35.427m x 14.20m)
Capacity of Shelter	1300 persons and 180 livestock
Catchment village	Aliapara, Hyderpara, Shikdarpara, Madborpara, Purba Maispara and Gonarpara
Tribal people	No tribal people found in the catchment area of the Sub-project
Connecting road	10 ft. wide HBB Shikdarpara Road connecting with Chawfaldandi road on south side
Land acquisition	Not required

[Field survey, September, 2021]

Table 1.3.2: Proposed disaster shelter features under the Sub-project

Aliapara GPS	
Feature type	**Coverage/Facilities**
Floor area (m^2)	289.54
Number of floor	3
Number of classroom	3
Teachers room	1

First-Aid room	1
Room for pregnant women	1
Store room	1
Toilet (male)	3
Toilet (Female)	3
Tube well	5
Rainwater collection tank	6
Water filter	Yes
Solar panel	Yes
Water pump	Yes
Hand pump	2
Capacity (persons)	1300
Capacity (livestock)	200

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

1.4 Location of Sub-Project

The Sub-project is located in the North-East side of Cox's Bazar Sadar Upazila in Cox's Bazar District. The site location is relatively a plain land, free from any obstruction and easily accessible through a 10ft wide HBB Shikdarpara Road which is connected to the Chawfaldandi road. A khal named Battoli Boro gudar khal is found on east side of the sub-project component. Hyderpara graveyard is situated within 10m on hilltop and Hyderpara jame mosque is at 200m on the west side of the proposed location. The location details of the Sub-project have been summarized in Table 1.4.1. The Location of new School cum Resilience shelter building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf) map and Union Map with Sub-project location have been shown in Figure 1.4.1 and Figure 1.4.2 respectively. The Shelter is designed as a multipurpose functional building that shall accommodate a significant number of people during storm/ cyclonic events, while act as a regular primary school for the pupil during the normal period.

Table 1.4.1: Location Details of the Sub-project

Division	Chittagong
District	Cox's Bazar
Upazila	Cox's Bazar Sadar
Union	Chawfaldandi
GPS position	21.521528 N and 92.020639 E
Distance from Upazila HQ	25 km

Nearby major road	Chawfaldandi road
Nearby river/canal	Battoli Boro gudar khal is located at 5m distance on east side and a chorra is situated at 300m on north side of the sub-project component.
North side	Chakaria Upazila
South side	Ramu Upazila and The Bay of Bengal
East side	Ramu Upazila
West side	Maheshkhali channel, Maheshkhali Upazila, and The Bay of Bengal

[Sources of data: Field survey, September, 2021]

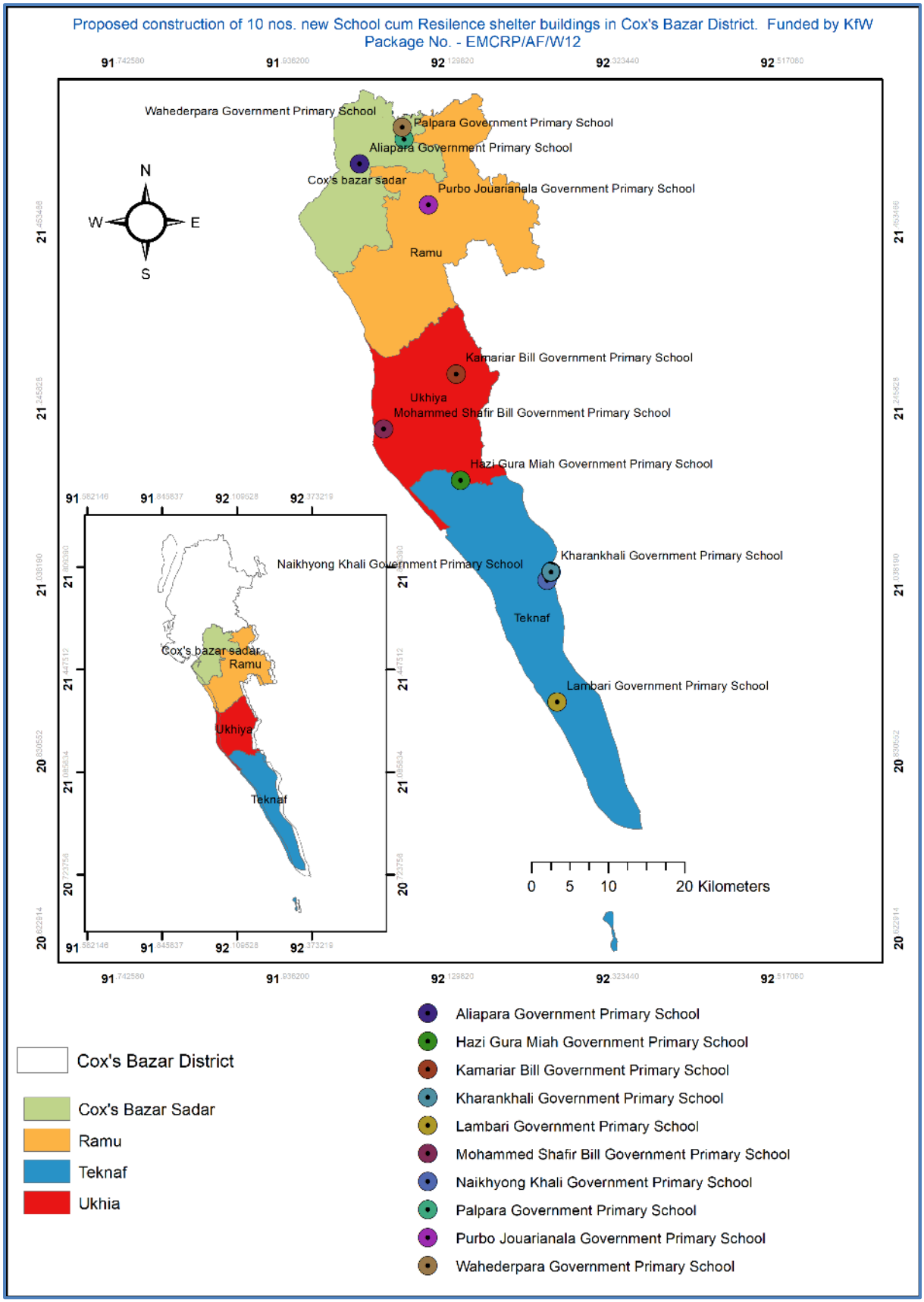


Figure 1.4.1: Location of Multipurpose Disaster Steel frame building (Cox's Bazar Sadar, Ramu, Ukhiya & Teknaf)

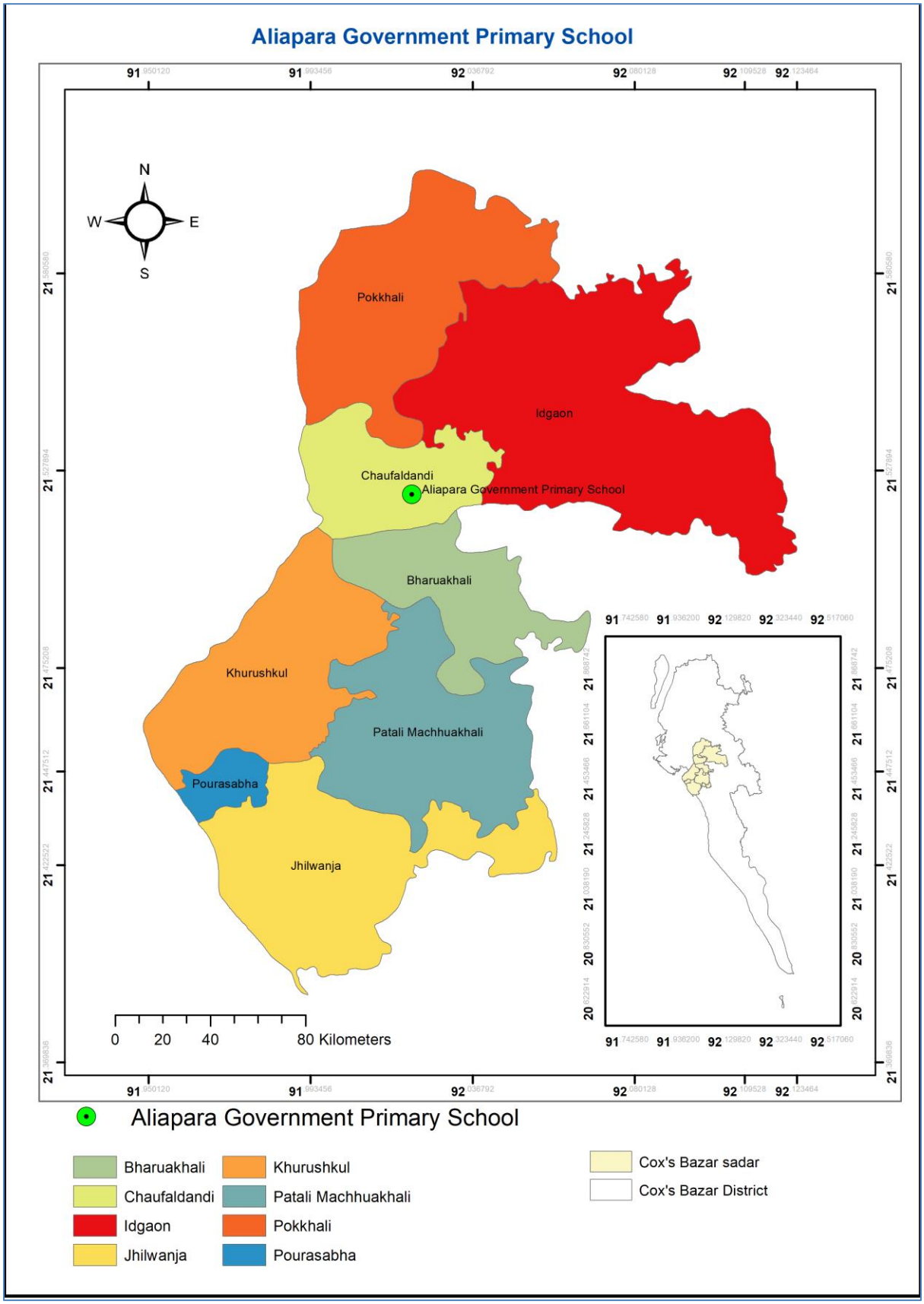


Figure 1.4.2: Union Map with proposed Sub-project component location

1.5 Boundary of the Sub-Project Site

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

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

Direction	Important features/ establishment (approx. distance from the proposed site)
North side	Uttar Hayderpara Jame Mosque (500m), Chorra (300m)
South side	Hayderpara Battoli Station (100m), Salt field (150m)
East side	Boro gudar khal (5m), Salt field (600m)
West side	Hayderpara graveyard (10m), Hayderpara Jame Mosque (200m)

[Sources of data: Field survey, September, 2021]



Figure 1.5.1: Present condition of the Sub-project site and surrounding area



Figure 1.5.2: Location of the construction site

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 28 September 2021 in and around the Sub-project component 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 17 persons and local individuals, teachers, chairman and/or member of Union Parishad and school management committee were among the attendees in that meeting. The participants were selected from different cohorts of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, as guided in the project ESMF, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases.

Refer to **Figure 2.1.1 and Appendix-4** for selected photographs of the participatory public consultation held at site of the Aliapara GPS 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, associated social and environmental aspects and possible mitigation measures. The participants were also informed about the project GRM (Grievance Redress Mechanism) system in detail and the disclosure of project documents in websites, and their unrestricted and unintimidated access to those system and resources.

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.



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

Table 2.1.1: Consultation meeting participants' summary for the sub-project

Sl. #	Name of Sub-project Component	Date of Meetings	Meeting Place(s)	No of Participants		
				Male	Female	Total
01	Aliapara Government Primary School	28/09/2021	Aliapara school premises	14	3	17
02	Palpara Government Primary School	28/09/2021	Palpara school hall room	13	4	17
03	Wahederpara Government Primary School	28/09/2021	Wahederpara school hall room	3	8	11
04	Purbo Jouarianala Government Primary School	26/09/2021	Purbo Jouarianala school hall room	14	4	18
05	Naikhyong Khali Government Primary School	29/09/2021	Naikhyong Khali school premises	25	9	34
06	Kharankhali Government Primary School	29/09/2021	Kharankhali school hall room	9	6	15
07	Lambari Government Primary School	29/09/2021	Lambari school hall room	15	2	17
08	Hazi Gura Miah Government Primary School	27/09/2021	Hazi Gura Miah school hall room	8	2	10
09	Mohammed Shafir Bill Government Primary School	27/09/2021	Mohammed Shafir Bill school premises	12	8	20
10	Kamariar Bill Government Primary School	27/09/2021	Kamariar Bill school hall room	16	1	17
			Total participants =	**129**	**47**	**176**

2.2 Issues Raised by the Participants

Many issues were raised by the participants in all the consultation events, and the consultants attended the events addressed all those issues in a very welcoming, and appropriately informed manner. As the socioeconomic and risk scenario of the people across the areas under this package are similar, the raised site/sub-project specific issues in the consultation meetings were found nearly identical. All those Issues were mostly on the risks and vulnerabilities the people are facing in the areas in absence of adequate sheltering options during the disaster period, and the possible effects of construction works on their livelihood or daily businesses. As stated, the issues or concerns were nearly similar, and the summary of the raised issues are given below:

- They are very much vulnerable to disaster such as cyclone, flood etc. So shelter is very much necessary to construct in that catchment area.
- Lack of adequate class rooms in the existing school premises. So the cyclone shelter would provide new space for additional classroom.
- Lack of security during the disaster period.
- Lack of power supply during cyclonic event, especially at night.
- Lack of adequate space for cattle.
- Possible dust and noise pollution during the construction works.
- Safety of children/women at the sites during construction works and provision for GRM.

- Inadequate toilet facilities.
- Lack of the availability of dry foods and ready-made clothes during the disastrous events.
- Inadequacy of toilet facilities- separately for male and female.

2.3 Suggestions and recommendations of the participants

In summary, the participants presented the following suggestions and recommendations:

- Local people considered that the selected site is suitable for the construction of new School cum Resilience shelter building from both the technical (disaster shelter with ramp, strong windproof windows, spaces for cattle, rainwater harvesting system, water supply facilities in all floors, solar powered electricity, room for pregnant women, etc.) and social point of view.
- Shelters should have a bigger capacity to sufficiently cater the catchment people.
- The participants have expressed their greater interest for this resilience shelter for their safety during disaster period and using this facility for education purpose.
- Numbers of male and female latrines need to be increased.
- School children's safety should be ensured by properly fencing the work sites, and workers' safety by providing necessary safety gears/first aid boxes, as required.
- They also requested to keep provision for post-disaster services and facilities in respect to diseases, sanitation and hygiene, power supply facilities, etc.
- They also requested to involve the local community to construction works.
- Water supply and the power supply systems need to run uninterrupted during disaster times.
- Participants, especially who are from school management committee, assured that they would provide maintenance services on a regular basis, such as maintenance of buildings including fixtures and fittings, color coating, solar panel and batteries and so on.
- 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 will be of 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 within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological and socio-economic environment of the proposed sub-project site and the influence area in regards to the implementation measures, an extensive field visit was carried out on 28 September 2021 in the Sub-project area. Environmental Screening form, as adopted in Appendix 2 of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents.

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

3.2 Major Findings

The proposed sub-project (construction of new school cum resilience shelter building) is not located within any environmentally sensitive area and will not cause any severe negative effects to the environmental settings of the area, neither to important environmental features. The resilience shelter will be constructed within an existing school boundary, so no agricultural land/ activities or fish farming will be disturbed due to the construction of the sub project. Within the close proximity of the proposed construction site, Battoli Boro Gudar khal is found at 5m on east side of the sub-project. A graveyard named Hyderpara graveyard is located on hilltop at 10m distance and Hyderpara jame mosque at 200m on west side of the target location. Hyderpara Battoli station and salt field are located within 150 on south side of the sub-project area. A 10 ft. wide HBB Shikderpara road is passing by along the north side of the sub-project. And some settlements (at 10m north and 30m west from the proposed site) are found around the sub-project area. Some earth excavation work will be involved, so air, noise and dust pollution will be occurred within a small-scale during the 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. No significant disturbance to all these establishments/features is anticipated due to construction activities for having sufficient distance from the construction site, and strict construction site management system including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, proper fencing around the working area, safe storage of materials, etc.

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 or gaseous emissions from vehicle movement, running of motorized equipment 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. Noise and vibration effect generated from pilling and drilling may also trigger landslides and 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. Clearing of trees, bushes or any type of vegetation may put impact on floral species and unscrupulous clearance also trigger habitat loss.

There is no evidence of presence of elephants in the sub-project area; neither any history of human-elephant conflicts was revealed. It should be noted that the IUCN has conducted a study on such type of conflict and with the support of UNHCR, they have been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. Moreover, different protective initiatives have been undertaken in the conflicting areas, 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).

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 Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy or soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also, rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also, deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones. Also, forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above mentioned hazardous situation and 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, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

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

The impacts of cyclone and precipitation has higher impact in this area, Intensity of precipitation has been seen to have increased in the past few years. Salinity and cyclonic storm surge has no impact in

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

the vicinity of the subproject. Temperature has increased 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.
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 and estimation, 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 shelter. Ramp for cattle and physically challenged people, separate toilets for male and female, tubewell in the school building, 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 shelter. 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 along the school premises is suggested to subside the effect of precipitation anomaly.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

4.1 Mitigation and Management Measures

Considering the environmental settings of the sub-project area, it can be assumed that possible impacts would be largely construction-related, and could be addressed through adoption of good engineering practices; good housekeeping; better *in-situ* construction materials management; and observance of health and safety protocols during the implementation period.
Specific Environmental Management Plan (EMP) has been prepared to eliminate, reduce or regulate the adverse impacts for this subproject. The purpose of this Plan is to formulate measures which will mitigate the adverse impacts on various environmental components and protect environmental resources and enhance the value of environmental and social components where possible.
The proposed cyclone shelter will be constructed on a plain land where no vegetation is found. No trees will be cut down due to the construction activities of this Subproject. All the socio-economic and environmental features and establishments locating within close proximity (within 100m) such as Battoli Boro Gudar khal at 5m distance on east side from the proposed location, Hyderpara graveyard on hilltop at 10m on west side, Hyderpara Battoli station at 100 on south side and some human settlements (10m north and 30m west) might get affected during the construction period with the generated debris, dust and noise, though for the time being. As part of the standard site management practices, Contractor must adhere to the best practice wastes management procedure and regular adoption of dust and noise control measures (spraying of water at least twice a day, confining noisy works during the holidays, using muffler around the noisy parts of the machineries, controlling the vehicle speed limit within the site, etc.) to minimize the effect to the least level. Human and construction wastes and debris should be stored in designated areas or dustbins, and be transported outside for eventual management. Moreover, contractor should engage one or two persons in the site to control traffics, especially when the construction vehicles require entering/exiting the sites; if the traffic becomes congested frequently due to the passage of construction vehicles, traffic authorities (police) should be consulted to take necessary measures. 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 As part of efficient site management, contractor's staffs and workers will be given training on good practice construction works, health safety, and efficient camp management, and relevant awareness building sessions will also be conducted, and records of all those training and awareness building sessions will be kept on-

site as part of effective management and monitoring of safeguard works. With all the required efforts, once the overall effects for this proposed construction works are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities.

Once the construction work is over, the shelter will be handed over to the LGED/SMC. During that post-construction period, all regular maintenance works of the school building and it's parts, repairing of non-functional tools and instruments, and other small rehabilitation works are the responsibilities of SMC. Bigger maintenance or rehabilitation works will be carried out by the Education Engineering Department (EED) or LGED (under any relevant project/Program) – whichever organization government wants to engage for that particular works.

All the sub-project areas under this package have been experiencing a huge scale of development works, primarily due to the expansion of tourism and requirement of residential/other facilities for the earlier Rohingya settlers and the aid workers in the areas. Therefore, the areas as a whole are facing nearly same challenges, and will also generate and experience similar types of construction induced impacts. Thus, the package specific environmental and social management plan (applicable for all 10-disaster shelters) has been outlined in Appendix-2, where sub-project/site specific impacts/challenges, if any, are embedded as well.

4.2 Health and Safety Measures under COVID situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed 'Guideline on COVID-19 related Response and Preparedness (SOP)' containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site offices. Specific roles and responsibilities to be undertaken by key involved parties, including the Contractor and his representative(s), presented in section 6.0 are to be considered binding measures for this sub-project.

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

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and

awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.

c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement is to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols has to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

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

4.3 Cost of Environmental Enhancement Works in BOQ

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

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

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

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

Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

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

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

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

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

6. GRIEVANCE REDRESS MECHANISM

A well-defined grievance redress and resolution mechanism has been established to resolve grievances and complaints in a timely and satisfactory manner under this project, having following operating principles: i) all cases received should be recorded; ii) resolutions must be communicated to the complainant; and iii) all cases will be monitored through its completion or countermeasure implementation. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedure has already been communicated among the people in the catchment area through the consultation events during the screening surveys. The grievance redress process will include four levels but safeguard related grievances may be redressed within first two levels:

First level (SMC level grievance reporting): The first and most accessible and immediate contact for the fast resolution of grievances will be on-site at SMC level. A grievance redresses committee of 5 members consisting of members from the SMC of concerned schools, representatives from teachers,

guardians, neighboring communities, and a socially respected person, will be constituted and activated immediately.

Second level (Grievance reporting at Upazila level): Grievances may also emerge from the communities primarily due to project activities and these grievances may be reported to the grievance focal point of LGED/D&SC. This level is formed under an Upazila level grievance redress committee consisting of 07 members, with Upazila Engineer at the chair of the committee. If the grievances are not resolved at this stage, they will be referred to the XEN of LGED for further steps.

A grievance register is maintained at each level and the focal person (member-secretary of the committee) of each committee will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location; and (v) how the complaint was resolved. Community members are encouraged to lodge their complaints to Upazila level GRC or School level GRC, whichever is feasible to them.

A **Third level (District level GRC)** has been constituted for the grievances which remain unresolved at first two levels. This one is at LGED Executive Engineer's Office level and will be activated by referring the issue (with written documentation) by a Grievance Redress Committee (GRC) of lower levels. Further unresolved cases will be forwarded to the **LGED level GRC at PIU** of the project, which will address the referred grievances using the existing grievances resolution protocols. Focal points (member secretary of the committee) of respective committees will be responsible for facilitating the resolution process.

In addition to these three-level GRCs, a separate grievance mechanism for workers will be established at Contractor's level, where the Contractor will be at the chair of the committee and the Environment & Social/Safeguard Personnel for the work-package will be the member-secretary; and representatives from respective SMC and Upazila Engineer will also be included in the committee.

All the meeting minutes of a particular case must be presented before the hearing. Based on the hearing and supporting documents, committee will resolve the issues. Moreover, in case of any labor related issues, labors can directly complain to the contractors and contractors are bound to solve the issues immediately as per Bangladesh Labor law 2006 (amended in 2018) and Labor rules 2015. Community laborers are also allowed to complain to any level directly. The project also has prepared leaflets on available GRM system, redressal mechanism, process of complaining and relevant contacts, and distributed in project areas. Moreover, sub-project specific Environmental and Social sign board will contain the contact email and phone numbers of project GRS (Grievance Redress System at PIU) for receiving complaints/suggestions, which is to be installed at every working sites. However, this GRM by no means will constitute the alternative for the aggrieved person to seek justice through country's existing judiciary system.

7. 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 recently 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.

8. 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, education, employment, and disaster management will be ensured once the scheme is in operation.

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

- The communities will receive large benefits in terms of quality of life, particularly with reducing disaster vulnerability, and getting access to better education facilities, infrastructure, transportation & communication etc.
- The short-term negative impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through the management plan.
- The project will create employment for the local community who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development with large-growing trees at the periphery of the site will give the places a more natural and aesthetic 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.
- The tentative cost has been estimated around **04 Lac & 88 Thousand BDT** (Bangladeshi Taka) to implement the ESMP (excluding the budget for COVID response). The detail cost estimation has been shown in **Appendix-3.** This budget can be varied due to change of market prices and if the project implementation period extends or any unanticipated situation evolved.

Implementation of this Sub-project component (this particular proposed resilient shelter building) will have large positive impacts to the communities as stated above. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Appendix-1: Filled in Environmental Screening Form

Environmental Screening Form

Sub-Project Description Form: (Aliapara GPS)

Name of Sub-Project: Construction of 10 nos. new School cum Resilient shelter buildings in Cox's Bazar District (LGED/EMCRP/AF/W12)

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

Estimated total cost of sub-project (in Taka): 463,510,000 Tk.

Estimated construction period duration: 24 months

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

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

Name of Community/Local Area: Aliapara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): One Multipurpose Resilient Shelter Steel Frame Building will be constructed within an existing school boundary.

Estimated footprint / land area for this sub-project is 289.54 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: Proposed Multipurpose Resilient Shelter Steel Frame Building will be constructed within a school boundary. Within the school boundary, one stored old school building, a deep tubewell, a toilet and a solar lamp post are found. Hyderpara graveyard is situated within 10m at hilltop and Hyderpara jame mosque at 200m distance on west side of the sub-project. Uttar Hyderpara jame mosque is found at 500m and a chorra at 300m on north side and Battoli Boro Gudar khal is at 5m on east side and some salt field is found at 150m on south side of the sub-project area. A 10 feet HBB Shikdarpara road is passing on the north side and it is connected to the Chawfaldandi road. No Important environmental features which might be affected significantly by the project works are found within the sub-project area.

Overall Comments

People of the subproject area are very much eager to see the success of the project and are interested to participate in the project activities. Considering the location, design, targeted measures, and people's interest in the sub-project, this component, seems to be environmentally sustainable and socially acceptable. The local individuals, teachers, chairman and/or member of Union Parishad and school management committee (SMC) attended in the participatory public consultation meeting. Local communities and their community leaders have no objection to the construction of this infrastructure in the proposed site; the community also appreciated the initiative of LGED to ensure safe living of both human being and cattle during any cyclonic event. The public consultation meeting results confirmed that presence of new school cum resilient shelters will increase the sense of security of the communities. Shelters were extremely important to them as they were very much vulnerable to cyclones. They also requested to keep provision for post-disaster services and facilities in respect to diseases prevention, sanitation and hygiene. More than half of the total participants reported that they used to stay in their houses during disaster, mostly because of onrush to the shelters, limited space for livestock and other social problems. They also requested to involve the local community to construction work and that water supply and the power supply systems need to run uninterrupted during disaster times.

The proposed Sub-project area for the construction of School cum resilient Shelters is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any significant 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 works. As the building construction work is restricted to within the school boundary, no outside disturbing activity will be involved.

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

During construction period solid waste will be generated due to construction activities. The types of wastes are gravel, stones, rock, wood, copper wires, concrete, iron, plastic etc. Negligible amount of paper, plastic, human wastes including kitchen wastes might be generated in labor camps.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. This school is situated within a populous area. A road named Shikdarpara road is passing on north side of the sub-project area. There are some community properties, environmental-religious-and-sociocultural components located within 1km from the sub project, which are quoted here. This list is not exhaustive, but includes prime features and distances given in parenthesis are from the proposed site. On the north side Uttar Hayderpara Jame Mosque (500m), Chora(300m); on south side Hayderpara Battoli Station (100m), Salt field (150m); on east side Boro gudar khal (5m), Salt field (600m) and on west side Hayderpara graveyard (10m) on hill, Hayderpara Jame Mosque (200m) are located. But there is no chance to cause significant disturbances due to the sufficient distance in between. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

Some human settlements on north and west side are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

A Multipurpose Resilient Shelter Steel Frame Building will be constructed within the boundary of an existing educational institution, which typically be used as primary school and will follow the structural design Option 1 LGED Proto type for Multipurpose Cyclone Shelter. Usually this option follows the construction of a 3- story building with ground floor being open for entrance, 1st floor usually being kept open but bounded with wall for shelter of cattle and the 2nd floor is designed to be used for class rooms, teacher's room and separate male and female toilets with spaces for pregnant women and other facilities. These spaces are used as shelter during cyclonic storm events. Safe water supply will be ensured, water treatment for wastewater (mainly rainwater) is included and solar panels will be provided for uninterrupted electricity supply during a storm event. The class rooms will be provided with furniture and other teaching tools. Floors will have a mosaic finish and bathrooms have tiles for easy maintenance and cleaning. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge levels. A walkway will be constructed from the school entrance to the proposed building for the ease and safe movement during the rainy season.

Sub-project Location:

The sub-project area is situated in Chawfaldandi Union under Cox's Bazar Sadar Upazila of Cox's Bazar district. The sub-project area is located at 21.521528 N and 92.020639 E. The distance from the Upazila headquarter is about 25 km. Nearby major road is Chawfaldandi road. A 10 ft. wide HBB Shikdarpara road passes by the sub-project site. Total available land area of this sub-project is 33 decimals. The school code is.99412030105

Land ownership

The subproject will be implemented within the existing school boundary and the land ownership of the proposed site is bestowed upon the school itself.

Expected construction period: 24 (Twenty four months)

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

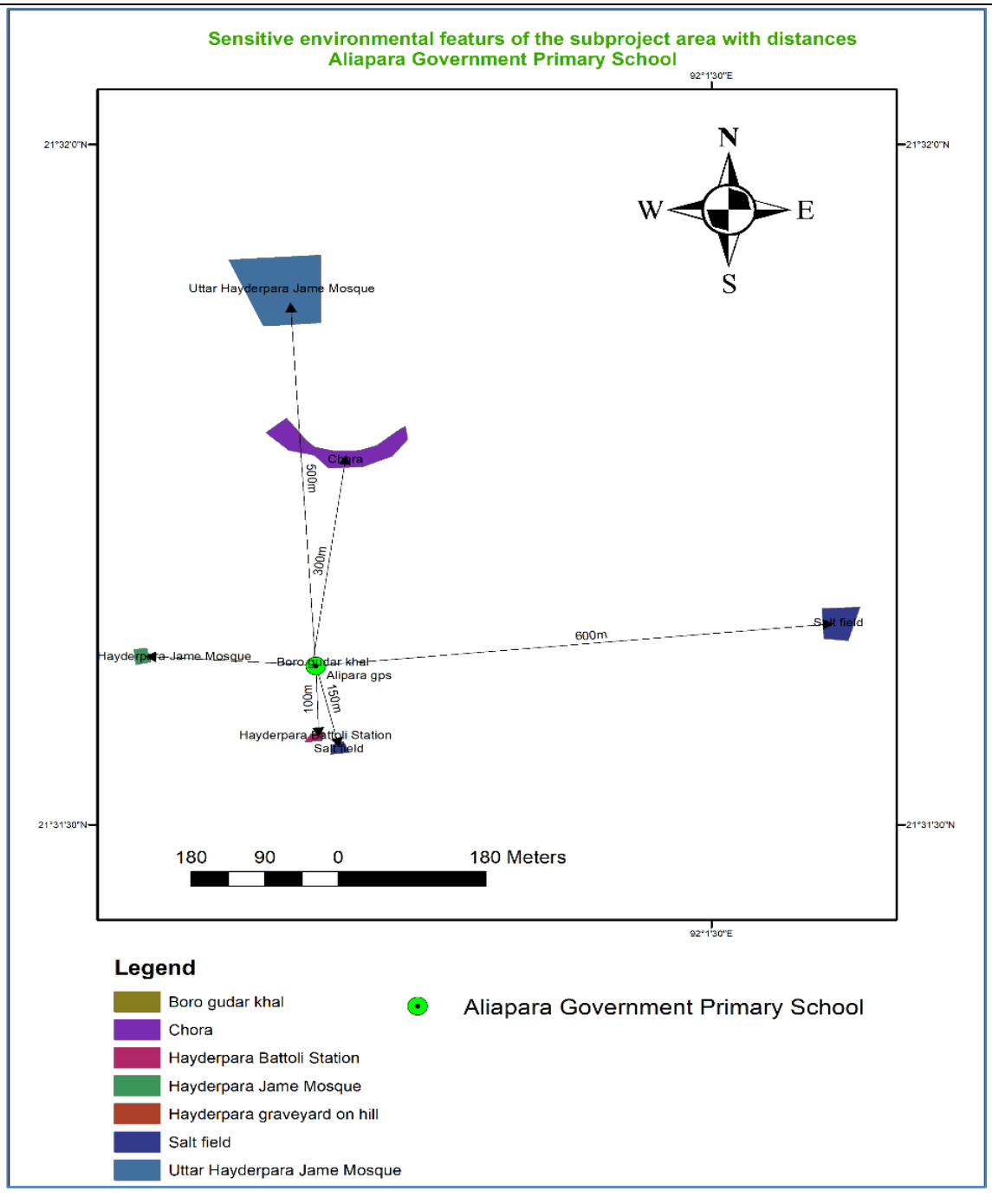
Project intervention area will be confined within the school boundary, but influence area should consider nearly half a kilometer radius around the proposed site.

At north side Uttar Hayderpara Jame Mosque (500m), Chora(300m); at south side Hayderpara Battoli Station (100m), Salt field (150m); at east side Boro gudar khal (5m), Salt field (600m) and at west side Hayderpara graveyard on hill (10m), Hayderpara Jame Mosque (200m) are located. No disturbance is anticipated due to construction activities. Some human settlements are found around the sub-project area, but there is no scope to be affected by the construction activities due to having sufficient distance from the proposed site. Besides these components, no other sensitive environmental, cultural, historical or archaeological sites including elephant migration routes (checked with local IUCN representative) were identified.

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: Some important socioeconomic, cultural, religious or sensitive features located within 1km from the sub project site, such as north side Uttar Hayderpara Jame Mosque (500m), Chora(300m); at south side Hayderpara Battoli Station (100m), Salt field (150m); at east side Boro gudar khal (5m), Salt field (600m) and at west side Hayderpara graveyard (10m) on hill, Hayderpara Jame Mosque (200m) but there is no scope to be affected significantly by the construction activities. A diagram showing the major features around and apparent distances (in parentheses) from the proposed construction site is given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, madrasa, high school and human settlement were found during the survey. Those will not be affected by the construction works, as the activities will be carried out within the existing school 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) and was further confirmed by the stakeholders presented in the

consultation meeting.

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

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

*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 predevelopment 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. Natural air action over the road surface is very prevailing in the area which causes dust circulation.

Noise:

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

Baseline soil quality:

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

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

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

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

Groundwater is the main source of potable water in the Sub-project area. One shallow tube-well is found within the school boundary. The shallow depth is about 240-270 feet. Teachers and students consume water from this shallow tube-well. They are reportedly suffer from different water borne diseases at times. In the sub-project area, deep groundwater is salty but arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 700-850ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.19mg/l, TDS-23.40 to 325 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.6 mg/l and As-Nil (IWM Study Report, 2020)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation: Homestead vegetation is very common and popular in the area. Besides, tree plantation in discrete patches are also observed in different places around the proposed site, which are safely distant from the school boundary and will not face any significant detrimental effects from the construction works.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A 10ft. wide Shikdarpara road is passing by the east side of the sub-project. It is connected with Chawfaldandi road. It is possible to carry the construction materials on the road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: One shallow tube-well is found within the school boundary and aquifer depth is about 240-270 feet. But the tubewell doesn't work properly during dry season and students' suffering from potable water supply is a common problem. In order to make a sustainable solution to this problem even at a disaster period, five numbers of tube wells will be installed as part of the construction works, and out of those five, one tube well will be installed first to meet the basic water supply requirement for the labors as well as for the students. The cost of installation of the tube wells are included into the civil works item, therefore is not repeated in ESMP budget. Electricity is available in the school. Toilet facilities are available within the school boundary for students. But it is insufficient and should not be used by the workers/contractor's staffs during the construction period. Two toilets will be constructed along with the construction of labor camp- one for male and another for female.
Possible location of labor camps: Private land owned by Abdul Rahim at Hyderpara which is adjacent to the existing school boundary could be used for setting up a temporary labor camp. Contractor also can choose different suitable location for the same purpose, within his/her capacity but under a very clear contract with the land owner.
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 vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of materials used for the construction of labor shed, site office and material storage area during the preconstruction stage.
Identification of access road for transportation (Yes/No): About 10ft. wide Shikdarpara road is the main way for transportation of raw/construction materials. It is located on north side of the adjacent sub-project site and connected to the Chawfaldandi road.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should

be consulted with local Communities. Considering the criteria, south side within the school boundary would be a good option. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during preconstruction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 8 kg of waste would be generated each working day, which are mainly construction wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. Wastes from food and kitchen (biodegradable organic waste) will be generated at an amount of 2 kg per day in the labor camp. **Liquid waste**: During construction period fecal sludge will be generated from the labor camp and the quantity would be nearly 5 kg per day, which would be reduced in weight in course of time.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials by and other electro-mechanical equipment and viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figure of raw materials to be used on a typical construction site. It varies with the daily type, schedule and quantity of works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 289.54 sq. meter soil land is required for the sub-project establishment. There are some discrete vegetation around the sup-project area. The vegetation will not be affected by construction works. Due to construction activities of this Sub-project, no tree will be cut down.
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) Battoli Boro gudar khal is located at 5m on east side adjacent to the school boundary, might be affected a little due to construction works and a chorra is located at 300m on north side which is clearly outside of the construction area and 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) **Medium:** The site is located near a khal, water flow of this khal is controlled by a sluice gate. So, aquatic ecosystems or habitats of aquatic species in this of this waterbody might get affected during construction phase. There are some terrestrial flora species around the subproject site, which will not be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is medium to low for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is already compacted and developed and the area is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts 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 this school and while passing over the adjacent HBB road as well as the Marine drive; the quantity of exhaustion is expected to be bit high only for a small period of time, when a disaster hit the area and relief distribution works are intensified for the sheltered people. 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 new School cum Resilience shelter building will be equipped with full facilities for

conducting classes and sheltering disaster affected people, including separate toilets (sanitary) for male and female persons, water supply and filtration, storage and other facilities. No fecal sludge will be produced that 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 school-day and higher amount of wastes including organic kitchen wastes will be produced during the disaster 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 school 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 SMC 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 for creating borrow-pits, quarries, etc. 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 climate resilient multi-purpose resilience shelter cum primary school will improve the socioeconomic condition of the population of the catchment area by providing better education, paving the way to get access to further development and better occupational choices, which would eventually give access to broader economic development in both personal and societal level and improved living conditions. Further, this facility will have improved capacity to fight the grave disaster scenario and will play a strong pivotal role in saving people from becoming dead, vulnerable and impoverished, and ultimately help them rebound their own situation by returning to the workforce within shortest time period after the disasters, which certainly will have a huge positive impact in economic development of the project areas and the country as a whole.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Battoli Boro gudr khal is near to the sub-project boundary area but no extent of disturbance or modification during the operation period is anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) There is no protected area in or around the sub-project sites, and no known areas of ecological interest. In fact, none of the usual activities taken place in a school site during the operation phase is likely to potentially destruct or damage any terrestrial or aquatic ecosystems or so.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: **N/A**
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 situated near to a locality. A HBB Shikdarpara road connects the sites with a main road Chawfaldandi road. The roads are mainly used for pedestrian access and by 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 loose soil being dispersed around during the dry weather, and accidents may occur due to bad condition of the access roads 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 & Social 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 climate resilient multi-purpose disaster shelter cum primary school (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 Specialists of PIU and 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	Loss of land/and other physical assets	No adverse impact will be generated	• No Land, other physical assets & Households will be affected by this sub-project. If found any grievance from the neighboring household need to consult on emergency basis in order to solve the problem by project GRC.	PIU consultant, PSC and D&SC	• Number of Complaints • Check Grievance register • Resolutions against the grievances	Ensure regular supervision and Monitoring based on compliance .
	Loss of livelihood	No adverse impact will be generated	• No significant impact will be generated by the sub-project but due to Rohingya influx, job opportunities may be reduced. Local people particularly women laborers shall get priority with equal payment at the time of labor recruitment. • Code of conduct required for the local labours and outside labours. • During construction work, social safeguard compliance will be maintained properly by the contractor.	PIU consultant, PSC and D&SC	• Labor wages payroll • Interview with labour • Frequent visit by D&SC and PIU personnel • Copy of code of conduct	Weekly basis

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	Site planning (i.e. Labor camp, construction of material storage area etc.)	Under the sub-project intervention the overall score is low.	• The construction area is on a plain land. The entire construction area within the school boundary needs to be well fenced so that school children, teachers 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.	Contractor, Environmental Specialists of PIU and D&SC	Location of stockpiles and labor shed	Prior to the start of Construction works.
	Conflicts with existing users due to the scarcity of resources	Under the sub-project intervention the overall score is low.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources (outside of school area) shall be taken. • Local community must be consulted before start of any construction works.	Contractor and Consultant of PIU and D&SC	• Approval letter/ Consent letter of Local Representative or concern authority (if required) • Grievance registers and its resolutions	Before any interventions are started
	Material storage area for construction	Under the sub-project intervention the overall	• The contractor shall submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures.	Contractor, Environmental Specialists of	List of selected sites; Identified sources and storage place	During Design Stage

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	(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.)	score is low.	• 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 off at the site proposed by the contractor & approved by the Environmental Specialist of D&SC to avoid soil/ water contamination.	PIU and D&SC	of materials.	
	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 (in terms of access and distance from their living place) 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 Specialists of PIU and D&SC	Complaints from community; Regular inspection of waste management activity; Waste disposal record.	Prior to the start of Constructio n works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			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 off 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 low.	• 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 Specialists of PIU and 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 school hours. One very effective method is to discuss with the school 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 Specialists of PIU and 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	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 Specialists of PIU and D&SC	Location of stockpiles, Covering of trucks, Records of air quality inspection,	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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.		• 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.		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 Specialists of PIU and D&SC	If tree cutting required, to be determined during Design stage, Numbers of complaints from sensitive receptors	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
	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 Specialists of PIU and D&SC	Numbers of complaints from sensitive receptors; Number of walkways signage, and metal sheets placed at project location;	Monthly
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	Contractor, Environmental Specialists of PIU/D&SC, and XEN, Cox's Bazar.	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been	After the completion of Works

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic. • 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.		restored to pre project conditions.	
	Odor & waste disposal	Under the issue the overall score is low.	• Use bin covers and/or tarpaulins during transport of wastes.	Contractor; and monitored by Consultant of D&SC and PIU	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 of D&SC and PIU	Worksite is restored to original conditions.	Over the completion of Works

* 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)

Due to the similar socioeconomic and environmental settings of the proposed construction areas and the entire construction works to be carried out by the same constructor, a comprehensive ESMP has been developed for all the sub-projects under the package which constitute the bindings of the contractor to be followed in the field and relevance to the specific sites.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• Subproject activities will be confined within the school-cum-shelter premises, therefore any instances of losing land or any physical assets by the neighboring households are not anticipated. • No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are arised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	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. • As the Rohingya Influx has affected the local communities' income base drastically, Contractors are encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	-Do-	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 • Consultation meeting with nearby residents and other	-Do-	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		stakeholders about the project objectives, scope of works, potential impacts, and provision of project GRM, etc. • People living in nearby communities and SMC will be involved with the GRM system and representatively included in the project GRCs.			
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. • Access to study/education will be ensured by providing temporary schooling facilities (class rooms, toilets, etc.) by the contractor, either in the school premises or on another public/private land under a tenancy agreement for the construction period, if any of the school buildings/infrastructures require demolition. • Suitable playground for schoolchildren will be ensured within the school premises (if enough spaces are available) or on any nearby open spaces (under the consensual tenancy agreement between the contractor and the landowner tenable for the construction period.	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection for workers camps, stack-yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers (preferably within the school area boundary, for this work package) and proposed by the contractor & approved by the Environmental Specialist of D&SC. • If different locations outside of the school premises are used for any facilities, a consensual contract with the landowner has to be made.	-Do-	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		• No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 5 (five) numbers of trees will be planted for each tree removed within the school premises and budgetary allocation for taking care of those trees for 12 months has to be ensured in BoQ. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • 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 off 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. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.			
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be sufficiently 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.	-Do-	PIU & Contractor	Environmental Consultant of PIU, PSC
Pre-Construction and Construction Stage	COVID-19 effects (fatal events as well economic loss for the involved parties as well as for the project).	• Contractor will set a comprehensive plan incorporating labor access and management issues, daily protocol for all involved parties, and employ H&S Supervisor, necessary checking, etc. for containing the spread of disease. • Other necessary measures and actions will be undertaken following the 'Guideline on Covid-19 related response and preparedness (SOP)'. • Ensure training and dissemination of information related to Covid infections, personal cleanliness and hygiene, using PPEs, safe working protocol, and so on.	Guideline on Covid-19 related response and preparedness (SOP) for EMCRP	Contractor, Consultants from PIU and D&S.	Social and Environmental Consultants of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at daytime	Project ESMF (Table 8.2: ESMP	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		within 05:00 PM. Noisy works will be conducted preferably at non-schooling time. One very effective method is to discuss with the school authority and settle for a time for heavy machinery usage. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works. • All Personal Protective Equipment (PPE), especially earplugs for workers in noisy work-environment, will be available in site before starting any kind of construction works. • Workers will be engaged in rosters in order to minimize the exposure time in a row. • Noisy construction works will be stopped at prayer times or during the religious festivities (puja, weekly/daily prayer at religious places/sites, etc.) observed in adjacent places (wherever required).	Guideline for Multi-Purpose Disaster Shelter; p.94-100); relevant documents from other sources.		D&SC
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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		roads/access roads for limiting dust generation.			
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the construction site including material storage area 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.	-Do-	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.	-Do-	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks for extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the school boundary/nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the school	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and KFW review results.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		boundary, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction 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.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labour Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • An alternate arrangement for fuel wood, heating and cooking should be arranged for the labors at labor camp. • 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 labour	-Do-	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		forces. • Labor code of conduct is to be disclosed through consultation.			
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.	-Do-		
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 and the principles given in next section of this ESMP: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The scrap material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • 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	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100) and IFC's EHS General Guidelines	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		substances i.e. chemical, oil, paint, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off 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. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.			
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	• All construction equipment used for the execution of the project works shall be fit for purpose and properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas.	Project ESMF (Table 8.2: ESMP Guideline for Multi-Purpose Disaster Shelter; p.94-100)	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	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.	• Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire precautions including, means of escape, warning, and fighting fire. • Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm. • 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 will follow a 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. • Electrical equipment must be safe and properly maintained by competent authorized persons; works shall not be carried out on live systems. Adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. • Emergency evacuation response plan shall be prepared			

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		and relevant staff shall be trained through mock-up drills. • Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.			
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or	-Do-	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		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 might negatively affect surface and ground water.			
Construction Activity	Demobilization of structures, facilities and equipment used 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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) 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. Disposal of faecal sludge from latrines is to be undertaken properly, if	-Do-	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar.

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
	and local community	management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services. • Contractor must prepare a Waste management Plan considering relevant directives from "Waste management Plan Principles" given hereunder and follow the plan strictly.			
Operation & Maintenance	Noise disturbances to fauna	• Provision to maintenance of acceptable noise level 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/operation should be done in day time.	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad
Operation & Maintenance	Odours and pollution caused by leaking latrines and faecal sludge impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Regular inspections of potential leaking points.	-Do-	UE, LGED	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	-Do-	UE, LGED	UNO, Upazila Chairman of Upazila Parishad

Project Stage	Potential Environmental & Social Impacts/ Issues	Proposed Mitigation Measures	Ref. Document/ Guidelines	Institutional Responsibilities	Supervision Responsibility
		be ensured. • Water tanks should be cleaned properly at least once in a quarter.			

Waste Management Plan (as guided by the IFC's EHS General Guidelines) Principles:

The Contractor shall develop a demolition and 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 Environmental Specialist and Social Development Specialist.

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes when these types of operations are part of construction project activities. Hazardous solid waste includes primarily the contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Management of non-hazardous materials are not so complicated and risk induced. However, the overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents (including explosion and fire) during their production, handling, storage and use. This objective can be achieved by implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

However, in order to develop an actionable demolition (where necessary) and waste management plan for this sub-project (contract package), the contractor needs to be in line with following principles:

For wastes and demolition 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.
- Wastes generated during works will be segregated and temporarily stored on site (pending collection or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Contractor as part of their DWMP).

- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to prevent environmental pollution (bunded and/or covered storage, minimize noise generation and implement dust/odor control measures, as may be required); maximize waste segregation to minimize potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust)
- Description of the means should be provided by which any waste materials identified will be protected from contamination, and a description of the means to be employed in recycling the materials consistent with requirements for acceptance by designated facilities.
- Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area 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 and sold to local recyclers. Parts of construction debris (Brick, concrete and masonry) can be recycled as filling materials on the ground or be sold for using as sub-base material or driveway bedding.
- It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, where possible.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- 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;
- Workers, subcontractors, and suppliers will be trained on proper waste management procedures, as appropriate for the Work occurring at Project Site.
- Burning of any type of wastes in the construction site shall be prohibited completely.

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

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

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	240 sqm	@23 Tk. Per sqm	5,520
2.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	2 nos.	@6500 Tk. Per box	13,000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	Each	Lump sum @ 80,000 BDT	80,000
4.	**Environmental management** Environmental management costs for employing an Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax &VAT). And as per direction of the E.I.C.	1 person	Monthly basis @Tk. 35,000.00 for 24 months. One person covering 10 shelters i.e. 35, 000	84,000

Sl no.	Description of item	Quantity	Unit price	Total amount
			Tk.*24 months*(1/10 one shelter). (Net payment excluding Tax &VAT).	
5.	**Health safety warning sign** Health safety warning sign and as per direction of the E.I.C.	Each	Lump sum @ 5000	5,000
6.	**Motivation training** Motivation training (twice: before and after construction start) to the Upazila Engineers and Contractor's representatives on safety practice and as per direction of the E.I.C.	20 persons	Approx. @ Tk. 1000.per person(twice: before and after construction start)	40,000
7.	**Site Cleaning and preparation** Site Cleaning and preparation including providing necessary protective fencing and safety measures with sign board and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	Each	Lump sum @ 19,000	19,000
8.	**Providing Safety gear** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles.	20 sets	@ Tk. 5,000 for each set	100,000
9.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per	10 nos.	@ Tk. 1000 for each tree.	10,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted along the periphery of the proposed site at an interval of 10 feet.			
10.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@20,000 per toilet	40,000
11.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	2 nos.	@20,000 each	40,000
12.	**Water filter** 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.	@3500tk for each filter	10,500
13.	**Test (Drinking Water samples)** Out of 5 nos. of Tube well 1-no of tube well **should be installed** at the beginning of the construction works so that labor& other site staffs can get drinking water. In addition, Water samples are to be collected periodically (half yearly) from the first installed tube well for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report).	Total 3 nos. of sets of tests need to be conducted during construction period @Tk. 13,800.00 each set of tests (Lump Sum)	@13,800tk for each set	41,400
	Subtotal Bill: Environmental facilities			**488,420**

Cost of H&S Measures under COVID 19 Situations

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 20 workers for 540 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/AF/W12).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	108		135	50.00	243	12,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	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	10 nos. each day in each site		N/A	12.00	5400	64,800.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	20 nos. for each labor camp		35.00	720	25,200.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	18	7,200.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**165,125.00**	

Appendix-4: List of Participants in the Consultation meeting

Aliapara Government Primary School
Package Number: EMCRP/AF/W12

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

Focus Group Discussion

সময়: ০৩:৫০ পিএম তারিখ: ২৮/০৯/২০২১ইং

স্থানের নাম: আলিয়াপাড়া সরকারি প্রাথমিক বিদ্যালয়

ইউনিয়ন: উখিয়া সদর ইউনিয়ন ওয়ার্ড নং: ০৫ উপজেলা: উখিয়া জেলা: কক্সবাজার

প্যাকেজ নং: EMCRP/AF/W12

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/মহিলা	গ্রাম	স্বাক্ষর/টিপসই
১,	আব্দুর রহিম	৪৭	পুরুষ	হাজেরপাড়া	
২	বুলবুল আক্তার	৪০	নারী	দক্ষিণপাড়া	
৩,	বীনাপানী চক্রবর্তী	৫৩	নারী	পশ্চিমহিজুপাড়া	
৪.	আব্দুল হাসেম	৪০	পুরুষ	হাজেরপাড়া	
৫.	হেলিনা আক্তার	৪০	নারী	৫	৫
৬,	আশিকুন ইসলাম	৫৫	পুরুষ	৫	
৭	মো: বেদারুল ইসলাম	৩০	পুরুষ	৫	৫
৮	সাহিদুল ইসলাম	২৭	পুরুষ	৫	৫
৯	হেলাল উদ্দিন	২৬	পুরুষ	৫	৫
১০	আব্দুল হাকিম	৪২	৫	মিলেরপাড়া	৫
১১	আবু রহিম	৩২	৫	হাজেরপাড়া	
১২	চাঁদ মিয়া	৫২	৫	৫	৫
১৩	ছিদ্দিকুর মিয়া	৩২	৫	৫	৫
১৪	হারুন অর রশিদ	৬৩	৫	৫	৫
১৫	নুরুল আবছার	৩২	৫	৫	৫
১৬	নাসির উদ্দিন বাচ্চু	৩৪	৫	৫	৫
১৭	মো: আবুতাহের	২০	৫	৫	৫

Public Consultation Participants' List