

BAN: COVID-19 Response Emergency Assistance Project

ADB Project 54173-001 | Loan 3918-BAN

INITIAL ENVIRONMENTAL EXAMINATION (IEE)

Package

BRAHMANBARIA/AKHAURA/ADB/LAND-PORT/WD-77: Establishment of Medical Centres in Land Ports of Entry of Akhaura (Construction of 2-storied Medical Centre with 6 storied foundations including Civil, Sanitary and Electrification works) Sanitary and Electrification works).

Implementing Agency

Health Services Division (HSD)
Ministry of Health and Family Welfare

January 2023

Prepared by Health Services Division (HSD) of the Ministry of Health and Family Welfare (MoHFW) for the Asian Development Bank.

The Environmental Management Plan is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

Initial Environmental Examination

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Prepared for the Health Services Division (HSD),
Government of Bangladesh and for the Asian Development Bank

ABRREVIATIONS

ADB	- Asian Development Bank
AP	- Affected Person
BLPA	- Bangladesh Land Port Authority
DoE	- Department of Environment
EARF	- Environmental Assessment and Review Framework
ECA	- Environmental Conservation Act
ECC	- Environmental Clearance Certificate
ECR	- Environmental Conservation Rules
EIA	- Environmental Impact Assessment
EMP	- Environmental Management Plan
GRC	- Grievance Redressal Cell
GRM	- Grievance Redress Mechanism
IEE	- Initial Environmental Examination
LCC	- Location Clearance Certificate
LGED	- Local Government Engineering Department
O&M	- Operations and Maintenance
PMU	- Project Management Office
PWD	- Public Works Department
REA	- Rapid Environmental Assessment
RP	- Resettlement Plan
SPS	- Safeguard Policy Statement

GLOSSARY OF BANGLADESHI TERMS

Crone	-	10 million (= 100 lakh)
Khal	-	drainage ditch/canal
khas, khash	-	belongs to government (e.g., land)
katcha	-	poor quality, poorly built
lakh, lac	-	100,000
madrasha	-	Islamic college
mouza	-	government-recognized land area
pucca	-	good quality, well built, solid
thana	-	police station
upazila	-	sub district

CURRENCY EQUIVALENTS

(as of August 2022)

Currency Unit=BDT

BDT1.00=\$0.011

\$1.00=BDT95.00

WEIGHTS AND MEASURES

Ha	-	hectare
Km	-	kilometre
M	-	meter
Mm	-	millimetre

NOTES

- (i) In this report, "\$" refers to US dollars.
- (ii) —BDT refers to Bangladeshi Taka

This initial environmental examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

PREFACE

The premises of this Initial Environmental Examination Report (IEE) are the Individual Consultant services presentation of an analysis of data and conclusions, together with its appendices. While Individual Consultants have been deputed to assist the Executing Agency (EA) for the preparation of the IEE, the responsibility and ownership of the IEE rest with the EA. The key elements of the IEE Report focus on: Assessment of Compliance Guidelines of Environment Safeguards according to ADB and GoB policy.

DISCLAIMER

This Initial Environmental Examination (IEE) Report of Medical Centre at Akhaura Land Port under COVID-19 Response Emergency Assistance Project has been prepared by the Health Services Division (HSD) of the Ministry of Health and Family Welfare (MoHFW) and is direct proponent of the project. All the data used to prepare this Initial Environmental Examination (IEE) Report have been collected from the project area and secondary information sources available with relevant departments, agencies and organizations through literature review, environmental sample collection and testing, questionnaire survey and direct consultations with local people. If any information or data or any other things coincide with other project documents that are beyond our knowledge and fully coincidental event, and we express apology for that.

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EXECUTIVE SUMMARY

Introduction: In accordance with the International Health Regulations (IHR) 2005, the World Health Organization (WHO) designated the COVID-19 as a Public Health Emergency of International Concern on January 30, 2020, and on March 11, 2020.

The IHR Emergency Committee for the COVID-19 of WHO, which convened on 22-23 January 2020, emphasized that further exportation of cases may appear in any country and, thus, they should be prepared for containment, including active surveillance, early detection, isolation and case management, contact tracing and prevention of onward spread of COVID-19 infection, and to share full data with WHO. The Coronavirus Disease (COVID-19) Response Emergency Assistance Project (the project) will support the Government of Bangladesh in addressing the immediate and urgent needs for financial, logistical, and systemic support to deal with the COVID-19 outbreak. The project will support the procurement of equipment and supplies, the upgrading of health and testing facilities, and build system and community capacities for surveillance, prevention, and response to COVID-19. Construction, rehabilitation, and remodeling of medical facilities at seven land ports, the creation of isolation and critical care units at seventeen medical college hospitals, and the adornment of 19 cutting-edge microbiological labs are all included in the civil works operations. The proposed project follows a request to Asian Development Bank (ADB) from the Government of Bangladesh, and the project is an integral and vital part of the National Preparedness and Response Plan for containment, mitigation, and management of COVID-19.

Policy, Legal and Administrative Framework: The issuance of Environmental Clearance Certificate, the industrial units and projects shall, in consideration of their site and impact on the environment, be classified into the following four categories: (a) Green; (b) Orange – A; (c) Orange – B; and (d) Red. The industries and projects included in the various categories are specified in sub-rule (1) have been described in Schedule – 1. The environmental category of the sub-project is not listed in Schedule – 1 of ECR. Again, the construction of Multi Storied Medical Centre is relevant to the Multi-storied Building and the sub-project is listed in Schedule – 1 of ECR and falls in Orange B Environmental Category: ADB. However, as per the circular of GoB only a building which height is more than 6 storied and located other areas than the Dhaka city needs to conduct an IEE only. Therefore, this project does not need to comply any of the national legal requirements for getting an approval prior to the construction.

Description of the Sub Project: Akhaura land port is located on the eastern edge of Bangladesh, in Brahmanbaria District, Chattogram Division. The road crossing site is approximately 5 km west-southwest from Akhaura town (2011 population 36,262), and about 3 km from the center of the much larger town of Agartala (2011 population 400,004) in the Indian state of Tripura. The land port is approximately 134 km east of Dhaka by road.

The proposed project consists of the construction of a 2 storied medical center with a 6 storied foundation, designed by the Department of Architecture (DoA) which will also be used as a screening and isolation center for COVID-19 affected Personnel during border pass in Akhaura land port.

Description of the Environment:

In order to establish the baseline quality of the environment around the project site zone, field studies are conducted for different components of the environment, such as air, water, noise, land and socio-economics etc. Secondary data are collected through comprehensive literature survey. Then the data collected was analyzed and interpretations made to assess the physical, biological, and socioeconomic features of the project area.

- a) **Physical Characteristics:** The proposed medical center is located within the complex of Akhaura Land Port in in Akahura Upazila, of Brahmanbaria district which is located at the eastern part of the country. Akhaura, Brahmanbaria, is only 7 meters / 22.97 feet above sea level, so if the sea rises 2 meters nearby areas will be affected. The main river that run through this upazila is the Titas River. The climatic condition of this region is given in the following table:

Cumilla Weather Station Region			Duration
Temperature	Highest Average Temperature	36°C	May
	Lowest Average Temperature	9°C	January
Rainfall	Highest Average Rainfall	449 mm	May to September
	Lowest Average Rainfall	7-13 mm	December to January
Wind Speed	Highest Average Wind Speed	4 knots	March to August
	Lowest Average Wind Speed	2 knots	September
Humidity	Highest Average Wind Speed	86%	July
	Lowest Average Wind Speed	75%	February

104. Closer to the BCP, the Kata Khal traverses the countryside from northeast to southwest. This khal flows through the north side of the city of Agartala before crossing into Bangladesh about 700 m north of the land port site. A canal (Kalundi khal) runs adjacent to the north side of the BCP approach road, across the road from the land customs station and land port. This canal empties into the Kata Khal where the latter crosses the road. The water in the Kalundi khal, which comes from the center of Agartala, is terribly filthy, and black in color. The Kata Khal runs into the Haora River, which eventually joins the Titas River about 10 km downstream from Akhaura town. Other than arsenic contamination, groundwater depletion due to excessive withdrawal, and pollution due to anthropogenic activities, have been reported in in Brahmanbaria district. A 2010 study of groundwater quality found that tested wells (shallower than 150 m) often did not meet the national standards for drinking water in relation to key parameters. This was found to be the case for total dissolved solids (83–809 mL⁻¹, national standard maximum 500mL⁻¹), lead (0.04–0.07 mL⁻¹, national standard maximum 0.05 mL⁻¹), arsenic (up to 0.10 mL⁻¹, national standard maximum 0.05 mL⁻¹), iron (0.10 mL⁻¹–6.96 mL⁻¹ versus national standard acceptable range 0.3–1.0 mL⁻¹), and manganese (up to 1.63 mL⁻¹, national standard maximum 0.1 mL⁻¹). Water from shallow tube wells is therefore not to be recommended for drinking or cooking. According to seismicity mapping prepared by Geological Survey Bangladesh, Akhaura falls in the medium intensity seismic zone (Zone II, Basic Seismic Coefficient 0.28g). The area surrounding the Akhaura border crossing point (BCP) is rural, and land use is dominated by farming (mainly tea and rice), forest, low-density residential development.. The border zone is set within a quiet rural landscape in which use of motorized farming equipment is almost non-existent.

b) Biological Characteristics:

Twelve bio-ecological zones and 25 sub-zones have been defined for Bangladesh by The International Union for Conservation of Nature (IUCN); Akhaura is in Old Meghna Estuarine Floodplain region comprises smooth, almost level, floodplain ridges and shallow basins. Common floral species that can be observed in the district are mango, tamarind tree, banyan tree, black palm etc. The common faunal species are found in the district's rhesus monkey, king crow, barn owl, devil catfish, silver carp etc.

- c) Socioeconomic Characteristics:** The population of Akhaura Upazila was 145,215 in 2011, of which 75,105 were female and 70,110 were male. Approximately 67% of people living in the upazila were under the age of 30 in 2011. The upazila's population has grown markedly over the last two decades, notching a growth rate of +1.43%/yr from 1991 to 2001, and +1.07%/yr from 2001 to 2011.¹The notable slowing of the population growth rate is more or less in line with national growth trends, although the drop-off has been more precipitous for Akhaura Upazila than for the country as a whole. Assuming a further slowed growth rate of +1% for the

¹ All population figures are sourced from www.citypopulation.de, which in turn derives its data from the national census data reported by the Bangladesh Bureau of Statistics.

2011–2021 period, it may be reasonable to project a 2021 population for the upazila of about 160,487. Population density in 2011 was 1,481/km², and may be as high as 1,638/km² by 2021 if the above projection for 2021 upazila population is sound.

Analysis of Alternative: Considering no project scenario, the Covid-19 affected scenario may get worse. Therefore, no project alternative is unacceptable. Again, the project implementation requires a location near port of entry where prior to entry each people will be gone through screening, the land port is the best suitable place considering these issues. Therefore, alternative location option is not feasible.

Assessment of Potential Environmental Impacts: Some consequences, such as emissions and noise, will be residual impacts for which mitigation will necessarily fall short of being completely effective over the operation time notwithstanding some mitigation. Positive effects like greater employment and business prospects as well as improved integration in the local economy will greatly offset these residual effects. It should be noted that air quality and noise impacts from the project may ultimately represent an improvement over the situation that is likely to develop under the current trajectory (the no-project alternative).

Information Disclosure, Consultation and Participation: The development and construction of any project will impact on the surrounding human and physical environment and will have beneficial or adverse effects. It is therefore essential that the community can fully understand the project, have the opportunity to express their views and to become directly involved in the project's overall decision-making process. Considering the scale of the project, 01 FGD was arranged on 26th December 2022 at Akhaura Land Port with a total of 14 stakeholders. As the project will certainly have positive impact over the community on large scale the consultation outcome is quite positive and also the participants are hopeful for the successful implementation of this project.

Grievance Redress Mechanism: The grievance redress mechanism (GRM) is a process of handling complaints that is understandable, transparent, gender-responsive, culturally appropriate, and easily accessible to affected persons without cost and retribution. Affected people can submit a complaint through written format or phone calls which must be kept by Project Implementation Unit (PIU). The number of grievances recorded and resolved, and the outcomes will be displayed/disclosed in the PIU office, and on the web, as well as reported in monitoring reports submitted to ADB on a semi-annual basis. All costs involved in resolving the complaints (meetings, consultations, communication, and reporting/information dissemination) will be borne by the PIU.

Environmental Management Plan (EMP): The contract agreements for the project's operations must include information about the EMP, as well as its monitoring and mitigation procedures. According to the contract documents, the Company is in responsible for carrying out the EMP's requirements through his own Site-Specific Environmental Management Plan, which will include all of the EMP's requirements as well as any site-specific information. This makes sure that the Contractor is informed of the environmental requirements for the project and the related expenses.

Conclusion and Recommendations: Based on the findings of the IEE, there are no significant impacts and the classification of the sub-project as Category "B" is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB. All required issues have been assessed to the best of our knowledge and no further studies are required to comply with ADB procedures or the laws of GoB.

I. INTRODUCTION

A. Background

1. COVID-19 is a new disease with similar symptoms as influenza but different in terms of severity and community transmission.² The World Health Organization (WHO) declared the COVID-19 as a Public Health Emergency of International Concern on 30 January 2020 under the International Health Regulations (IHR) 2005 and recognized it as a pandemic on 11 March 2020.³
2. The IHR Emergency Committee for the COVID-19 of WHO, which convened on 22-23 January 2020, emphasized that further exportation of cases may appear in any country and, thus, they should be prepared for containment, including active surveillance, early detection, isolation and case management, contact tracing and prevention of onward spread of COVID-19 infection, and to share full data with WHO.
3. Given the situation, the Government of Bangladesh (the government), through the Ministry of Health and Family Welfare (MOHFW) requested the Asian Development Bank (ADB) on 23 March 2020 to provide financial, logistics and systems support for preparedness and response to the COVID-19 outbreak.
4. The Coronavirus Disease (COVID-19) Response Emergency Assistance Project (the project) will support the Government of Bangladesh in addressing the immediate and urgent needs for financial, logistical, and systemic support to deal with the COVID-19 outbreak. The proposed project follows a request to Asian Development Bank (ADB) from the Government of Bangladesh, and the project is an integral and vital part of the National Preparedness and Response Plan for containment, mitigation, and management of COVID-19. The project is financed by GoB and ADB. The project will support the procurement of equipment and supplies, the upgrading of health and testing facilities, and build system and community capacities for surveillance, prevention, and response to COVID-19. The civil works activities include construction/renovation/remodeling of medical centers at 7 land ports, construction of isolation units and critical care units at 17 selected Medical College Hospitals and embellishment of 19 modern microbiology labs. The Ministry of Health and Family Welfare (MoHFW) will act as an executing agency and Directorate General of Health Services (DGHS) will be implementing agency of the project. A Project Implementation Unit (PIU) under DGHS has already been established to carry out the emergency procurement of the project. Relevant UN agencies will be engaged to procure medical equipment, medicines, and other medical consumables. PIU may take support from the Central Medical Stores Depot (CMSD) of the MoHFW for procurement of selected goods and the Public Works Department (PWD) of the Ministry of Housing and Public Works for civil works.
5. The project is aligned with the following impact: Accelerated social and economic recovery of the COVID-19 affected population in Bangladesh, which is the overall goal of the government's National Preparedness and Response Plan (NPRP). The project will have the following outcome: Health and wellbeing of COVID-19 affected persons improved. This outcome will be measured through the indicator: 65% of suspected domestic cases of COVID-19 reported and investigated as per Ministry of Health and Family Welfare (MOHFW) guidelines. The outcome will be achieved through three outputs.⁴
6. **Output 1. Immediate and medium-term equipment needs for testing and managing COVID-19 met.** The project will help meet the government's immediate and medium-term needs to prevent the spread of COVID-19, by supporting emergency procurement and the provision of the most crucial medical equipment and supplies. The supplies will enable (i) affected people and health care workers to be treated and protected from infection; and (ii) selected health facilities to be equipped with

² WHO. Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. https://www.who.int/health-topics/coronavirus#tab=tab_1.

³ WHO. International Health Regulations (2005). 3rd Ed. <https://www.who.int/ihr/publications/9789241580496/en>.

⁴ The design and monitoring framework is in Appendix A.

essential IPC supplies. The supplies will include personal protection gear, biohazard bags, disinfecting materials, ventilators, oxygen meters, and other equipment.

7. **Output 2. Infrastructure and related equipment for supporting and sustaining prevention and management of COVID-19 delivered.** The project will support the modification and rehabilitation of infrastructure to provide (i) at least 80% of points of entry with screening facilities for passengers coming into the country via air, land, and water; (ii) at least 17 medical college hospitals with critical care units and isolation units to reduce secondary infections among contacts and health care workers; and (iii) at least 19 microbiological diagnostic facilities with capability to apply real-time and advanced diagnostics, as well as other emergency response infrastructure as needed.²

8. **Output 3. Health system and community capacities in combatting COVID-19 strengthened.** The project will support measures to strengthen the health system's response capacities and provide short- and medium-term capacity development, including (i) recruitment and training of 3,500 health and other technical staff to optimize the use of the new or upgraded facilities; (ii) provision of adequate incentives to staff to go to remote areas; (iii) development of preparedness and response capacity for incidence management; (iv) support for operational research to inform policy briefs and decisions; and (v) development and implementation of a COVID-19 communication strategy.

B. Project Scope

9. The proposed project includes only construction of one Medical/Screening Center at Akhaura Land port.

10. The medical/screening center will help identifying the COVID-19 affected persons during border crossing and isolation center will help stopping it from further spread among local community.

C. Purpose of the Report

11. The initial environmental examination aims to provide guidance on safeguard screening, assessment, institutional arrangement, and process to be followed for components of the project, where design takes place after Boards approval. This IEE (i) describes the project and its components; (ii) explains the general anticipated environmental impacts and mitigation measures for the subprojects; (iii) specifies the requirements that will be followed in relation to screening and categorization, assessment, and planning, including arrangements for meaningful consultation with affected people and other stakeholders and information disclosure requirements; (iv) assesses the capability of the project proponents to implement national laws and ADB's requirements, and identifies needs for capacity building; (v) specifies implementation procedures, institutional arrangements, and capacity development requirements; and (vi) specifies monitoring and reporting requirements. Moreover, this IEE is to ensure, in line with ADB's Environmental Assessment and Review Framework (EARF), that the Multi Storied Medical Centre project, in the entirety of its project cycle, will not deteriorate or interfere with the environmental sensitivity of the project area, but rather improve environmental quality.

D. Scope of This Report

12. The Project requires that any proposed development will require that the laws and regulations of Bangladesh be applied in full. The Project is then subject to approval under the Government of Bangladesh's Environment Conservation Act (1995) (ECA) and Environment Conservation Rules (1997).

13. The IEE report aims to provide guidance on safeguard screening, assessment, institutional arrangement, and process to be followed for components of the project, where design takes place after approval. This IEE:

- describes the project and its components;
- explains the general anticipated environmental impacts and mitigation measures for the subprojects;

- specifies the requirements that will be followed in relation to screening and categorization, assessment, and planning, including arrangements for meaningful consultation with affected people and other stakeholders and information disclosure requirements;
- assesses the capability of the project proponents to implement national laws and ADB's requirements, and identifies needs for capacity building;
- specifies implementation procedures, institutional arrangements, and capacity development requirements; and
- specifies monitoring and reporting requirements. Moreover, this IEE is to ensure, in line with ADB EARF, that the sub-project, in the entirety of its project cycle, will not deteriorate or interfere with the environmental sensitivity of the project area, but rather improve environmental quality.

14. This report fulfils the requirements of IEE under the provisions of the ECR. The IEE identifies potential environmental and social impacts and issues associated with undertaking the proposed sub-project. It provides an outline of the potential positive and negative impacts because of the Project and proposes suitable mitigation and management measures.

15. The scope of this report and the subsequent IEE is specific to the sub-project. It does not provide any assessment for any other/future developments or activities at the location or anywhere else within Akhaura Land Port Area. Should any further development be planned as result of either this Project or other related work, additional planning, and assessment to the requirements of the Government of Bangladesh must be carried out specifically in relation to that proposed development.

E. Approach and Methodology

16. The primary purpose of the IEE is to investigate and describe impacts of the proposed sub-project to the existing environmental elements. Specifically, the study aims to predict the potential impacts of the project activities and recommend mitigation and abatement measures for impacts (in the pre-construction, construction, after completion of work and operational stages of development) that are considered potentially adverse to the surrounding environment.

17. In general, this IEE intends to:

- Examine and describe the existing status of the various ecological, physical, and human related components surrounding the project area.
- Predict the potential significant impacts of the project on the surrounding environment during the pre-construction, construction, operations, and maintenance stages and recommend appropriate mitigation and abatement measures; and
- Identify residual impacts of the project and recommend appropriate short-term and long-term management plans.

a. Data Sources of IEE

18. The following documents were used as reference in the preparation of the IEE report:

- Available technical reports from Public Works Department (PWD), BLPA and various organizations
- Available laws, rules, regulations, acts, policies from Bangladesh Government websites
- Maps from open sources and various governmental and non-governmental websites
- Data from secondary literatures including books and relevant websites

b. Scoping and Gathering Baseline Data

19. Scoping of issues to be addressed in the IEE was conducted early in the assessment process (i.e., Field visit) to collect the appropriate baseline information so that collected and the IEE report/study can be focused on the relevant issues needed.

20. The objectives of undertaking the scoping activities were:

- To provide an early link among the implementing agency, the recipient and affected community and the IEE preparer.
- To ensure that the IEE will address only relevant issues and concerns;
- To present the scope of environmental studies, issues and alternatives that requires thorough examination and consideration in the master plan; and
- To ensure complete coverage of potential environmental and social issues that is required under the ADB Environmental and Social Considerations.

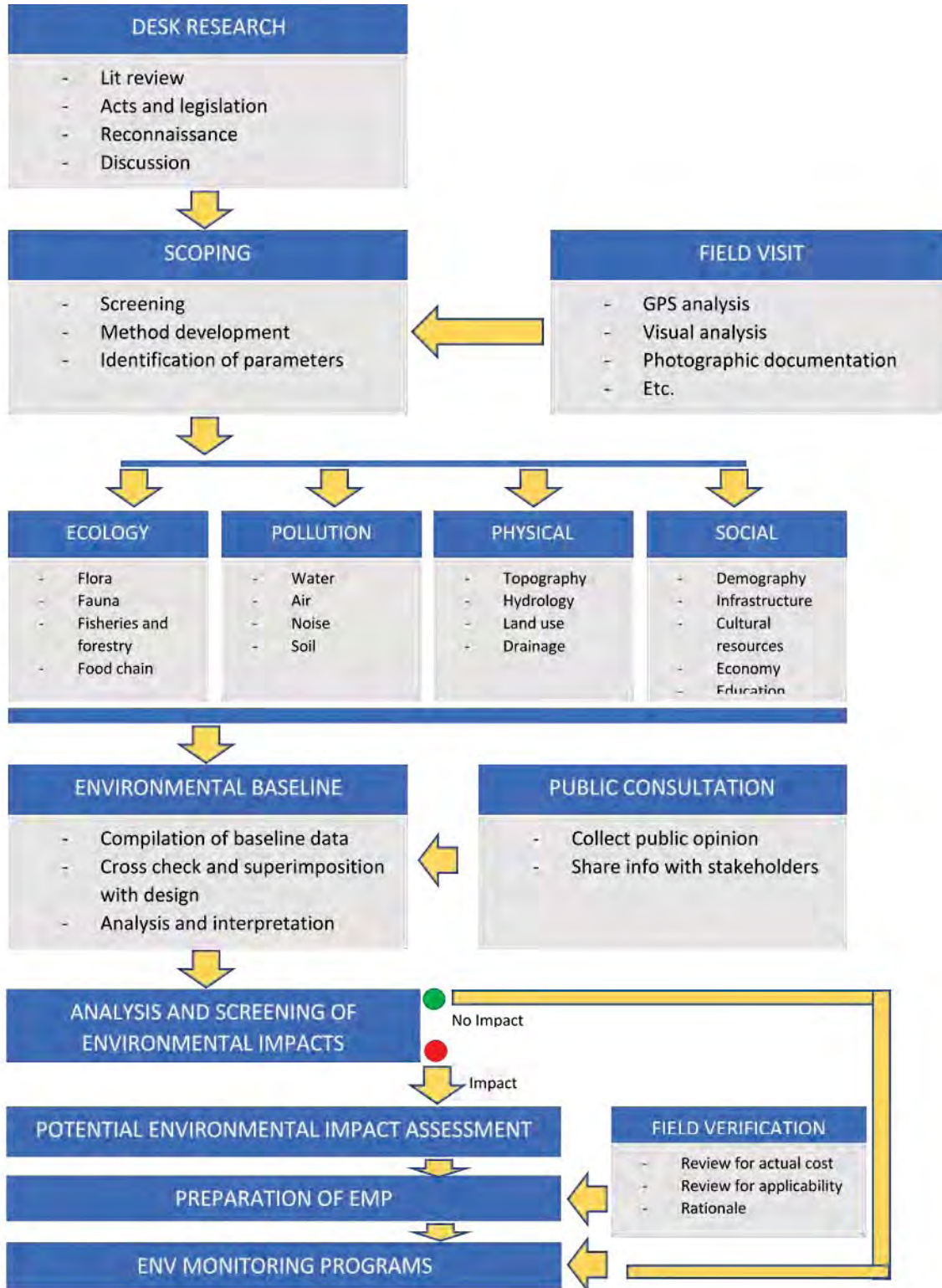


Figure I.1: Approach and Methodology of the IEE Study

II. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

A. Introduction

21. This section of the IEE details the Administrative Framework for the Project, covering national requirements as well as applicable international treaties and conventions. The intent of this section is to lay out the regulatory and non-regulatory performance requirements for all stages of the Project. For the purposes of this report, only those regulatory elements directly relevant to the proposed Project will be discussed.

- Environmental Legislation Framework
- Overview of the Project Approval Process

22. Key legislation governing the environmental approvals process for the proposed Project is the Bangladesh Environment Conservation Act, 1995 (BECA, 1995)⁵ and the Environment Conservation Rules (ECR, 1997)⁶.

23. According to Rule 7 of the ECR, proposed developments within Bangladesh are classified as one of four categories, as follows:

- Green;
- Orange A;
- Orange B; and
- Red

24. These categories define proposed developments according to their potential environmental impact. Section 12 of the ECA states that 'No industrial unit or project shall be established or undertaken without obtaining an Environmental Clearance Certificate from the Director General, in the manner prescribed by the Rules'.

B. Environmental Approval Framework

25. Key milestones in the approvals process are outlined in Figure II.1. These comprise:

- 1) **Project Authorization Letter:** Formal authorization of the Project by the owner is required for the environmental approvals process to formally commence.
- 2) **No Objection Certificate (NOC):** A NOC must be received from the Deputy Commissioner (DC) in the sub-project area before the SCC application can be made.
- 3) **Site Clearance Certificate (SCC):** DoE will issue a SCC upon approval of the IEE study (note that the IEE submission is to include the Project Authorization Letter, NOC, and SCC application form). The SCC will include a ToR for the IEE/EIA study, and typically provides authorization for site establishment works to commence.

⁵ The Act was amended by Act Nos 12 of 2000, 9 of 2002, and 50 of 2010.

⁶ The ECR was amended in 2002, 2005, 2008, 2010 and 2017.

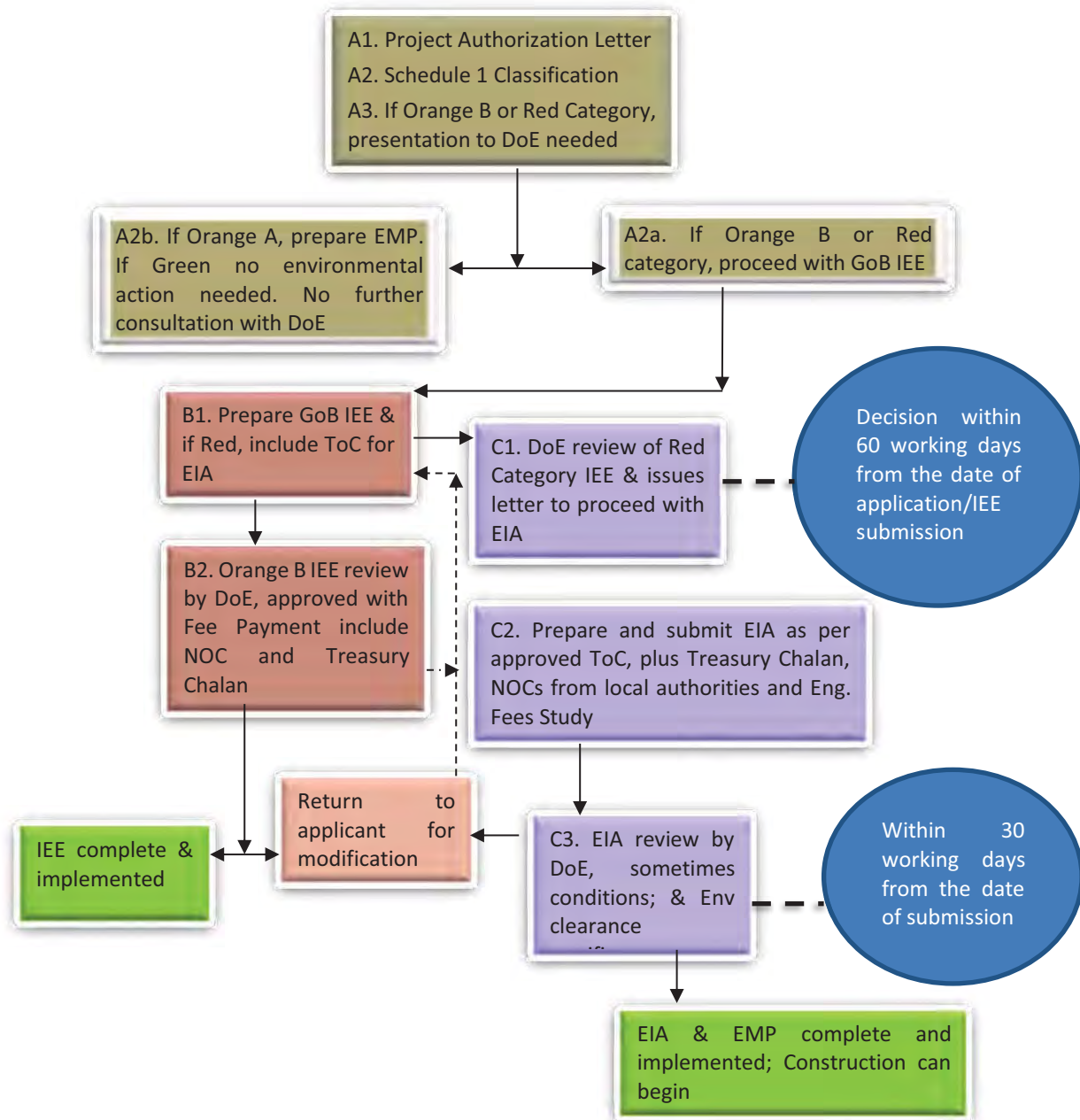


Figure II.1: Government of Bangladesh Environmental Assessment Process

C. National Relevant Policies and Strategies

26. This section summarizes the National Laws and describes the procedure for obtaining environmental permits to allow project implementation. Over the years, the Government of Bangladesh has enacted environmental acts, rules, policies, and regulation toward imposing restrictions facilitating minimization / mitigation of likely impacts due to development projects. The most important Act is Environmental Conservation Act, 1995 (ECA, 1995) and Environmental Conservation Rules (ECR, 1997).

a. National Environmental Policy

27. The National Environmental Policy was adopted in 1992 and amended in 2018. It embraces different sectors related to agriculture, forest, power, health, transport, housing etc. The central theme of policy is to ensure protection and improvement in environment. The policy gives a thrust to sustainable development and long-term use of natural resources. The National Environment Policy contains policy statements and strategic options about population and land-use management,

management and utilization of natural resources and other socio-economic sectors, as well as the necessary arrangements for the implementation of the policy. The policy enables:

- the country to strike a dynamic balance between population and resources while complying with the balance of ecosystems;
- to contribute to sustainable and harmonious socio-economic development such that, both in rural and urban areas, and well-being in a sound and enjoyable environment; and
- To protect, conserve and develop natural environment.

28. **Relevance to the project** - Regarding the sub-project, the environmental policy aims at prevention of pollution and degradation of resources caused by the building construction. The policy mentions that environmental assessments should be conducted before projects are undertaken.

b. Environment Conservation Act (ECA), 1995

29. The ECA is currently the main legislation relating to environment protection in Bangladesh. This Act is promulgated for environment conservation, environmental standards development and environment pollution control and abatement.

30. The main objectives of ECA are:

- Conservation and improvement of the environment; and
- Control and mitigation of pollution of the environment.

31. The main focuses of the Act can be summarized as:

- Declaration of ecologically critical areas and restriction on the operations and processes, which can or cannot be carried out/ initiated in the ecologically critical areas (ECA);
- Regulations in respect of vehicles emitting smoke harmful for the environment;
- Environmental clearance;
- Regulation of industries and other development activities' discharge permits;
- Promulgation of standards for quality of air, water, noise and soil for different areas for different purposes;
- Promulgation of a standard limit for discharging and emitting waste; and
- Formulation and declaration of environmental guidelines.

32. Before any new project can go ahead, as stipulated under the ECA, the project promoter must obtain Environmental Clearance from the Director General (DG), DoE. An appeal procedure does exist for those promoters who fail to obtain clearance. Failure to comply with any part of this Act may result in punishment to a maximum of 5 years imprisonment or a maximum fine of Tk.100, 000 or both. The DoE executes the Act under the leadership of the DG.

33. The Project will be undertaken in line with the aims and objectives of the Act by conserving the environment and controlling and mitigating potential impacts throughout the drilling program.

- ***Environment Conservation Act (Amendment 2000)***

34. The Bangladesh Environment Conservation Act Amendment 2000 focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures both for fines and imprisonment and the authority to take cognizance of offences.

- ***Environment Conservation Act (Amendment 2002)***

35. The 2002 Amendment of the ECA elaborates on the following parts of the Act:

- Restrictions on polluting automobiles;
- Restrictions on the sale, production of environmentally harmful items like polythene bags;
- Assistance from law enforcement agencies for environmental actions;
- Break up of punitive measures; and
- Authority to try environmental cases.

- **Environment Conservation Act (Amendment 2010)**

36. This amendment of the act introduces new rules and restriction on:

- No individual or institution (Gov. or Semi Govt., / Non-Govt. / Self Governing) can cut any Hill and Hillock. In case of national interest; it can be done after getting clearance from respective the department
- Owner of the ship breaking yard will be bound to ensure proper management of their hazardous wastes to prevent environmental pollution and Health Risk
- No remarked water body cannot be filled up/changed; in case of national interest; it can be done after getting clearance from the respective department; and
- Emitter of any activities/incident will be bound to control emission of environmental pollutants that exceeds the existing emission standards.

37. **Relevance to the project** - According to this law no industrial unit or project shall be established or undertaken without obtaining, in the manner prescribed by rules, an Environmental Clearance Certificate from the Director General.

c. Environment Conservation Rules, 1997 (Amended in 2002, 2005, 2008, 2010 and 2017)

38. These are a set of rules, promulgated under the ECA, 1995 and its amendments. The Environment Conservation Rules provide categorization of industries and projects and identify types of environmental assessment required against respective categories of industries or projects. The Rules set:

- The National Environmental Quality Standards (NEQS) for ambient air, various types of water, industrial effluent, emission, noise, vehicular exhaust etc.;
- The requirement for and procedures to obtain environmental clearance; and
- The requirement for IEE and EIA according to categories of industrial and other development interventions.

39. The Environment Conservation Rules, 1997 were issued by the GOB in exercise of the power conferred under the Environment Conservation Act (Section 20), 1995. Under these Rules, the following aspects, among others, are covered:

- Declaration of ecologically critical areas;
- Classification of industries and projects into four categories;
- Procedures for issuing the Environmental Clearance Certificate (ECC); and
- Determination of environmental standards.

40. Rule 3 defines the factors to be considered in declaring an 'ecologically critical area' as per Section 5 of the ECA (1995). It empowers the Government to declare the area as the Ecologically Critical Areas (ECA), if it is satisfied that the ecosystem of the area has reached or is threatened to reach a critical state or condition due to environmental degradation. The Government is also empowered to specify which of operations or processes may be carried out or may not be initiated in the ecologically critical area. Under this mandate, the Ministry of Environment, Forest, and Climate Change (MoEFCC) has declared Sundarbans, Cox's Bazar-Teknaf Sea Shore, Saint Martin Island, Sonadia Island, Hakaluki Haor, Tanguar Haor, Marzat Baor, Gulshan-Baridhara Lake and Jaflong-Dauki River as ecologically critical areas and prohibited certain activities in those areas.

41. Rule 7 of the 1997 ECR provides a classification of industrial units and projects into four categories, depending on environmental impact and location. These categories are:

- Green;
- Orange A;
- Orange B; and
- Red.

42. The categorization of a project determines the procedure for issuance of an Environmental Clearance Certificate (ECC). All proposed industrial units and projects that are low polluting categorized under "Green" and shall be granted Environmental Clearance. These are Orange B for work that requires Initial Environmental Examination (IEE) and Red for work that requires full environmental assessment.

43. A detailed description of those four categories of industries has been given in Schedule-1 of ECR'97. Apart from general requirement, for every Red category proposed industrial unit or project, the application must be accompanied with feasibility report on Initial Environmental Examination, Environmental Impact Assessment based on approved ToR by DoE, Environmental Management Plan (EMP) etc.

44. Depending upon location, size, and severity of pollution loads, projects/activities have been classified in ECR, 1997 into four categories: Green, Orange A, Orange B, and Red respectively, to nil, minor, medium, and severe impacts on important environmental components (IECs).

45. **Relevance to the project** - In accordance with the Environment Conservation Rules (ECR) of 1997, the Project is not classified under any categorization, so this project does not require any ECC form DoE.

d. National Health Policy, 2011

46. The Ministry of Health and Family Welfare has formulated the National Health Policy, 2011 in order to ensure primary and emergency health care for all, expansion of healthcare services in an equitable manner and avail the health care services as a matter of right and dignity to prevent and minimize the occurrence of disease.

47. The Ministry of Health and Family Welfare assembled a committee in 1996 for the purpose of preparing a health policy, with members drawn from civil society and professional bodies, including technocrats and bureaucrats. A further five sub-committees were formed to:

- Evaluate the existing health services and determining the goals
- Formulate policies to ensure essential services
- Formulate policies to ensure hospital-based services
- Design Strategies for HRD
- Integrate NGOs and the Private Sector and plan for resources and utilization of funds

48. The Bangladesh health policy document was published in 2011 and adheres to the following:

- Health is defined as "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."
 1. Every citizen has the basic right to adequate health care. The State and the government are constitutionally obliged to ensure health care for its citizens.
 2. To ensure an effective health care system that responds to the need of a healthy nation, health policy provides the vision and mission for development.
 3. Pursuit of such policy will fulfill the demands of the people of the country, while health service providers will be encouraged and inspired. People's physical well-being and free thought process have proved to be a precondition for the growth and intellectual enrichment in today's human society
 4. Bangladesh expressed agreement on the following declarations:
 - The Alma Ata Declaration (1978)
 - The World Summit for Children (1990)
 - International Conference on Population and Development (1994)
 - Beijing Women's Conference (1995)

e. National Water Policy, 1999

49. The policy aims to provide guidance to the major players in water sector for ensuring optimal development and management of water. The policy emphasizes efficient and equitable management

of water resources, proper harnessing and development of surface and ground water, availability of water to all concerned and institutional capacity building for water resource management. It also addresses issues like river basin management, water rights and allocation, public and private investment, water supply and sanitation and water need for agriculture, industry, fisheries, wildlife, navigation, recreation, environment, preservation of wetlands, etc. The policy has several clauses related to the project for ensuring environmental protection.

50. **Relevance to the project** - Clause 4.6b of this policy states that natural depressions and water bodies in major urban areas must be preserved to recharge of underground aquifers and rainwater management. Moreover, measures must be taken to minimize disruption to the natural aquatic environment in streams and water channels (Clause 4.9b). In addition, this policy requires each water resources development project or rehabilitation program to consider environmental protection, restoration, and enhancement measures consistent with National Environmental Management Action Plan (NEMAP) and the National Water Management Plan (NWMP) and adhere to a formal environment impact assessment (EIA) process, if required by the Government (Clause 4.12a and clause 4.12b).

f. Solid Waste Management Rules 2021

51. The Rules provides a comprehensive set of rules based on national 3R strategy and other national and international policies and guidelines pertaining to solid waste management. It defines the roles and responsibilities of relevant government ministries and agencies, including local government authorities and other stakeholders in implementing solid waste management undertakings. It also includes the environmental requirements necessary for these undertakings, provision of incentives for the promotion of sustainable waste management practices, etc.

g. Medical Waste (Management and Treatment) Rules 2008

52. The Government of Bangladesh promulgated the medical waste (management and processing) Rule, 2008 for processing and management of MW in Bangladesh. It was prepared through active participation of MOHFW, MOL and MOEFCC mainly with the objective of proper management of medical waste and protecting the environment.

53. The Medical Waste (Management and Treatment) Rules 2008 forms the base of management of all medical waste in the country. The rules are applicable only to waste management facility/operators i.e., those involved in transportation, treatment and disposal of medical waste. The law provides for guidance on the collections, storage treatment and disposal of medical waste for management facilities/operators. The institutions or agencies involved in collection, transport, storage, have to obtain authorization from the Department of Environment.

54. The existing Environment Conservation Act, 1995 and the Environment Conservation Rules, 1997 had no specific by laws directly related to management of MW management. According to Bangladesh Environment Conservation Act wastes are classified under section 2(1) as “any liquid, solid and radioactive substance that is discharged, disposed or dumped which may cause adverse/ negative change to the environment”. All these procedures were very general for all kind of establishments and not specific for Management of MW. The shortcoming has been addressed by the new medical waste rules, 2008.

55. Broadly the rule has classified the medical waste (schedule-1) with examples and environment friendly technologies of management. It also contains suggestion for use of different color bins (schedule-3) for segregation of medical –waste at source and symbol to be used on the packaging of medical-waste (schedule-4) for transporting. In schedule -6 the rule specifies the standard Incineration/ Autoclaving, standard of liquid waste with permissible limits, standard of microwaving, standard for deep burial and standard for radioactive waste treatment and disposal along with other issues related to MWM (The important part of the Medical waste Rule, 2008 has been enclosed in the annexure).The new medical waste rule has urged for ‘formation of authority’ within 3 months of proclamation which will be will be in charge of all activities related to MWM of their area.

56. The regulation specified for different (6 nos.) color bins to be used for segregation of different MW along with specification of container, standard for operation of equipment, effluent and emission standards.

57. **Relevance of the Project** – According to these rules, government can take legal actions if any environmental problem occurs due to project interventions. However, there is no provision of medical waste treatment within the proposed medical center. A small amount of waste will be generated and that will be transferred in bio-hazard bag to the nearest medical centers for further disposal.

h. National 3R Strategy for Waste Management, (2010)

58. The 3Rs are considered in order of importance – ‘reduce’ followed by ‘reuse’ and then ‘recycle’, which classify waste management strategies according to their desirability. The National 3R goal for waste management is to achieve complete elimination of waste disposal on open dumps, rivers and floodplains by 2015 and promote recycling of waste through mandatory segregation of waste at source as well as create a market for recycled products and provide incentives for recycling of waste.

59. Based on the guiding principles and key issues, four general strategies: i) raising public awareness; ii) engaging an affordable mix of technical options; iii) strategies for sustainability and iv) strategies for financing) and five sector specific strategies: i) domestic waste; ii) hazardous waste from manufacturing industry; iii) waste from agriculture; iv) medical waste and v) addressing occupational safety and health management) have been recommended to promote 3R in waste sector.

i. Fire Prevention and Extinction Act, 2003, Fire Prevention and Extinction Rules, 2014

60. Section 4 of the Fire Prevention and Extinction Act 2003 provides that if any person wants to use any building as warehouse or workshop, he shall have to take license from the Directorate General of Fire Service and Civil Defense. Contravention of this section will cause imprisonment for 3 years or fine and the building along with goods kept in it shall be forfeited. Section 7 depicts, notwithstanding anything contained in any other law, without approval of the Directorate General of Fire Service and Civil Defense regarding fire prevention or extinction, no structural design or layout of multi-storied commercial building shall be approved or amended. Section 18 connotes that contravention of section 7 shall be dealt with imprisonment for 6 months or fine. Section 8 (3) directs every owner of the building to take precautions and other measures necessary for public safety. The Fire Prevention and Extinction Act 2003 is supplemented by the Fire Prevention and Extinction Rules 2014 which enumerates that owner of the building shall have to apply for occupancy certificate of the building at the end of the construction (Rule 22). These enable the authority to inspect the building, to examine whether the owner met all the requirements of the building code for the public safety or not.

j. Other National Legal Instruments

61. The Ministry of Environment, Forests, and Climate Change (MoEFCC) prepare the environmental policies. MoEFCC also has formulated regulation toward clearance of projects from environmental angles based on environmental impact assessment report. The Department of Environment (DoE) is responsible for environmental issues while forest issues are looked after Forest Department (FD). Over the years the MoEFCC has adopted number of legal instruments in the form Acts for the protection and conservation of the environment. Table II.1 summarizes the Environmental Legislation applicable to the sub-project.

Table II.1: Summary of Applicable Environmental Legislations

No.	Environmental Legislation / Act	Objective	Relevance to the Project	Responsible Institution
1	National Environmental Policy, 2018	Ensure that development components do not pollute the environment or degrade	Restriction on operations which	Ministry of Environment and

No.	Environmental Legislation / Act	Objective	Relevance to the Project	Responsible Institution
		resources. It sets out the basic framework for environmental action together with a set of broad sectoral action guidelines.	cannot be initiated in ecological critical areas Regulation on vehicles emitting smoke which is harmful to the environment Follow standards on quality of air, water, noise, and soil Sets limits for discharging and emitting waste	Forests, and Climate Change
2	National Environmental Management Action Plan (NEMAP), 1995	An action plan to identify key environmental issues affecting Bangladesh, identifies actions for reducing the rate of environmental degradation and improve quality of life.	Sectoral agencies to coordinate with MoEFCC in preparing environmental guidelines	Ministry of Environment Forests, and Climate Change
3	Environment Court Act, 2000 and subsequent amendments in 2003	Establishment of Environment Court for trial of an offence or for compensation under environmental law, such as environment pollution.	Option to affected persons for grievances related to environment safeguards.	Ministry of Environment and Forests, and Climate Change
4	The Forest Act (1927) and Forest (Amendment) Act (2000)	An act to control trespassing, illegal resource extraction and provide a framework for the forestry revenue collection system;	Requires clearances for any project within forest areas and clearances for any felling, extraction, and transport of forest produce.	Department of Forests
5	National Forest Policy (1994)	To conserve existing forests and bring about 20% of the country's land area under the Forestation Programme and increase reserved forests by 10% per year until 2015	Incorporate tree planting in the subproject Clearance for any felling, extraction, and transport of forest produce	Department of Forests
6	The Bangladesh Wildlife (Conservation & Security) Act, 2012	To conserve and protect wildlife in Bangladesh including designation of protected areas. Protection of wildlife is provided with lists of species with four schedules: first, second, third and fourth schedule. The fourth schedule species have the highest level of protection.	Consultation and necessary permits required if the project would affect the wildlife in the project area.	Department of Forests
7	National Safe Drinking Water Supply and Sanitation Policy of 1998	Ensures access to safe water and sanitation services at an affordable cost	The project authority will take actions to prevent wastage of water. They will take necessary steps to increase public awareness to prevent	Ministry of Local Government, Rural Development, and Cooperatives

No.	Environmental Legislation / Act	Objective	Relevance to the Project	Responsible Institution
			misuse of water also, shall be responsible for solid waste collection, disposal and their management	
8	National Water Act 2013	Ensures Bangladesh water sources are free from any type of pollution. Pollution from water in urban outfalls and reservoirs, e.g., lakes, canals, ponds and ditches may result in amenity losses, fisheries depletion, health problems, fish, and aquatic species contamination.	Secure clearance certificate on water resource development subprojects	Ministry of Water Resources
9	Wetland Protection Act 2000	Advocates protection against degradation and resuscitation of natural water-bodies such as lakes, ponds, beels ⁷ , khals, tanks, etc. affected by man-made interventions or other causes. Prevents the filling of publicly-owned water bodies and depressions in urban areas for preservation of the natural aquifers and environment. Prevents unplanned construction on riverbanks and indiscriminate clearance of vegetation on newly accreted land.	In case of impact on the natural water bodies within the project area	Ministry of Water Resources
10	Bangladesh Labor Law, 2006	It is a comprehensive law covering labour issues such as: conditions of service and employment, youth employment, benefits including maternal benefits, compensation for injuries, trade unions and industrial relations, disputes, participation of workers in company's profits, regulation of safety of dock workers, penalty procedures, administration, and inspection. This Act pertains to the occupational rights and safety of factory workers and the provision of a comfortable environment for working. It also includes rules on registration of labourers, misconduct rules, income and	Compliance to provisions on employment standards, occupational health and safety, welfare and social protection, labor relations and social dialogue, and enforcement. Prohibition of employment of children and adolescents.	Ministry of Labor and Employment

⁷ A beel is lake-like wetland with static water (as opposed to moving water in rivers and canals - typically called khals), in the Ganges - Brahmaputra flood plains of the Eastern Indian states of West Bengal, and Assam and in the country of Bangladesh.

No.	Environmental Legislation / Act	Objective	Relevance to the Project	Responsible Institution
		benefits, health and fire safety, factory plan		
11	Bangladesh Labor Rules, 2015	Includes rules on registration of labours, misconduct rules, income and benefits, health and fire safety, factory plan	Contractors to implement occupational health and safety measures Contractor will be liable for compensation for work-related injuries	Department of Labor
13	Bangladesh Climate Change Strategy and Action Plan of 2009	Enhances the capacity of government ministries, civil society and private sector to meet the challenges of climate change	Integrate adaptation measures for buildings in consideration of extreme climatic events	Ministry of Environment, Forests and Climate Change
14	Building Construction (Amendment) Act and Building Construction Rules, Bangladesh National Building Code	Regulates technical details of building construction and to maintain standards of building construction	Follow specifications to ensure structural integrity of buildings	Ministry of Housing and Public Works
15	National Disaster Management Act of 2012	Establishes a framework for managing disasters in a comprehensive way.	Setting-up emergency response procedures	Ministry of Disaster and Relief

D. Applicable International Agreements

62. Aside from the legal framework on environment, Bangladesh is also a party to several international conventions, treaties, and protocols related to environmental protection. The applicable international conventions, treaties, and protocols are described in Table II.2.

Table II.2: International Conventions, Treaties, and Protocols Signed by Bangladesh

Conventions	Years	Ratified/Accessed (AC)/Accepted (AT)/ Adaptation (AD)	Relevance
Convention on Biological Diversity, (Rio de Janeiro, 1992.)	1992	05.06.1992	Protection of biodiversity during construction and operation.
Convention on Persistent Organic Pollutants, Stockholm.	2001	In process	Restrict use of different chemicals containing POPs.
United Nations Framework Convention on Climate Change, (New York, 1992.)	1992	15.04.94	Reduction of emission of greenhouse gases.
Kyoto protocol to the United Nations Framework Convention on Climate Change		21.8.2001 (AC) 11.12.1997 (AD)	Reduction of emission of greenhouse gases.
Convention Concerning the Protection of Workers Against Occupational Hazards in the Working Environment due to Air Pollution, Noise and Vibration, Geneva	1977	Signed	Protection of workers' health against occupational hazards in the working environment due to air pollution, noise and vibration.

Conventions	Years	Ratified/Accessed (AC)/Accepted (AT)/ Adaptation (AD)	Relevance
Convention Concerning Occupational Safety and Health and the Working Environment, Geneva.	1981	Signed	Ensuring occupational health and safety of workers in all branches of economic activity.
Convention Concerning Occupational Health Services, Geneva.	1985		Convention Concerning Occupational Health Services, Geneva.
Preparedness, Response and Cooperation (London, 1990.) 30.11.90 United Nations Framework Convention on Climate Change, New York	09.06.92	15.04.94	Achieving stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.
Agenda 21, UNCED, Rio de Janeiro	1992	Signed	Ensuring sustainable development.

E. Environmental Categorization and Standards

a. Environmental Category: Bangladesh

63. The issuance of Environmental Clearance Certificate, the industrial units and projects shall, in consideration of their site and impact on the environment, be classified into the following four categories: (a) Green; (b) Orange – A; (c) Orange – B; and (d) Red. The industries and projects included in the various categories are specified in sub-rule (1) have been described in Schedule – 1. The ECA indicates that all industrial units or projects must obtain a Location Clearance Certificate (LCC) and Environmental Clearance Certificate (ECC) from the Department of Environment (DoE). No industrial unit or project shall be established or undertaken without obtaining environmental clearance from DoE in the manner prescribed by the rules.

64. The environmental category of the sub-project is not listed in Schedule – 1 of ECR. However, the construction of Multi Storied Medical Centre is relevant to the Multi-storied Building and the sub-project is listed in Schedule – 1 of ECR and falls in Orange B.

65. However, DoE has issued a circular dated 07/08/2018 with a memo no. 22.00.0000.074.18.001.17-242 (Appendix 1) and exempted for any kind of environmental clearance certificate from DoE for building which height is less than 19.8m (6 storied) located other than Dhaka metropolitan city. Therefore, this subproject/package is not required any clearance from DoE also.

b. Environmental Category: ADB

66. Safeguard requirements for all projects funded by the ADB are defined in the ADB Safeguard Policy Statement, 2009 (ADB SPS). This document establishes an environmental review process to ensure that projects undertaken as part of programs funded through ADB loans are environmentally sound, are designed to operate in compliance with applicable regulatory requirements, and are not likely to cause significant environmental, health, or safety hazards. The SPS is one of the key Bank Policies collected in the ADB Operations Manual. The policy promotes good practice as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines.

67. The SPS provides a framework of expectations for environmental analysis, engagement with stakeholders and communities potentially affected by projects, reporting, and follow-up implementation. Key prescriptions include the following:

- i. At an early stage of project preparation, the borrower/client will identify potential direct, indirect, cumulative, and induced environmental impacts on and risks to physical,

biological, socioeconomic, and cultural resources and determine their significance and scope, in consultation with stakeholders, including affected people and concerned NGOs. If potentially adverse environmental impacts and risks are identified, the borrower/client will undertake an environmental assessment as early as possible in the project cycle. For projects with potentially significant adverse impacts that are diverse, irreversible, or unprecedented, the borrower/client will examine alternatives to the project's location, design, technology, and components that would avoid, and, if avoidance is not possible, minimize adverse environmental impacts and risks;

- ii. The assessment process will be based on current information, including an accurate project description, and appropriate environmental and social baseline data;
- iii. Impacts and risks will be analyzed in the context of the project's area of influence;
- iv. Environmental impacts and risks will be analyzed for all relevant stages of the project cycle, including preconstruction, construction, operations, decommissioning, and post-closure activities such as rehabilitation or restoration;
- v. The assessment will identify potential trans-boundary effects as well as global impacts; and
- vi. Depending on the significance of project impacts and risks, the assessment may comprise a full-scale environmental impact assessment (EIA) for Category A projects, an initial environmental examination (IEE) or equivalent process for Category B projects, or a desk review.

68. Screening for potential social and environmental impacts is a critical early step in the preparation of a proposed ADB-funded project. Preliminary project conceptual designs and sites are evaluated using a standard checklist, and assigned to one of four categories, as follows:

- I. **Category A:** Project that is likely to have significant adverse environmental impacts which are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment (EIA), including an environmental management plan (EMP), is required.
- II. **Category B:** Project with potential adverse environmental impacts that are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination (IEE), including an EMP, is required.
- III. **Category C:** Project that is likely to have minimal or no adverse environmental impacts. An EIA or IEE is not required, although environmental implications need to be reviewed.
- IV. **Category FI:** Project is classified as category FI if it involves the investment of ADB funds to, or through, a financial intermediary.

69. Based on initial screening of components proposed, the project was assigned to Category B, pending further study. Accordingly, IEE was deemed the appropriate mode of assessment for the project, unless early analysis based on conceptual design specifications and field reconnaissance were to reveal potential for impacts that require study and mitigation planning of a scale and complexity better addressed through the more detailed and exhaustive EIA. IEEs and EIAs are similar in terms of procedural steps and the structure of reports, but an EIA typically requires (i) more detailed investigation of impact linkages; (ii) collection of more and higher quality baseline data regarding key impact areas; (iii) often a longer and multi-phased study period; and (iv) deeper engagement and consultation with potentially affected people.

70. Important tools and outputs specified by the SPS for IEEs and EIAs include the following:

- (i) **Environmental Management Plan.** The borrower/client will prepare an environmental management plan (EMP) that addresses the potential impacts and risks identified by the environmental assessment and prescribes appropriate mitigation measures to address them effectively.

(ii) **Consultation and Participation.** The borrower/client will carry out meaningful consultation with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation.

(iii) **Information Disclosure.** The borrower/client will submit to ADB the following documents for disclosure on ADB's website: (i) a draft full IEE (including the EMP); (ii) a new or updated IEE and corrective action plan prepared during project implementation, if any.

(iv) **Grievance Redress Mechanism.** The borrower/client will establish a mechanism to receive and facilitate resolution of affected people's concerns, complaints, and grievances about the project's environmental performance.

(v) **Monitoring Reports.** Results from monitoring of the implementation of a project's EMP are reported semi-annually to the ADB, based on internal monitoring activity carried out more frequently (quarterly, monthly, weekly, or daily) as appropriate to different project activities and impacts. Monitoring assesses compliance with the measures detailed in the EMP, as well as measurable effects of project activities on the environment.

71. Each of the key elements listed above is addressed in this IEE report.

III. DESCRIPTION OF THE SUB-PROJECT

A. The Study Area

72. The Akhaura land port is on the eastern edge of Bangladesh, in Brahmanbaria District, Chattogram Division. The road crossing site is approximately 5 km west-southwest from Akhaura town (2011 population 36,262), and about 3 km from the center of the much larger town of Agartala (2011 population 400,004) in the Indian state of Tripura. The land port is approximately 134 km east of Dhaka by road. The road crossing is served by a paved road on both sides of the border. The site is in a semi-rural area, and lies approximately 12 m above sea level. There is an integrated land port facility on the Indian side of the border, on the south side of the road at the zero point. The project area is strategically positioned between the growing town of Akhaura (which is well integrated with the broader transportation network of Bangladesh by rail, road and river) and the city of Agartala in Tripura, which has a newly expanded international airport and strong rail and road links to main centers of northeast India.



Figure III.1: Location Map of Proposed Subproject



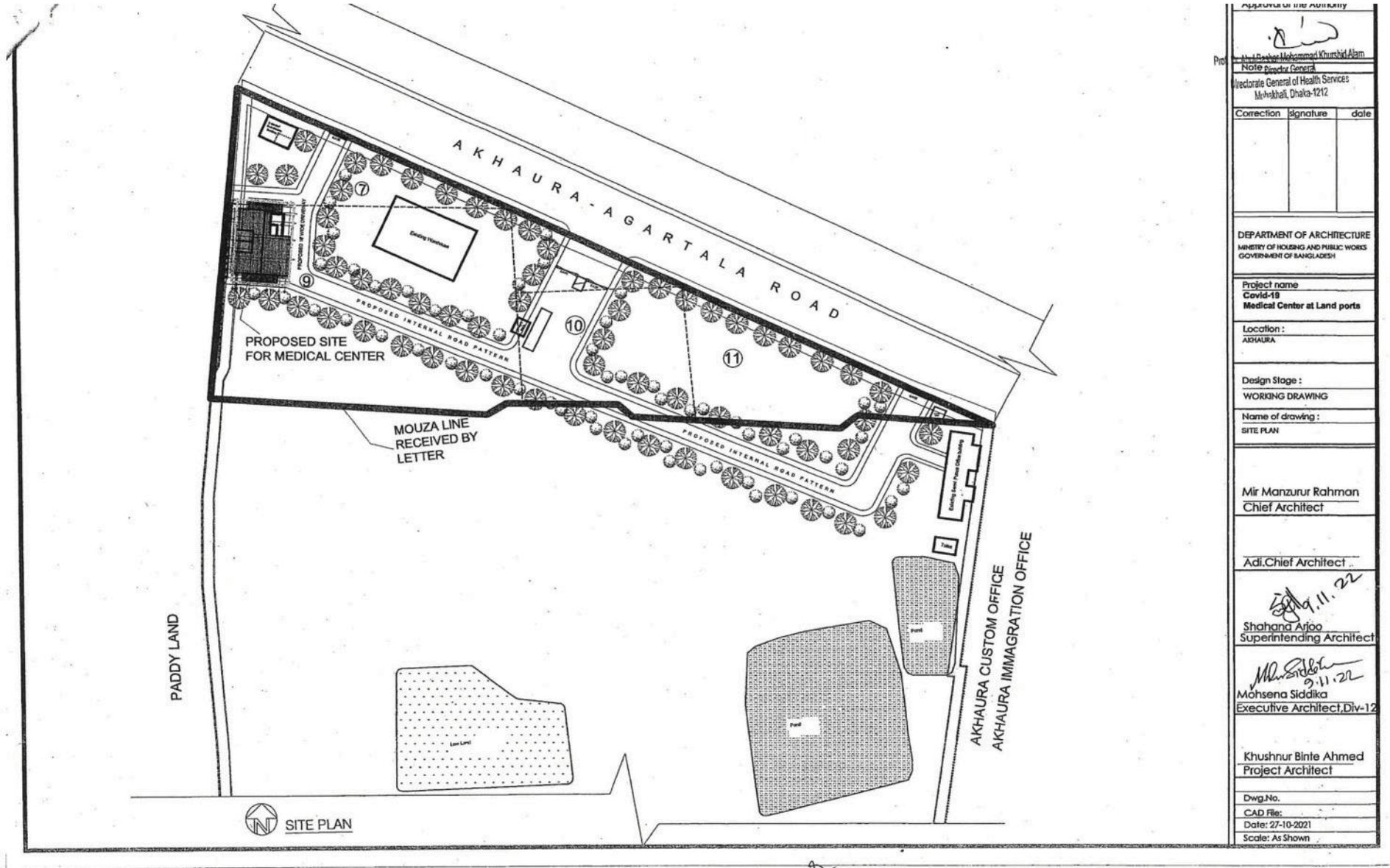
Figure III.2: Photographs of Proposed Medical Center Location


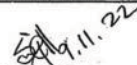
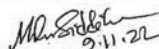
B. The Sub-Project

73. The proposed project consists of the construction of a 2 storied medical center with a 6 storied foundation which will also be used as a screening and isolation center for COVID-19 affected Personnel during border pass in Akhaura land port.

74. The proposed 2 storied medical facilities with 6 storied foundations are designed by the department of architecture (DoA). The layout plan of the proposed project is provided in Figure III.3 to Figure III.7 and detailed design information is given in Appendix 14.

I. Design Concept



 Dr. Md. Nazmul Islam Project Director COVID-19 Response Emergency Assistance Project GHS, Monakhali, Dhaka-1212		
Note Director General Directorate General of Health Services Monakhali, Dhaka-1212		
Correction	Signature	date
DEPARTMENT OF ARCHITECTURE MINISTRY OF HOUSING AND PUBLIC WORKS GOVERNMENT OF BANGLADESH		
Project name Covid-19 Medical Center at Land ports		
Location: AKHAURA		
Design Stage: WORKING DRAWING		
Name of drawing: SITE PLAN		
Mir Manzurur Rahman Chief Architect		
Adi.Chief Architect		
 9.11.22 Shahana Arjoo Superintending Architect		
 9.11.22 Mahsena Siddika Executive Architect, Div-12		
Khushnur Binte Ahmed Project Architect		
Dwg.No. CAD File: Date: 27-10-2021 Scale: As Shown		


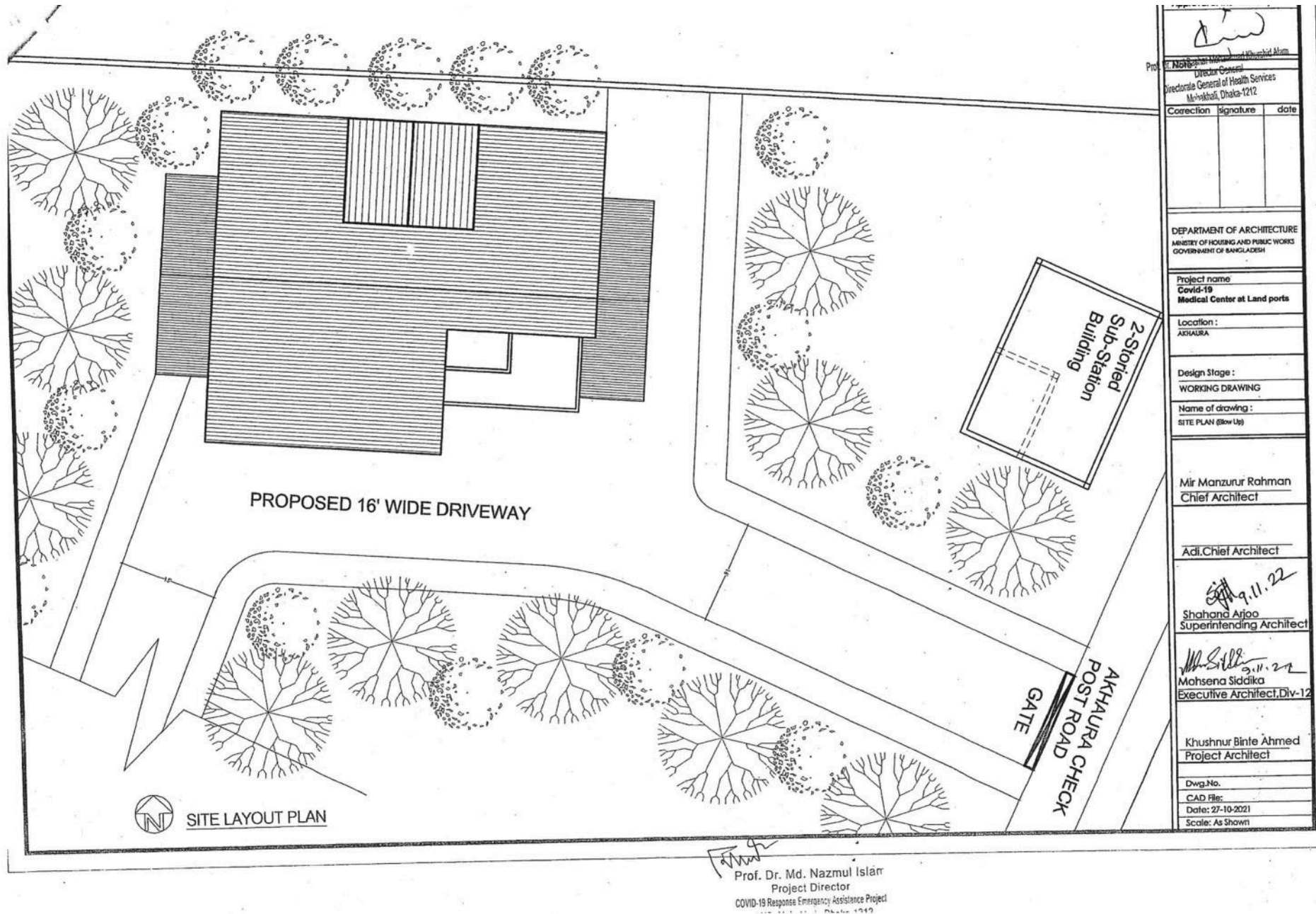

 Dr. Md. Nazmul Islam
 Project Director
 COVID-19 Response Emergency Assistance Project
 GHS, Monakhali, Dhaka-1212

Figure III.3: SPOT Level Map of the Proposed Medical Facilities



 Prof. Dr. Md. Nazmul Islam Director General Directorate General of Health Services Mirshakha, Dhaka-1212		
Correction	signature	date
DEPARTMENT OF ARCHITECTURE MINISTRY OF HOUSING AND PUBLIC WORKS GOVERNMENT OF BANGLADESH		
Project name Covid-19 Medical Center at Land ports		
Location : AKHAURA		
Design Stage : WORKING DRAWING		
Name of drawing : SITE PLAN (Show Up)		
Mir Manzurur Rahman Chief Architect		
Adl. Chief Architect		
 Shahana Ajjoo Superintending Architect		
 Mahsena Siddika Executive Architect, Div-12		
Khushnur Binte Ahmed Project Architect		
Dwg. No.		
CAD File:		
Date: 27-10-2021		
Scale: As Shown		

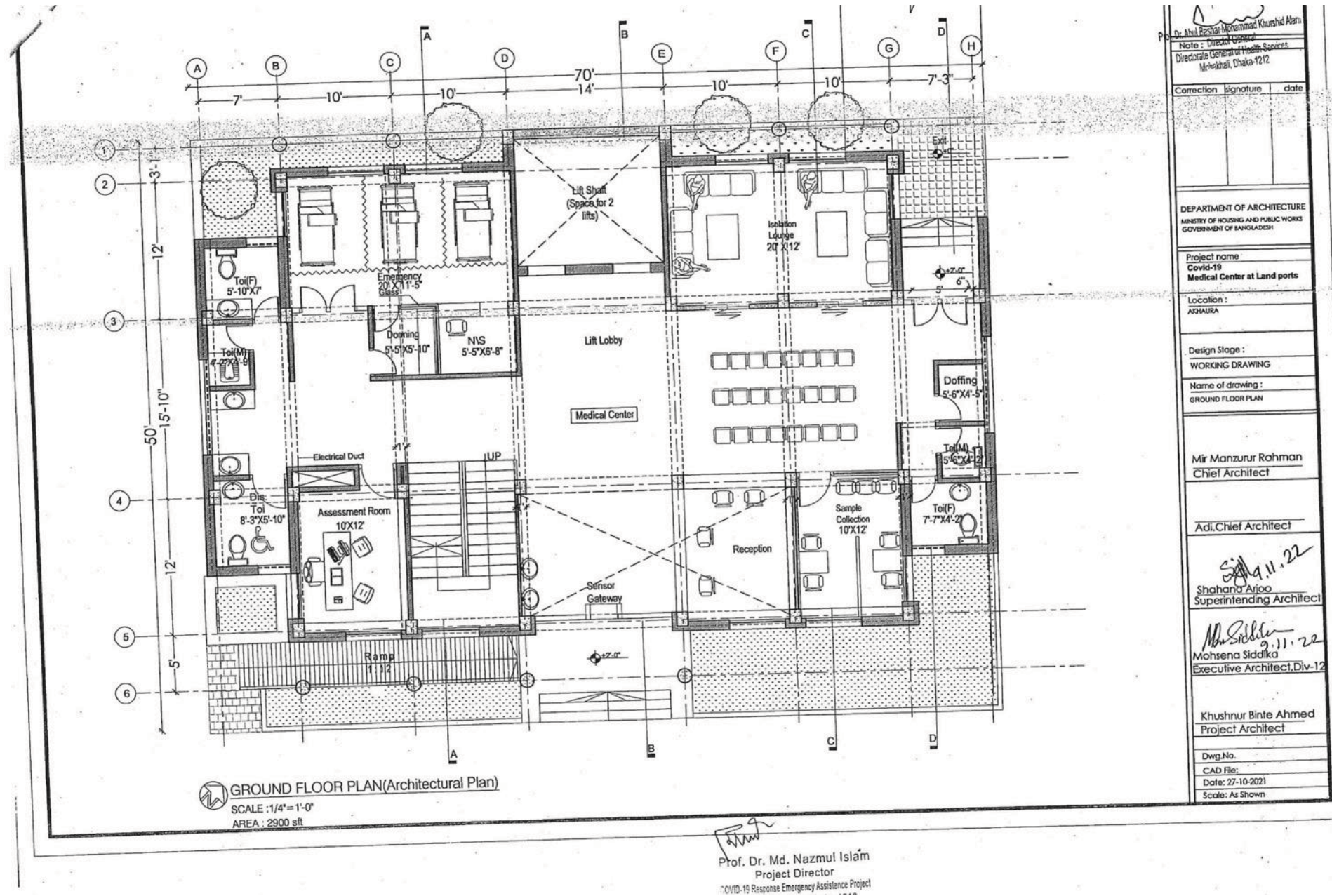


Figure III.5: Ground Floor Plan of the Proposed Medical Facilities

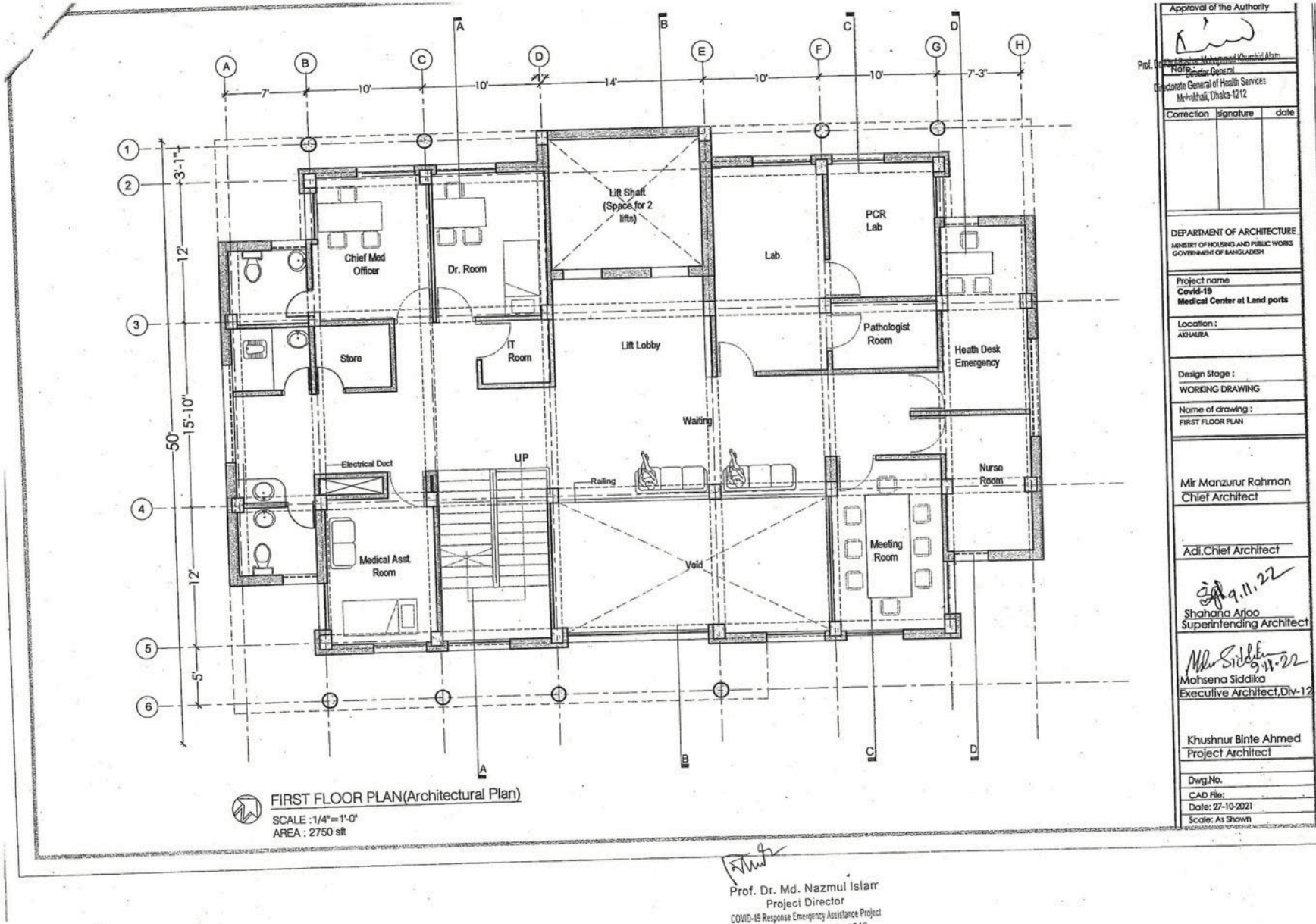


Figure III.6: First Floor Plan of the Proposed Medical Facilities

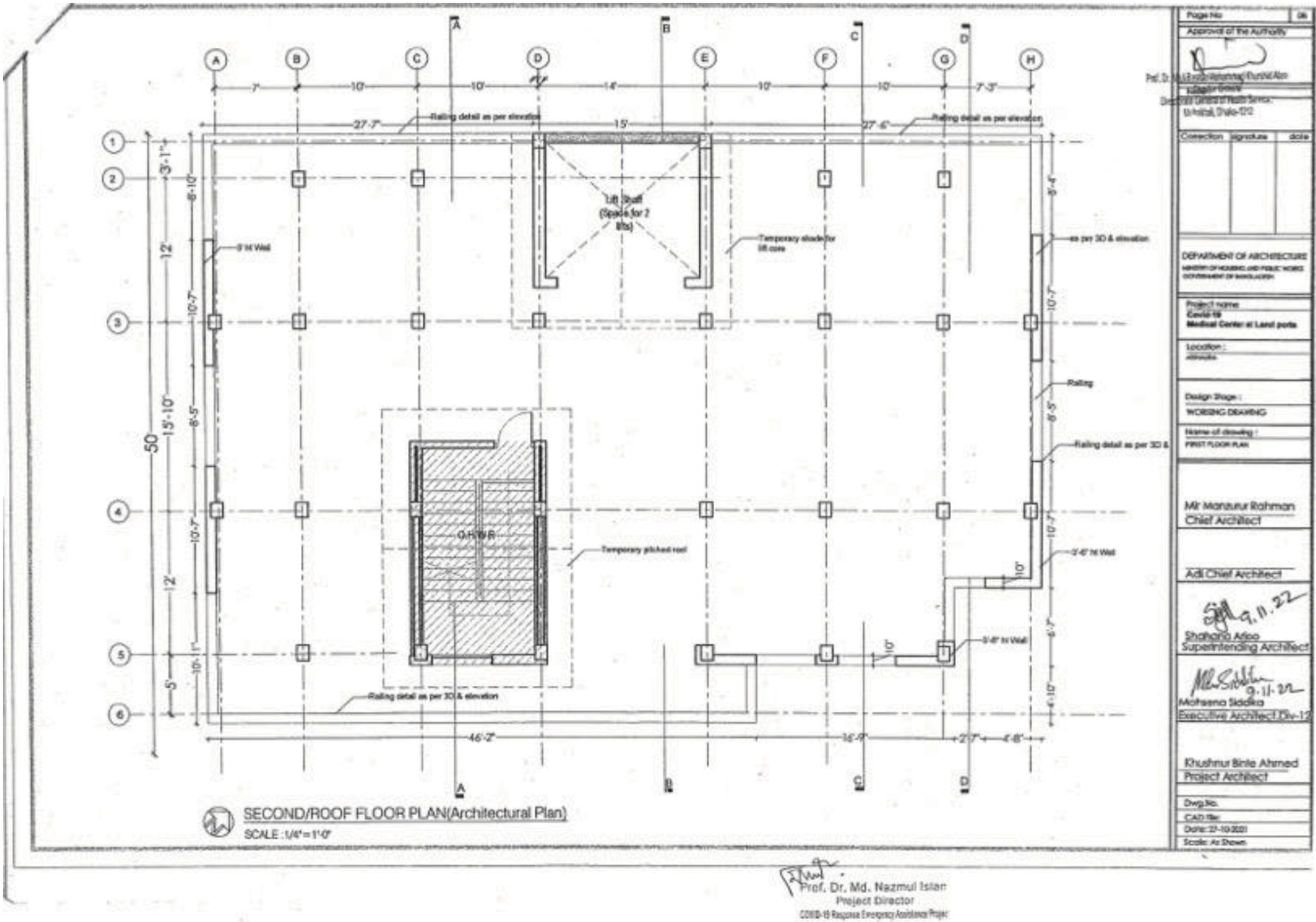


Figure III.7: Second Floor Plan of the Proposed Medical Facilities

Table III.1: Subproject Components as per Detailed Design

Sl. No	Item of Works
1	2
1.	Part A(a): Foundation
2.	Part A(b): Super Structure
3.	Part A(c): Sanitary
4.	Part B (a): Deep Tube-well & Distribution Line
5.	Part B (b): External Water Supply
6.	Part C: Internal Electrification works
7.	Part D: Internal Road
8.	Part E: Boundary Wall
9.	Part F: Site Development
10.	Part G: Air Conditioning system.
11.	Part H: Pump Motor
12.	Part I: 100 KVA Transformer and related items
13.	Part J: Lightning Arrestor
14.	Part K: Fire Extinguisher
15.	Part L: Solar Panel
16.	Part M: 60 KVA Auto Diesel Generator
17.	Part N: Environmental Management Plan (EMP)

II. Site Development

75. The proposed land will be developed with require amount of earthworks to raise the plinth height considering the HFL and climate change adaptation. It is estimated that the require volume of earthworks for the site development is 3,510.00 cft. However, apart from the sand and soil the site will be developed other layers of brick, stone or concrete to achieve the designed plinth height.

III. Fire Extinguisher

76. A total of 20 (twenty) number of fire extinguisher has been considered to install within the center. The subproject considered supply and fixing of the multipurpose ABC dry chemical powder stored pressure type with manometer system fire extinguisher suitable for repeated use complete with wall bracket, Nitrogen (N₂) cartridge, easy refilling system etc. Mono Ammonium Phosphate (minimum 40%) based ABC dry chemical agent and has a moisture-proof, anti-caking properties, working pressure: 12 BAR minimum and Test pressure: 25 BAR minimum. Proper fire rating (as per NFPA 10/BS/EN) according to the capacity of the extinguisher.

IV. Drainage Facility

77. The subproject area is within the BLPA own administrative complex where already have a good drainage network. This subproject will also be connected to the existing network do drain out the storm water from the proposed medical center.

V. Solar Panel

78. The subproject includes Solar Power System (On Grid / Grid Tie) of Mono/Poly crystalline silicon Solar PV Modules, inverter, Energy meter, etc. The system will be able to produce power for supplying to grid with required compatible solar cables (DC Cables) and all necessary accessories to complete the installation.

VI. Waste Management

79. The proposed medical center will have adequate number of color waste bins to collect different types of waste which will be generated during the operation phase. Wastes from the kitchen or food waste will be treated as per the present practice following by the BLPA. However, the medical waste will be collected and stored in a bio-hazard bag and later it will be transferred to the nearest hospital where a medical waste management facility is already established. Since the medical waste management will be ensured by the same government department (DGHS) therefore no separate consultation is required at

this stage to respective nearest hospital. The department has already decided that this MC will be operated by the local Civil Surgeon/UHFPO who is also responsible for other hospitals of this area so no complexity will arise later. Moreover, the subproject considered to provide autoclave to disinfect the medical equipment which will help to reduce the generation of wastes.

VII. Energy-efficient Lighting

80. Apart from the solar energy the subproject has the provision of using energy-efficient LED light to save the energy.

VIII. Tree Plantation

As an enhancement measures the subproject proposed plantation of twenty (20) numbers of trees around the boundary of this area.

C. Existing Infrastructure

81. **Land Custom Office:** The customs station was first established in 1955, and today consists of a collection of single-story masonry buildings, including a 320 m² customs terminal where border-crossers enter to present their documentation; this building contains offices, a baggage scanner and public toilets (no separate facilities for women). Other buildings on the site are a small outbuilding containing a backup generator (which often does not function when needed, due to a lack of budget for diesel fuel), as well as several dilapidated and partially abandoned single-story buildings that previously served as accommodations for customs officers but are now used only by maintenance and support staff. There is a well on the site, but it does not supply water suitable for drinking; customs personnel bring drinking water from Akhaura town as needed. The site sometimes floods after heavy rains, although the buildings are reported to stay dry. The customs compound comprises 3.6 ha, including a 0.65-ha pond at the rear (south) of the site. Approximately 45 staff work at the customs facility, half of whom are customs officers and administrative personnel, and the other half support and maintenance workers. Most of the land area has been planted with trees. The customs compound is owned by NBR.



Figure III.8: Existing General Features in the Project location

82. In addition to passenger traffic, the customs station also processes documentation for truck drivers, their trucks, and their cargoes. The number of trucks crossing daily varies according to season and in response to import and export restrictions imposed from time to time by both countries, but is reported to average 100-120 export trucks daily during busy times, and 70-80 trucks daily during slower times. Imports at this BCP are rare; local customs officials report only 2-3 import trucks per month on average. Truck drivers park at the land port, and they (or C&F agents acting for them) proceed to the customs station on foot along the roadside for processing of documentation.

83. **Land Port:** The land port at Akhaura borders the customs compound to the west. The port consists of 6.1 ha surrounded by a boundary wall. The land port facility features a 465 m² warehouse with 2,000 MT storage capacity; a single-story masonry administrative building; a 100 MT weigh bridge; a number of guard posts; and a standby generator building. The land port includes a trans-shipment yard and an open stack yard. The land port facility was declared in 2002, and opened in 2010. The usual site workforce is nine administrative personnel and seven security guards, with up to 200 laborers employed in off-loading and loading, all of which is performed manually. The land port operates six days per week, although this can be disrupted by flooding.

84. The condition of the buildings at the land port is considerably better than that of the buildings at the customs station next door, as they are much newer. However, the facility is significantly underdeveloped relative to the processing demand, especially as it relates to warehouse capacity. There are also no facilities for truck drivers at the land port, which means drivers waiting for documentation processing or cargo services are left to lounge under their trucks, and to find food from vendors outside the facility. Drivers going to the customs station for document processing must walk along the road to do so, without the benefit of a sidewalk. In compliance with SPS 2009 an environmental audit of the existing infrastructure on site has been conducted, the results are presented in appendix 13.

D. Export and Import

85. As indicated above, cross-border trade at the Akhaura BCP has consisted almost exclusively of exports. The number of trucks and volume of trade have fluctuated over the period for which data are available (2013-2018); this can be seen in Table.

Table III.2: Export and Import Items through Akhaura land Port

Export Items	Import Items
stone and stone chips, fish (dry, fresh chilled), brick, synthetics, cement, hand pumps, soyabean oil, plastic goods, wooden furniture, noodles, batteries, glass sheet, processed food and tiles	fish fry, dried fish, fresh fruits, seeds, saplings, wheat, ginger, chili, onion, citrus, cumin, incense, stone, coal, chemical fertilizers, kaolin, limestone, ball clay, bamboo, and quartz

Table III.3: Passenger Traffic through Akhaura BCP, 2015-2020

Fiscal Year	Incoming Passenger	Outgoing Passenger	Average Traffic Per day
2015-16	42,958	49,578	254
2016-17	49,677	52,276	279
2017-18	84,593	85,636	466
2018-19	91,775	126,743	599
2019-20	90,823	118,069	572

Table III.4 : Volume of Trade (2013-2018)

Fiscal year	Imports (MT)	Exports (MT)	Total volume passing through BCP (MT)
2013-2014	251	278,377	278,628
2014-2015	60	635,547	635,607
2015-2016	11	568,480	568,491
2016-2017	2	214,755	214,757

2017-2018	60	201,580	201,640
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E. Implementation Schedule

86. Substantial time is required spanning the continuum of sub-project preparation, approval, survey, design & estimate, contract award and contract execution. Efforts needs to be made to meticulously follow the schedule should a timely implementation of work is aimed at.

87. Usually, the construction work season in Bangladesh runs from October through May (eight months). Construction works are sometimes impeded for the following reasons.

- I. Early floods in April/May,
- II. Late floods in September/October,
- III. Natural calamities (cyclone/tornado, excessive floods) occur in April/May and October/November.

88. Normally, the best construction period is only for 6 months a year (October to March). The construction period is sometimes squeezed to 4 months due to natural calamities.

89. However, sometimes, based on time constraint or exigency, construction work may even need to be carried out in the monsoon. Besides, whenever possible, simultaneousness of activities can be ascertained and cashed in on and consequently, quantum of work can be maximized through efficient planning and adoption of best available practice.

90. A tentative time-schedule for implementation (only as indication) is shown Table III.5.

Table III.5: Tentative Schedule of the Subproject Implementation

Item of Works	Period: August 2022 to June 2023										
	2022					2023					
	08	09	10	11	12	01	02	03	04	05	06
Assessment of the Sub-project Supported by field visit											
Compliance of Sub-project and approval											
Preparation and approval of sub-projects											
Preparation of the bid documents											
Tendering of the sub-project and the work order											
Evaluation of Tender and Work Order											
Execution of physical Work											
Final inspection and certification											

IV. DESCRIPTION OF THE ENVIRONMENT

A. Methodology Used for the Baseline Study

a. Secondary Data

91. Data for this study has been primarily collected through comprehensive literature survey, discussion with stakeholder agencies, and field visits to the proposed sub-project sites. The literature survey broadly covered the following:

1. sub-project details, reports, maps, and other documents available with the ADB, Consultants, PWD, and BLPA;
2. relevant acts and extraordinary gazettes, and guidelines issued by Government of Bangladesh agencies; and
3. literature on land use, soil, geology, hydrology, climate, socioeconomic profiles, and environmental planning documents collected from Government of Bangladesh agencies and websites.

b. Primary Data

92. Field visits to the sub-project sites were made to assess the existing environment (physical, biological, and socioeconomic) and gather information about the proposed sites and scale of the proposed sub-project. Demographic information, archaeological and religious places, densely populated pockets, and settlements were gathering from relevant secondary documents.

c. Data Analysis and Interpretation

93. The data collected was analyzed and interpretations made to assess the physical, biological, and socioeconomic features of the project area. The relevant information is presented in the succeeding paragraphs. The IEE including specific description of the environment and corridor of impact has been updated as necessary based on the final detailed design.

B. Physical Characteristics

a. Topography

94. The proposed medical center is located within the complex of Akhaura Land Port in Akhaura Upazila, of Brahmanbaria district. Brahmanbaria district located at the eastern part of the country. The main river that run through this upazila is the Titas River. Akhaura, Brahmanbaria, is only 7 meters / 22.97 feet above sea level, so if the sea rises 2 meters nearby areas will be affected. Flooding will be more common, and the population of nearby coastal areas will have to be relocated. From the site visit it is observed that the proposed site is equal level with the National highway. Though, there are low lying areas and water logging areas surrounding the site. It has been communicated by the BLPA officials that the site is not getting inundated during heavy rain and the same has been observed during the site visit.

b. Geology

95. The underlying geological structure in the Akhaura area is the Titas Structure, a subsurface, asymmetric dome-like anticline elongated in a north-south orientation. The Titas Structure lies on the southern fringe of the Sylhet trough and western margin of the Chittagong and Tripura frontal fold belt. The eastern flank of the asymmetric structure is steeper than the western one. The structural pattern suggests its development in relation to the northeast– southwest trending stress field set up by convergence of the Indian and Burmese Plates. The Titas Structure has no surface geomorphic expression

and is covered by the Titas-Meghna River floodplain. The Titas River runs through the crestal part of the structure.⁸

96. Bangladesh is mostly covered by recent alluvium, but Tertiary sediments are exposed in some places in the north, east and southeast part of Sylhet district and in the folded flank of Chittagong district and the Chittagong Hill Tracts.⁹ Within this region of Tertiary sediments is the Akhaura Terrace, a small flat topographic form at the ultimate stage of its building up resulting from the accumulation of material, most often coarse, degraded by later dissection.¹⁰ The materials may have been deposited by streams (fluvial terraces), lakes (lacustrine terraces) or the sea (marine terraces).

97. . The geology of eastern Bangladesh is shown in Figure IV.1, with the Akhaura area marked with a rectangle at the top of the map.

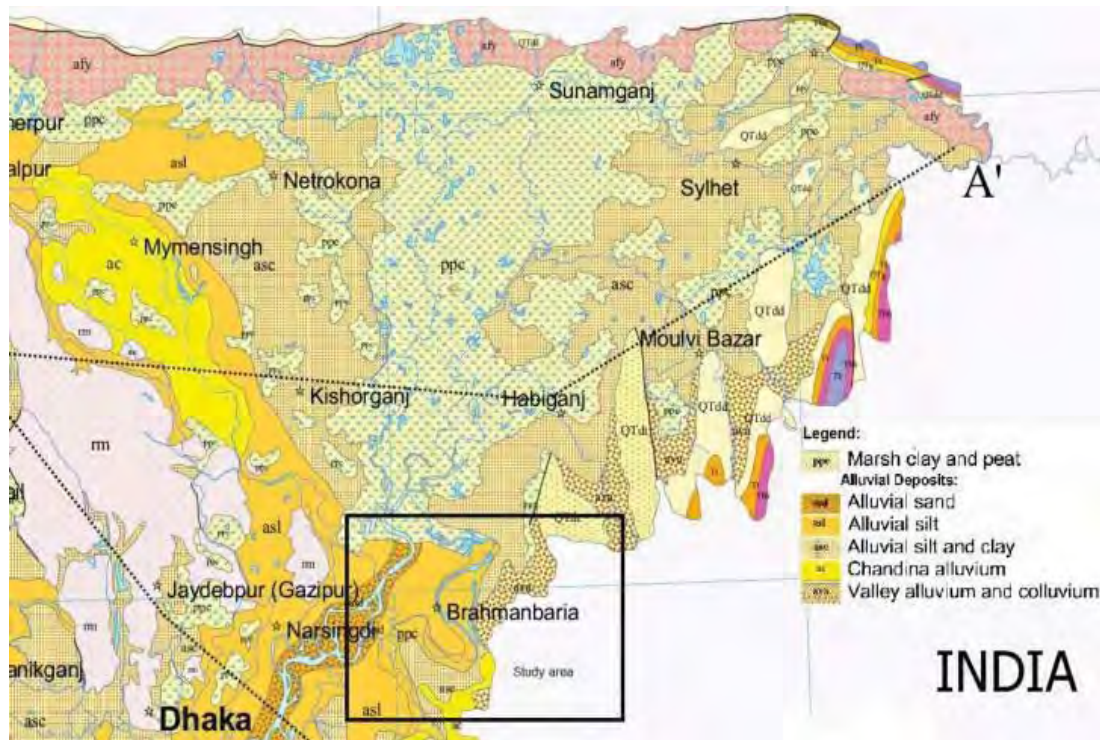


Figure IV.1: Geology of North-eastern Bangladesh

c. Soil

The predominant soil types in the Akhaura BCP area, per soil mapping prepared by the Soil Resource Development Institute (Figure IV.2), are Akhaura Terrace and Grey Piedmont soils. These soils are found mainly along the eastern edge of Brahmanbaria District, and have a strong clay component.¹¹ The soils in the vicinity of the BCP are mainly olive gray silty and gray silty loam, and are reported to be quite fertile.

⁸ Bangladesh Petroleum Exploration and Production Company Limited. (1994) Geophysical Interpretation Report on Titas Structure, 31p (unpublished); Matin, M.A., Fariduddin, M., Kononov, A.I., and Hussain Taolad, M.M. (1984) Oil prospects of Titas structure. Bangladesh Journal of Geology, vol.3, pp.11-18; Sultan-Ul-Islam, M., Islam, MA., Latif, MH, Aftabuzzaman, M., Rahman, SM., Molla, MI. and Shalaby, MR. (2017) Seismo-Stratigraphic and Structural Interpretation of Seismic Data of Titas Gas Field, Bengal Basin, Bangladesh. Journal Geological Society of India. Vol.89, April 2017, pp.471-481.

⁹ Morgan JP, McIntire WG (1959) Quaternary geology of the Bengal Basin, East Pakistan and India. Bulletin of the geological society of America 70:319–342.

¹⁰ Brammer, H. (2012) The Physical Geography of Bangladesh. The University Press Limited, Dhaka, 1st edition, 503p.

¹¹ Huq, SMI. and Shoaib, JUM. (2013) The Soils of Bangladesh, World Soils Book Series 1, DOI: 10.1007/978-94-007-1128-0_6, Springer Science+Business Media Dordrecht 2013.

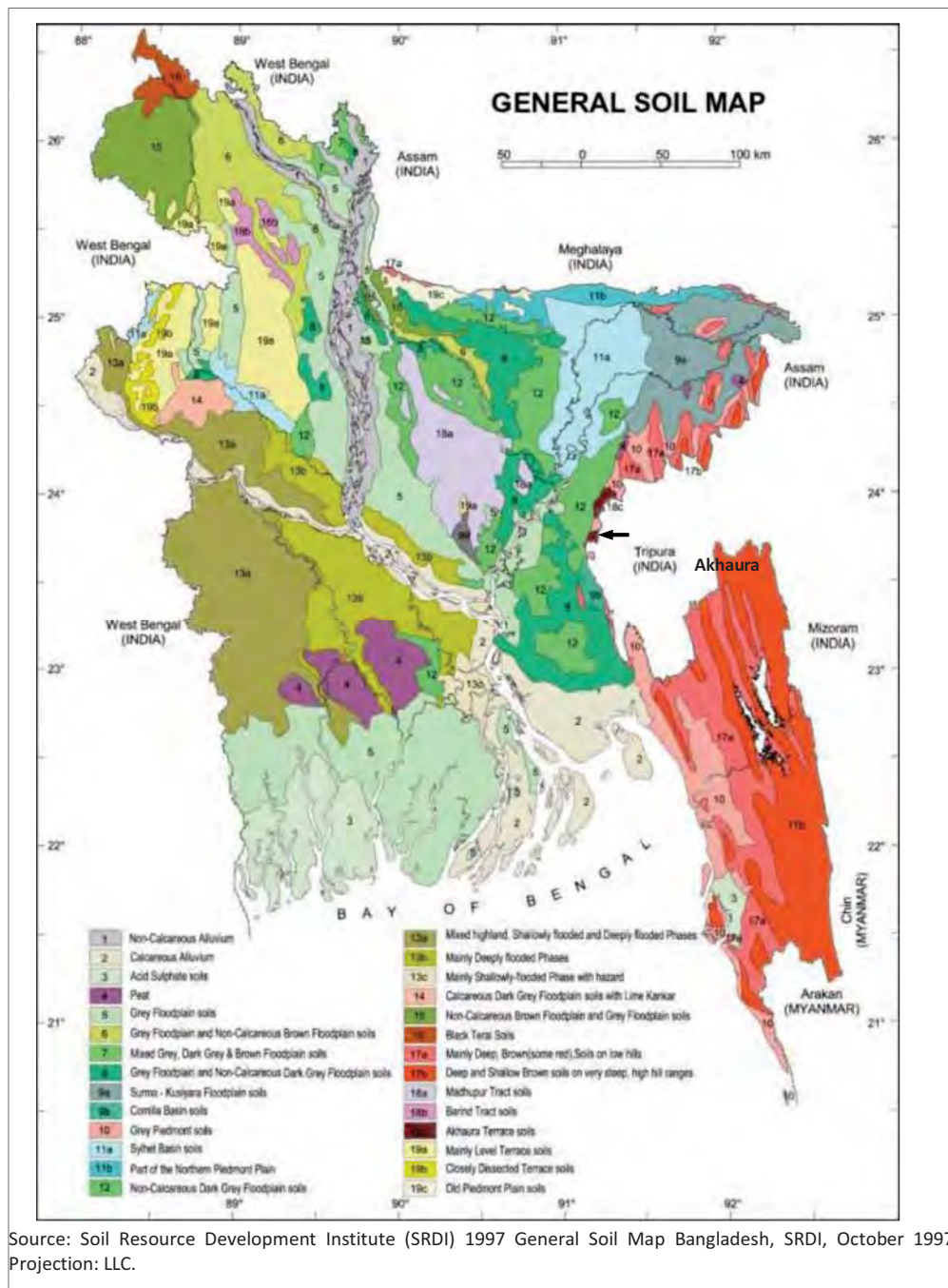


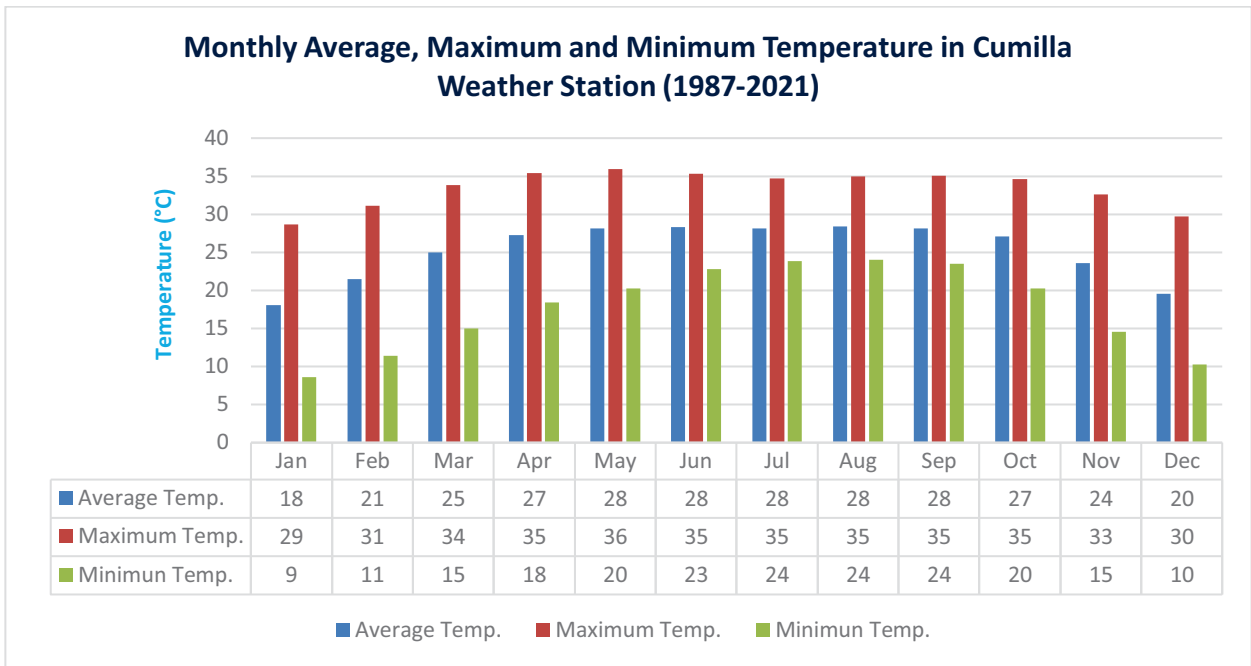
Figure IV.2: Soil Map of Bangladesh

d. Climatic Conditions

98. There was no weather station of Akhaura of the projected areas so that long-term average monthly temperature, rainfall, wind speed, Relative Humidity collected from Cumilla weather station of Bangladesh Meteorological Department.

1) Temperature

99. Long-term average monthly temperature data (1987-2021) collected at Cumilla weather station of Bangladesh Meteorological Department. The monthly average maximum temperature in this weather station was 36°C in May. The monthly average minimum temperature was found in the month of January which was 9°C. Both average monthly temperature graphs show that this area faces high temperature from May to September and lowest temperature during winter remains in January in the year. (Figure IV.3).

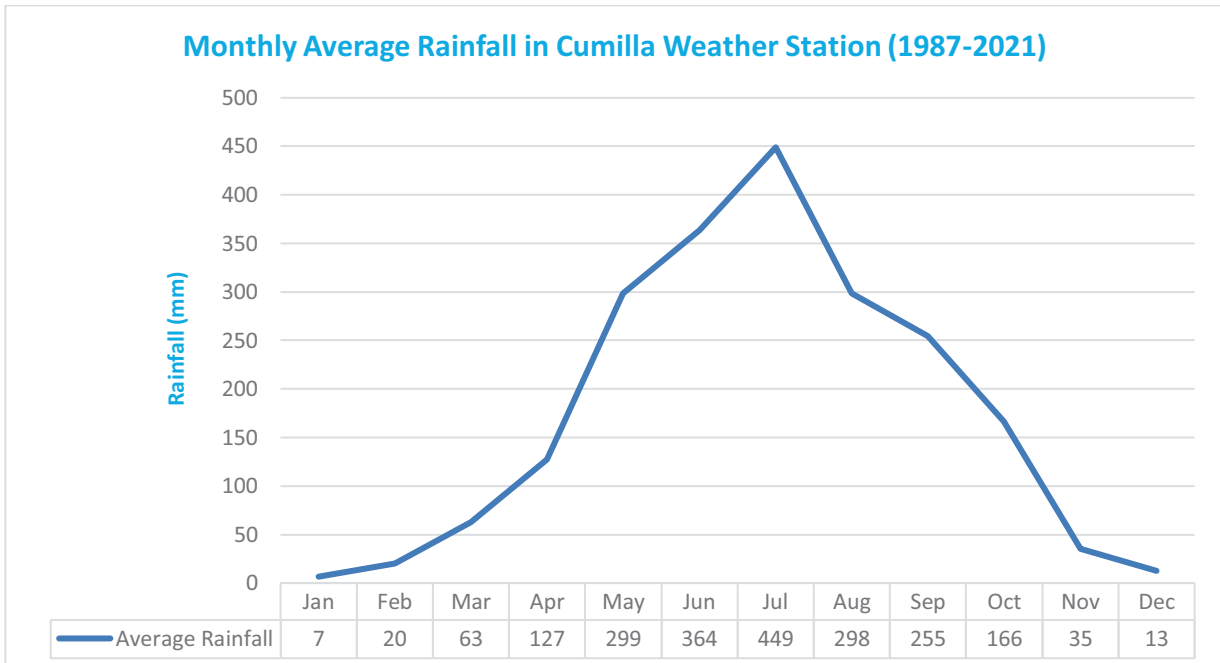


Source: Bangladesh Meteorological Department

Figure IV.3: Monthly Average, Maximum and Minimum Temperature of Cumilla Weather Station

2) Rainfall

100. The rainfall data (Figure IV.4) collected from the above stated station represents that maximum rainfall occurs during June to September and the lowest rainfall occurs in December to January during winter season. Statistical data of 1987 to 2021 shows that Cumilla experience average 449 mm rainfall during monsoon. In the month of December and January of winter season around 7- mm rainfall occurred in the region of Cumilla weather station.

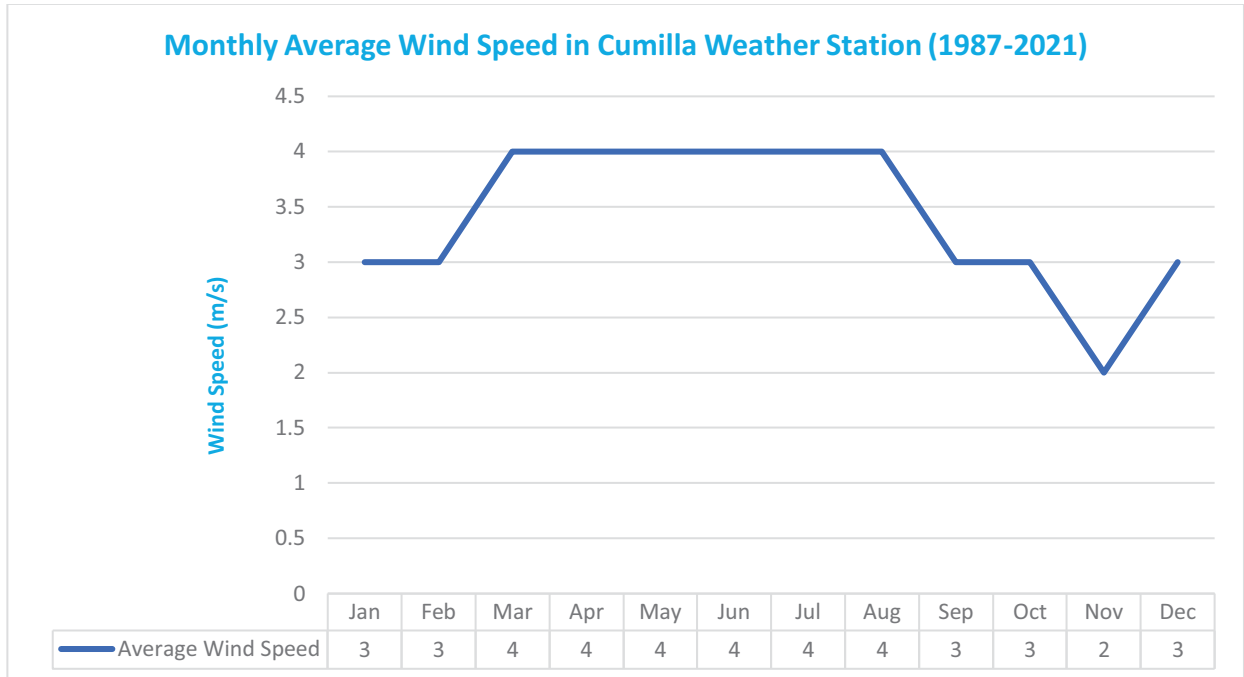


Source: Bangladesh Meteorological Department

Figure IV.4: Average Monthly Rainfall of Cumilla Weather Station

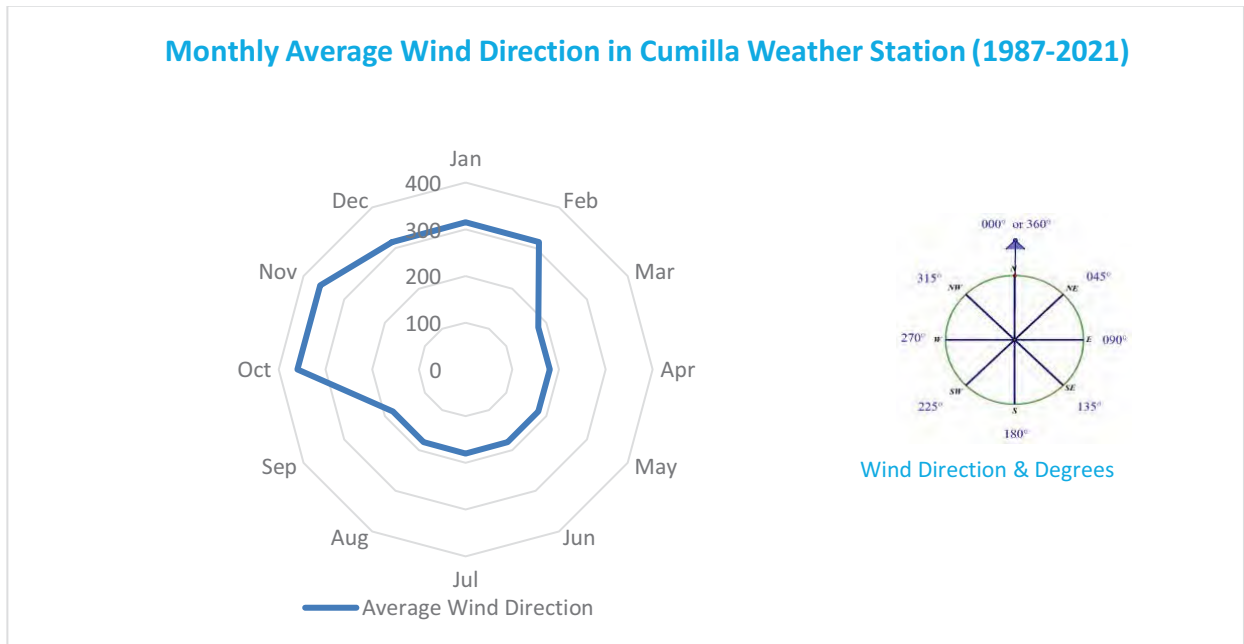
3) Wind Speed

101. The statistical wind speed data (Figure IV.5) shows that average wind speed maximum value was 4 knots in March-August. The minimum wind speed value was 2 knots in the month of November in Cumilla weather station.



Source: Bangladesh Meteorological Department

Figure IV.5: Average Monthly Wind Speed of Cumilla Weather Station

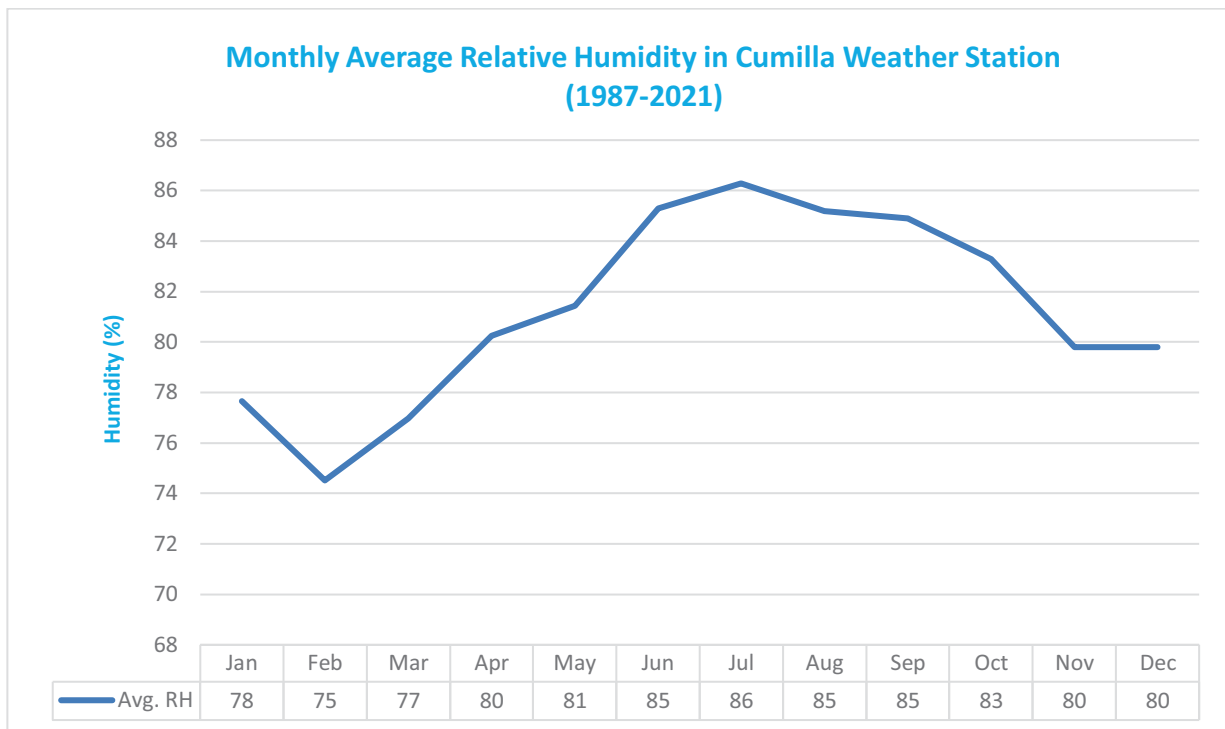


Source: Bangladesh Meteorological Department

Figure IV.6: Monthly Average Wind Rose Diagram in Cumilla Region

4) Humidity

102. Humidity remains high in summer and comparatively low in winter season. The statistical data of humidity from 1989 to 2021 indicates (Figure IV.7) that humidity in the Cumilla Station area maximized in July in the year which is 86%. On the other hand, lowest monthly average humidity is 75% in February during the winter season in the considered station area.



Source: Bangladesh Meteorological Department

Figure IV.7: Average Monthly Rainfall of Cumilla Weather Station

e. Surface Hydrology

103. Most of watercourses that flow through Akhaura and adjoining areas originate in the hills of Tripura hills in the east, and flow towards the west, north, and south in consonance with the general slope of the land. The area is drained by five river systems: (i) the Titas River in the northern part; (ii) the Gumti river and the Dakatia river in the central part; (iii) the Little Feni River in the southeastern part; and (iv) the Meghna River in the western part. The Meghna River and Little Feni River meet the Bay of Bengal in the south. The Titas and the Gumti connect at some points; and the Dakatia and the Little Feni join at their heads. Old meander scars, ox-bow lakes, and paleo-channels mark the area.

104. The Titas River, which meanders through the western part of Akhaura upazila, and beside which Akhaura town is situated, is the most prominent river in the upazila. This is a transboundary river that begins its journey in Tripura and eventually empties into the Meghna River near Ashuganj, Brahmanbaria. Three major khals flow through Akhaura municipality: the Akhaura – Borobazar Khal, Kharompur Khal and Santinagar Khal. These khals all flow from east to west and also carry some contribution from India. Most of the municipality areas drain out their storm water through these khals, which empty to the Titas River. The Akhaura–Borobazar Khal is a borrow pit flowing alongside the Akhaura–Borobazar road. Kharompur Khal drains and routes water from northern parts of the municipality, and Santinagar Khal drains the southern parts. Kharompur Khal and Santinagar Khal have good conveyance, while the Akhaura–Borobazar Khal is somewhat obstructed in places due to its use for solid waste disposal.

105. Closer to the BCP, the Kata Khal traverses the countryside from northeast to southwest. This khal flows through the north side of the city of Agartala before crossing into Bangladesh about 700 m north of the land port site. A canal (Kalundi khal) runs adjacent to the north side of the BCP approach road, across the road from the land customs station and land port. This canal empties into the Kata Khal where the latter crosses the road. The water in the Kalundi khal, which comes from the center of Agartala, is terribly filthy, and black in color. The Kata Khal runs into the Haora River, which eventually joins the Titas River about 10 km downstream from Akhaura town.

106. In addition to rivers and khals, the landscape surrounding the BCP is dotted with ponds dug for fish and irrigation. There are four dug ponds on the planned development sites at the BCP; at least two of these are former borrow pits, and none are part of any wetland complex, landscape-scale drainage

pattern or navigable waterway. North of the BCP about 1.5 km along the border, there is what appears to be a natural wetland.

f. Groundwater Resources

Naturally occurring arsenic contamination has been well documented in the groundwater of Brahmanbaria District; in one study conducted in 1998, 38 percent of groundwater samples collected were found to be contaminated.¹² A more recent study found the contaminant in around 80 percent of shallow wells tested in the district. Arsenic contamination is found more commonly in tube wells with depth of 15–50 m. However, in some areas, arsenic contamination is found in tube wells of greater depth. Arsenic contamination is not common in tube wells greater than 150 m deep in the district.¹³

107. Other than arsenic contamination, groundwater depletion due to excessive withdrawal, and pollution due to anthropogenic activities, have been reported in in Brahmanbaria district. A 2010 study of groundwater quality found that tested wells (shallower than 150 m) often did not meet the national standards for drinking water in relation to key parameters. This was found to be the case for total dissolved solids (83–809 mL⁻¹, national standard maximum 500mL⁻¹), lead (0.04–0.07 mL⁻¹, national standard maximum 0.05 mL⁻¹), arsenic (up to 0.10 mL⁻¹, national standard maximum 0.05 mL⁻¹), iron (0.10 mL⁻¹–6.96 mL⁻¹ versus national standard acceptable range 0.3–1.0 mL⁻¹), and manganese (up to 1.63 mL⁻¹, national standard maximum 0.1 mL⁻¹). Water from shallow tube wells is therefore not to be recommended for drinking or cooking.¹⁴

g. Earthquake

Akhaura is situated near the southwestern terminus of the Sylhet-Assam Fault, one of four major faults in the country. According to seismicity mapping prepared by Geological Survey Bangladesh (GSB), Akhaura falls in the medium intensity seismic zone (Zone III, Basic Seismic Coefficient 0.28g). The Bangladesh National Building Code (2020) divides the country into four categories of earthquake risk, with Akhaura falling into Zone II, a moderate risk area (both maps are presented in Figure IV.8. It is thought that the upper end of the range of probable magnitude of earthquakes occurring in moderate risk zones is magnitude 6, which can substantially damage buildings.¹⁵

¹² BGS and DPHE (2001) Arsenic contamination of groundwater in Bangladesh. Kinniburgh, D G and Smedley, P L (eds.), Volume 2: Final Report. British Geological Survey Report WC/00/19, British Geological Survey, Keyworth.

¹³ Ahmad SA, Khan MH, Haque M. (2018) Arsenic contamination in groundwater in Bangladesh: implications and challenges for healthcare policy. Risk Management Healthcare Policy. 2018; 11:251-261 <https://doi.org/10.2147/RMHP.S153188>

¹⁴ Ahmed, MJ., Haque, MR., and Haque, TMA. (2010) Physicochemical Assessment of Surface and Groundwater Resources of Greater Comilla Region of Bangladesh. International Journal of Chemical and Environmental Engineering, July 2010, Volume 1, No. 1.

¹⁵ Islam, R., Md. N. Islam and M. N. Islam. 2016. Earthquake risks in Bangladesh: Causes, Vulnerability. Preparedness and Strategies for Mitigation. ARPN Journal of Earth Sciences 5(2):75-90.

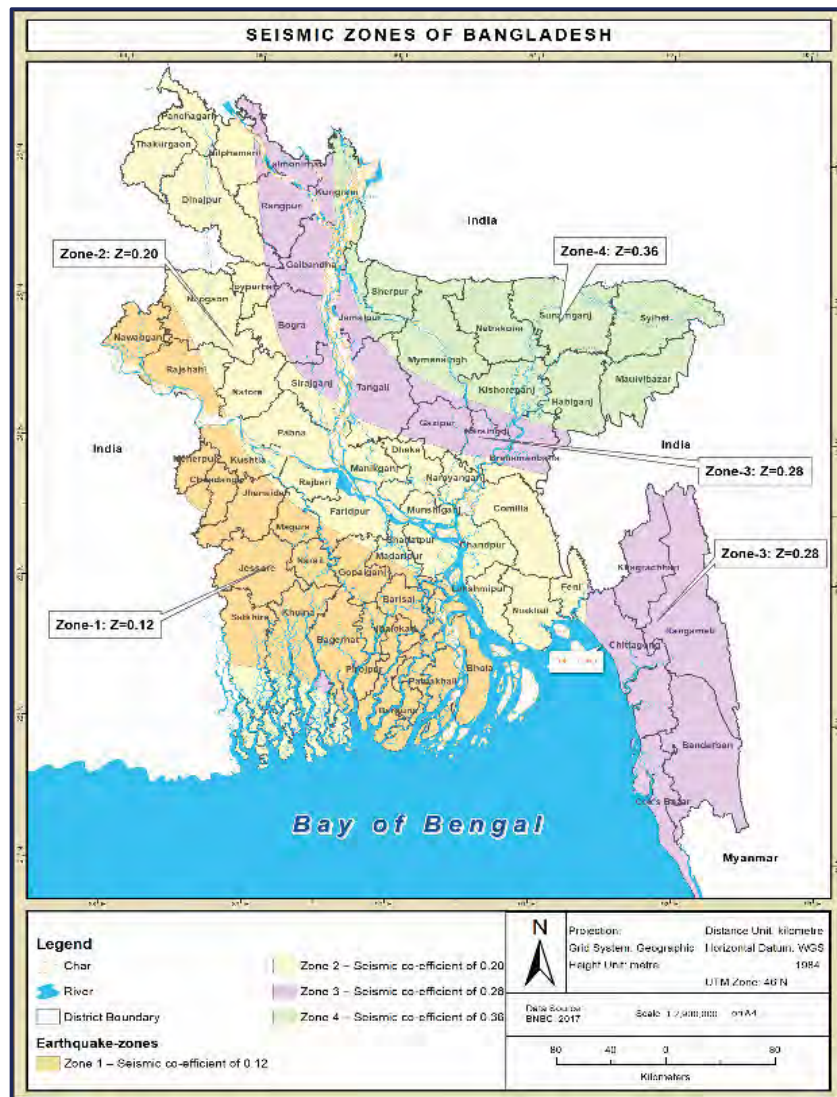


Figure IV.8: Seismic Risk Mapping for Bangladesh

h. Climate and Climate Change

108. Akhaura has a tropical monsoonal climate with a hot, wet summer from May to August and a cooler, drier winter from November to March. Average annual precipitation ranges from 2,000–2,500 mm, and the average daily temperature range is 25.0–25.5°C. The Akhaura area falls within the South-Central climate zone, which is more prone to severe hail storms, northwesters and tornadoes than other parts of the country. Akhaura is far enough inland not to be heavily affected by tropical cyclones blowing in from the Bay of Bengal, and has sufficient elevation (6–7 masl) to not be affected by storm surges.

109. Under middle-of-range climate modelling scenarios, average annual temperatures in the Akhaura area are projected to increase by 2.0–2.5°C by 2100. The intensity and duration of heat waves can be expected to increase as annual average temperature rises. Also under mid-range modelling scenarios, average annual rainfall is projected to increase by 100–200 mm by 2100. Over the same period, the severity and magnitude of rainfall events is expected to increase by 5–10%, which can be expected to make flooding after rainfalls a more frequent and longer-duration occurrence.

110. The Akhaura BCP is in a moderate fluvial flood zone; although the sites have not been subject to severe floods historically, fluvial floods could become more likely as rainfall intensity increases and extreme storm events become more common and more severe. The BCP sites are currently prone to severe waterlogging during periods of heavier rainfall, and will become more so as precipitation and precipitation intensity increase. The combination of increased fluvial flood risk and increased pluvial flood risk mean the BCP sites could see a 30–60 cm increase in flood levels by 2100. Akhaura has historically

been outside the tropical cyclone impact zone, but the impact zone could extend further inland over time if the strength of cyclones increases on average, as is expected, and sea level rise drives the coastline further up the Padma-Jamuna delta.

i. Air quality

111. The area surrounding the Akhaura BCP is rural, and land use is overwhelmingly dedicated to farming. Air quality is generally good, with only minor localized degradation resulting from dust generated by the passage of trucks going to and from the BCP. There are no sensitive receptors such as educational facilities, hospitals and religious buildings present near the project site. At present there are no significant construction works in the vicinity. Industrial sources of air pollution in Agartala are not reported to exert any noticeable influence on ambient air quality at the BCP.

j. Acoustic Environment

112. The border zone is set within a quiet rural landscape in which use of motorized farming equipment is almost non-existent. There are no sensitive receptors such as educational facilities, hospitals and religious buildings present near the project site. Away from the road and roadside communities, ambient noise is generally low. The main source of ambient noise in the border zone is traffic (including horns) on Z1202, and general hustle and bustle within settled areas, such as with the roadside community of Kalikapur. There are very few people living near the BCP, and no cause for large gatherings or noisy activity. Trucks tend to move slowly through the border zone, which limits road noise and vibration considerably.

C. Biological Characteristics

a. Ecological Resources

113. The Akhaura land customs station and customs campus are located in an ecologically interesting spot. Although the sites have been deforested and then reforested and cannot be considered natural forest, it is not so long ago that they were, and even as plantations and secondary growth, can be considered an integral fringe of eastern Bangladesh ecosystem.

114. Twelve bio-ecological zones and 25 sub-zones have been defined for Bangladesh by the IUCN; Akhaura is in the Meghna Floodplain zone (4e), for which the main reference ecosystem would be lowland forest prominently featuring palms and mandar.¹⁶ Virtually none of the original forest cover remains in this part of the country. The land is intensively farmed in this area, and treed areas consist exclusively of small plantations around homesteads and settlements. Plantations are rich with palms, mandar, bamboo, mahogany and teak, as well as numerous fruit trees. The Food and Agriculture Organization and Bangladesh Agricultural Research Council classifies the country into 30 agro-ecological zones based on soils and ecological features, and places the Akhaura area in the Old Meghna Estuarine Floodplain (Zone 19) and Northern and Eastern Piedmont Plains (Zone 22).¹⁷ Figure shows the agro-ecological zones of Bangladesh with the Akhaura area demarcated.

115. The Old Meghna Estuarine Floodplain region comprises smooth, almost level, floodplain ridges and shallow basins. Silt loam soils predominate on highlands and silty clay to clay in lowlands. Non-calcareous Dark Grey Floodplain soils are the only general type of the area. Organic matter content of the soils is moderate. Moisture holding capacity is medium. Topsoils are moderately acidic, but subsoils are neutral in reaction. General fertility level is medium. The Northern and Eastern Piedmont Plains zone comprises merging alluvial fans which slope gently outward from the foot of the hills into smooth low-

¹⁶ IUCN. 2002. Bio-ecological Zones of Bangladesh. Dhaka: IUCN Bangladesh Country Office.

¹⁷ FAO/UNDP, Land Resources Appraisal of Bangladesh for Agricultural Development Report 2: Agroecological Regions of Bangladesh; Bangladesh Agricultural Research Council (BARC) (2020) Bangladesh Agro-Meteorological Information Portal, Agro-Meteorological Information Systems Development Project, Department of Agricultural Extension, Dhaka, Bangladesh. URL: <https://www.bamis.gov.bd/en/page/aezs-maps/> Date accessed: 4 May 2020.

lying basins. Grey Piedmont soils and non-calcareous Grey Floodplain soils are the major general soil types of the area. Soils of the area are loams to clays in texture having slightly acidic to strongly acidic reaction. General fertility level is low to medium.

1) Flora and Fauna

116. The landscape around the Akhaura BCP is dominated by rice paddies, but the open cropping areas are interspersed with settlements, homesteads, ponds and roadways, around which there is lush growth of trees, mostly planted. Common floral species that can be observed in the district are shown in Table IV.1.

Table IV.1: Common Floral Species of Project Area

Local Name	English Name	Scientific Name	IUCN Conservation Status ¹
Aam	Mango	<i>Mangifera indica</i>	LC
Amly Tentul	Tamarind tree	<i>Tamariandus indica</i>	LC
Ashwatha	Pipal	<i>Ficus religiosa</i>	LC
Bel	Wood Apple	<i>Aegle marmelos</i>	LC
Bet	Cane	<i>Calamus sp.</i>	LC
Bot Tree	Banyan Tree	<i>Ficus benghalensis</i>	LC
Gab	Mangosteen	<i>Diospyros precatorius</i>	LC
Jalpai	Olive	<i>Elaeocarpus tectorius</i>	LC
Jamun/Jaam	Black Palm	<i>Syzygium cumini</i>	LC
Jarul	Giant Crepe Myrtle	<i>Lagerstroemia speciosa</i>	LC
Kadamba	Burflower Tree	<i>Anthoephalus cadamba</i>	LC
Kanthal	Jackfruit	<i>Artocarpus Heterophyllus</i>	LC
Karoi	Koroi	<i>Albizia procera</i>	LC
Khejur	Date Palm	<i>Phoenix sylvestris</i>	LC
Mandar	Coral Tree	<i>Erythrina variegata</i>	LC
Mehogani	Mahogany	<i>Sweitenia mecropphylla</i>	LC
Narikel	Coconut	<i>Cocos nucifera</i>	LC
Neem	Margosa	<i>Azadirachta indica</i>	LC
Rana	Petraaj	<i>Aphanamix polystachya</i>	LC
Shimul	Silk Cotton Tree	<i>Bombax ceiba</i>	LC
Shishoo	North Indian Rosewood	<i>Dalbergia sissoo</i>	LC
Supari	Betel Nut	<i>Areca catechu</i>	LC
Tal	Palmyra Palm	<i>Borassus flabellifer</i>	LC

¹ CR – Critically endangered; EN – Endangered; VU – Vulnerable; NT – Near threatened; LC – Least concern; DD – Data deficient
Source: Compiled based on field observation, discussion with local people, and various secondary sources. Conservation status obtained from www.redlist.org.

117. Despite the BCP area not having really any unmodified natural habitat areas left, numerous faunal species can nevertheless be found in the paddies, treed areas, roadsides, ponds and water courses. A sampling of faunal species sometimes seen, heard, or caught in this part of Bangladesh is shown in Table IV.2 and Table IV.3.

Table IV.2: Common Wildlife Species of Project Area

Local Name	English Name	Scientific Name	IUCN Conservation Status ¹
Banor	Rhesus monkey	<i>Macaca mulatta</i>	LC
Bashpata	Gangetic ailia	<i>Ailia coila</i>	NT
Batashi	Indian potasi	<i>Neotropius atherinoides</i>	LC
Beji	Mongoose	<i>Herpestes edwardsi</i>	LC
Bhuban cheel	Black kite	<i>Milvus migrans</i>	LC

Local Name	English Name	Scientific Name	IUCN Conservation Status ¹
Bon Morog	Red jungle fowl	<i>Gallus gallus</i>	LC
Chela	Silver razorbelly minnow	<i>Salmostoma acinaces</i>	LC
Chita	Hamped feather back	<i>Chitala chitala</i>	NT
Chonkho cheel	Brahminy kite	<i>Haliastur indus</i>	LC
Choroi	House sparrow	<i>Passer domesticus</i>	LC
Dar Kak	King crow	<i>Corvus macrorhynchos</i>	LC
Eagle	Grey-headed fish eagle	<i>Ichthyophaga ichthyaetus</i>	NT
Ghora Chel	Gangchela	<i>Securicula gora</i>	LC
Gulsha	Day's mystus	<i>Mystus bleekeri</i>	LC
Jhuti salik	Moyna	<i>Acridotheres tristis</i>	LC
Kat Birali	Hoary-bellied squirrel	<i>Callosciurus pygerythrus</i>	LC
Katthokra	Downy woodpecker	<i>Picoides pubescens</i>	LC
Lokki Pecha	Barn owl	<i>Tyto alba</i>	LC
Machranga	Kingfisher	<i>Alcedo atthis</i>	LC
Mallard	Wild duck	<i>Anas platyrhynchos</i>	LC

¹ CR – Critically endangered; EN – Endangered; VU – Vulnerable; NT – Near threatened; LC – Least concern; DD – Data deficient
Source: Compiled based on field observation, discussion with local people, and various secondary sources. Conservation status obtained from www.redlist.org

Table IV.3: Common Fish Species of Project Area

Local Name	English Name	Scientific Name	IUCN Conservation Status ¹
Airh/baghair	Devil catfish	<i>Bagarius bagarius</i>	NT
Baila	Scribbled goby	<i>Awaous guamensis</i>	LC
Baim	Zigzag eel	<i>Mastacembelus armatus</i>	LC
Bashpata	Gangetic ailia	<i>Ailia coila</i>	NT
Batashi	Indian potasi	<i>Neotropius atherinoides</i>	LC
Bheda/Meni	Gangetic leaf fish	<i>Nandus nandus</i>	LC
Boal	Giant Catfish	<i>Wallago attu</i>	VU
Chanda	Moon fish	<i>Mene muculata</i>	LC
Chapila	Indian river shad	<i>Gudusia chapra</i>	LC
Gajal/Gazar	Mural snakehead	<i>Channa marulius</i>	LC
Gheso rui	Grass carp	<i>Cteopharyngodon idella</i>	LC
Ghona	Long-whiskered catfish	<i>Mystus aor</i>	LC
Ghora Chel	Gangchela	<i>Securicula gora</i>	LC
Gulsha	Day's mystus	<i>Mystus bleekeri</i>	LC
Jiriya	Golden plover	<i>Pluvialis dominicus</i>	LC
Kachki	Ganges River sprat	<i>Corica soborna</i>	LC
Kakila	Spottail needlefish	<i>Strongylura strongylura</i>	LC
Kalbous	Orange fin labeo	<i>Labeo calbasu</i>	LC
Katla	Catla (Major carp)	<i>Catla catla</i>	LC
Kholisha	Banded gourami	<i>Trichogaster fasciata</i>	LC
Koi	Climbing perch	<i>Anabas testudineus</i>	LC
Meani	Mud perch	<i>Nandus nandus</i>	LC
Mirka	Mrigel	<i>Cirrhinus mrigala</i>	LC
Nilotica	Nilotica	<i>Oreochromis niloticus</i>	LC
Pabda	Pabda Catfish	<i>Ompok pabda</i>	NT
Panga	Pangas	<i>Pangasius pagasius</i>	LC
Pholi	Phalli or flat fish	<i>Notopterus notopterus</i>	LC
Puti	Barb	<i>Barbus punctius</i>	EN
Rita	River catfish	<i>Rita rita</i>	LC
Rui	Rohu	<i>Labeo rohita</i>	LC
Sharputi	Silver barb	<i>Puntius sarana</i>	LC
Shingi/Shing	Stinging catfish	<i>Heteropneustes fossilis</i>	LC
Shoal fish	Striped Snakehead	<i>Channa striatus</i>	LC
Silver carp	Silver carp	<i>Hypophthalmichthys molitrix</i>	LC

Local Name	English Name	Scientific Name	IUCN Conservation Status ¹
Snipe	Painted snipe	<i>Rostratula benghalensis</i>	LC
Taki	Spotted Snakehead	<i>Channa punctatus</i>	LC
Tapse	Tapsi dhain	<i>Polynemus paradiseus</i>	LC
Teal	Green-winged teal	<i>Anas crecca</i>	LC
Telapia	Tilapia	<i>Oreochromis mossambicus</i>	LC
Tengra	Days mystus	<i>Mystus vittatus</i>	LC

¹ CR – Critically endangered; EN – Endangered; VU – Vulnerable; NT – Near threatened; LC – Least concern; DD – Data deficient
Source: Compiled based on field observation, discussion with local people, and various secondary sources. Conservation status obtained from www.redlist.org

2) Protected Areas

118. Proximity data were generated by ADB for the Akhaura BCP using the Integrated Biodiversity Assessment Tool (IBAT). Search parameters were species of conservation concern as identified in the IUCN Red List of Threatened Species; protected areas as listed in the World Database of Protected Areas; and key biodiversity areas as indicated by Birdlife International.¹⁸ The full IBAT report for the Akhaura BCP area can be found in Appendix 2.

119. Results indicated that there are no key biodiversity areas or protected areas within 10 km of the Akhaura BCP. The nearest protected area is Sipahijala Wildlife Sanctuary, approximately 22 km south-southeast of the BCP. The dataset of species of concern generated by the proximity analysis included 108 species of concern, including 30 endangered and 19 critically endangered wildlife species, that have been documented or can reasonably be expected to be found within a 50-km radius of the BCP. Fifty kilometers is a large search radius, and takes in a broad range of habitats, with the result being that the list was very large and included many species that are an outright impossibility at Akhaura (oceanic species that spend some part of their life cycle in the Meghna River, for example). It was therefore necessary to narrow the list down to those species that could actually be cause for concern at Akhaura BCP. In line with the focus on endangered and critically endangered species in the SPS, only this subset of species of concern was considered in the narrowing-down process.

120. The probability of each of the 49 IBAT-identified endangered or critically endangered species being present at or nearby the BCP was assessed by examining range maps and habitat requirements, resulting in a short list of five endangered and critically endangered species with a non-trivial probability of being found in the Akhaura area. This reduced list is presented in Table IV.4.

Table IV.4: Endangered Species with A Non-Trivial Probability of Presence at Akhaura BCP

Species Name	Common Name	IUCN Status	Range and Habitat Notes ^a
<i>Aquila nipalensis</i>	Steppe eagle	EN	This species is considered extant (passage), its breeding habitat being up higher in the Himalayan Range.
<i>Aythya baeri</i>	White-winged duck	EN	Range maps for this wetland species indicate that it may be extant (non-breeding) in the Akhaura area.
<i>Hoolock hoolock</i>	Western hoolock gibbon	CR	This species is a forest-dweller that inhabits tropical evergreen rainforests, tropical evergreen and semievergreen forests, tropical mixed deciduous forests, and subtropical broadleaf hill forests. Akhaura BCP is within the gibbon's historical range.
<i>Indotestudo elongata</i>	Elongated tortoise	CR	Akhaura is at the western edge of the historical range of this species. Elongated tortoises inhabit primarily deciduous forest types (Sal, Dry Dipterocarp, Mixed Deciduous forests) with open, broken canopy allowing

¹⁸ IBAT Proximity Report, 2018. Generated under licence 2771-8173 from the Integrated Biodiversity Assessment Tool on 11/04/2020. <http://www.ibat-alliance.org>

Species Name	Common Name	IUCN Status	Range and Habitat Notes ^a
			sufficient light for a moderate to very dense undergrowth of grasses and herbs; during the dry, leafless season animals may retreat to evergreen stream gallery forest.
<i>Trachypithecus phayrei</i>	Phayre's leafmonke	EN	This species prefers primary and secondary evergreen and semi-evergreen forest, and mixed moist deciduous forest, but is also found in bamboo-dominated areas, light woodlands, and near tea plantations. Akhaura BCP is within this monkey's historical range.

^a Comments on species ranges and typical habitats are derived from the IUCN Red List website (www.redlist.org).

D. Socioeconomic Characteristics

1) Population

121. The population of Akhaura Upazila was 145,215 in 2011, of which 75,105 were female and 70,110 were male. Approximately 67% of people living in the upazila were under the age of 30 in 2011. The upazila's population has grown markedly over the last two decades, notching a growth rate of +1.43%/yr from 1991 to 2001, and +1.07%/yr from 2001 to 2011.¹⁹ The notable slowing of the population growth rate is more or less in line with national growth trends, although the drop-off has been more precipitous for Akhaura Upazila than for the country as a whole. Assuming a further slowed growth rate of +1% for the 2011–2021 period, it may be reasonable to project a 2021 population for the upazila of about 160,487. Population density in 2011 was 1,481/km², and may be as high as 1,638/km² by 2021 if the above projection for 2021 upazila population is sound.

122. The demographic slowdown was even more marked for Akhaura town, which seems to have boomed during the 1991–2001 period (+11.2%/yr), before dropping off to a rate more in line with upazila and national trends for 2001–2011 (+1.08%/yr). Extrapolating forward assuming a continued decline to +1%/yr during the most recent decade, it can be projected that the population of the municipality will be about 42,181 in 2021, accounting for approximately 26% of the overall upazila population.²⁰

2) Land Use

123. The study area is heavily agricultural, with the dominant crop being rice. The main rice crop in the region is Boro, followed by Transplanted Aman. Rice paddy cultivation is carried out once or twice in a year, and vegetables are also widely grown. Among non-rice crops, potato and vegetables are principal crops, often intercropped or rotated with maize, jute and mustard. In the dry season, fields contain numerous wild herbs, which are considered as weeds. Among the weeds- *Amaranthus spinosus*, *Cynodon dactylon*, *Alternanthera sessilis*, *Polygonum sp.*, and *Oxalis corniculata* are common species. Along riversides Binna gash (*Vetiveria zizanioidis*), Kash (*Saccharum spontaneum*), Ghagra (*Xanthium indicum*), and Ban Palang (*Rumex maritimus*) are commonly sighted. Crop field vegetation has importance not only for production of food for people, but also as habitat for small animals like insects, reptiles and various birds. Crop fields along river levees are bordered by Khagra (*Phragmites karka*) and other grasses, which grow luxuriously during the monsoon.

124. Homesteads are clustered on slightly higher ground to form small settlements; these are invariably planted with desirable tree species, and many have dug ponds for fish and irrigation. Thus, the rural landscape has a generally open pattern broken up here and there by verdant patches of planted

¹⁹ All population figures are sourced from www.citypopulation.de, which in turn derives its data from the national census data reported by the Bangladesh Bureau of Statistics.

²⁰ The growth rate and population figures for Akhaura town are reflective of a correction made for estimated under enumeration in urban municipalities (adjustment +5.256% for 2011 population and +5.81% for 2001). An assumption was made that under-enumeration would have been slightly more severe in 1991 than 2001 (mirroring a decrease in under-enumeration between 2001 and 2011), and this correction was pegged at +6.50% for 1991 population.

groves, often spread along small local roads and khals. As the town of Akhaura has grown and the BCP has built up from its establishment in 1955, industrial and commercial land uses have taken on a more prominent presence on the landscape. Several border agencies have built compounds along the first 700 m of the road from the zero point to Akhaura town Z1202), and a number of businesses have grown up along the road, most notably in the settlement of Kalikapur, which straddles the road about one third of the way to Akhaura.

3) *Transport & Communication*

125. Akhaura is well integrated into the national and regional transportation network. The town is situated on the Chattogram–Dhaka rail line, and is both a significant station for passengers and cargo along that line, and a prominent port serving river traffic on the Titas River, which is navigable by barges and boats from the Bay of Bengal. The town is just 10 km east of Comilla–Sylhet Highway (N102), and 2 km south of the Dhaka–Sylhet Highway (N2) and is linked to these two components of the national highway network by good paved secondary roads. The Chattogram–Dhaka rail connection is currently undergoing twinning between Laksam and Akhaura and a new cross-border rail link between this line and the growing city of Agartala in Tripura is set to open in 2022. The Maharaja Bir Bikram Airport on the north side of Agartala has been undergoing a significant upgrade; direct flights are presently available to several Indian air hubs including Delhi, Kolkata and Chennai, and international flights to destinations within Bangladesh (Dhaka, Chattogram and others) are planned. Akhaura is a necessary transit point for passengers crossing the border to use this airport, which is only 14 km by road from the town (this compares favorably with the trip to Dhaka's international airport (122 km). The BCP itself is linked to Akhaura by the local road Z1202, which is paved and in reasonably good condition, and to the center of Agartala by its counterpart on the Indian side. This road is set to be upgraded to four lanes by RHD, with construction expected to begin within 2021.

4) *Public Services*

126. **Health services.** Akhaura Upazila is endowed with one hospital, one upazila health center, two health and family centers, 44 family planning centers, five satellite clinics and four diagnostic centers. Across the whole upazila, there are 50 hospital beds, and only four working doctors and four senior nurses.²¹

127. **Schools.** Akhaura Upazila is served by 52 primary schools, of which 35 are government run, 11 are privately operated, and six are community schools. There is one junior high school and 15 high schools in the upazila, as well as three colleges. In addition, the upazila has six Dakhil Madrasas and three Alim Madrasas.²² There are at least two primary schools in settlements along Z1202, between the BCP and Akhaura town.

128. **Water supply and sewerage.** The BCP area is not served by a public water supply system; water for domestic purposes is generally obtained from tube wells. There is no sewer system; all wastewater is managed either by septic systems, or released directly to the environment without any treatment. Pit toilets are the predominant form of human waste management in this rural area.

129. **Electricity.** There is electrical service in the BCP area, supplied by Pally Bidayt Samity (PBS) under the Rural Electricity Board. The service is subject to frequent outages and voltage.

130. **Waste management.** There is no municipal or private-sector solid waste collection service in the BCP area. As in most of rural Bangladesh, open burning is the prevailing solid waste management practice.

5) *Income & Livelihoods*

131. The majority of paid employment in the upazila is in the service sector, which accounts for 47.8% of employment; industry makes up a further 7.9%. Slightly less than half of employment is in agriculture (44.3%). These numbers reflect the importance of Akhaura town as a secondary service center within

²¹ Data obtained from the Akhaura Upazila web page, <http://akhaura.brahmanbaria.gov>.

²² Ibid.

Brahmanbaria District. The marked imbalance between female and male residents seems likely to reflect short- and long-term migration overseas for employment, a mass movement in which men typically outnumber women.

6) Physical Cultural Resources

132. There are no known historical or protected cultural sites anywhere in the vicinity of the BCP. There are at least two mosques along the approach road, one of which is about 450 m away from the land port site entrance.

V. ANALYSIS OF ALTERNATIVES

A. General

133. Project alternatives have been studied as a part of this IEE process. Alternative analysis has been conducted in detail to foresee environment, economic and social impact of each alternative.

134. The proposed project will be implemented based on national and international regulations focusing on assessing the city requirements with regards to the transport issue and then determining the most suitable and effective technology and location for construction of the required infrastructure.

135. This process of analysis of the different alternatives for “Establishment of Medical Centres in Land Ports of Entry of Akhaura (Construction of 2-storied Medical Centre with 6 storied foundations including Civil, Sanitary and Electrification works) Sanitary and Electrification works) under COVID-19 Response Emergency Assistance Project” ensures that a well-informed decision is taken regarding the selection of the most optimal option amongst the possible options that are brought into consideration.

B. No Project Alternatives

136. From a purely physical and environmental point of view, the ‘do-nothing’ approach is preferable to any project implementation since it would avoid creation of any of the adverse impacts associated with a development project. The without project alternative is not acceptable. Considering the no project alternative, the COVID-19 affected scenario may get worse. Health safety issue would not be mitigated in case of no project scenario.

137. Therefore, the ‘no-project’ alternative is unacceptable, and the potential socio-economic benefits of implementation of such Project far outweigh the adverse impacts, all of which can be controlled and minimized to an acceptable level.

C. Location Alternative

138. The alternative location option is also not feasible. As the project implementation requires a location near port of entry where prior to entry each person will be gone through screening, the land port is the best suitable place considering these issues. Besides, the amount of land required for the implementation of this project can only be available by the land port authorities as the DGHS does not have sufficient amount of land as per the requirement and also the land port authority have agreed to provide the sufficient support. The alternative location option is also not viable or feasible.

VI. ASSESSMENT OF POTENTIAL ENVIRONMENTAL IMPACTS

A. Impact Assessment Methodology

a. Impact categorization

139. **Significance of Impacts:** Generation of environmental and social impacts from infrastructure development is a function of the activities that take place during construction and operation of the infrastructure, on the one hand, and the environmental and social attributes of the local setting on the other. The people, communities and ecosystems that may be affected by a project (receptors) are variable in terms of their proximity to the infrastructure; their sensitivity to influences such as noise, disturbance, and emissions; and their ability to adapt to change. The activities involved in construction and operation of infrastructure also vary based on the nature of the project, the noisiness and dirtiness of the construction works required, and how long different activities are carried out in one place. The significance of impacts depends on the particular juxtaposition of activities and receptors in specific locations.

140. **Typology of impacts:** The impacts that arise from particular configurations of infrastructure development activities and landscape features may emerge in different forms and through various pathways. It is useful to consider the types of impacts that may come into play - some of which may be more immediately obvious than others - when assessing the potential effects of a project on people and nature in the surrounding environment.

141. Table VI.1 below explains the Impact categorization and typology adopted for this study.

Table VI.1: Impact Categorization and Typology Adopted for this Study

Impact parameter	Types of impact				Sign
	POSITIVE		NEGATIVE		
Direction of change relative to baseline conditions					+/-
Magnitude of impact in relation to ability of people and ecosystem to cope with change	NONE	MINOR	MAJOR	SEVERE	D/C/B/A
Spatial extent of effects	LOCALIZED		WIDESPREAD		Loc/Wid
Duration of effects experienced	TEMPORARY		PERSISTENT		Tem/Per
Timing of effects experienced	INTERMITTENT		CONTINUOUS		Int/Con
Nature of cause-and-effect linkage between project activity and impact experienced by receptors	DIRECT		INDIRECT		Dir/Ind
Relationship of project activities to impacts from other sources in landscape	ISOLATED		CUMULATIVE		Iso/Cum

b. Spatial Scope of Analysis

142. The area of influence of an infrastructure project is defined in the SPS (p. 31) as follows:

- i. The primary project site(s) and related facilities that the borrower/client (including its contractors) develops or controls, such as pipelines, canals, drains, access roads, borrow pits and disposal areas, and construction camps;
- ii. Areas and communities potentially affected by cumulative impacts from further planned development of the project, other sources of similar impacts in the geographical area, any existing project or condition, and other project-related developments that are realistically defined at the time the assessment is undertaken; and
- iii. Areas and communities potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location. The area of influence does not include potential impacts that might occur without the project or independently of the project.

143. Of the locational categories listed in the passage from the SPS 2009 above, the project activities at Akhaura BCP will, firstly, comprise one site where physical works will take place; this includes the

Medical Center only, and possibly a construction camp. It is expected that materials like sand and gravel will be purchased on the open market, rather than obtained from project-specific borrow pits or quarries.

144. The planned developments at Akhaura BCP will not have any associated facilities as defined by the SPS 2009.

145. With respect to cumulative impacts, the proposed development does need to be understood as single piece of investment in a two-storied medical center only affecting the vicinity of the respective area.

146. The last category to consider as being part of the area of influence—areas and communities potentially affected by developments that can be expected to result from development of the project—is certainly relevant at Akhaura. However, the proposed intervention is too small to have a measurable impact to the surroundings.

147. At the site level, defining the area of influence for the purposes of assessing impact potential is a subjective, context-dependent exercise. Noise and dust from construction activity, for example, are localized impacts likely to be experienced mostly within about 100 m of the construction site boundary.

c. Substantive Scope of Analysis

148. ADB has stipulated that the following environmental parameters and potential impact areas shall be considered in IEEs prepared for each investment location:

- i. biodiversity, species of concern and critical habitat areas including forests, wetlands, and protected areas;
- ii. surface water bodies and groundwater;
- iii. air quality, including dust and emissions;
- iv. agriculture and fertile soils;
- v. tree cutting;
- vi. local acoustic environment;
- vii. drainage and waterlogging;
- viii. waste management (construction waste and operation phase waste);
- ix. climate change mitigation and adaptation;
- x. land use and livelihoods;
- xi. traffic congestion;
- xii. community life and interaction;
- xiii. private property and public utilities;
- xiv. public health and safety;
- xv. occupational health and safety, including as they relate to the COVID-19 pandemic unfolding during implementation of the Project;
- xvi. physical cultural resources;
- xvii. possible transboundary impacts, including transmission of disease vectors, spread of invasive species, and harmful patterns of natural resource exploitation; and
- xviii. induced development effects and cumulative impacts.

149. The degree of emphasis placed on the key parameters identified here depends on their particular relevance, given the nature of the planned infrastructure and the characteristics of sites and receptors.

d. Impact Mitigation and Enhancement

150. **Objectives of mitigation:** The central goal of impact assessment is to determine how best to mitigate (make less serious, severe, or damaging) potential negative effects before they arise, and to identify opportunities for enhancing potential positive impacts, which may or may not be part of the project rationale. The IEE considers the specific activities that implementation will involve, from site selection through to operation, and defines the impacts that can be expected to arise in view of the particular features of the receiving environment. The analysis and discussion of impacts uses an

integrated approach, in which environmental and social impacts are considered together in relation to each set of road development activities.

151. **Mitigation hierarchy:** Identification of an appropriate proactive approach for each expected impact in this IEE makes use of the standard mitigation hierarchy advocated by the ADB and other multilateral donors. In the mitigation hierarchy, top priority is given to measures that enable outright prevention or avoidance of impacts. Where prevention or avoidance is not possible, the next most preferred option is to minimize impacts to the greatest extent possible, within reasonable limits of feasibility. Finally, and only once it has been confirmed that there is no feasible way to reduce an impact below a reasonable threshold of social acceptability, it will be appropriate to consider measures to compensate for the loss or damage caused to people and nature through reimbursement, replacement or some other means.

152. **Impact enhancement:** For positive impacts, there is no hierarchy as for mitigation, only one objective: to adopt measures to enhance or reinforce positive effects whenever possible, through thoughtful adaptation during site selection, design and implementation.

153. **Environmental Management Plan (EMP):** Measures will be prescribed for mitigation or enhancement of each predicted impact. Such prescriptions do not carry any weight unless they are made part of an obligatory implementation plan. The EMP translates the measures prescribed in this section of the IEE into costed action items assigned to specific actors and makes implementation of the action items subject to regular monitoring of compliance and effectiveness. The EMP is presented in Chapter IX of this IEE report.

B. Anticipated Impacts and Mitigation Measures

a. Planning and Design Phase

1) *Landscape and Existing Utilities*

154. Existing land port services may be disrupted for short period of time. However, drawing from the consultant's visit, there was no utility or services found at the selected location. However, some private buildings are located outside the boundary wall of the land port. These buildings are rented to several government agencies e.g.; vat excise, customs etc.

155. There is no vegetation within the proposed site. In addition, there is no water body nearby sub-project site. No impact is expected on flora and fauna.

2) *Obtaining SSC/NOCs/ECC*

156. Failure to obtain necessary consents, permits, NOC's can result in design revisions and/or stoppage of the Works. The proposed medical centre will be constructed in BLPA own empty land, and it is within the boundary of its administrative area. The BLPA has already issued a NOC to the DGHS/Project to construct the facility.

3) *CEMP Verification*

157. Appropriate implementation of the CEMP may result in deterioration of environment and social status. CEMP need to be reviewed to ensure all primary contractor responsibilities are fully reflected, including monitoring and reporting.

4) *EMP Implementation Training*

158. Irreversible impact may be resulted to the environment, contractor representative/workers, PWD/PIU officials without adequate EMP implantation training. Training will be required to undergo EMP implementation including waste management, Standard operating procedures (SOP) for construction works; health and safety (H&S), core labor laws, applicable environmental laws, etc.

5) *Material Sourcing*

159. Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.

160. Mitigation measures include:

- Prepare list of approved quarry sites and sources of materials
- Select authorized supplier prior to sourcing the materials
- Sand/silt material that only quarries duly licensed by the authorized government agencies will be considered as sources of construction material for the project.
- Illegal quarries and hill cutting is not permitted at all.

6) *Natural Calamities (Earthquake, Flood etc.)*

161. If a natural hazard (Flood, Earthquake) were to occur, this would affect the medical facility creating a hazard to human health. The natural hazard mitigation is integrated in the design of the project. The MC is designed within the "Zone III" BNBC Building Code based on expected seismic activity. The structures are also designed for a basic wind speed considering BNBC Codes which, according to historical storm tracks, is not expected. MC is designed which is above the highest flood level (HFL) information of last 25 years. The MC will be designed such that treatment process continues even throughout the high-water levels of a flood. Emergency response plan shall be prepared by construction and operation phase contractors and will be submitted to the authority for approval to manage impacts of natural hazards such as earthquakes and floods.

▪

b. **Construction Phase**

1) *Waste Management for Construction and COVID-19 Related Waste*

162. Soil, water, and air pollution from the improper management of wastes and excess materials from the construction sites may arise. Besides, the discarded PPE may pose serious health hazards and can spread the contagion among cleaners and walkers.

163. Mitigation measures include:

- Development of a waste management plan including COVID waste by the help of the environmental consultant and later to update the plan, if required. Using colored bins (like yellow) and to put medical wastes in 2-3 layered plastic bag. These wastes need to disinfectant first using chlorine or any other germicides and then safely transport them through marked vehicles in a marked place.
- Waste segregation, packaging, collection, storage disposal, and transport will be conducted in compliance with GOB, ADB and WHO COVID-19 Guidelines. Training session on correct use and disposal of PPEs and check that they understand. Construction wastes (such as piece of rod, wood, bamboo, tin sheet, brick etc.) shall be kept in designated area and sprayed water mist to reduce the dust.
- Use PPE for staff handling any hazardous materials seepage of hazardous chemicals in case of any accidental spills. Do not burn/throw in any wastes to the water bodies/drains. The PIU will audit any off-site waste disposal required on a monthly basis and institute any remedial measures required to ensure compliance.

2) *Management of Workers' Facility*

164. Lack of proper facilities such as water supply and sanitation facilities may pose health hazards to workers. Ensure sufficient stock of soap, sanitizer, washing facility and safe water at work site. Also, provision of an appropriate number of toilets and hand-washing points. At the entrance of the worksite every personnel must wash their hands for 20 second with maintaining a distance of at least 6ft from

each other. Check the availability of medical kits at the site on weekly basis. Preparation of daily routine checkup including temperature screenings of the workers and staff.

3) Drinking Water Quality

165. Groundwater at shallow depths may be contaminated with arsenic and other parameters and hence not suitable for drinking purposes. Provision of the drinking water that meets national standards. Selection of aquifers for drinking water free from arsenic and other contaminants. Tube wells will be installed with due regard for surface environment, protection of groundwater from surface contaminants, and protection of aquifer cross contamination. Sanitary waste should be adequately disposed-off to avoid groundwater contamination.

Methodology for Water Demand Estimation

Table VI.2: Estimated Construction Phase Water Requirement

Sl.No.	Activity	Unit	Estimated project Total Water Qty requirement (liter) Approx.	
1	Concrete & mortar work water requirement	Ground Floor	Liters	417
		1 st Floor	Liters	444
		Roof	Liters	262
		Substructure	Liters	3369
2	Curing (50lb/bag of cement)	Liters	50533	
3	Dust Suppression and site surrounding management (15 l/sqft)	Liters/sqft	84750	
4	On site sanitation & Drinking water (135 lpcd) for approx. 50 person per day	Liters/day	2750	
Total Water Requirement			142525	
Add 5% for wastage and 20% for Contingency			178156	
Quantity of Water Requirement for entire Construction period			320681	

Table VI.3: Estimated Operation Phase Water Requirement

Sl No.	Activity	Unit	Quantity in Litres Required Per Day
1	Sanitation & Drinking water (55 lpcd) for 50 persons	per day in Liters	2750
2	Others	per day in Liters	150
Total Water Requirement (per day)			2900
3	Water requires for fire hydrant for one time	Liter	55,000

4) Drainage Congestion

166. Waterlogging due to improper management of drainage for rainwater/liquid waste or wastewater. Regularly inspect and maintain all drains to assess and alleviate any drainage congestion problem. Stockpile materials away from drainage lines. Reconstruct internal road-side drains immediately if damaged by any activities.

5) Noise and Vibration

167. Noise may have an impact on workers, patients, medical centre staffs, local residents etc. Appropriately site all noise generating activities to avoid noise pollution to workers, immigrants, BLPA and other officials and local residents etc.

168. Mitigation measures include:

- Install temporary noise barriers by screen, tin, wood around generators to reduce noise levels.
- Employ best available work practices on-site to minimize occupational noise levels. Use ear plugs in noisy areas of the construction activities.
- Maintain all equipment to keep it in good working order in accordance with manufactures maintenance procedures.

6) Occupational Health and Safety (OHS)

169. Construction works may pose health and safety risks to construction workers that may cause severe injuries and deaths. Lack of first aid and health care facilities in the immediate vicinity. Health risk of construction workers due to COVID-19.

170. Mitigation measures include:

- Prepare the health and safety guidance for COVID-19 at work sites and get approval from PIU, and strictly follow the guidance at worksite;
- Develop and implement an Occupational Health and Safety Plan (Appendix 10) to ensure competent and consistent attention to worker health and safety throughout the construction phase.
- Any worker showing symptoms of respiratory illness (fever, cold or cough) and has potentially been exposed to COVID-19 should be immediately removed from the site and tested for the virus at nearest laboratory;
- Workers involved for any short renovation activities at isolation area for COVID-19 will have WHO certified PPE and subsequently dispose the PPE in designated areas.
- Provide PPE to workers such as safety shoes, safety helmets, face masks, hand gloves, protective clothing, goggles, full face eye shields, and ear plugs and monitor to maintain them.
- Ensure hand washing and other sanitary stations are always supplied with clean water, soap, and disinfectant;
- Provide safety measures as appropriate during works such first aid kits, restricted access zones, warning signs, overhead protection against falling debris, lighting system to protect community, BLPA and other officials against construction risks.
- Emergency preparedness and response procedures and equipment (warning signs, fire extinguishers, fire exit etc.).
- Train all construction workers in OHS matters, and on the specific hazards of their work and maintain a register of the person present during the training.
- Grievance Redress mechanism (GRM) developed to readdress complaints raised by community, port staff, immigrants, and visitors.

7) Community Health and Safety

171. Construction works will impede the access of visitors and officials in limited cases. The impacts are minor negative but short-term, site-specific within a relatively small area and reversible by mitigation measures. Poor safety signage and lack of barriers at work site and trenches will create hazard to the visitors and officials.

172. Mitigation measures include:

- Provide safety signage at construction sites visible to public
- Provide safety barriers near any trenches, and cover trenches with planks during non-work hours.
- Contractor's activities and movement of staff will be restricted to designated construction areas.
- Consult with local authority on the designated areas for stockpiling of, soils, gravel, and other construction materials.
- If the contractor chooses to locate the work camp/storage area on private land, he must get prior permission from the environment specialist.
- Recycling and the provision of separate waste receptacles for different types of waste shall be encouraged.
- A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: (i) no alcohol/drugs on site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives (e.g. fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the site is forbidden; (vi) other than pre-approved security staff, no workers shall be permitted to live on

the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that he/she is not trained to do.

- Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the Environmental Safeguard Specialist's attention immediately; and (iv) taking remedial action as per specialist's instruction.
- The contractor shall immediately take the necessary remedial action on any complaint/grievance received by him and forward the details of the grievance along with the action taken to the environmental specialist within 48 hours of receipt of such complaint/grievance.

8) Site Reinstatement

173. Damage due to debris, spoils, excess construction materials. Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required.

174. Mitigation measures include:

- All disrupted utilities restored
- All affected structures rehabilitated/ compensated
- The construction camp is to be checked for spills of substances such as used container/water bottles, paint, etc. and these shall be cleaned up.
- All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and regressed using the guidelines set out in the re-vegetation specification that forms part of this document.
- The contractor must arrange the cancellation of all temporary services.
- Request PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.
- No payment should be made if the site is not cleared.

9) Earth Excavation

175. Excavation of borrow pits will add to the destruction of flora. Dust generation will be occurred from earth excavation, earth & sand stockpiles during dry period.

176. Mitigation Measure: Water spray to the dry earth/material stockpiles, access roads and bare soils as and when required to minimize the potential for environmental nuisance due to dust. Contractors will be prohibited from opening new areas in local waterbody for extracting and/or sourcing sands, especially areas in local rivers that remain in relatively good natural conditions and areas that support fish of conservation importance.

10) Flora and Fauna

177. Effects of construction work on species of conservation concern—and on local wildlife and habitats in general—will be negligible. As indicated above, the Akhaura sites are considered very low risk in relation to impacts on species of conservation concern even though they are within the historical range of some such species, because of the lack of suitable habitat either on site or in the surrounding agricultural landscape. Besides, no tree cutting is not required.

178. Mitigation measures include: Trees that are to be preserved should be clearly marked prior to clearing, and protected by fencing throughout the construction process to prevent close operation of heavy equipment, excavation in the dense root zone, and placement of materials stockpiles on roots and against trunks. The area should be thoroughly fenced off to prevent storage of materials or equipment). Temporary fencing should be installed around standing water areas to reinforce the prohibition. Where runoff from active work areas is directed to ponds, silt curtains and temporary sediment traps should be used to limit siltation.

11) Water Pollution

179. Construction activity involving excavation and earthworks inevitably exposes loose soil to the elements. If soils and stockpiles of erodible materials are inadequately protected from rain and surface runoff, sediment will make its way to local surface waters, and the result will be siltation and sedimentation. These processes will degrade the quality of local waters as habitat for aquatic species, and also lead to clogging of channels and culverts with sediment. If not properly controlled, process water from concrete mixing and pouring can also carry large amounts of fine silt to local waterways.

180. Construction camps are a common source of surface water contamination, as toilet facilities are typically rudimentary and likely to leak raw or virtually untreated effluent. This may significantly exacerbate existing surface water quality problems, which are prevalent in most areas of Bangladesh.

181. Mitigation measures include:

- Protecting disturbed soil from rain by keeping exposed areas covered with mulches, fiber mats and other temporary coverings;
- Keeping all stockpiles of erodible materials covered with tarpaulins whenever they are not in active use;
- Arranging construction site drainage so surface runoff is directed away from exposed soils and materials stockpiles;
- Installing and regularly maintaining sediment traps in site runoff channels;
- Strictly requiring use of drip mats during refueling and equipment repairs and servicing;
- Maintaining a regimen of systematic daily checks of all motorized equipment and tanks to detect leaks, so they can be promptly repaired; and
- Training all workers involved in refueling, equipment servicing and moving containers in proper spill prevention and response.

12) Soil Pollution

182. The chief threat to soils during construction is erosion, especially during extreme rainfall events and flash floods. Valuable topsoil may be lost to nearby surface water bodies if not properly protected from rain and overland flow. The BCP sites are quite flat, so the risk of serious erosion problems here is not especially high.

183. Mitigation Measures: As discussed above in relation to water quality, soil erosion can be greatly minimized by ensuring that areas of soil not protected by vegetation are kept covered with mulches, fiber mats and other protective coverings like semi-permeable fabrics. Topsoil should be removed prior to major earthworks and stored separately, for use in reinstatement of the site. The soil surface should be promptly reinstated and revegetated as soon as construction work has been completed in each area of the work site, rather than all reinstatement taking place at once as the last step in the construction process.

13) Traffic Safety

184. Increased traffic use of narrow access road by construction vehicle will affect the movement of normal road traffics and the safety of the road users specially the students.

185. Mitigation Measures include-

- The contractor should prepare proper Traffic Management Plan (TMP) during starting of construction & follow it strictly;
- In this TMP, the road safety measures such as speed breakers, warning signs/lights, road safety signs, flagman etc. should be included to ensure uninterrupted traffic;
- Movement specially at nearby the educational (Schools, colleges, Madrasha etc.), community infrastructure (mosques, graveyards, Prayer Ground etc.) and health complex;
- In addition, BRTA traffic rules and regulations should be strictly followed;
- Divert traffic to follow alternative routes to avoid traffic jams;

- All construction drivers will undergo Defensive Driving training and talking with mobile phones during driving will be forbidden.

14) Public Safety

186. Public safety—especially the safety of women and girls—can also be threatened by operation of construction camps in proximity to local settlements, especially when camps house many non-local workers who may feel unencumbered by the norms and mores of their faraway home communities. Camps may become a locus for prostitution, and the violence that often accompanies it. Sometimes, local resentment over the hiring of non-local workers, perhaps exacerbated by cultural misunderstanding or racial and religious animus, can lead to violent conflict between resident workers and local people.

187. Mitigation Measures: The best means of limiting construction camp-related public safety impacts is to avoid the need for camps at all by hiring only local workers. The town of Akhaura is large and nearby the BCP, so this should be quite feasible. If a camp must be established, resident workers should be given awareness training, and subject to strict controls on off-site travel and behavior. The contractor responsible for the camp should work proactively with local community leaders—including female leaders—to monitor interaction between the resident worker population and the local public, and promptly address emerging problems such as prostitution and bad worker behavior off-site. These measures should be included in the Construction Camp Management Plan, which will be appended to the CEMP.

15) Livelihoods

188. Construction activity typically affects livelihoods in a few ways. On the negative side, poor management of the construction site can lead to property damage in adjacent areas. Crops in nearby areas may get trampled by operation and parking of machinery without regard to the site boundary. This could be a concern at the Akhaura BCP, as it is surrounded by actively cultivated fields, but work near the site boundary will likely involve only rebuilding the boundary wall, so this is a minimal risk. Careless management of the construction process can also sometimes impair access to nearby businesses, leading to loss of revenue. At Akhaura BCP, the only businesses present are two duty-free shops between the customs post and the zero point; access to these businesses would only be seriously affected if construction were to completely close the road to cross-border traffic, which is not a realistic scenario. Construction activity can also have a strong positive impact for local communities if all or most workers are hired from amongst the local population.

189. Mitigation Measure: To maximize the positive impact of the construction process for the local community, the primary contractor and all subcontractors should be contractually obliged to give local workers first priority in hiring. Bringing in crews from other areas should only be permitted if the contractor can demonstrate that local workers are insufficient in number or do not possess the necessary skills and experience. As Akhaura is a sizable town, this seems unlikely to be a great hardship for the contractors.

c. Operation & Maintenance Phase

1) COVID Waste Management

190. COVID waste will pose serious health hazards and can spread the contagion among medical centre staff, waste handlers and the community. Prepare medical waste management plan that will cover the waste generated from the response to the COVID-19 infection. The plan will follow ADB's guidance note on managing medical waste during COVID-19 pandemic as well as any other government regulations. All the medical wastes will be carried to the nearest hospital under the supervision of designated Civil Surgeon/UHFPO.

- All medical waste produced during the care of COVID-19 patients must be considered as infectious waste and should be segregated and collected safely in designated colored coded containers.

- Use of colored bins (like yellow) and to put Covid wastes in 2-3 layered plastic bag. These wastes need to disinfectant first using chlorine or any other germicides and then safely transport them through marked vehicles in a marked place.
- Waste segregation, packaging, collection, storage disposal, and transport will be conducted in compliance with WHO COVID-19 Guidelines.
- Train the staffs on color coding and handling of infectious Covid wastes.

2) Medical Waste Management

191. Poor management of medical waste exposes healthcare workers, waste handlers and the community to infections, toxic effects, and injuries. Soil, water, and air pollution from the improper management of wastes generated from the facility.

192. Mitigation measures include:

- Provision of color coded, covered receptacles in strategic positions of the facility for separate categories of waste and regular cleaning of waste bins. Labels showing the type of waste that should be disposed of in each container should be placed near to the bins to guide staff and reinforce good habits.
- Medical wastes generated in the medical centre will be treated by in-house facility and then these treated wastes will be disposed of as per a pre-determined SOP in accordance with international good practices. Transport the medical waste in a biohazard bag with covered vehicle. The records of waste disposal will be maintained as proof for proper management as designed.
- Ensure necessary Personal Protective Equipment (PPE) (gown, gloves, face mask, goggles or face shield, gumboots) is provided to all staffs, as required and ensure them to wear PPE when handling and disposing waste according to national and WHO guideline.
- Do not burn the wastes openly or throw into water bodies or do not dispose on soil.
- Audit for any off-site waste disposal will be required on a monthly basis and institute any remedial measures required to ensure compliance.

3) Hazards due to Substation and Generator

193. Noise and vibration may have an impact on medical centre staff, doctors, patients and their relatives. Accidental spillage of oil and toxic coolants that would contaminate land and water. Risk of fire and electrocution hazards from substation.

194. Mitigation measures include:

- Develop an Emergency Response Plan (Appendix 11) and follow strictly during emergency incident. Have provision to use canopy to absorb 0.7 dB to 0.8dB of noise.
- Periodic maintenance of equipment such as transformers and capacitors to minimize noise generation.
- Provision of oil-water separator and oil containment structure.
- Substation room will be entry restricted and security staff assigned to prevent unauthorized public access. Place warning signs at substation and generator room.
- Ensure firefighting arrangement such as fire extinguishers, fire alarms etc. in the substation site.
- Use of PPE, proper training, awareness, keeping safe distance from hazardous points, maintaining safety of high switchyard and cable gallery.

4) Occupational Health and Safety including COVID H&S

195. Needle-sticks, surgical cuts, and other injuries posing transmission risk of blood-borne diseases such as COVID-19, Hepatitis C, HIV-AIDS, etc. Dermatitis and allergic reactions due to workplace exposures. Prepare a health and safety guidance for COVID-19 and strictly follow the guidance at the facility. Refer to IFC EHS Guidelines for Healthcare Facilities (2007) and relevant national guidelines and protocols. Implement suitable safety standards for all workers and facility visitors. Mandatory use of personal protective equipment and safety gears, where required. Arrangements for safe drinking water

and sanitation facilities. Provide regular Occupational Health and Safety (OHS) training to healthcare workers. Provide incentives to staff and create a work-life balance in work schedule.

5) Accidental Releases of Gas and Fluids

196. Leakage of infectious or hazardous substances may pose serious health hazards and can spread the contagion among medical centre staff and patients, cleaners etc.

197. Mitigation measures include:

- Develop an Emergency Response Plan and follow strictly during emergency incident.
- Emergency preparedness and response procedures and equipment (warning signs, fire extinguishers, fire exit etc.).
- Wear disposable gloves and, if aerosols are formed, glasses and a respirator for particles.
- Cover the contaminated area with a disinfectant in a concentric way, starting at the edge and progressing towards the center of the contamination.
- Avoid spraying or pouring the disinfectant from above, which can cause aerosols.
- Mop up and dispose of all waste and contaminated material in the appropriate container (infectious waste).
- Conduct monthly safety audit of facility to identify fire risks, electrocution hazards and other unsafe conditions, and assess adequacy of fire extinguishers and first aid provisions.

198. A summary of potential environmental impacts and their significance are presented in the below table.

Table VI.4: Potential Environmental Impacts and their Significance

Potential Impacts	Duration of Impact	Spatial Extent	Reversible or not	Likelihood	Magnitude	Sensitivity	Significance after Mitigation
<u>Impacts related to Planning and Design</u>							
Landscape and existing utilities	Long term	Local	No	Certain	Low	Low	Low
Material sourcing	Long term	Local but beyond project footprint	Yes	Likely	Moderate	Moderate	Low
Natural calamities	Long term	Local but beyond project footprint	Yes	Likely	Moderate	Moderate	Low
<u>Impacts during Construction Phase</u>							
Waste Management for construction and COVID-19 related waste	Long term	Local	Yes	Certain	Moderate	Moderate	Moderate
Management of workers' Facility	Short term	Local	Yes	Likely	Moderate	Moderate	Low
Drinking water quality	Long term	Local but beyond project footprint	No	Certain	Moderate	Moderate	Low to moderate
Drainage congestion	Short term	Local	Yes	Certain	Moderate	Low	Low
Noise and vibration	Short term	Local	Yes	Likely	Moderate	Moderate	Low
Air pollution	Short term	Local	Yes	Certain	Moderate	Moderate	Moderate
Occupational health and safety	Short term	Local	Yes	Certain	Moderate	Moderate	Low to moderate
Community health and safety	Short term	Local	Yes	Certain	Moderate	Moderate	Low to moderate
Water pollution	Long term	Local but beyond project footprint	No	Certain	Moderate	Moderate	Low to moderate
Site reinstatement	Long term	Local but beyond project footprint	No	Certain	Moderate	Moderate	Low to moderate
Earth excavation	Long term	Local	No	Certain	Moderate	Moderate	Low to moderate
Flora and fauna	Long term	Local but beyond project footprint	No	Certain	Moderate	Moderate	Low to moderate
Soil pollution	Long term	Local but beyond project footprint	No	Certain	Moderate	Moderate	Low to moderate
Traffic safety	Long term	Local but beyond project footprint	No	Certain	Moderate	Moderate	Low to moderate
Public safety	Long term	Local but beyond project footprint	No	Certain	Moderate	Moderate	Moderate
Livelihoods	Long term	Local but beyond project footprint	No	Certain	Moderate	Moderate	Moderate

Potential Impacts	Duration of Impact	Spatial Extent	Reversible or not	Likelihood	Magnitude	Sensitivity	Significance after Mitigation
<u>Impacts during Operation and Maintenance Phase</u>							
COVID waste management	Long term	Local	Yes	Certain	Moderate	Moderate	Low
Medical waste management	Long term	Local	Yes	Certain	Moderate	Moderate	Low
Hazards from substation and generator	Long term	Local	Yes	Certain	Moderate	Moderate	Low
Occupational Health and Safety including COVID H&S	Long term	Local	Yes	Likely	Moderate	Moderate	Moderate
Accidental releases of gas and fluids	Long term	Local	Yes	Likely	Moderate	Moderate	Moderate

VII. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

A. Purpose of Public Participation

199. The development and construction of any project will impact on the surrounding human and physical environment and will have beneficial or adverse effects. It is therefore essential that the community can fully understand the project, have the opportunity to express their views and to become directly involved in the project's overall decision-making process.

200. Public authority developers must take account of the community's views and include any useful suggestions to improve the project. This may include suggestions to help further develop environmental protection measures thereby reducing environmental pollution, reducing the loss of environmental resources and improve the project's environmental and social benefits, thus helping achieve more sustainable development.

201. In accordance with the requirements of the ADB as defined in the SPS 2009, the "borrower will carry out meaningful consultation with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation" The following activities have therefore been carried out in his project in accordance with the ADB requirements.

B. Consultation during Detailed Design Phase

202. The public participation process included (i) identifying interested and affected parties (stakeholders); (ii) informing and providing the stakeholders with sufficient background and technical information regarding the proposed development; (iii) creating opportunities and mechanisms whereby they can participate and raise their viewpoints (issues, comments, and concerns) with regard to the proposed development; (iv) giving the stakeholders feedback on process findings and recommendations; and (v) ensuring compliance to process requirements with regards to the environmental and related legislation.

a. Methodology for Stakeholder Identification

203. Being the regulatory agency, the Health Services Division (HSD) under the Ministry of Health and Family Welfare sent letter of site visits including stakeholders consultation to Bangladesh Land port Authority. The BLPA local officials arranged a meeting by gathering the relevant stakeholders such as religious leaders, farmers whose lands border the alignment, local business association, transport workers, etc. An attendance sheet of each consultation meeting has been filled-in, and minutes of the meetings were recorded and summarized according to a prescribed format.

b. Public Consultation Approaches

204. Public Consultation and Stakeholder engagement is an integral part of IEE where Focus Group Discussion (FGD) was conducted.

1) Focus Group Discussion (FGD)

205. The FGD program for the project is based on the informed consultation and participation with the affected people and designed to be both fair and inclusive. Considering the nature and volume of the project, 01 FGD was arranged on 26th December 2022 inside the Location with a total stakeholder of BLPA Officials, affected people, businessmen, local elites, etc. The stakeholders were made aware about the impact of the project with project information being disclosed in a presentation. This presentation included an introduction of the project, presentation of the project area maps, and drawings as well as an implementation timetable. To maximize exposure and participation in the meeting, different techniques like prior communication with the participants, potentially affected people and different level of stakeholders were informed verbally. Each of the participants availed the opportunity to take part in the discussion and gave their opinion about the project. The participants were asked to comment on the

measures to be taken for the project, point out errors or omit and suggest any enhancements. The participants were also advised of the grievance redress process and how to file complaints on the schedule for the completion, approval and implementation of the IEE, and how they could contribute further. The Consultant team drafted meeting minutes, collected attendance sheet, pictures and documented them properly. The Meeting Minute is presented in the Appendix 6 and the list of participants along with details of date, time, and location is given in Appendix 7. The environmental concerns and suggestions made by the participants were listed, and discussed, and suggestions accordingly incorporated in the EMP. These include speedy construction works to ensure low impacts to community during road closures and local employment.

c. Summary of Consultations Outcome

206. As the project will certainly have positive impact over the community on large scale the consultation outcome is quite positive, and the participants are hopeful for the successful implementation of this project. The summary is described in the following Table VII.1.

Table VII.1: Summary of Focused Group Discussion (FGD) with Local People

SL. No.	Date and time	Location of meetings	Total Participants	Response by Participants	Response by the DGHS	Major Issue Raised
1	26 December 2022 01:00 pm	Akhaura Land Port, Brahmanbaria	14	<ul style="list-style-type: none"> ➤ There were 14 participants who expressed their thoughts to the consultants. ➤ Mr. Kabiruzzaman (BLPA's Representative) expressed gratitude for the project and stated that the medical centres could bring the medical treatments closer and less time consuming and even greatly contribute to saving lives of the people coming to the land port. ➤ Mr. Selim (Businessman) expressed that people would be benefited due to the Establishment of Medical Centres. ➤ Mr. Md. Zakir Hossen (Govt. Service Holder) mentioned employment opportunity would be higher to the community etc. 	The Project team thanked the participants for their valuable responses and ensured that the project will be initiated as fast as possible to capacitate medical facilities in the land port.	<ul style="list-style-type: none"> • The project should be finished during the proposed time schedule. • Local Labors should be prioritized when construction work ahead. • The stakeholders want clean and safe construction site during project work. • The stakeholders and other participants greatly hope that they will ultimately get benefitted from the project.



Figure VII.1: Public Consultation at Akhaura Land Port

C. Consultation during Construction Phase

207. Public meetings with affected communities to discuss and plan work programs and allow issues to be raised and addressed once construction has started. Smaller-scale meetings to discuss and plan construction work with individual communities to reduce disturbance and other impacts and provide a mechanism through which stakeholders can participate in sub-project monitoring and evaluation.

D. Sub-project Disclosure

208. For the benefit of the community, the summary of the IEE will be discussed with the local people prior to the construction and consultations during construction period for their information of the sub-project activities. It will be ensured that the hard copies of IEE are kept at places which are conveniently accessible to people, as a means to disclose the document and at the same time creating wider public awareness. An electronic version of the IEE will be placed in the official website of executing and implementing agencies and the ADB website after approval of the IEE by ADB. In addition to the above the below actions also could be taken as disclosure of the information.

- i. Public information campaigns (via newspaper, flyers, banners, and poster) to explain the sub-project to the wider city population and prepare them for disruption they may experience once the construction programme is underway;
- ii. Public disclosure meetings at key sub-project stages to inform the public of progress, future plans and to provide copies of summary documents in local language;
- iii. Formal disclosure of completed sub-project reports by making copies available at convenient locations in the study areas and informing the public of their availability, and
- iv. Providing a mechanism through which comments can be made.

209. A project-specific grievance redress mechanism (GRM) will be established to receive, evaluate, and facilitate the resolution of AP's concerns, complaints, and grievances about the social and environmental performance at the level of the project. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project.

VIII. GRIEVANCE REDRESS MECHANISM

A. General

210. The grievance redress mechanism (GRM) is a process of handling complaints that is understandable, transparent, gender-responsive, culturally appropriate, and easily accessible to affected persons without cost and retribution. The Grievance Redress Mechanism (GRM) shall resolve complaints in a time-bound and transparent manner. MOHFW will ensure that affected persons will have the chance to express their legitimate grievances or to file a complaint about the project by setting up a GRM as soon as the loan becomes effective. The GRM process will be aligned with the process adopted by MOHFW; however, compliance with the policy principles of ADB SPS 2009 will be ensured. The GRM will be reviewed in consultation with MOHFW and DGHS and finalized before the effectiveness.

B. Objectives

211. The GRM aims to resolve complaints in a time-bound and transparent manner. MOHFW will ensure that: (i) all complaints are registered, investigated, and resolved in a manner consistent with the requirements of SPS 2009 and the government; (ii) the complainants are kept informed on the status of their concerns and the resolutions available to them; and (iii) adequate staff and resources will be made available to implement the GRM.

C. Filing a Complaint

212. Affected persons can submit a complaint either verbally or in written form. Verbal complaints can be submitted through a phone call, walk-in or in person while written complaints can be posted through mail/letter, comments/suggestions drop-box, MOHFW website, email, or fax. However, due to the restrictions of face-to-face communication because of the COVID-19 outbreak, complaint submission in written format or through phone calls will be recommended.

213. DGHS has a web-based, text message-based, and phone-based platform for citizen engagement that can be used as a complementary way of submitting a complaint; its link is MOHFW will designate a staff as the GRM Focal Person.

D. Structure

214. The grievance redress mechanism will be under the responsibility of the Project Implementation Committee (PIC) under the chairmanship of DG, DGHS. MOHFW and DGHS will ensure the representation of women in the committee.

E. Levels of Grievance Redress

215. The complainant is not restricted to seek redress through the legal system at any point in the GRM process. Complainants or affected persons can seek redress to their complaints in three levels (see figure VI.1).

(i) Level 1 – Activity/Intervention level

216. The complaint will be resolved at the activity level through the Site Engineer or Representative by the Contractor within one to two working days and advise the Complainant accordingly. The GRM Focal Person will record the resolution of the grievance. If the Complainant is not satisfied with the resolution, the grievance will be elevated to Level 2.

(ii) Level 2 – PIU level through the PIC

217. The GRM Focal Person will assist the complainant in elevating the complaint to the PIU. The PIU will address the grievance within 7 days through continuous interactions with the complainant to answer queries and resolve the complaint. If the complainant is not satisfied with the resolution, the grievance will be elevated to Level 3.

(iii) Level 3 –ADB

218. In the event the complainant is not satisfied with the decision after the GRM, the Complainant can access the ADB’s Accountability Mechanism (ADB’s Office of Special Project Facility or Office of Compliance Review).²³ ADB’s Accountability Mechanism, including information on how to file a complaint, will be explained to the affected persons during consultations.

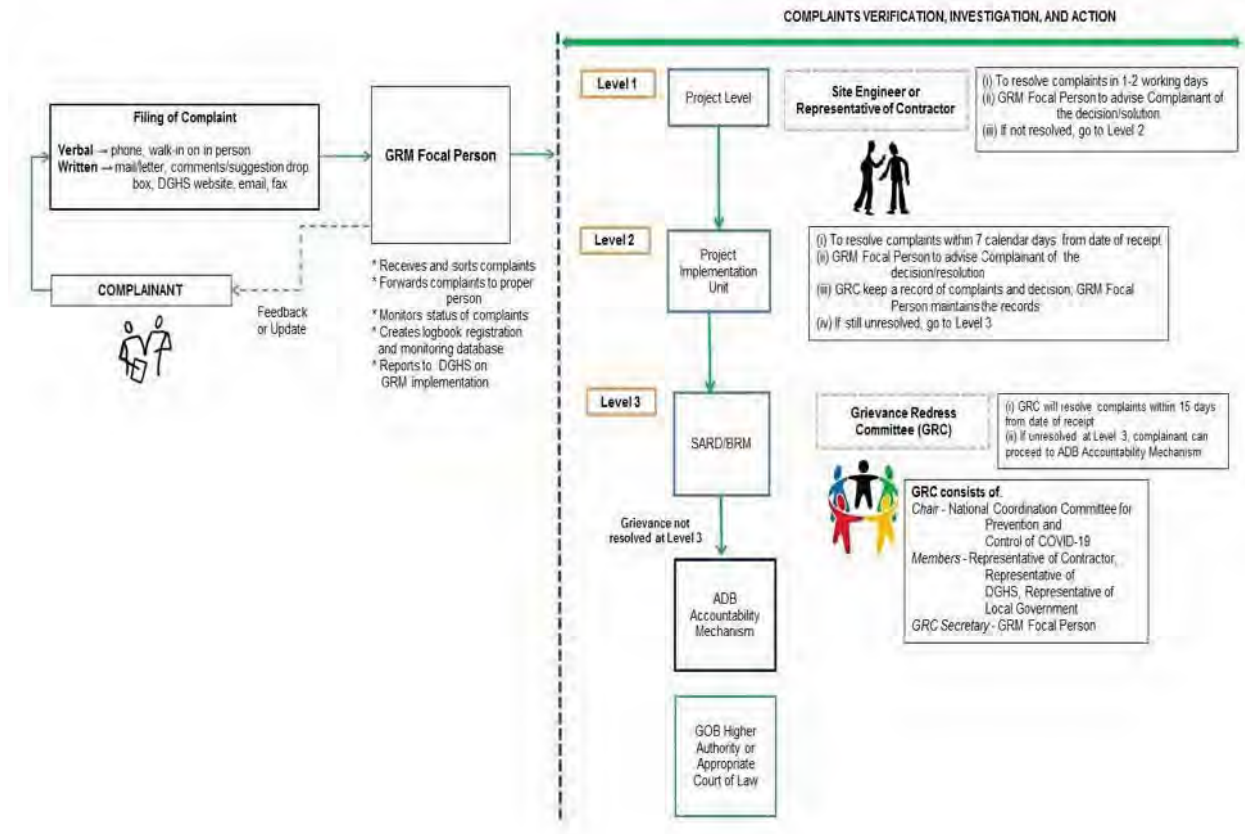


Figure VIII.1: Project Grievance Redress Mechanism

F. Recordkeeping

219. Records of all grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions, and the date these were affected and outcome will be kept by PIU. The number of grievances recorded and resolved, and the outcomes will be displayed/disclosed in the PIU office, and on the web, as well as reported in monitoring reports submitted to ADB on a semi-annual basis.

G. Costs

220. All costs involved in resolving the complaints (meetings, consultations, communication, and reporting/information dissemination) will be borne by the PIU.

²³ Contact information on ADB’s Bangladesh Mission is in <https://www.adb.org/countries/bangladesh/main>. Information on ADB’s Accountability Mechanism is in www.adb.org/site/accountability-mechanism/main.

IX. ENVIRONMENTAL MANAGEMENT PLAN

A. Objectives of the EMP

221. The purpose of the environmental management plan (EMP) is to ensure that the activities are undertaken in a responsible, non-detrimental manner with the objectives of: (i) providing a proactive, feasible, and practical working tool to enable the measurement and monitoring of environmental performance on-site; (ii) guiding and controlling the implementation of findings and recommendations of the environmental assessment conducted for the project; (iii) detailing specific actions deemed necessary to assist in mitigating the environmental impact of the subproject; and (iv) ensuring that safety recommendations are complied with.

222. A copy of the EMP must be kept on work sites at all times. This EMP is included in the bid documents and will be further reviewed and updated during implementation. The EMP will be made binding on all contractors operating on the site and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

223. For civil works, the contractor will be required to (i) establish an operational system for managing environmental impacts (ii) carry out all of the monitoring and mitigation measures set forth in the EMP; and (iii) implement any corrective or preventative actions set out in safeguards monitoring reports that the employer will prepare from time to time to monitor implementation of this IEE and EMP. The contractor shall allocate a budget for compliance with these EMP measures, requirements, and actions.

B. EMP – Mitigation and Monitoring Measures

224. Mitigation measures for each of the impacts listed in the Table IX.1 in accordance with the Chapter VI. Responsible institutions/departments for the implementation and supervision of each of the environmental issues have also been illustrated. Mitigation measures have been suggested based on the knowledge of the Environmental Specialist, suggestions of the stakeholders collected during consultation, and opinions from other relevant specialists.

225. The mitigation measures will be considered successful when comply with the Environmental Quality Standards (EQS), policies, legal requirements set by DoE and other relevant GoB organizations. In absence of DoE's own EQS, international good practice standard standards/regulations such as the World Bank Group's Environment, Health, and Safety guideline will be applied or whichever is more stringent.

226. The monitoring plan is one of the important tools of the implementing the mitigation plan for the proposed medical centre sub-project. The monitoring plan provides guidance regarding environmental issues/parameters, location, frequency and means of monitoring.

227. The aim of environmental monitoring during the pre-construction, construction, after completion of work and operation phases of the project medical centre is to compare the monitored data against the baseline condition collected during the study period (particularly during the detailed design stage) to assess the effectiveness of the mitigation measures and the protection of environmental components (e.g. air, water, soil, noise etc.) based on the national environmental standards (e.g. ECR 1997). Since the project is likely to have impact on various components of the environment, a comprehensive monitoring plan covering, drainage congestion, air quality, water quality, noise, workers' and community health and safety and so on need to be developed. However, the contractor shall prepare a site-specific environmental management plan (SEMP) and will need to be approved from the PIU prior to the commencement of the project construction activities.

Table IX.1: Environmental Management Plan (Mitigation & Monitoring)

IEC	Potential Impact	Mitigation Measures	Monitoring Method		Responsibility	
			Method of Collecting and Reporting Data	Location and Frequency	Implementation	Supervision
PRE-CONSTRUCTION PHASE						
Obtaining of SSC/NOCs/ECC	<ul style="list-style-type: none"> Failure to obtain necessary consents, permits, NOC's can result in design revisions and/or stoppage of the Works 	<ul style="list-style-type: none"> The proposed medical centre will be constructed in BLPA own empty land, and it is within the boundary of its administrative area. The BLPA has already issued a NOC to the DGHS/Project to construct the facility. 	<ul style="list-style-type: none"> Record of NOC 	Before design confirmation	PIU	DGHS
CEMP Verification	<ul style="list-style-type: none"> Mitigation will be inadequate if the CEMP is not fully specified 	<ul style="list-style-type: none"> Review CEMP to ensure all primary contractor responsibilities are fully reflected, including monitoring and reporting 	<ul style="list-style-type: none"> Approval of CEMP 	Before construction	PIU/ES	DGHS
Sources of Materials	<ul style="list-style-type: none"> Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution. 	<ul style="list-style-type: none"> Prepare list of approved quarry sites and sources of materials Select authorized supplier prior to sourcing the materials Sand/silt material that only quarries duly licensed by the authorized government agencies will be considered as sources of construction material for the project. Illegal quarries and hill cutting is not permitted at all. 	<ul style="list-style-type: none"> Approval of the supplier 	Before construction	PIU/ES	DGHS
EMP Implementation Training	<ul style="list-style-type: none"> Irreversible impact to the environment, contractor representative/workers, PWD/PIU officials 	<ul style="list-style-type: none"> Training will be required to undergo EMP implementation including waste management, Standard operating procedures (SOP) for construction works; health and safety (H&S), core labor laws, applicable environmental laws, etc. 	<ul style="list-style-type: none"> Record of training 	Before construction	PIU/ES	DGHS
CONSTRUCTION PHASE						
Waste Management for Construction and COVID Waste	<ul style="list-style-type: none"> Soil, water, and air pollution from the improper management of wastes and excess materials from the construction sites. The discarded PPE has posed serious health hazards and can spread the contagion among cleaners and walkers. 	<ul style="list-style-type: none"> Develop a waste management plan including COVID waste by the help of the environmental consultant and later to update the plan, if required. Use of colored bins (like yellow) and to put medical wastes in 2-3 layered plastic bag. These wastes need to disinfectant first using chlorine or any other germicides and then safely transport them through marked vehicles in a marked place. Waste segregation, packaging, collection, storage disposal, and transport will be conducted in compliance with GOB, ADB and WHO COVID-19 Guidelines. Train on correct use and disposal of PPEs and check that they understand. Construction wastes (such as piece of rod, wood, bamboo, tin sheet, brick etc.) shall be kept in designated area and sprayed water mist to reduce the dust. Use PPE for staff handling any hazardous materials seepage of hazardous chemicals in case of any accidental spills. Do not burn/throw in any wastes to the water bodies/drains. The PIU will audit any off-site waste disposal required on a monthly basis and institute any remedial measures required to ensure compliance. Waste management plan has been attached in the appendix stating specific mitigation measures for domestic and sanitary wastes disposal in a manner that will not cause soil and water contamination 	<ul style="list-style-type: none"> Record of waste type and quantity and the disposal method 	Construction camp and work sites during construction period	Contractor	PIU and Environmental Consultant (ES)
Management of Workers Facility	<ul style="list-style-type: none"> Lack of proper facilities such as water supply and sanitation 	<ul style="list-style-type: none"> Ensure sufficient stock of soap, sanitizer, washing facility and safe water at work site. Also, provision of an appropriate number of toilets and hand-washing points. 	<ul style="list-style-type: none"> Visual inspection & consultation with worker; 	Construction camp site	Contractor	PIU and ES

IEC	Potential Impact	Mitigation Measures	Monitoring Method		Responsibility	
			Method of Collecting and Reporting Data	Location and Frequency	Implementation	Supervision
	facilities may pose health hazards to workers.	<ul style="list-style-type: none"> At the entrance of the worksite every personnel must wash their hands for 20 second with maintaining a distance of at least 6ft from each other. Check the availability of medical kits at the site on weekly basis. Preparation of daily routine checkup including temperature screenings of the workers and staff. 	<ul style="list-style-type: none"> Health checkup record. 	during construction period		
Drinking Water Quality	<ul style="list-style-type: none"> Groundwater at shallow depths may be contaminated with arsenic and other parameters and hence not suitable for drinking purposes. 	<ul style="list-style-type: none"> Provide the drinking water that meets national standards. Select aquifers for drinking water free from arsenic and other contaminants. Tube wells will be installed with due regard for surface environment, protection of groundwater from surface contaminants, and protection of aquifer cross contamination. Sanitary waste should be adequately disposed-off to avoid groundwater contamination. 	<ul style="list-style-type: none"> Record of water-borne diseases 	Regular monitoring the drinking water source during construction period	Contractor	PIU and ES
Drainage Congestion	<ul style="list-style-type: none"> Waterlogging due to improper management of drainage for rainwater/liquid waste or wastewater. 	<ul style="list-style-type: none"> Regularly inspect and maintain all drains to assess and alleviate any drainage congestion problem. Stockpile materials away from drainage lines. Reconstruct internal road-side drains immediately if damaged by any activities. 	<ul style="list-style-type: none"> Visual inspection & consultation with BLPA staff, visitors and local people. 	In the project area during construction period	Contractor	PIU and ES
Dust/Air Quality Management	<ul style="list-style-type: none"> Dust generation from construction sites, material stockpiles specially earth material stockpiles and access roads are a nuisance in the environment and can be a health hazard. 	<ul style="list-style-type: none"> During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site. Water spraying the material stockpiles and access roads when and as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (especially during the dry period and high winds). Cover haul vehicles carrying dusty materials moving outside the construction site. Fit machinery/vehicles with appropriate exhaust systems and emission control devices. Provision for a daily dust control log sheet that will be monitored by PIU which will be reported in semi-annual monitoring report 	<ul style="list-style-type: none"> Visual inspection & consultation with BLPA staff, and local people 	On the worksite Weekly monitoring during construction period	Contractor	PIU and ES
Noise and Vibration Management	<ul style="list-style-type: none"> Noise may have an impact on workers, patients, medical centre staffs, local residents etc. 	<ul style="list-style-type: none"> Appropriately site all noise generating activities to avoid noise pollution to workers, immigrants, BLPA and other officials and local residents etc. Install temporary noise barriers by screen, tin, wood around generators to reduce noise levels. Employ best available work practices on-site to minimize occupational noise levels. Use ear plugs in noisy areas of the construction activities. Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. 	<ul style="list-style-type: none"> Visual inspection & consultation with BLPA staff, and local people 	On the worksite Weekly monitoring during construction period	Contractor	PIU and ES
Occupational Health and Safety (OHS)	<ul style="list-style-type: none"> Construction works may pose health and safety risks to construction workers that may cause severe injuries and deaths. Lack of first aid and health care facilities in the immediate vicinity. Health risk of construction workers due to COVID-19. 	<ul style="list-style-type: none"> Prepare the health and safety guidance for COVID-19 at work sites and get approval from PIU, and strictly follow the guidance at worksite; Develop and implement an Occupational Health and Safety Plan to ensure competent and consistent attention to worker health and safety throughout the construction phase. Any worker showing symptoms of respiratory illness (fever, cold or cough) and has potentially been exposed to COVID-19 should be immediately removed from the site and tested for the virus at nearest laboratory; Workers involved for any short renovation activities at isolation area for COVID-19 will have WHO certified PPE and subsequently dispose the PPE in designated areas. 	<ul style="list-style-type: none"> Visual inspection & consultation with BLPA staff, and local people Record of accidents Obtain record of training Provision of regular temperature check, 	Contractor' site office and work site during construction	Contractor	PIU and ES

IEC	Potential Impact	Mitigation Measures	Monitoring Method		Responsibility	
			Method of Collecting and Reporting Data	Location and Frequency	Implementation	Supervision
		<ul style="list-style-type: none"> • Provide PPE to workers such as safety shoes, safety helmets, face masks, hand gloves, protective clothing, goggles, full face eye shields, and ear plugs and monitor to maintain them. • Ensure hand washing and other sanitary stations are always supplied with clean water, soap, and disinfectant; • Provide safety measures as appropriate during works such first aid kits, restricted access zones, warning signs, overhead protection against falling debris, lighting system to protect community, BLPA and other officials against construction risks. • Emergency preparedness and response procedures and equipment (warning signs, fire extinguishers, fire exit etc.). • Train all construction workers in OHS matters, and on the specific hazards of their work and maintain a register of the person present during the training. • Grievance Redress mechanism (GRM) developed to readdress complaints raised by community, port staff, immigrants, and visitors. 	using disinfectants and provision of time-to-time hand wash are required to limit the COVID-19 pandemic.			
Community Health and Safety	<ul style="list-style-type: none"> • Construction works will impede the access of visitors and officials in limited cases. The impacts are minor negative but short-term, site-specific within a relatively small area and reversible by mitigation measures. Poor safety signage and lack of barriers at work site and trenches will create hazard to the visitors and officials. 	<ul style="list-style-type: none"> • Provide safety signage at construction sites visible to public • Provide safety barriers near any trenches, and cover trenches with planks during non-work hours. • Contractor's activities and movement of staff will be restricted to designated construction areas. • Consult with local authority on the designated areas for stockpiling of, soils, gravel, and other construction materials. • If the contractor chooses to locate the work camp/storage area on private land, he must get prior permission from the environment specialist. • Recycling and the provision of separate waste receptacles for different types of waste shall be encouraged. • A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: (i) no alcohol/drugs on site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives (e.g. fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the site is forbidden; (vi) other than pre-approved security staff, no workers shall be permitted to live on the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that he/she is not trained to do. • Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the Environmental Safeguard Specialist's attention immediately; and (iv) taking remedial action as per specialist's instruction. 	<ul style="list-style-type: none"> • Provision of complaints register • Consultation with local people 	Work site during construction	Contractor	PIU and ES

IEC	Potential Impact	Mitigation Measures	Monitoring Method		Responsibility	
			Method of Collecting and Reporting Data	Location and Frequency	Implementation	Supervision
		<ul style="list-style-type: none"> The contractor shall immediately take the necessary remedial action on any complaint/grievance received by him and forward the details of the grievance along with the action taken to the environmental specialist within 48 hours of receipt of such complaint/grievance. 				
Site Reinstatement	<ul style="list-style-type: none"> Damage due to debris, spoils, excess construction materials. 	<ul style="list-style-type: none"> Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required. All disrupted utilities restored All affected structures rehabilitated/ compensated The construction camp is to be checked for spills of substances such as used container/water bottles, paint, etc. and these shall be cleaned up. All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and regressed using the guidelines set out in the re-vegetation specification that forms part of this document. The contractor must arrange the cancellation of all temporary services. Request PMU/PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work. No payment should be made if the site is not cleared. 	<ul style="list-style-type: none"> Visual inspection & consultation with local people 	At the end of construction period	Contractor	PIU and ES
Earth Excavation	<ul style="list-style-type: none"> Excavation of borrow pits will add to the destruction of flora. Dust generation will be occurred from earth excavation, earth & sand stockpiles during dry period. 	<ul style="list-style-type: none"> Water spray to the dry earth/material stockpiles, access roads and bare soils as and when required to minimize the potential for environmental nuisance due to dust. Contractors will be prohibited from opening new areas in local waterbody for extracting and/or sourcing sands, especially areas in local rivers that remain in relatively good natural conditions and areas that support fish of conservation importance. 	<ul style="list-style-type: none"> Visual inspection & consultation with local people 	Throughout the construction period	Contractor	PIU and ES
Flora and Fauna	<ul style="list-style-type: none"> Effects of construction work on species of conservation concern—and on local wildlife and habitats in general 	<ul style="list-style-type: none"> Temporary fencing should be installed around standing water areas to reinforce the prohibition. Where runoff from active work areas is directed to ponds, silt curtains and temporary sediment traps should be used to limit siltation. 	<ul style="list-style-type: none"> Visual inspection & consultation with local people 	Throughout the construction period	Contractor	PIU and ES
Water Pollution	<ul style="list-style-type: none"> Construction activity involving excavation and earthworks inevitably exposes loose soil to the elements. Construction camps are a common source of surface water contamination, as toilet facilities are typically rudimentary and likely to leak raw or virtually untreated effluent. This may significantly exacerbate existing surface water quality problems, which are prevalent in most areas of Bangladesh 	<ul style="list-style-type: none"> Protecting disturbed soil from rain by keeping exposed areas covered with mulches, fiber mats and other temporary coverings; Keeping all stockpiles of erodible materials covered with tarpaulins whenever they are not in active use; Arranging construction site drainage so surface runoff is directed away from exposed soils and materials stockpiles; Installing and regularly maintaining sediment traps in site runoff channels; Strictly requiring use of drip mats during refueling and equipment repairs and servicing; Maintaining a regimen of systematic daily checks of all motorized equipment and tanks to detect leaks, so they can be promptly repaired; and Training all workers involved in refueling, equipment servicing and moving containers in proper spill prevention and response. 	<ul style="list-style-type: none"> Visual inspection & consultation with local people 	Throughout the construction period	Contractor	PIU and ES

IEC	Potential Impact	Mitigation Measures	Monitoring Method		Responsibility	
			Method of Collecting and Reporting Data	Location and Frequency	Implementation	Supervision
Soil Pollution	<ul style="list-style-type: none"> The chief threat to soils during construction is erosion, especially during extreme rainfall events and flash floods. Valuable topsoil may be lost to nearby surface water bodies if not properly protected from rain and overland flow. The BCP sites are quite flat, so the risk of serious erosion problems here is not especially high. 	<ul style="list-style-type: none"> Topsoil should be removed prior to major earthworks and stored separately, for use in reinstatement of the site. The soil surface should be promptly reinstated and revegetated as soon as construction work has been completed in each area of the work site, rather than all reinstatement taking place at once as the last step in the construction process. 	<ul style="list-style-type: none"> Visual inspection & consultation with local people 	Throughout the construction period	Contractor	PIU and ES
Traffic Safety	<ul style="list-style-type: none"> Increased traffic use of narrow access road by construction vehicle will affect the movement of normal road traffics and the safety of the road users specially the students. 	<ul style="list-style-type: none"> The contractor should prepare proper Traffic Management Plan (TMP) during starting of construction & follow it strictly; In this TMP, the road safety measures such as speed breakers, warning signs/lights, road safety signs, flagman etc. should be included to ensure uninterrupted traffic; Movement specially at nearby the educational (Schools, colleges, Madrasha etc.), community infrastructure (mosques, graveyards, Prayer Ground etc.) and health complex; In addition, BRTA traffic rules and regulations should be strictly followed; Divert traffic to follow alternative routes to avoid traffic jams; All construction drivers will undergo Defensive Driving training and talking with mobile phones during driving will be forbidden. 	<ul style="list-style-type: none"> Visual inspection & consultation with local people 	Throughout the construction period	Contractor	PIU and ES
Public Safety	<ul style="list-style-type: none"> Public safety—especially the safety of women and girls—can also be threatened by operation of construction camps in proximity to local settlements, especially when camps house many non-local workers who may feel unencumbered by the norms and mores of their faraway home communities. Camps may become a locus for prostitution, and the violence that often accompanies it. Sometimes, local resentment over the hiring of non-local workers, perhaps exacerbated by cultural misunderstanding or racial and religious animus, can lead to violent conflict between resident workers and local people. 	<ul style="list-style-type: none"> The best means of limiting construction camp-related public safety impacts is to avoid the need for camps at all by hiring only local workers. The town of Akhaura is large and nearby the BCP, so this should be quite feasible. If a camp must be established, resident workers should be given awareness training, and subject to strict controls on off-site travel and behavior. The contractor responsible for the camp should work proactively with local community leaders—including female leaders—to monitor interaction between the resident worker population and the local public, and promptly address emerging problems such as prostitution and bad worker behavior off-site. These measures should be included in the Construction Camp Management Plan, which will be appended to the CEMP. 	<ul style="list-style-type: none"> Visual inspection & consultation with local people 	Throughout the construction period	Contractor	PIU and ES
Livelihoods	<ul style="list-style-type: none"> Construction activity typically affects livelihoods in a few ways. On the negative side, poor 	<ul style="list-style-type: none"> To maximize the positive impact of the construction process for the local community, the primary contractor and all subcontractors should be contractually obliged to give local workers first priority in hiring. Bringing in crews from other areas should only be 	<ul style="list-style-type: none"> Visual inspection & consultation with local people 	Throughout the construction period	Contractor	PIU and ES

IEC	Potential Impact	Mitigation Measures	Monitoring Method		Responsibility	
			Method of Collecting and Reporting Data	Location and Frequency	Implementation	Supervision
	management of the construction site can lead to property damage in adjacent areas. Crops in nearby areas may get trampled by operation and parking of machinery without regard to the site boundary. This could be a concern at the Akhaura BCP, as it is surrounded by actively cultivated fields, but work near the site boundary will likely involve only rebuilding the boundary wall, so this is a minimal risk.	permitted if the contractor can demonstrate that local workers are insufficient in number or do not possess the necessary skills and experience. As Akhaura is a sizable town, this seems unlikely to be a great hardship for the contractors.				
OPERATION PHASE						
COVID Waste Management	<ul style="list-style-type: none"> COVID waste has posed serious health hazards and can spread the contagion among medical centre staff, waste handlers and the community. 	<ul style="list-style-type: none"> Prepare medical waste management plan that will cover the waste generated from the response to the COVID-19 infection. The plan will follow ADB's guidance note on managing medical waste during COVID-19 pandemic as well as any other government regulations. All medical waste produced during the care of COVID-19 patients must be considered as infectious waste and should be segregated and collected safely in designated colored coded containers. Use of colored bins (like yellow) and to put Covid wastes in 2-3 layered plastic bag. These wastes need to disinfectant first using chlorine or any other germicides and then safely transport them through marked vehicles in a marked place. Waste segregation, packaging, collection, storage disposal, and transport will be conducted in compliance with WHO COVID-19 Guidelines. Train the staffs on color coding and handling of infectious Covid wastes. 	<ul style="list-style-type: none"> Visual inspection and consultation with medical centre staff and cleaners. Record of waste type and quantity and the disposal method. 	Medical Centre premises	Civil Surgeon/UHFPO	DGHS
Medical Waste Management	<ul style="list-style-type: none"> Poor management of medical waste exposes healthcare workers, waste handlers and the community to infections, toxic effects, and injuries. Soil, water, and air pollution from the improper management of wastes generated from the facility. 	<ul style="list-style-type: none"> Provision of color coded, covered receptacles in strategic positions of the facility for separate categories of waste and regular cleaning of waste bins. Labels showing the type of waste that should be disposed of in each container should be placed near to the bins to guide staff and reinforce good habits. Medical wastes generated in the medical centre will be treated by in-house facility and then these treated wastes will be disposed of as per a pre-determined SOP in accordance with international good practices. Transport the medical waste in a biohazard bag with covered vehicle. The records of waste disposal will be maintained as proof for proper management as designed. Ensure necessary PPE (gown, gloves, face mask, goggles or face shield, gumboots) is provided to all staffs, as required and ensure them to wear PPE when handling and disposing waste according to national and WHO guideline. Do not burn the wastes openly or throw in to water bodies or do not dispose on soil. Audit for any off-site waste disposal will be required on a monthly basis and institute any remedial measures required to ensure compliance. 	<ul style="list-style-type: none"> Visual inspection and consultation with medical centre staff and cleaners. Record of waste type and quantity and the disposal method. 	Medical Centre premises	Civil Surgeon/UHFPO	DGHS

IEC	Potential Impact	Mitigation Measures	Monitoring Method		Responsibility	
			Method of Collecting and Reporting Data	Location and Frequency	Implementation	Supervision
Hazards due to Substation & Generator	<ul style="list-style-type: none"> Noise and vibration may have an impact on medical centre staff, doctors, patients and their relatives. Accidental spillage of oil and toxic coolants that would contaminate land and water. Risk of fire and electrocution hazards from substation. 	<ul style="list-style-type: none"> Develop an Emergency Response Plan and follow strictly during emergency incident. Have provision to use canopy to absorb 0.7 dB to 0.8dB of noise. Periodic maintenance of equipment such as transformers and capacitors to minimize noise generation. Provision of oil-water separator and oil containment structure. Substation room will be entry restricted and security staff assigned to prevent unauthorized public access. Place warning signs at substation and generator room. Ensure firefighting arrangement such as fire extinguishers, fire alarms etc. in the substation site. Use of PPE, proper training, awareness, keeping safe distance from hazardous points, maintaining safety of high switchyard and cable gallery. 	<ul style="list-style-type: none"> Regular inspection and testing of all safety features and hazard control measures and personal protective features. 	Substation room during operation period	Civil Surgeon/UHFPO	DGHS
Occupational Health and Safety including COVID H&S	<ul style="list-style-type: none"> Needle-sticks, surgical cuts, and other injuries posing transmission risk of blood-borne diseases such as COVID-19, Hepatitis C, HIV-AIDS, etc. Dermatitis and allergic reactions due to workplace exposures. 	<ul style="list-style-type: none"> Prepare a health and safety guidance for COVID-19 and strictly follow the guidance at the facility. Refer to IFC EHS Guidelines for Healthcare Facilities (2007) and relevant national guidelines and protocols. Implement suitable safety standards for all workers and facility visitors. Mandatory use of personal protective equipment and safety gears, where required. Arrangements for safe drinking water and sanitation facilities. Provide regular OHS training to healthcare workers. Provide incentives to staff and create a work-life balance in work schedule. 	<ul style="list-style-type: none"> Regular inspection and testing of all safety features and hazard control measures and personal protective features 	Medical Centre premises	Civil Surgeon/UHFPO	DGHS
Accidental Releases of Gas and Fluids	<ul style="list-style-type: none"> Leakage of infectious or hazardous substances may pose serious health hazards and can spread the contagion among medical centre staff and patients, cleaners etc. 	<ul style="list-style-type: none"> Develop an Emergency Response Plan and follow strictly during emergency incident. Emergency preparedness and response procedures and equipment (warning signs, fire extinguishers, fire exit etc.). Wear disposable gloves and, if aerosols are formed, glasses and a respirator for particles. Cover the contaminated area with a disinfectant in a concentric way, starting at the edge and progressing towards the center of the contamination. Avoid spraying or pouring the disinfectant from above, which can cause aerosols. Mop up and dispose of all waste and contaminated material in the appropriate container (infectious waste). Conduct monthly safety audit of facility to identify fire risks, electrocution hazards and other unsafe conditions, and assess adequacy of fire extinguishers and first aid provisions. 	<ul style="list-style-type: none"> Record of regular inspection. 	Medical Centre premises	Civil Surgeon/UHFPO	DGHS

C. Roles and Responsibilities in EMP Implementation

228. Effective implementation of the EMP relies on inputs from multiple entities, spanning the pre-construction, construction, and operation phases of the project. Specific tasks are identified and assigned in the next section of the EMP, but the roles and responsibilities are explained in general terms below, beginning with an outline of the entities that are to be involved.

a. Key Institutional Entities

229. Health Services Division (HSD) of the Ministry of Health and Family Welfare (MOHFW) is the executing agency (EA); and DGHS under the HSD, Central Medical Stores Depot (CMSD) under MOHFW, and Public Works Department (PWD) under the Ministry of Housing and Public Works are the implementing agencies (IAs) of the project. The executing agency (DGHS) along with the assisting department (PWD) is responsible for monitoring and contractor is responsible for the implementation of the EMP as per the suggested guidelines. The institutional arrangement of implementing the EMP is given in Figure IX.1 below.

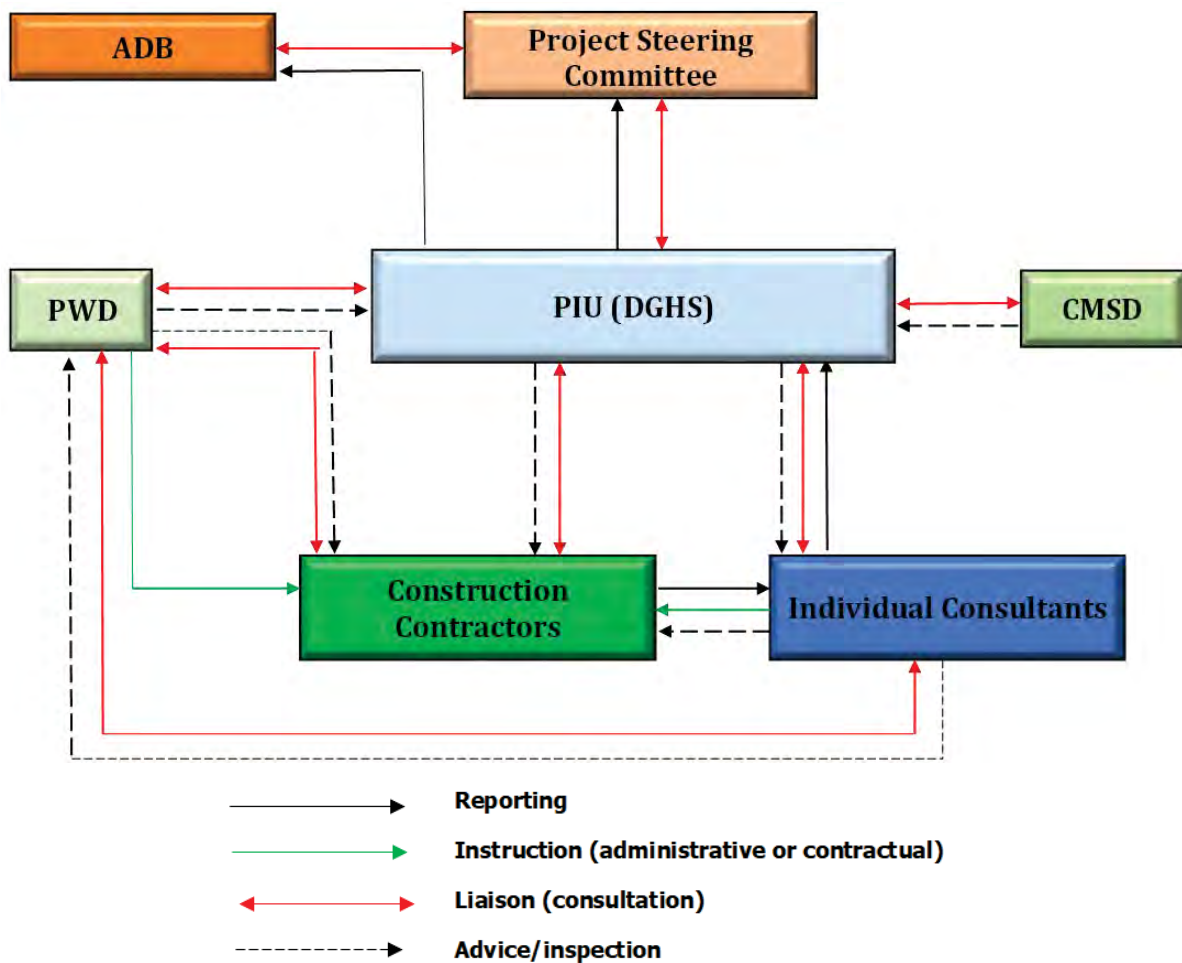


Figure IX.1: Institutional Arrangement of the Project

2) Project Implementation Unit (PIU)

230. A PIU has been established for the overall management of the project. The PIU is headed by Project Director (PD) supported by officials including Deputy Project Director (DPD), and three Medical Officers. The PIU will receive support from Individual Consultants (ICs) on project management and supervision activities.

3) Individual Consultants (ICs)

231. Several Individual Consultants (ICs) has been engaged by the PIU to monitor, guide and support the work of construction contractors carrying out the works under the Project. The ICs have environmental specialists on staff to assist PIU with environmental matters and ensure strong environmental compliance. The ICs should be required to maintain a site office at each location, to enable its inspectors and site engineers to maintain a daily presence at each active construction site.

4) Civil Works Contracts

232. The planned works are to be packaged and tendered as contracts. As the planned infrastructure components are each of relatively limited scale, works at multiple locations may be grouped under single contracts. Primary contractors will be required to develop a Contractor Environmental Management Plan (CEMP) covering the construction works under their control, including work carried out by their sub-contractors. Each primary civil works contractor will designate an EHS Representative, who will oversee the implementation of the CEMP at all sites under the contractor's control, including regular monitoring of site conditions and effective implementation of prescribed mitigation measures by both the primary contractor and all sub-contractors.

D. Capacity Building & Training Programme

There should be an in-house training programme for environmental management related training which shall be implemented by Workplace Safety Supervisor on a regular basis for apprising the project staffs and workers about management of H&S risks entailed in the project activities. These are generic training programmes. may customize the programmes and/or undertake additional training programmes pertaining to project activities as identified necessary.

Table IX.2: Proposed Training Modules

SN	Training Name	Frequency	Description	Responsibility
1.	<ul style="list-style-type: none"> Induction Training on Health and Safety should cover the Company- SHE policy; Environmental and social risks related to the project Hazards and risks associated with operation and workplace; Control measure to be taken to eliminate or minimize SHE risks, including safe working systems and procedures; use of personal protective equipment; action to be carried out during emergency; Emergency response procedures, such as firefighting, extinguisher use and evacuation procedure 	-	All Company Staffs and contractors at the time of joining/engagement	Workplace Safety Supervisor
2.	Tool Box Training or pre-task briefings, highlighting hazards and the method of dealing with them	Daily	Held at each work location by foreman of contractor to discuss day's activities and specific hazards	Contractor Supervisor
3.	Foreman Safety Training	Fortnightly	Review Safety Performance for week and discuss the safety for upcoming operations	Contractor Supervisor

SN	Training Name	Frequency	Description	Responsibility
4.	Safety Bulletins	Weekly	Specific issues visible through jobsite for constant awareness	Workplace Safety Supervisor
5.	First Aid	Weekly	For emergency preparedness	Site Doctor
6.	Use of Personal Protective Equipment	Weekly	For workplace safety	Workplace Safety Supervisor, Contractor, Supervisor
7.	OHS training on measures to prevent diseases e.g.; COVID-19, AIDS etc.	Monthly	For workplace safety	Workplace Safety Supervisor, Contractor, Supervisor

E. Budget for EMP

233. The contractor should develop a site-specific Occupational Health and Safety Plan following ADB COVID-19 guidelines to ensure competent and consistent attention to worker health and safety throughout the construction phase and it is also suggested to maintain a medical waste management plan for the operation period. The possible mitigation measures of handling medical waste have also been suggested in the EMP. The EMP budget would also include the training cost. The contractor will arrange training for associated personnel and workers during construction phase. These training sessions will include knowledge on the environmental management system, health and safety, emergency response, etc. The EMP implementation cost has been calculated and given in Table IX.3. It is also ensured that the EMP budget has been included in the BoQ as non-competitive item so that the Contractor can ensure the implementation successfully.

Table IX.3: EMP in Bidding Document for Medical Center in Akhaura Land Port

Sl. No.	Mitigation and Monitoring Items	Description	Unit	Cost/Unit	Total Unit	Total Cost
1	Training and Capacity Building	1.1 Understanding the EMP	No.	30000	1	30000
		1.2 ADB Policy, Environmental Standards & Requirement				
		1.3 Responsibilities of Contractor(s), PIU, and other stakeholders				
		1.4 Capacity Building				
		1.5 Occupational Health & Safety	No.	30000	2	60000
		1.6 Correct use and disposal of PPE				
		1.7 Community Health & Safety				
2	Workers Health and Safety	2.1 Safety Vest	No.	270	70	18900
		2.2 Helmet	No.	350	70	24500
		2.3 Safety shoes	No.	430	70	30100
		2.4 Safety Goggles	No.	280	70	19600
		2.5 Hand Sanitizer (5 Liter)	No.	2600	10	26000
		2.6 One-time Face Mask	No.	500	30	15000
		2.7 Thermometer for measuring body temperature	No.	1000	3	3000
		2.8 Fire extinguisher	No.	1299	10	12990
		2.9 First Aid Box	No.	2500	2	5000
		2.10 Cost for safety notices/signboards/protocol at site	No.	500	5	2500
3	Community Health and Safety	3.1 Safety barrier	No.	2000	10	20000
		3.2 Cost for safety notices/signboards/protocol at site	No.	500	5	2500
3	Waste Management & Sanitation	3.1 Supply of waste bins/pots for different wastes	No.	2400	50	120000
		3.2 Cost for drinking water (Water Filter)	No.	15000	2	30000
		3.3 Cost for Sanitation facilities (hand tube well, latrine etc.)	No.	35000	1	35000
4	Air Pollution and Dust	4.1 Cover sand, cement, stone, bricks, etc.	No.	3000	20	60000
		4.2 Water spray on dry & dusty days	Day	2000	50	100000

Sl. No.	Mitigation and Monitoring Items	Description	Unit	Cost/Unit	Total Unit	Total Cost
5	Tree Plantation (Enhancement Measures)	5.1 Purchase of saplings	No.	1500	20	30000
		5.2 Fertilizer				
		5.3 Fencing				
6	Autoclave	6.1 Supply & installation of 200L capacity vertical autoclave	No.	350000	1	350000
Sub-total (excluding overhead & profit)					995090.00	
Sub-total Including Overhead (3.5%) & Profit (10%)					1129427.15	
Add VAT (7.5%) & Adjustment Factor (1.08108)					1312576.19	
Grand Total (including Overhead + Profit + VAT + Adjustment Factor)					1312576.19	

Note: Cost of the EMP items should be as fixed budget

F. Monitoring and Reporting

234. The PIU of the project, under DGHS, will monitor the progress of EMPs implementation and the compliance performance of their contractors. The PIU will undertake site inspections and document review to verify compliance with the EMPs and progress toward the final outcome.

235. In the current crisis context, MOHFW do not have sufficient capacity and resources available to effectively oversee safeguards issues; the project therefore being supported MOHFW by recruiting an environmental safeguards specialist and a social safeguards specialist within the PIU to manage all environmental and social safeguards issues, reporting to the project director. These two specialists have overall responsibility for safeguards screening, implementation, monitoring and reporting, while the project director is accountable for the project's overall compliance during implementation. Safeguards documents will be reviewed and approved by the executing agency/implementing agency and ADB. The PIU will also obtain all clearances and fulfill any government safeguards-related requirements as applicable. The safeguards specialists will work in close collaboration with the 8 division-level project coordinators, as well as government representatives within the various coordination committees at divisional, district, city corporation and upazila levels, and defined project focal points at each site covered by the project and will coordinate with other relevant government departments to consult and/or obtain endorsement if necessary. Institutional roles and responsibilities are further detailed in the EARF and Resettlement and Indigenous Peoples Planning Framework (RIPPF).

236. ADB will review the project performance based on the commitments by HSD, MOHFW as agreed in the legal documents. Monitoring and supervising of environmental safeguards will be integrated into the project performance management system of ADB. The review of project performance will be conducted by ADB until the project completion report is completed. ADB will carry out the following monitoring actions to supervise project implementation:

- 1) Conduct periodic site visits for projects with adverse environmental impacts;
- 2) review the environmental monitoring reports submitted by MOHFW to ensure that adverse impacts and risks are mitigated as planned and as agreed with ADB;
- 3) work with MOHFW and DGHS to rectify, to the extent possible, any failure to comply with their environmental commitments in the Loan Agreement, and exercise remedies to re-establish compliance as appropriate; and
- 4) Prepare a project completion report that assesses whether the objective and desired outcomes of the project have been achieved.

237. Semiannual Environmental Monitoring reports will be prepared and submitted to ADB for review and approval. The PIU will ensure time report submission up to the PCR of this Project.

X. CONCLUSION AND RECOMMENDATIONS

238. Planning principles and design considerations have been reviewed and incorporated into the site planning process whenever possible. Preliminary designs integrate several measures, both structural and non-structural, to mainstream climate resilience into the sub-project. Thus, environmental impacts as being due to the project design or location were not significant.

239. Most of the individual elements of the sub-project are relatively small and involve straightforward construction and operation, so impacts will be mainly localized and not greatly significant. Most of the predicted impacts are associated with the construction process, and are produced because that process is invasive, involving trenching and other excavation. However, the routine nature of the impacts means that most can be easily mitigated. In the operational phase, all facilities and infrastructure will operate with routine maintenance, which should not affect the environment. Facilities will need to be repaired from time to time, but environmental impacts will be much less than those of the construction period as the work will be infrequent, affecting small areas only.

240. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. Mitigation will be assured by a program of environmental monitoring to ensure that all measures are implemented and will determine whether the environment is protected as intended. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries. Any requirements for corrective action will be reported to the ADB.

241. The stakeholders were involved in developing the IEE through discussions on-site and public consultation, after which views expressed were incorporated into the IEE and in the planning and development of the sub-project. The IEE will be made available at public locations in the city and will be disclosed to a wider audience via the ADB websites. The consultation process will be continued and expanded during project implementation to ensure that stakeholders are fully engaged in the project and can participate in its development and implementation. A grievance redress mechanism is described within the IEE to ensure any public grievances are addressed quickly.

242. The PIU and the Consultants will be responsible for monitoring. The PIU will send semi-annual monitoring reports to ADB. ADB will post the environmental monitoring reports on its website.

243. The EMP will assist the PIU, and contractors in mitigating the environmental impacts and guide them in the environmentally sound execution of the proposed project. The EMP will also ensure efficient lines of communication between the implementing agency, project management unit, and contractors. A copy of the EMP shall be always kept on-site during the construction period. The EMP shall be made binding on all contractors operating on the site and will be included in the contractual clauses. Non-compliance with/or any deviation from the conditions set out in this document shall constitute a failure in compliance.

244. Therefore, the proposed sub-project is unlikely to cause significant adverse impacts and net environmental benefits. The potential impacts that are associated with design, construction, and operation can be mitigated to standard levels without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures.

245. Based on the findings of the IEE, there are no significant impacts and the classification of the sub-project as Category "B" is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB. All required issues have been assessed to the best of our knowledge and no further studies are required to comply with ADB procedures or the laws of GoB.

APPENDIX

Appendix 1: High Rise Building Circular by DoE

শেখ হাসিনার নির্দেশ
জলবায়ু সনিক্ত বাংলাদেশ।

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
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তারিখঃ ০৭.০৮.২০১৮ খ্রিঃ।

পরিপত্র

বিষয়: বহুতল ভবন নয় এমন Commercial and Industrial Warehouse নির্মাণের ক্ষেত্রে পরিবেশগত ছাড়পত্রের অপ্রয়োজনীয়তা।

বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ (সংশোধিত ২০১০) এর ১২ ধারা মোতাবেক যে কোন প্রকল্প বাস্তবায়নের পূর্বে উদ্যোক্তার পরিবেশ অধিদপ্তর হতে পরিবেশগত ছাড়পত্র গ্রহণ করা বাধ্যতামূলক। পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭ এর তফসিল ১-এ পরিবেশের উপর প্রভাব বিস্তার ও অবস্থান অনুযায়ী বিভিন্ন শিল্প প্রতিষ্ঠান বা প্রকল্প সমূহকে সবুজ, কমলা-ক, কমলা-খ ও লাল এই ৪টি শ্রেণিতে ভাগ করা হয়েছে। পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭-এর তফসিল-১ অনুযায়ী হোটেল, বহুতল বাণিজ্যিক ও এম্পাউটমেন্ট ভবন কমলা-খ শ্রেণিভুক্ত। বহুতল ইমারতের সংজ্ঞা অনুসরণ করে ঢাকা মহানগরের অভ্যন্তরে ১০ তলা বা ৩৩ মিটারের উর্ধ্বে এবং ঢাকা মহানগরের বাইরে ৬ তলার উর্ধ্বে কোন ইমারত বা ভবন নির্মাণে পরিবেশ অধিদপ্তরের ছাড়পত্রের আওতায় আনা হয়েছে এবং অবশিষ্ট ভবনসমূহ নির্মাণ ছাড়পত্রের আওতা বর্হিত্ব রাখা হয়েছে। তবে এসিড জাতীয় কেমিক্যাল, দাহ্য পদার্থ ইত্যাদির মজুদকরণ বা ওয়ারহাউজ এর জন্য বিস্ফোরক অধিদপ্তরসহ সংশ্লিষ্ট কর্তৃপক্ষের ছাড়পত্র/লাইসেন্স এর প্রয়োজন হবে।

২। ইমারত নির্মাণের সার্বিক পরিবেশগত প্রভাবের গুরুত্ব নিরূপণের জন্য বিভিন্ন পরিবেশগত ইস্যুতে নির্মাণ সংশ্লিষ্ট নানাবিধ কর্মকাণ্ডের প্রভাব জানা প্রয়োজন হয়। ইমারত নির্মাণের ইস্যুসমূহ বিশেষত ঝুঁকিসমূহ পরিবেশগত প্রভাবের অন্তর্ভুক্ত। পরিবেশ অধিদপ্তরের সেবা/ছাড়পত্র প্রদানের ক্ষেত্রে সেবা সহজীকরণ ও জনমুখী করার লক্ষ্যে যে সকল ইমারত বহুতল ভবন হিসেবে চিহ্নিত কেবল সেগুলোকেই ছাড়পত্রের আওতায় আনা হয়েছে। বিদ্যমান পরিবেশ সংরক্ষণ বিধিমালা ১৯৯৭ অনুযায়ী বহুতল ভবন নয় এমন Commercial and Industrial Warehouse নির্মাণের ক্ষেত্রে পরিবেশগত ছাড়পত্রের প্রয়োজন হয় না।

(আবদুল্লাহ আল মোহসীন চৌধুরী)
সচিব

বিতরণ(জ্যেষ্ঠতার ভিত্তিতে নয়) :

- ১। মন্ত্রিপরিষদ সচিব, মন্ত্রিপরিষদ বিভাগ, বাংলাদেশ সচিবালয়, ঢাকা।
- ২। মুখ্য সচিব, প্রধান মন্ত্রীর কার্যালয়, পুরাতন সংসদ ভবন, তেজগাঁও, ঢাকা।
- ৩। নির্বাহী সদস্য (বিনিয়োগ উন্নয়ন), প্রধানমন্ত্রীর কার্যালয়, মোনাম বিজনেস ডিস্ট্রিক, লেভেল-১২, ১১১ বীর উত্তম, দপ্তর-রোড, ঢাকা, ১২০৫।
- ৪। মহাপরিচালক, পরিবেশ অধিদপ্তর, আগারগাঁও, ঢাকা।
- ৫। উপ পরিচালক, বাংলাদেশ ফরমস ও প্রকাশনা অফিস, তেজগাঁও, ঢাকা (পরবর্তী গেজেটে প্রকাশের জন্য)।
- ৬। সিনিয়র সিস্টেম এনালিস্ট, পরিবেশ, বন ও জলবায়ু পরিবর্তন মন্ত্রণালয় (ওয়েব সাইটে প্রকাশের জন্য)।

অনুলিপি(জ্যেষ্ঠতার ভিত্তিতে নয়) :

- ০১। মাননীয় মন্ত্রীর একান্ত সচিব, পরিবেশ, বন ও জলবায়ু পরিবর্তন মন্ত্রণালয়।
- ০২। মাননীয় উপ-মন্ত্রীর একান্ত সচিব, পরিবেশ, বন ও জলবায়ু পরিবর্তন মন্ত্রণালয়।
- ০৩। সচিব মহোদয়ের একান্ত সচিব, পরিবেশ, বন ও জলবায়ু পরিবর্তন মন্ত্রণালয়।
- ০৪। অতিরিক্ত সচিব (পরিবেশ) মহোদয়ের ব্যক্তিগত কর্মকর্তা, পরিবেশ, বন ও জলবায়ু পরিবর্তন মন্ত্রণালয়।

জনস্বাস্থ্য / পরিবেশ	
আলোচনা কক্ষ/মতামতসহ নথিতে পেশ, ক্রম	অতিরিক্ত মহাপরিচালক
প্রশাসন/মনি: ও জন: অফিস/পরিচালনা	সি আর
পরিবেশগত ছাড়পত্র/জন: পরি: ও আন্ত: কন	পরিচালক
প্রাকৃতিক সম্পদ বাণ্য/বাস্তবায়ন ব্যবস্থাপনা/আইটি	
ঢাকা অঞ্চল/ঢাকা মহা: ঢাকা গবেষণাগার	
বেস/সিবিএ-ইসিএ/ওডিএস/৩৪ প্রকল্প	পিডি/ডিপিডি
বক্তৃতা/টিএনসি/প্রোগ্রামাটিক সিডিএম	
সিস্টেম অফিসার	

১৯৮

সচিব

Appendix 2: Integrated Biodiversity Assessment Tool (IBAT) Output Report



Integrated Biodiversity Assessment Tool

WORLD BANK GROUP BIODIVERSITY RISK SCREEN

Report generated on 11/04/2020 by Maria Iris Bombay under the license number 2771-8171 held by ADB. www.ibat-alliance.org

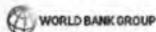
- **Project Name:** Akhaura
- **Country:** India
- **Location:** [23.8,91.3]

Overlaps with:

Protected Areas	6
Key Biodiversity Areas	5
IUCN Red List	49
Critical Habitat	Likely



Displaying project location and buffers: 10.0 km, 50.0 km



This report is based on IFC Performance Standard 6 (PS6) but applies to World Bank Environmental and Social Standard 6 (ESS6)





About this report

IBAT provides initial screening for critical habitat values. Performance Standard 6 (PS6) defines these values for critical habitat (PS6: para. 16) and legally protected and internationally recognized areas (PS6: para. 20). PS6 will be triggered when IFC client activities are located in modified habitats containing "significant biodiversity value," natural habitats, critical habitats, legally protected areas, or areas that are internationally recognized for biodiversity. References to PS6 and Guidance Note 6 (GN6) are provided to guide further assessment and detailed definitions where necessary. Please see <https://www.ifc.org/ps6> for full details on PS6 and GN6.

The report screens for known risks within a standard 50km buffer of the coordinates used for analysis. This buffer is not intended to indicate the area of impact. The report can be used to:

- Scope risks to include within an assessment of risks and impacts
- Identify gaps within an existing assessment of risks and impacts
- Prioritize between sites in a portfolio for further assessment of risks and impacts
- Inform a preliminary determination of critical habitat
- Assess the need for engaging a biodiversity specialist
- Identify additional conservation experts or organizations to inform further assessment or planning

WARNING: IBAT aims to provide the most up-to-date and accurate information available at the time of analysis. There is however a possibility of incomplete, incorrect or out-of-date information. All findings in this report must be supported by further desktop review, consultation with experts and/or on-the-ground field assessment as described in PS6 and GN6. Please consult IBAT for any additional disclaimers or recommendations applicable to the information used to generate this report.

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Priority Species

Habitat of significant importance to priority species will trigger critical habitat status (See PS6: para 16). IBAT provides a preliminary list of priority species that could occur within the 50km buffer. This list is drawn from the IUCN Red List of Threatened Species (IUCN RL). This list should be used to guide any further assessment, with the aim of confirming known or likely occurrence of these species within the project area. It is also possible that further assessment may confirm occurrence of additional priority species not listed here. It is strongly encouraged that any new species information collected by the project be shared with species experts and/or IUCN wherever possible in order to improve IUCN datasets.

IUCN Red List of Threatened Species - CR & EN

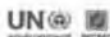
The following species are potentially found within 50km of the area of interest.
For the full IUCN Red List please refer to the associated csv in the report folder.

Species name	Common name	IUCN Category	Group
Eretmochelys imbricata	Hawksbill Turtle	CR	REPTILIA
Glyphis gangeticus	Ganges Shark	CR	CHONDRICHTHYES
Indotestudo elongata	Elongated Tortoise	CR	REPTILIA
Manis pentadactyla	Chinese Pangolin	CR	MAMMALIA
Carcharhinus hemiodon	Pondicherry Shark	CR	CHONDRICHTHYES
Carcharhinus longimanus	Oceanic Whitetip Shark	CR	CHONDRICHTHYES
Sphyrna lewini	Scalloped Hammerhead	CR	CHONDRICHTHYES
Sphyrna mokarran	Great Hammerhead	CR	CHONDRICHTHYES
Pristis zijsron	Green Sawfish	CR	CHONDRICHTHYES
Rhina ancylostoma	Bowmouth Guitarfish	CR	CHONDRICHTHYES
Rhynchobatus australiae	Bottlenose Wedgefish	CR	CHONDRICHTHYES



IBAT

Species name	Common name	IUCN Category	Group
<i>Sonneratia griffithii</i>		CR	MAGNOLIOPSIDA
<i>Pristis pristis</i>	Large-tooth Sawfish	CR	CHONDRICHTHYES
<i>Aythya baeri</i>	Baer's Pochard	CR	AVES
<i>Houbaropsis bengalensis</i>	Bengal Florican	CR	AVES
<i>Gyps bengalensis</i>	White-rumped Vulture	CR	AVES
<i>Ardea insignis</i>	White-bellied Heron	CR	AVES
<i>Emberiza aureola</i>	Yellow-breasted Bunting	CR	AVES
<i>Gyps tenuirostris</i>	Slender-billed Vulture	CR	AVES
<i>Balaenoptera musculus</i>	Blue Whale	EN	MAMMALIA
<i>Cuon alpinus</i>	Dhole	EN	MAMMALIA
<i>Geoclemys hamiltonii</i>	Spotted Pond Turtle	EN	REPTILIA
<i>Rhincodon typus</i>	Whale Shark	EN	CHONDRICHTHYES
<i>Trachypithecus phayrei</i>	Phayre's Leaf-monkey	EN	MAMMALIA
<i>Isurus oxyrinchus</i>	Shortfin Mako	EN	CHONDRICHTHYES
<i>Anoxypristis cuspidata</i>	Narrow Sawfish	EN	CHONDRICHTHYES
<i>Hoolock hoolock</i>	Western Hoolock Gibbon	EN	MAMMALIA
<i>Platanista gangetica</i>	South Asian River Dolphin	EN	MAMMALIA





Species name	Common name	IUCN Category	Group
<i>Eusphyr a blochii</i>	Winghead Shark	EN	CHONDRICHTHYES
<i>Stegostoma tigrinum</i>	Zebra Shark	EN	CHONDRICHTHYES
<i>Mobula thurstoni</i>	Bentfin Devilray	EN	CHONDRICHTHYES
<i>Isurus paucus</i>	Longfin Mako	EN	CHONDRICHTHYES
<i>Acropora rudis</i>		EN	ANTHOZOA
<i>Lamiopsis temminckii</i>	Broadfin Shark	EN	CHONDRICHTHYES
<i>Alopias pelagicus</i>	Pelagic Thresher	EN	CHONDRICHTHYES
<i>Heritiera fomes</i>		EN	MAGNOLIOPSIDA
<i>Holothuria scabra</i>	Golden Sandfish	EN	HOLOTHUROIDEA
<i>Holothuria lessona</i>	Golden Sandfish	EN	HOLOTHUROIDEA
<i>Thelenota ananas</i>	Prickly Redfish	EN	HOLOTHUROIDEA
<i>Perdicula manipurensis</i>	Manipur Bush-quail	EN	AVES
<i>Asarcornis scutulata</i>	White-winged Duck	EN	AVES
<i>Calidris tenuirostris</i>	Great Knot	EN	AVES
<i>Sterna acuticauda</i>	Black-bellied Tern	EN	AVES
<i>Haliaeetus leucoryphus</i>	Pallas's Fish-eagle	EN	AVES
<i>Aquila nipalensis</i>	Steppe Eagle	EN	AVES

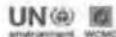




Species name	Common name	IUCN Category	Group
Leptoptilos dubius	Greater Adjutant	EN	AVES
Laticilla cinerascens	Swamp Grass-babbler	EN	AVES
Mobula mobular	Giant Devilray	EN	CHONDRICHTHYES
Tor putitora		EN	ACTINOPTERYGII

Restricted Range Species

	Common name	IUCN Category	Group
Acrocephalus orinus	Large-billed Reed-warbler	DD	AVES





Biodiversity features which are likely to trigger Critical Habitat

Protected Areas

The following protected areas are found within 10.0 km and 50.0 km of the area of interest. For further details please refer to the associated csv file in the report folder.

Area name	Distance	Recommendation
Gumti	50.0 km	Assess for biodiversity risk
Rema Kalenga	50.0 km	Assess for critical habitat
Rudrasagar Lake	50.0 km	Assess for biodiversity risk
Satchari	50.0 km	Assess for critical habitat
Sepahijala	50.0 km	Assess for biodiversity risk
Trishna	50.0 km	Assess for biodiversity risk

Key Biodiversity Areas

The following key biodiversity areas are found within 10.0 km and 50.0 km of the area of interest. For further details please refer to the associated csv file in the report folder.

Area name	Distance	Recommendation
Gumti Wildlife Sanctuary	50.0 km	Assess for critical habitat
Rema-Kalenga Wildlife Sanctuary	50.0 km	Assess for biodiversity risk





Area name	Distance	Recommendation
Rudrasagar Lake	50.0 km	Assess for critical habitat
Sepahijala	50.0 km	Assess for biodiversity risk
Trishna Wildlife Sanctuary	50.0 km	Assess for critical habitat

Species with potential to occur

Area Taxonomic group	Total assessed species	Total (CR, EN & VU)	CR	EN	VU	NT	LC	DD
REPTILIA	56	8	2	1	5	0	44	4
CHONDRICHTHYES	61	35	9	10	16	16	7	3
MAMMALIA	112	22	1	5	16	7	77	6
MAGNOLIOPSIDA	78	3	1	1	1	3	67	5
AVES	429	22	6	8	8	26	380	1
ANTHOZOA	8	2	0	1	1	2	3	1
HOLOTHUROIDEA	30	5	0	3	2	0	14	11
ACTINOPTERYGII	456	8	0	1	7	10	408	30
INSECTA	99	1	0	0	1	1	96	1
LILIOPSIDA	68	2	0	0	2	1	63	2
MALACOSTRACA	27	0	0	0	0	1	19	7





Area Taxonomic group	Total assessed species	Total (CR, EN & VU)	CR	EN	VU	NT	LC	DD
AMPHIBIA	22	0	0	0	0	0	22	0
HYDROZOA	2	0	0	0	0	0	2	0
GASTROPODA	115	0	0	0	0	0	109	6
BIVALVIA	37	0	0	0	0	0	33	4
POLYPODIOPSIDA	4	0	0	0	0	0	4	0
AGARICOMYCETES	1	0	0	0	0	0	1	0
ARACHNIDA	3	0	0	0	0	0	3	0





Country-level summary

Coming soon





Recommended Experts and Organizations

For projects located in critical habitat, clients must ensure that external experts with regional expertise are involved in further assessment (GN6: GN22). Clients are encouraged to develop partnerships with recognized and credible conservation organizations and/or academic institutes, especially with respect to potential developments in natural or critical habitat (GN6: GN23). Where critical habitats are triggered by priority species, species specialists must be involved. IBAT provides data originally collected by a large network of national partners, while species information is sourced via the IUCN Red List and affiliated Species Specialist Groups. These experts and organizations are listed below. **Please note that this is not intended as a comprehensive list of organizations and experts. These organizations and experts are under no obligation to support any further assessment and do so entirely at their discretion and under their terms. Any views expressed or recommendations made by these stakeholders should not be attributed to the IFC or IBAT for IFC partners.**

Relevant national or regional organizations

IBAT integrates information developed by a global network of conservation agencies, organizations and experts. These efforts are coordinated by the IBAT Alliance (BirdLife International, Conservation International, IUCN and UNEP-WCMC) who compile and maintain this information as globally standardized databases. The local partners most relevant to the area of analysis are:

Wild Bird Society of Japan Address: Maruwa Building, 3-9-23 Nishi-Gotanda, Shinagawa-ku, Tokyo 141-0031, Japan Web: <http://www.wbsj.org/>

BirdLife Asia Regional Office Address: 354 Tanglin Road, #01-16/17, Tanglin International Centre, Singapore 247672
Email: singapore.office@birdlife.org Web: <http://www.birdlife.org/asia>

Directory for Species Survival Commission (SSC) Specialist Groups and Red List Authorities

URL: http://www.iucn.org/about/work/programmes/species/who_we_are/ssc_specialist_groups_and_red_list_authorities_directory/



Appendix 3: No Objection Certificate (NOC) of BLP

স্মারক নং- ১৮.১৫.০০০০.০২০.১৮.০২৫.২২ ৪৫৪

তারিখ: ৩১ আশ্বিন, ১৪২৯
১৬ অক্টোবর, ২০২২



বাংলাদেশ স্থলবন্দর কর্তৃপক্ষ (বাস্থবক)
Bangladesh Land Port Authority
এফ ১৯/এ শেরেবাংলা নগর, আগারগাঁও, ঢাকা-১২০৭
www.bsbk.gov.bd

বিষয়: স্বাস্থ্য সেবা বিভাগের অধীনে বাস্তবায়নধীন “COVID-19 Response Emergency Assistance” শীর্ষক প্রকল্পের আওতায় আখাউড়া স্থলবন্দরে “মেডিকেল সেন্টার” স্থাপনের উদ্দেশ্যে স্থান বরাদ্দ প্রসঙ্গে।

সূত্র: স্বাস্থ্য অধিদপ্তর এর স্মারক নং-স্বা/অ/কোভিড-১৯ আরইএপি/স্থলবন্দর মেঃ সেঃ/১৫/২০২০/৮৭১, তারিখ: ২২/০৯/২০২২

উপর্যুক্ত বিষয় ও সূত্রোক্ত স্মারকের প্রেক্ষিতে নির্দেশক্রমে জানানো যাচ্ছে যে, কোভিড-১৯ মহামারীর বিষয়টি বিবেচনা করে “COVID-19 Response Emergency Assistance” শীর্ষক প্রকল্পের আওতায় আখাউড়া স্থলবন্দরে স্বাস্থ্য অধিদপ্তর কর্তৃক “মেডিকেল সেন্টার” স্থাপনের উদ্দেশ্যে এ কর্তৃপক্ষ বিশেষ গুরুত্ব বিবেচনা করেছে।

২। এ প্রেক্ষিতে আখাউড়া স্থলবন্দরের বিদ্যমান জমির মধ্য হতে কালিকাপুর মৌজার বি.এস ৭নং খতিয়ানের ৯নং দাগের উত্তর-পশ্চিম কোণ হতে (মৌজা ম্যাপে চিহ্নিত) ৭০'-০"×৫০'-০"=৩৫০০ বর্গফুট স্থান মেডিকেল সেন্টার স্থাপনের নিমিত্ত স্বাস্থ্য অধিদপ্তরের অনুকূলে ব্যবহারের অনুমতি নির্দেশক্রমে প্রদান করা হলো।

সংযুক্তিঃ ম্যাপ।


২১. ১০. ২১

ডি এম আতিকুর রহমান
(উপসচিব)
পরিচালক (প্রশাসন)
ফোন: ০২-৪১০২৫৩০৫

ই-মেইল: directoradmin@bsbk.gov.bd

মহাপরিচালক
স্বাস্থ্য অধিদপ্তর
মহাখালী, ঢাকা

অনুলিপি: (সদয় জ্ঞাতার্থে)

- ১। সিনিয়র সচিব, স্বাস্থ্য সেবা বিভাগ, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা
- ২। সচিব, নৌপরিবহন মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
- ৩। প্রকল্প পরিচালক, “COVID-19 Response Emergency Assistance”, স্বাস্থ্য অধিদপ্তর, মহাখালী, ঢাকা।
- ৪। চেয়ারম্যান মহোদয়ের একান্ত সচিব, বাংলাদেশ স্থলবন্দর কর্তৃপক্ষ, ঢাকা
- ৫। সহকারী পরিচালক (ট্রাফিক), আখাউড়া স্থলবন্দর, আখাউড়া, ব্রাহ্মণবাড়িয়া (স্বাস্থ্য অধিদপ্তর কর্তৃক জমি ব্যবহারের প্রয়োজনীয় কার্যক্রম গ্রহণসহ বিষয়টি মনিটরিং করবেন)

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Appendix 4: Waste Management Plan (Construction Period)

1. GENERAL

Considerable quantities of wastes (general & construction) will be generated due to the 1-year construction of the subproject components. Two types of wastes will be generated during construction:

- General Waste:
 - Organic waste (foods, fruits, tree leaves etc.); and
 - Inorganic (such as papers, plastic and glass bottles & containers, polythene etc.); and
- Construction Waste:
 - Construction wastes are: construction materials such as sand, piece of rocks, bricks, rods, geotextiles, remaining concrete & bentonite waste.

2. OBJECTIVES

The main objective of the WMP is to organize disposal of all wastes generated during construction in an environmentally acceptable manner specially consider the following:

- Health hazards of the project personnel as well as community people should not be occurred;
- Manage the wastes in such a way that environment (specially air, soil, water etc.) will not be polluted;
- Odor means bad smell should not be generated;
- Always friendly environment at the construction sites and construction camps;
- Any waste should not be disposed into the river and any water bodies to avoid water pollution;
- Any waste should not be burnt; and
- Any waste should not be placed in earth holes/chambers.

3. POTENTIAL ENVIRONMENTAL IMPACTS

Major potential environmental impacts due to the lack of waste management are:

- All types of environmental pollutions such as air, soils, water (surface & ground) pollutions;
- Generation of odor;
- Increase of flies, mosquitoes, insects etc.,
- Health hazards; and
- Environmental nuisance at the project sites

4. STRATEGIES TO ADOPT

The following strategies need to be adopted for appropriate soil waste collection system to be functioned properly:

- Setting waste collection bins (not permanent structure, movable high-quality movable plastic bins; See Figure 1) in strategic points of the construction camp and work sites.
- Introduce solid waste bins for organic and non-organic waste.
- Coordinate with the municipalities waste collection system so that the waste can be collected at midnight when the road transports are minimum.
- Wash liquids needs to be drained out though the functioning drains. The liquid waste needs to be treated with bleaching power every evening before draining so that the waste water cannot create nuisance and local pollution.
- The other strategies that might be adopted are explained in later paragraphs.



Figure 1: High quality plastic bins for solid waste

Table 1: Mitigation Measures for Sector-wise Waste

Aspect	Waste Type	Mitigation Measures	Proposed Reuse/Recycling/ Disposal
site clearing/disposal of debris	-Vegetation (logs, mulched timber, weeds) -demolition of existing building	-Due care should be taken during site clearance and disposal of debris during demolition of existing building. - The waste should be stored at site ensuring that existing water bodies, road and drains within or adjacent to the site are kept safe and free and no blocking of drains - Prior clearance will be taken from concerned Govt. Authorities or landowner	Recycling/Disposal whereas applicable or where suitable and approved by PIU
Construction site waste	-Plastics, Concrete and Timber/Steel formwork Packaging Materials, papers -Empty containers and other drums -Metals and electrical cabling	- The waste should be stored at PIU suggested location ensuring that existing water bodies, road and drains within or adjacent to the site are kept safe and free and no blocking of drains -Construction waste will be connected to dispose in existing waste management system of the land port.	Recycling/Disposal/ Re-use
Construction camp	Waste generated by food, papers, weir, wood, polythene and empty packets -labor camp waste generated by workers	- It will be made mandatory for waste to be segregated right at the source of waste generation -The waste should be stored at construction camp in separate dustbin -labor camp waste will be connected to dispose in existing waste management system of the land port.	Re-use/ Recycling/Disposal whereas applicable
Traffic movement with waste	Waste generated from construction site/labor camp	-Ensure covered the waste during Traffic movement -Adequate traffic control signals and barriers should be used in case traffic is to be diverted during debris disposal. All	Disposal

Aspect	Waste Type	Mitigation Measures	Proposed Reuse/Recycling/ Disposal
		efforts should be made to ensure avoidance of traffic jam, which otherwise results in air pollution, noise pollution and public unrest.	

5. METHOD OF DISPOSAL OF WASTES

The Contractor will collect the general wastes in separate waste bin at sources (means organic waste in one bin & inorganic waste in another bin) and dumped at the designated waste disposal site. The contractor will construct concrete waste disposal site; means concrete floor and wall and covered by shed to avoid, air, bad smell, soil and ground water pollutions. Based on the quantity of general waste (organic & inorganic waste), the following two chambers (rooms) of the concrete disposal site will be constructed by Contractor:

Just after filling one chamber (say after 6 months) by organic waste through pocket gate, it should be covered by earth (soils) properly & keeps it for about 6 months for converting organic fertilizer for the agricultural lands. After filling 1st chamber by organic waste, disposing of waste will be started for 2nd chamber.

The inorganic waste will be collected in the waste collection bins. Just after filling, these inorganic wastes can be given to the vender free of cost.

The Contractor will collect construction waste as mentioned above separately and dump in to the designated room at the construction camp. Just after filling the room, Contractor will sale these waste to the vender for re-cyclic.

The Contractor will maintain log book for the measurement of quantity of the wastes (especially hazardous wastes) disposed every day.






6. INSTITUTIONAL ARRANGEMENT

Contractor is mainly responsible for design, construction, maintenance as well as environmental monitoring for the disposal of waste. Environmental Specialist of the PIU is responsible for monitoring of the disposal.

Appendix 5: Safe Work Procedure during COVID-19

The contractors shall at all times be responsible to take all reasonable precautions to maintain the health and safety of personnel and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. ADB prepared a COVID-19 Health and Safety Advisory Guidance for Construction Workforce, which may be further updated as the COVID-19 situation evolves. The ADB guidance includes the protocols on the following:

A. Prerequisites for Reopening Worksite: Plan to open/reopen worksite at limited scale (i.e. only essential works at worksite). Map essential/unavoidable works that must be attended at this moment. Identify and engage essential labor force initially. Increase labor force step by step as necessary. Do not engage labor until: i. Conduct risk assessment of worksite and prepare plan as per H&S guideline; ii. Avoid labor intensive works as much as possible; iii. Ensure all to use the Personal Protective Equipment (PPE) as appropriate; iv. Engage health and safety supervisor to implement COVID-19 guideline; v. Engage health worker for daily temperature check and record for workers; vi. Ensure all equipment and vehicles used are routinely disinfected; vii. Provide thermometer, soap, sanitizer, disinfectant, PPE at worksite/camp; viii. Place adequate washbasins, disinfectant tub, dispenser for sanitizer; ix. Engage contractor’s EHS staff or assign an existing staff to handle COVID-19 in case if detected; x. Post enough COVID-19 awareness posters throughout the worksites; and xi. Maintain COVID-19 weekly monitoring and reporting mechanism at worksite; including any necessary actions to be taken.






				
Locate the closest medical facility equipped with COVID -19 and contact them.	Place washbasins and disinfectant tub for shoes.	Assign a staff or EHS professional to oversee implementation of COVID-19 EHS manual.	Place COVID-19 signed covered trash bin for disposal of used PPEs.	Supply soap and sanitizer to labor and staff before and after the shift for disinfection.

B. Worksite Entrance Protocol: Everyone entering the worksite must wear a mask, gloves and hard shoes. Strictly follow and implement the EHS manual at worksite. The entrance of the worksite/camp site every personnel must wash their hands for 20 second with maintaining a distance of at least 1m (3 ft) from each other.

				
Everyone entering the worksite must wear a mask and gloves.	Maintain physical distance of minimum 1m (3ft) during worksite entry queue.	Display hand washing protocol at entrance. All personnel wash their hands with soap for 20 seconds before, during and after work.	Spray bottom of shoes of every personnel entering worksite/ campsites with disinfectant. Disinfect all vehicles entering the site.	Check body temperature of all at the time of reporting to site. If temperature is > 37°C send to the designated medical facility.

C. Worksite Management Protocol: A designated EHS and medical person should stay all time during work. The EHS/Medical person should also monitor campsites. He/she will be in charge of ensuring

physical distances (minimum 1m) among workers, disinfecting surfaces that are commonly used and investigate worker’s/site personnel health and safety.

				
<p>Ensure physical distance 1m (3ft) all the time at work. Ensure rotated schedule for break to minimize gathering.</p>	<p>Frequently clean and disinfect highly used tools, machineries, and surfaces (e.g. tables, toilets) by workers. Use designated trash bin to dispose used PPEs.</p>	<p>Mandatory morning briefing on COVID awareness at site maintaining physical distance.</p> <p>Display COVID-19 related awareness message in Bangla.</p>	<p>Use alcohol-based wipe to clean tools, equipment, vehicle before and after use.</p>	<p>Discourage gathering at site. Discourage unnecessary entrance and exit at site.</p>






D. Camp Management Protocol:

1. Provide soap, sanitizer, washing facility and safe water at the workers’ dwelling. Encourage frequent hand washing.
2. Ensure separate covered waste bin for disposal of used PPEs.
3. Protect against heat, cold, damp, noise, fire, and disease-carrying animals.
4. Maintain good housekeeping and social distancing in kitchens, meal rooms, canteens.
5. Ensure personal distance at least 1m (3ft) during lunch, dinner and prayer.
6. Ensure ample ventilation at the camp.



The infographic is divided into two main sections. The top section, titled 'Coronavirus: What you need to do', contains three panels: 'Wash your hands' showing hands being washed with soap and water; 'Use a tissue for coughs' showing a person coughing into a tissue; and 'Avoid touching your face' showing a person with a red 'X' over their face, indicating not to touch it. The bottom section shows two people in a hallway with a '6'' distance marker between them, illustrating social distancing.

E. Work at Site Awareness: Train workers on how to properly put on, use/wear, and take off protective clothing and equipment. The on-site EHS/Medical person should be in-charge of these trainings. These trainings must maintain the WHO’s social distancing protocol. Make these trainings mandatory at worksites. Provide 10-15 minutes of a workday for such ‘training and encouragement’ activities.

				
<p>Inform the designated ESH/Medical personnel immediately if any person starts showing the symptoms of COVID-19.</p>	<p>Encourage respiratory etiquette, including covering coughs and sneezes. Don't touch nose/eye/mouth if not washed recently, do not spit.</p>	<p>Encourage the workers at camp to go out for supplies not more than once a week. Prepare posters for awareness in Bangla. Place awareness raising posters at worksite & camp.</p>	<p>Shorten toolbox meetings. Initiate remote meeting protocol to avoid physical contact.</p>	<p>Stay informed. Get news from WHO and Government news outlets. <u>Ask your EA.</u> <u>Ask ADB.</u></p>

Contractor should develop a preparedness and response plan by following the ADB guideline to prevent COVID-19 infection in the workplace. The preparedness plan will be submitted to PMU for approval. In addition to the ADB guideline, the government's Technical Guidance for Social and Institutional Containment and Prevention of Pandemic COVID-19 Infection issued on 11 May 2020 has also to be complied with.

Appendix 6: Detailed discussion of Focus Group Discussion (FGD)

Date: 26 December 2022

Time: 01:00 pm

Location: Akhaura Land Port, Brahmanbaria

Issue/Questions	Responses from Participants	Response by the Survey Team
<p>Mr. Raisin Akhter Feroz (Facilitator) thanked all participants who attended that meeting.</p> <p>Construction of medical centers in the Akhaura Land Port having the Ministry of Health and Family Welfare (MoHFW) acting as an executing agency and Directorate General of Health Services (DGHS) acting as the implementing agency of the project.</p> <p>Conducting the consultations as part of the project preparation in your area. By this meeting, overall impact of the project on the people will be assessed. Based on the assessment, an environmental assessment will be prepared to mitigate negative impacts.</p> <p>People may face several problems due to this project. Additionally, the construction activities will create several environmental pollutions that may affect the local ecology. Therefore, the problems occurred and how to solve them are incorporated in the discussion.</p>	-	-
<p>Any impact on local soil and noise due to the project activities? If yes, how to mitigate?</p>	<p>Mr. Selim (Businessman): Some noise impact will be found during construction time. No soil will be polluted. Do not use hydraulic Horns. Tree plantation can solve all problem.</p>	<p>The mitigation measures will be helpful to HSD for Environmental Management System.</p>
<p>Is wildlife (birds, snakes, crabs, fox etc.) available in the area? If yes, mention their name. Among them which are endangered?</p>	<p>Mr. Rafiqul Islam (Govt. Service Holder): Yes, some wild animal lives in our locality such as different types of birds, fox, Monitor Lizard, snake are available in our area and sometime migratory birds come to our area.</p>	<p>Thank You. This information will be helpful for HSD, and the project will not disturb those animals.</p>
<p>Are you aware about the activities of the project? If yes, what are they?</p>	<p>Most of the people were aware about the project.</p>	<p>The survey team informed the unaware participants about the project in detail.</p>
<p>Any air pollution due to the project activities? If yes, how to mitigate?</p>	<p>Mr. Mizanur Rahman Mozumdar (Govt. Service Holder): There is a possibility of air pollution during construction period. Water spray is only solution.</p>	<p>Your opinion will be provided to HSD so that they will take initiative to mitigate the air pollution during the project intervention.</p>
<p>Is any Environmental Protected Area (EPA)/Environmental Sensitive Area located nearby the project? If yes, where & how far from the project?</p>	<p>Mr. Md. Shamim Mia (Govt. Service Holder): No Environmental protected Area is located in our locality.</p>	-

Issue/Questions	Responses from Participants	Response by the Survey Team
Any impact on the surface water body (river, pond, khal, beel, canal etc.) and ground water? If yes, how to mitigate?	Mr. Nazrul (Businessman): There is no possibility of ground water pollution. But in response to surface water pollution; river, pond, and canal may lose their natural flow.	HSD will be informed about these issues so that they will act and arrange awareness program by contractor if the project is implemented.
Is the proposed area inundated during flood? If yes, how much?	Mr. Md. Nasiruddin (Businessman): No, the areas are hilly areas. Less possibility of occurring flood also no history of recent inundation in the project area.	-
Are you in favor of this project? Why?	<p>Mr. Md. Shahid Mia (Service Holder): Yes, we are in favor of this project. After the construction work is finished, it will change our public health and economic condition. We request project authority to engage local labor during construction period.</p> <p>Mr. Md. Nasiruddin (Businessman) expressed gratitude for the project and stated that the medical centres could bring the medical treatments closer and less time consuming and even greatly contribute to saving lives of the people coming to the land port, thus I am in favor of the project.</p>	Thank you for your response. HSD appreciates your opinions.

Appendix 7: Attendance List of Public Consultation



COVID 19 Response Emergency Assistance Project Directorate General of Health Services

Initial Environmental Examination (IEE)

For

Establishment of Medical Center in Land Port Entry of Akhaura

List of Participants for FGD

Address Akhaura Landport, Brahmanbaria,

Date 26/12/2022

Time 1:00 PM

SL No.	Participant's Name	Age	Occupation	Telephone No.	Signature
1	Md. Mizanur Rahman Mogamdu	50	Engr.	01912087572	
2	Md. Zakir Hossen	50	Govt. service	01916006983	
3	Md. Shamowaz Meah	41	CSR Agent	01740-847655	
4	Mrs.		Private service	0186098280	
5			Business	01745340015	
6			u	10833468855	
7			u	01757703955	
8			u	01916006983	
9	Md. Shamim Mia	25	Govt. ser.	01810385968	Shamim
10	Md. Rafiqul Islam	36	Govt. service	01840530482	Rafiq
11	Md. Kabiruzzaman	31	BLPA	01734-078761	Kabir
12	Md. Nasiruddin	52	Business	01711444315	
13	Dr. Hussein Mohammad Khan Asif		Project Officer C-19 REAP	01788594284	
14	Raisin Akhter Feruz		Env. Specialist	01712-555517	
15					

Appendix 8: Standard Operating Procedures (SOPs) For Building Maintenance and Management

Communication Plan

This SOP will be communicated in hard and soft format to all concerned.

1. Scope

This Standard Operating Procedure (SOP) applies to Management of Medical Centre. It entails all aspects of building and grounds maintenance with clean secure and safe environment, while ensuring necessary facilities.

2. Purpose

The main goal is to manage the building for property upkeep including structural, electrical and plumbing systems, furniture and fixtures, availability of water, and security and safety besides routine cleaning and maintenance of grounds and lawn etc. SOP describes policies, procedures and key processes along with allocation of responsibilities and time lines for management of the building. This will be done by integrating the roles and responsibilities of administration and concerned authority.

3. Process

The building management is responsible for each and every facility utility operation within the center for successful and effective management of the building. The following process should be done:

- Plan for repair or replacement of the facility
- Communicate with facility provider/maintenance engineer
- Estimate the cost and get approval from authority
- All documentation should be maintained and recorded

Sr. No.	Building Components	Description	Frequency
1	All Rooms	Spray windows and glass surfaces with water or appropriate cleaning solution and dry it with sponge or cloth	Weekly
		Remove garbage from dustbins and clean them if required	Daily
		Spray disinfectant on a dry cloth and clean telephone mouth piece, ear piece and telephone instrument.	Daily
		Furniture needs to be cleaned or vacuumed thoroughly	Weekly
		Mop with a damp cloth to remove all dust and dirt from the floor	Daily
		Mop all the tiles with a damp cloth	Daily
2	Building Washrooms	Apply diluted cleaning solution on to the scrubber and clean sink area.	Daily
		Tiles / Floor have to be cleaned daily with diluted cleaning solution.	Daily
		Wipe all surfaces with a dry cloth.	Daily
		Spray mirror with a glass solution & clean with cloth, sponge or tissue.	Daily
		Remove garbage from dustbins and clean them if required	Daily
		Fill soap for hand wash and insert bath rolls	As needed
3	Lobbies and Stairway Handrails	Remove garbage from dustbins and clean them if required	Daily
		Spray windows and glass surfaces with water or appropriate cleaning solution.	Twice in a Week
		Furniture needs to be cleaned or vacuumed thoroughly.	Twice in a Week
		Sweep the lobby floor thoroughly	Daily
		Mop with a damp cloth to remove all dust and dirt from the surface	Daily
		Mop all the tiles with a damp cloth	Daily
		Lift need to be cleaned on a daily basis thoroughly.	Daily
4	Electricity	Overall layout of building's electric plan	NA
		Inspect all electrical cords for any damage	Monthly

Sr. No.	Building Components	Description	Frequency
		Check test power circuit breakers to ensure that they are in a working condition	Monthly
		Inspect all electrical plugs	Monthly
		Check all the light and fan switches and ensure that they all working properly	Monthly
5	Water system	Check the toilet flushing mechanism	Weekly
		Inspect sinks, emergency showers, and basins for any crack, signs of damage or leakage	Weekly
		Inspect the drainage on both the kitchen and bathroom drainage system to ensure there aren't any blockages	Weekly
6	Gas	Inspect all the gas connections for any leaked	Weekly
		Inspect the gas meters to make sure it's working properly	Weekly
7	CCTV cameras	Proper recording with high resolution of cameras and extra zooming.	NA
		Maintain and archive all recording	NA
		Control room monitors the CCTV cameras	Daily
9	Indoor safety	Locks: Check movability of all locks of doors and windows	Monthly
		Keys: Examine keys that these are no elder in condition and are in easy-to-use state	Monthly
10	Outdoor safety	Compound walls: Check all compound walls with focus on cracks or any other damage	Monthly
11	Lawn & Parking Lot	Check the water drainage system and ensure that it is working properly	Monthly
		Inspect the condition of the gutters and check for any damages	Monthly
		Check for any signs of a possible insect or rodent infiltration	Monthly
		Parking lot needs to be sweep.	Weekly
12	Generators, Lifts and ACs	Generators, Lifts and Acs are maintained by third parties.	NA
14	Record keeping	Maintain record of all assets of the building	NA
		Keep record of maintenance in digital format and hard copy	NA
		Keep record secured	NA
		Confidential record will be kept secret	NA

Appendix 9: Sample Medical Waste Management Plan

OBJECTIVE

Medical Waste which is also referred as clinical waste has to be handled and disposed in a proper manner to eliminate the possibility of injury or infection and safeguarding the environment as a whole. The impacts associated with improper Medical Waste Management (MWM) can damage the environment and affect public health directly and indirectly.

Medical wastes contain both general wastes (app. 75-80%) and infectious wastes (app. 20-25 percent). Medical Waste constitutes a public health hazard, if not managed properly. Although majority of the medical waste is no more dangerous than household/municipal waste, the hazardous waste, if exposed to the people or environment in an untreated form, pose various kinds of danger.

The main objective of the Medical Waste Management Plan (MWMP) is to organize disposal of all wastes generated during construction in an environmentally acceptable manner specially consider the following:

- Health hazards of the project personnel as well as community people should not be occurred;
- Manage the wastes in such a way that environment (specially air, water, surrounding environment etc.) will not be polluted;
- Odor means bad smell should not be generated;
- Always friendly environment at the construction sites and construction camps;
- Any waste should not be disposed into the river and any water bodies to avoid water pollution;
- Any waste should not be burnt

STRATEGIES FOR MEDICAL WASTE MANAGEMENT

The major components of medical waste management include:

- Proper waste collection and segregation at source – use of standardized color-coded bins for different wastes;
- Waste streams - general, contaminated, cytotoxic/pharmaceuticals, body parts;
- Storage and transport - cold storage for contaminated waste and body parts, transport in safe and leak proof containers;
- Waste treatment – sterilization of contaminated waste (steam autoclave), incineration of cytotoxics, pharmaceuticals and body parts in incinerator meeting relevant standards and statues.

To perform a Medical Waste Management, several stages, need to be followed.

Stage 1: Collecting & Segregating

The biomedical waste has to be collected in containers that are resilient and strong from breakage during the handling process. Do not place sharps, used needles, syringes, or other contaminated tools in common waste disposal or recycle bin because the entire waste will be infectious by doing so. The segregation also needs to be performed between the liquid and solid biomedical waste products. Categorizing the medical waste with correct segregation to isolate and manage each waste in the proper way. For this purpose, the segregations come in colored waste containers, label coding and plastic bags. The simplest way to identify the different types of waste is to collect the various types of waste in separate containers or plastic bags that are color-coded and/or marked with a symbol.



Stage 2: Storing & Transporting

Specific requirements for storage facilities, such as a secure area that is inaccessible to the general public, as well as separated it from areas for food consumption. The storage facilities also have to be accompanied with refrigerator or freezer unit that can be used with medical waste if necessary. Some facilities even provided special vehicles and protective devices to dispose, handling or transport the biomedical waste products. Remember to observe and keep maintaining the protective devices periodically so it won't be a source of transmitting the infections. Further recommendations should be followed by the ancillary workers in charge of waste collection:

- Wastes should be collected daily or as frequently as required and transported to the designated central treatment site.
- No bags should be removed unless they are labeled with their point of production (hospital and ward or department) and contents.
- The bags or containers should be replaced immediately with new ones of the same type.
- Special packaging requirements for off-site transport in general, the waste should be packaged according to the recommendations provided in sealed bags or containers to prevent spilling during handling and transportation. The bags or containers should be appropriately robust for their content (puncture-proof for sharps, for example, or resistant to aggressive chemicals). Bags and containers must be closed whenever they are two-thirds full. Never pile bags or empty them; grasp them from the top (never hold them against the body) and wear gloves.
- All waste bags or containers should be labeled with basic information on their content and on the waste producer. This information may be written directly on the bag or container or on preprinted labels, securely attached. For health care wastes, the following additional information should be marked on the label: waste category, date of collection, place in hospital where produced (e.g. ward), and waste destination.

Stage 3: Treatment of Medical Waste

Incineration at high temperatures (over 1000°C) is one of the few technologies with which all types of health-care waste can be treated properly and it has the advantage of significantly reducing the volume and weight of the wastes treated. There are simple incinerator models for treating small quantities of medical waste. Some are available on the market, and others have to be built with local materials on the spot according to relatively simple plans. These incinerators consist essentially of one or two combustion chambers (the primary and secondary chambers) and a discharge chimney. The combustion and air-borne emission control system is simple. If infectious medical waste is treated in small single-chamber or dual-

chamber incinerators on site, fractions of waste such as drugs, chemicals, halogenated materials or wastes with high heavy metal content (such as batteries, broken thermometers, etc.) must not be treated in this type of facility.

Autoclaving is a thermal process at low temperatures where waste is subjected to pressurized saturated steam for a sufficient length of time to be disinfected (60 minutes at 121°C and 1 bar). Where prions (which cause Creutzfeldt- Jakob's disease) are present, a cycle of 60 minutes at 134°C is recommended, since they are exceptionally resistant. Efficiency tests (biological or thermal) must in any case be carried out regularly. Autoclaving is environmentally safe but, in most cases, it requires electricity, which is why in some regions it is not always suitable for treating wastes. Small autoclaves are frequently used for sterilizing medical equipment, but the models used for treating healthcare wastes can involve relatively complex and expensive plants (with internal mixing, shredding and drying systems) requiring meticulous design, proper sorting and a high level of operating support and maintenance. Furthermore, the effluents must be disposed of carefully and properly monitored. And lastly, large autoclaves may require a boiler that generates several types of emissions, which have to be monitored. Once wastes have been processed in an autoclave, they are no longer infectious materials: they can be landfilled with municipal refuse. Autoclaving is often used for pre-treating highly infectious waste before it is transported outside the hospital. This thermal process needs electricity and high installation cost.

Microwaving is another emerging technology to treat biohazardous waste, including material from healthcare facilities. Use of radiation to heat materials and destroy pathogens, can be combined with shredding to make material safe for disposal without modification. In microwave systems, disinfection occurs through the action of moisture and low heat. Microwave units usually operate at a frequency of 2450 MHz and the energy generates hot water and steam. It can be installed indoor with solid floor and require large electricity supply. It has the advantage of significantly reducing the volume and weight of the wastes treated up to 60-80% where autoclave can reduce to 50%.

Stage 4: Disposal of Medical Waste

Disposal in a sanitary landfill or waste burial pit: The disposal of untreated health-care waste in an uncontrolled dump is not recommended and must only be used as a last resort. It can be disposed of in a sanitary landfill, subject to certain precautions: it is important that health-care waste be covered rapidly. One technique is to dig a trench down to the level where old municipal refuse (over three months old) has been buried and to immediately bury health-care waste that is discarded at this level under a 2-metre layer of fresh municipal refuse. The following are the essential factors that must be taken into consideration in the design and use of a sanitary landfill

- access must be restricted and controlled;
- competent staff must be available;
- the discarding areas must be planned;
- the bottom of the landfill must be waterproofed;
- the water table must be more than 2 meters below the bottom of the landfill;
- there must be no drinking water sources or wells in the vicinity of the site;
- chemicals must not be disposed of on these sites;
- the waste must be covered daily and vectors (insects, rodents, etc.) must be controlled;
- the landfill must be equipped with a final cover to prevent rainwater infiltration; leachates must be collected and treated.

Purpose-built burial pit could also be used, preferably on the hospital site. Ideally, the pit should be lined with low permeability material such as clay to prevent the pollution of shallow groundwater and should be fenced in so as to prevent scavenger access. Health-care wastes must be buried immediately under a

layer of soil after each unloading operation. It is suggested that lime be spread on the waste for added health protection (in the event of an epidemic, for example) or to eliminate odor. The pit should be sealed once it has been filled.

Disposal of liquid wastes in the sewage: There are two recommended ways to handle medical waste fluids: i. Collect fluids in a leak proof container, and solidified for autoclave treatment; ii. Thermally (autoclave) fluids then they be disposed into the sanitary sewer system. An extra precaution should be performed before pouring treated fluids in sewer because they may clog and leak.

Spill contingency plan: Surfaces contaminated with spilled or leaked biomedical waste must be decontaminated with a solution of industrial strength detergent to remove visible soil before being disinfected by one of the following methods:

- Steam for a minimum of 30 seconds.
- Rinse for at least three (03) minutes with a hypochlorite solution containing 100 parts per million (ppm) available free chlorine (note: one tablespoon per two (02) gallons of water is approximately 100 ppm available free chlorine), or rinse for at least three (3) minutes with an iodine solution containing 25 ppm available iodine.
- Use a chemical germicide that is registered by the Environmental Protection Agency (EPA) as a hospital disinfectant, following recommended dilutions and directions. Liquid waste created by these chemical disinfecting operations shall be disposed of into the sanitary sewage system.
- Employees cleaning spills of biomedical waste must wear appropriate personal protective equipment such as, but not limited to, gloves, gowns, laboratory coats, face shields or masks and eye protection. Spills should be reported to the respective Health and Safety Officer.

Appendix 10: Traffic Management Plan

Introduction

This Traffic Management Plan (TMP) provides the traffic management procedures to be followed by the vehicle users of Contractors' while implementing the construction/reconstruction works of Khulna Sewerage System Development Project. The vehicle operators should be careful that, road users are not limited to motorists - they include pedestrians, such as school children and people with disabilities, cyclists and emergency vehicles.

Traffic Management Objectives and Strategies

The objectives of the TMP are to:

- i. Provide for a safe environment for all road users;
- ii. Provide protection to Contractors' operators and the general public from traffic hazards that may arise as a result of the driving of vehicles;
- iii. Minimize the disruption, congestion and delays to all road users;
- iv. Ensure access to adjacent private/commercial premises is maintained at all times.

To achieve the above objectives, the Traffic Management Plan will:

- i. Ensure whenever possible, that a sufficient number of traffic lanes to accommodate vehicle traffic volumes are provided.
- ii. Ensure that delays and traffic congestion are kept to a minimum and within acceptable levels
- iii. Ensure that appropriate/sufficient warning and information signs are installed and that adequate guidance is provided to delineate the travel paths through the event site.
- iv. Ensure that the roads are free of hazards and that all road users are adequately protected from activities of road users
- v. Ensure that all needs of road users, motorists, pedestrians, cyclists, public transport passengers and people with disabilities are accommodated at and through the site of the event.

A Traffic Management Plan is a key workplace document that has legal standing. As such it is critical that the structure and content of the Plan is sufficient to explain the potential hazards, the assessed risks and the proposed treatments for the proposed work activities and work site. The TMP should include all of the following. Where any of the following sections are not applicable, the TMP should indicate this accordingly.

Introduction

- i. Purpose and Scope,
- ii. Objectives and Strategies.

Project Overview

- i. Project Location,
- ii. Project Details and Site Constraints/Impacts

Project Representatives (Principal for the Works; Principal Contractor)

Safety Plan

- i. Occupational Safety and Health;
- ii. Competencies;
- iii. Responsibilities- Role, responsibility and authority of key personnel, management hierarchy including site representatives and contact details of the responsible personnel;
- iv. Communicating TMP requirements;
- v. Prior approvals (if any) granted by the RHD (Roads and Highways department), City Corporation or Municipality with relevant reference number.

Trip Hazards & Environmental Conditions

- i. Weather;
- ii. Vegetation;
- iii. Existing signage;
- iv. Structures.

Worksite Access

- i. Pedestrians;
- ii. Cyclists;
- iii. Works vehicles;
- iv. Emergency vehicles;
- v. Public Transport;
- vi. Property Access;
- vii. School crossings;
- viii. Impact on adjoining Road Network;
- ix. Heavy and Oversized Vehicles and Loads;
- x. Legal and Other Requirements.

Emergency Arrangements and Contingencies

- i. Emergency Services;
- ii. Dangerous Goods;
- iii. Damage/Failure to Services (Traffic signals, street lighting, power, gas);
- iv. Contingency Planning (Road crash or vehicle breakdown, serious injury or fatality);
- v. Emergency Contacts.

This is a generic traffic management plan, so, a site-specific TMP will be prepared by the contractor in light with the template and approved by PMU before commencement of construction.

Appendix 11: Outline of Occupational Health and Safety Plan

Purpose and Scope

The occupational health, safety management plan is a systematic process of identifying the impact of existing, new or substantially related to health, safety and/or the environment. The proposed plan aims to achieve the following objectives:

- Identification of hazards, associated risks and control measures for each activity;
- Define responsibilities to ensure effective implementation of health and safety (H&S) risk control measures;
- Mitigate potential impacts of project related activities that may affect the health, safety and security of workers and communities within the Project area;
- Maintain healthy workforce and labor pool with safe and healthy working environment;
- Reduce human injury and damage to property and environment in case of emergency;
- Contribute to the improved health and wellbeing of the local community in the Project area.

The plan is applicable to all employees, direct as well as contracted workers/ laborers employed on the project site. It shall be applicable both construction and operation phases of the project. The responsibility of implementing and modifying the plan, if necessary, lies with the company.

Terms and Definition

Confined Space: “Confined Space” means a compartment small size and limited access which by its small size and confined nature can readily create or aggravate a hazardous exposure.

Emergency: An unforeseen occurrence, a sudden and urgent occasion for action.

Fire Watch: Workers assigned as fire watch are the first line of defense in protecting other workers and property from harm during hot work.

First Aider: A person who has received training and who holds a current first aid certificate from an organization or employer whose training and qualification for first aiders are approved by the authority.

Hazard: A source, situation or act with a potential for harm in terms of:

- Ill health
- Damage to property, plant etc.
- Production losses or increased liabilities

Hazardous Substance: The term “hazardous substance” means a substance which by reason of being explosive, flammable, poisonous corrosive, oxidizing, irritant or otherwise harmful is likely to cause injury.

Hot Work: The term “hot work” means riveting, welding, burning or other fire or spark producing operations.

Applicable Standards and Legislation

The standards applicable to the proposed project have been enumerated below:

- IFC Performance Standard 3: Resource Efficiency and Pollution Prevention
- IFC Environmental, Health, and Safety General Guidelines
- Bangladesh Labor Act, 2006 (as amendment through July 22, 2013)
- Bangladesh Factories Act, 1965

BLPA shall ensure that all conditions, pertaining to health, hygiene, safety and welfare are met in accordance with the below acts-

Hazard Identification, Risk Assessment and Risk Control

Identification of hazard, risk assessment and risk control measure must be part of a company's management system to fully ensure that all systems, procedures and processes of protection are in place for all employees. It is important for organization to consult with all employees and external emergency services to establish a risk management programme.

Training

Main responsible person should ensure that every person is aware of the OHS risks associated with the work being carried out at the workplace and is trained and competent in the relevant work practices and maintained procedures.

The Management should establish procedures to identify training needs and provide adequate safety training for all levels of employees including contractors. The safety training should provide management staff with the knowledge and skills necessary for organizing and managing occupational safety and health programmes; team leaders with leadership skills and knowledge to lead, implement and apply occupational safety and health activities; and workers with the knowledge, skills and right attitudes to enable them to work safely without harming them, or others, health and the environment.

Types of SHE Training

Mandatory Training

Mandatory training is a requirement for all staff on first arrival at the site. It is necessary for them who holds the first managerial role with SHE responsibility for others and on appointment to the Director/Senior Managerial role. Manager (OHS), Workers, and Contractors etc. should cover the mandatory requirements.

Job or Hazard Specific training

Consideration of specific hazards arising from the work the line management can be identified and recorded the training need through the Safety, Health and Environment (SHE) department.

SHE Orientation and Awareness

Should conduct safety and health orientation courses for new employees as well as direct and indirect (contract) workers.

Skill Training

Workers should also be given training in the skills appropriate to their work so as to improve their individual performance in their respective fields.

SHE Training Programme

There should be an in-house training programme for SHE related training which shall be implemented by Workplace Safety Supervisor on a regular basis for apprising the project staffs and workers about management of H&S risks entailed in the project activities. These are generic training programmes. may customize the programmes and/or undertake additional training programmes pertaining to project activities as identified necessary.

Table: Proposed Training Modules

SN	Training Name	Frequency	Description	Responsibility
8.	<ul style="list-style-type: none"> Induction Training on Health and Safety should cover the Company- SHE policy; Hazards and risks associated with operation and workplace; 	-	All Company Staffs and contractors at the time of joining/engagement	Workplace Safety Supervisor

SN	Training Name	Frequency	Description	Responsibility
	<ul style="list-style-type: none"> Control measure to be taken to eliminate or minimize SHE risks, including safe working systems and procedures; use of personal protective equipment; action to be carried out during emergency; Emergency response procedures, such as firefighting, extinguisher use and evacuation procedure 			
9.	Tool Box Training or pre-task briefings, highlighting hazards and the method of dealing with them	Daily	Held at each work location by foreman of contractor to discuss day's activities and specific hazards	Contractor Supervisor
10.	Foreman Safety Training	Fortnightly	Review Safety Performance for week and discuss the safety for upcoming operations	Contractor Supervisor
11.	Mass Training	Monthly	Presentation of significant safety issues	Workplace Safety Supervisor
12.	Special Job Hazard Training including Entry into Confined Space and Other Hazardous Environment	Half Yearly	Training about safety measures to be incorporated related to specific jobs	Workplace Safety Supervisor
13.	Safety Bulletins	Weekly	Specific issues visible through jobsite for constant awareness	Workplace Safety Supervisor
14.	Fire Safety	Half Yearly	Presentation of fire safety measures	Workplace Safety Supervisor
15.	Emergency Response	Half Yearly	For emergency preparedness	Workplace Safety Supervisor
16.	First Aid	Half Yearly	For emergency preparedness	Site Doctor
17.	Use of Personal Protective Equipment	Half Yearly	For workplace safety	Workplace Safety Supervisor, Contractor, Supervisor

Documentation and Record Keeping

Manager (OHS) should maintain documented procedures for the identification, maintenance and disposition of OHS records (hazards, assessment and control of risks) of the ongoing activities. OHS records shall be stored and maintained in such a way that they are readily retrievable and protected against damage, deterioration or loss. Their retention times shall be established and recorded. Such documents are as following-

- SHE policy;
- Hazard identification records;
- Risk register;
- Legal register;

- License, certificates, permits;
- Control methods including process control and machine design, safe work procedures, in-house work rules;
- Design drawings;
- Organization structure;
- SHE groups meeting records;
- Training records;
- Drill reports;
- Inspection and audit reports;
- Medical and health surveillance records

Communication and Provision of Information

The authority should communicate and inform any persons affected by the risk about:

- The nature of the risks involved; and
- The control measures or safe work procedures to be taken to address the risks involved

Review

The risk assessment should be reviewed and revised:

- At least once in every 3 years; and
- Upon the occurrence of any injuries to any person as a result of exposure to a hazard in the workplace; or where there is a significant change in work practices or procedures.

Safe Work Practices

The BLPA should establish safe work practice for workers including but not limited to the following:

Fitness for Duty

Fitness for duty incorporates (but is not limited to) the promotion of physical, mental and emotional health. At the time of engagement, WTP employees should undergo a medical assessment to ensure they are medically fit to perform their role.

Health Surveillance

Management must ensure that health assessments are carried out in respect of all personnel who engage in specific tasks with the potential for occupational exposure, if:

- An identifiable disease or other adverse effect on the health of the employee may be related to the exposure;
- There is a reasonable likelihood that the disease or adverse effect may occur under the particular conditions of work; and
- There are recognized techniques for detecting indications of the disease or adverse effect.

Alcohol and Drugs

All personnel are required to undergo a pre-employment drug and alcohol test prior to commencing work with BLPA. Personnel must not commence work if they are not fit for duty or if they are impaired by alcohol, illicit drugs or medication.

Fatigue Management

Fatigue may arise from hours and patterns of work and activities although it is also influenced by factors outside of work, such as family responsibilities, stress, lifestyle, personal health etc., the management of fatigue is a shared responsibility between Management and the individual.

General Hazard Prevention

The BLPA should to prevent the following hazards-

Working Alone

Where Personnel are required to work alone, the activities and conditions shall be risk assessed and a safe system of work should be developed.

Manual Handling

Where a manual handling task is required, by doing a risk assessment appropriate control should be implemented and organized manual handling training as appropriate. Management must ensure suitable powered mechanical equipment and lifting aids are provided to enable personnel to avoid heavy manual tasks.

Ergonomics

All personnel must consider ergonomics when designing or arranging workstations, products and systems so that they fit the personnel who use them. Management should be ensured that where ergonomic hazards are identified and pose a threat to personal safety, a risk assessment is completed by a competent person. Special consideration should be given to ergonomics in confined spaces, awkward or difficult to access spaces, using heavy or awkward tools and equipment, and using repetitive or high force actions.

Hygiene and Sanitation

The BLPA should be supplied suitable facilities for personnel including:

- Toilet facilities within a reasonable distance from each workspace;
- Sanitation and hygiene facilities that are properly maintained;
- Eating places that are dry, clean, well ventilated and have adequate seating, tables, hand washing and waste disposal facilities; and
- Potable water supplies available to all personnel.

Occupational Hygiene

BLPA must ensure commitment to monitoring and reporting of occupational health hazards and hazardous occupational environments, and implement controls to reduce risk in accordance with all applicable regulations and, wherever practicable, with regard to accepted best practices.

Ongoing assessments should be conducted and, as required, controls implemented for the following occupational health hazards:

- Airborne contaminants such as metal dusts, respirable silica and asbestos fibers;
- Occupational noise exposure.

Risk assessment, evaluation and control of occupational hazards should be undertaken in consideration of the following broad hazard categories:

- Chemical hazards – such as fumes and vapors;
- Physical hazards – those related to heat, cold, noise, vibration, ionizing radiation, ultra-violet light and workplace lighting;
- Biological hazards – including mosquito borne viruses, potable water contaminants and other water borne hazards such as legionella; and

- Ergonomic hazards – including manual handling hazards.

The anticipation, recognition, evaluation, communication and control of occupational health hazards underpin to protect personnel from occupational related injury, illness and impairment.

Hazardous Substances

Management must be ensured the safe control of hazardous substances and reduce the level of exposure to personnel, property and the environment. A risk assessment with health surveillance should be required to monitor the health of personnel who are at significant risk of exposure to hazardous substances.

Smoking

Management must be provided a safe working environment by reducing the effects of Environmental Tobacco Smoke (ETS) to all personnel. Smoking is only permitted in designated smoking areas identified with sign post. The designated areas must be:

- Located outdoors;
- In well ventilated areas with no possibility that the redundant smoke will contaminate indoor areas;
- Located (where possible) away from pedestrian traffic areas and where personnel may be required to work; and
- Provided with cigarette butt bins to control litter and reduce potential fire risk.

Heat Stress

BLPA should be undertaken all necessary measures and precautions to ensure that employees do not suffer harm to their health from the adverse effects of extreme heat or cold. If conditions in any workplace are, or are likely to be, hot and humid, Safety Supervisor must ensure that:

- All employees are provided with instruction on measures to be taken to avoid any harmful effects from those conditions;
- Appropriate workplace environmental controls such as ventilation, and monitoring are implemented; and
- If appropriate, a program for monitoring the health of employees in the workplace is implemented.

Lightning

BLPA should be managed the risks associated with personnel being exposed to lightning. Workplace Safety Supervisor must continually monitor the surrounds for changes to weather conditions, and factor the difficulty of seeing conditions change or hearing thunder in a busy operational environment. Personnel must be prepared to respond to lightning immediately should an alert be received, thunder heard, or lightning observed.

Personal Protective Equipment (PPE)

The BLPA should be ensured that all personnel and visitors wear or use personal protective clothing or equipment provided if it is necessary to protect them from harm. All personnel should be used personal protective clothing and equipment where a sign is displayed to do so or as identified by risk assessment. Primarily, PPEs are required for the following protection-

- Head protection (Safety helmets)
- Foot protection (Safety footwear, gumboot etc.)
- Body protection (High visibility clothing, apron etc.)
- Personal protection (Full body harness, rope grap fall arrester etc.)
- Eye protection (Goggles, welder glasses etc.)

- Hand protection (Gloves, finger coats etc.)
- Respiratory protection (Nose mask, Self-Contained Breathing Apparatus (SCBAs) etc.)
- Hearing protection (Ear plugs, ear muffs etc.)

First Aid

- All premises must be provided with adequate first aid facilities with a full-time qualified doctor and at least two trained first aiders during working hours;
- All employer must provide or ensure that there is appropriate and adequate equipment are rendered in the circumstances for enabling first aid to his employees if they are injured or become ill at work.

Hand Tools

Where personnel are required to use hand tools in the course of their job, the tools should be inspected before use. Certain damaged hand tools are prohibited from been used on project sites, refer to the Prohibited Tools Register for further information.

Safety Signs

BLPA should be ensured that the sufficient Safety Signs are posted in workplaces and travel ways to prevent incidents, identify hazards, indicate the location of safety and fire protection equipment, and provide guidance and instruction in emergency procedures. Safety Signs must be sited in that place from where they can be readily seen and maintained in a clean and readable condition.

Fall Prevention

BLPA should be ensured that all personnel undertaking activities where there is a risk of a person falling from one level to another do so in a controlled manner to reduce the risk of personal injury. Specific regulations set out certain mandatory methods that are required to control the risk such as fall prevention systems, edge protection, and protection of holes and openings.

Working On, Over, In or Near Water

Management should be managed the risk of drowning when personnel are required to work on, over, in or near water.

Task Specific Hazard Prevention

High Risk Work

Management should be identified High Risk Work, and implemented a procedure or risk assessment specific to that task to ensure hierarchical controls are in place to eliminate, prevent or control the risk to as low as reasonably practicable (ALARP). At a time, the authority should be ensured that personnel performing High Risk Work requiring a High-Risk Work License, do hold a current license in that particular class, and are competent in that particular High-Risk Work.

Electrical Work

The measures suggested above for electrical work includes-

- Qualified electrical supervisors must be appointed to carry out the duties;
- An electrical log book must be kept at each operational site to record plans, work carried out and other relevant information;
- Electrical equipment must be provided with full current isolating devices capable of being secured in the isolating position wherever practicable. Where such features are not practicable, a risk assessment shall be conducted to establish suitable alternative controls, and outcomes communicated to impacted personnel.

Confined Space

Cutting, burning and welding often take in confined spaces. Regular checking and gas free space should be taken into consideration to permit the work. The supervisor should to make the arrangements for working in a confined space including but not limited to-

- A confined space permit to work procedure should be established that allows work to be carried out in the confined space without risk to the health and safety of workers;
- A supervisor should accompany the worker. It shall be ensured that the supervisor has been provided adequate training;
- Establishing the testing of the atmosphere prior to entry where identified in the risk assessment and ongoing monitoring of the atmosphere whilst work in the confined space is being carried out;
- Ensuring good ventilation in the confined space to prevent stale air and ensure the air quality remains breathable;
- Removing any residues that may be present in the confined space which may give rise to risk or increase the risk to those working in the confined space;
- Isolating the confined space from any gasses, liquids or other flowing materials that may enter the confined space. This isolation should be in the form of a lock-off and isolation permit in order to prevent any accidental flow into the confined space;
- Ensuring that safe access and egress are provided into and out of the confined space. Where multiple accesses are required to a confined space a tally must be kept of the names of the workers in the confined space for emergency purposes;
- Ensuring that where there is excessive temperature in the confined space, the working shift is reduced and frequent breaks are provided. Arrangements must also be made to ensure that workers are do not become dehydrated whilst working is excessive temperatures;
- Establishing an emergency procedure to deal with the rescue or recovery of any workers who become injured or endangered in the confined space.

All personnel required to enter a confined space will undergo confined space entry training. Personnel who have not taken this training are prohibited from entering a confined space. For any activity at confined space, the permit to work shall need to be obtained from the supervisor.

Hot Work

Hot work presents an increased risk of the fire and explosion hazards because it is most often performed in confined and enclosed spaces. These operations include riveting, welding, burning, grinding or use of powder actuated tools or similar fire or spark producing operations. Before beginning hot work, the following task must be performed-

The permit to work must demonstrate that the appropriate precautions have been taken to ensure the area is free of gas, flammable sludge or film adhering to surfaces, and that no other structure or operation is at risk from the cutting, burning or welding. There should be a person available at the fire watchman to raise the alarm in the event of the fire and apply immediate fire frightening measures.

Protection against Fire

Check that there is no flammable material, gas or dry woodwork which could catch fire; and that surfaces which have been in contact with hydrocarbons or toxic substance are completely clean.

Driving Safety

Management must ensure that Personnel permitted to drive either a vehicle in controlled areas or a vehicle on public roads, hold a current driving license and comply with the relevant road rules for that class of vehicle. All Personnel driving vehicles on land must obey all traffic directions; drive to conditions, and in accordance with relevant Traffic Management Plans.

Measurement and Evaluation

Systematic Monitoring**OSH Performance**

The BLPA should be established and reviewed OSH Performance indicators on an annual basis. These performance indicators are monitored and communicated to personnel through regular meeting forums and in writing.

Internal OSH Audit

Internal health and safety audits should be conducted annually. Audit evidence is documented and findings recorded in the Health & Safety Audit Report Form.

OSHMS (Occupational Safety & Health Management System) Audit

BLPA has to be established implemented and maintained an audit program and procedure for periodic OSHMS audits. Audits need to be carried out by a competent person, in order to determine whether the OSHMS:

- Is in line with the City Seed Crushing Industries (Unit-2) Ltd. OSH Policy; and
- Meets the objectives and targets for continual OSH improvement.

Workplace Monitoring**Workplace Inspections**

Management must ensure that each work area is inspected regularly to ensure the work area is safe. Workplace Inspections must be undertaken to identify and rectify hazards, communicate hazard types and controls put in place, monitor the effectiveness of controls and identify means of reducing risks to ALARP.

System and Process Improvement**Preventative and Corrective Actions**

Management should be monitored and measured on a regular basis the key characteristics of the operation and activities that can cause illness and injury.

Continual Improvement

Management regularly should be reviewed and continually improved the OSH performance.

Safety plan for COVID-19

Occupational Health and Safety (OHS) Plan will be prepared and implemented by each contractor on the basis of the ADB SPS 2009, and other relevant standards. The Plan will also be submitted during detail design phase. Proponent will take necessary environmental mitigation measures also considering present COVID-19 pandemic and its expenses for the environmental management not only at the construction and operation phases but also at the closing, termination, and after termination phases in accordance with the IEE study. World Health Organization (WHO), gives the following guidelines of simple precautions to reduce the chances of being infected or spreading COVID-19:

- Cleaning and spray disinfections at Construction site, disinfect frequently touched objects and surfaces, construction equipment, construction material including all reusable PPEs
- The Project site will be barriered by fencing and entrance of non-listed persons in the site will not be allowed to protect health and safety of surrounding communities
- The PPE as required for C-19 protection and as required for safety from construction work will be available
- A fruitful plan will be set up to minimized in person meetings and encourage remote meeting for taking decision on construction and site management.

- Tracking mechanism of worker's status on-site and off-site will be set up (e.g. fit to work, list of all quarantined workers, sick, etc.).
- Guideline on effective 'site operation plan' will be set up to minimized workforce
- How supervisor/contractors to conduct periodic audits to verify that the appropriate measures have been implemented and are maintained.
- Effective Screening mechanism at entry of construction site based on the boundaries of construction sites.
- Regularly and thoroughly clean hands with an alcohol-based hand rub or wash them with soap and water. Because washing hands with soap and water or using alcohol-based hand rub kills viruses that may be on the hands.
- Maintain at least 1 metre (3 feet) distance between two persons. Because when someone coughs, sneezes, or speaks they spray small liquid droplets from their nose or mouth which may contain virus. If someone is too close, he can breathe in the droplets, including the COVID-19 virus if the person has the disease.
- Avoid going to crowded places. Because, where people come together in crowds, people are more likely to come in close contact with someone that has COVID-19 and it is more difficult to maintain physical distance of 1 metre (3 feet).
- Avoid touching eyes, nose and mouth. Because, hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to people's eyes, nose or mouth. From there, the virus can enter into the body and infect the person.
- Make sure every person will follow good respiratory hygiene. This means covering the mouth and nose with bent elbow or tissue during cough or sneeze. Then dispose of the used tissue immediately and wash hands. Because Droplets spread virus. By following good respiratory hygiene, everybody can protect the people around themselves from viruses such as cold, flu and COVID-19.
- Stay home and self-isolate even with minor symptoms such as cough, headache, mild fever, until the person recovers. Have someone bring the supplies. If these people need to leave his house, wear a mask to avoid infecting others. Because avoiding contact with others will protect them from possible COVID-19 and other viruses.
- If anybody have a fever, cough and difficulty breathing, seek medical attention, but call by telephone in advance if possible and follow the directions of their local health authority. Because national and local authorities will have the most up to date information on the situation in their area. Calling in advance will allow their health care provider to quickly direct them to the right health facility. This will also protect people and help prevent spread of viruses and other infections.
- Keep up to date on the latest information from trusted sources, such as WHO or the local and national health authorities. Because local and national authorities are best placed to advise on what people in everybody's area should be doing to protect themselves.

Advice on the safe use of alcohol-based hand sanitizers by WHO is as following:

- To protect everybody against COVID-19, clean hands frequently and thoroughly. Use alcohol-based hand sanitizer or wash hands with soap and water. If someone uses an alcohol-based hand sanitizer, make sure to use and store it carefully.
- Keep alcohol-based hand sanitizers out of children's reach. Teach them how to apply the sanitizer and monitor its use.
- Apply a coin-sized amount on the hands. There is no need to use a large amount of the product.
- Avoid touching eyes, mouth and nose immediately after using an alcohol-based hand sanitizer, as it can cause irritation.

- Hand sanitizers recommended to protect against COVID-19 are alcohol-based and therefore can be flammable. Do not use before handling fire or cooking.
- Under no circumstance, drink or let children swallow an alcohol-based hand sanitizer. It can be poisonous.

Remember that washing hands with soap and water is also effective against COVID-19.

Appendix 12: Outline of Emergency Response Plan for Operation Phase of the Medical Centre (MC)

1. Introduction

The Emergency Response Plan (ERP) is prepared to respond rapidly to an emergency situation impacting during the operation phase of MC; the major objectives are:

1. Prevent possible financial losses resulting from an equipment/facility affected by any form of accident/incident;
2. Ensure the safety of the workers / operators in charge of the MC operations.

The MC emergency response plan details the procedures to be followed in case of emergency. The analysis of the potential emergency situations will also help to take measure to prevent these incidents to happen. The BLPA is therefore a comprehensive action plan with formalized procedures to respond to any emergencies.

2. Causes of Emergencies

Causes of emergencies may include the followings:

- Natural disasters
- Faulty maintenance
- Negligent operation and accidents

A discussion of each cause and its relationship to the operation of a sewage treatment facility is included in the section.

3. Natural Disasters

Natural disasters which are most likely to affect the operation of the sewage treatment facility to the extent of reducing the efficiency of the plant can be associated with one of the following:

- Flood
- Earthquake
- Storm Surge
- Fire

The MC should be constructed ensuring continued operation under emergency conditions imposed on that system by the disaster.

4. Faulty Maintenance

Equipment must be maintained or it will cease to perform the task efficiently. The manner in which the equipment is maintained will generally determine how well it will perform its intended function and for how long. Good maintenance will result in equipment performing throughout its design period; however, poor maintenance or faulty maintenance will shorten the expected life of equipment.

Unexpected breakdown due to faulty maintenance can greatly affect the continued operation of a sewage treatment plant. Although the breakdown can possibly be repaired during a regularly scheduled repair program and probably does not represent an emergency, it is the effect on the continued satisfactory operation of the plant that can lead to the emergency condition.

5. Negligent Operation

All operations, regardless of application, large or small, require certain procedures to be followed for satisfactory performance. To improperly follow established procedures constitutes negligent operation.

Negligent operation may not be as readily noticeable as faulty maintenance, but the emergency condition resulting from it could possibly be more severe because negligent operation could affect more units of operation before being discovered.

It is therefore imperative that sound operating procedure be developed and maintained to ensure the satisfactory operation of the sewage treatment plant. It is also important to have competent personnel to run and monitor the plant.

6. Accidents

Accidents result in personal injury and property damage, both of which have a direct bearing on MC's operation.

7. Effects of Emergencies

The following events are the effects related to causes of emergencies in MC:

- Power failures
- Fires
- Hydraulic overloading, ruptures and sewer blockages
- Sewer overflows
- Intentional or accidental release of chemical substances
- Construction accidents
- Equipment failure
- Process upsets
- Personnel injury

a. Power failure – Power failures may be caused by an interruption of service originating at the power utility company; storm damage and/or vehicle accidents resulting in downed power lines; vandalism; or equipment malfunction at the wastewater treatment facility or remote pump stations. To ensure the reliability of back-up power, the following items should be done: perform regular preventative maintenance on the generator unit; regularly exercise generators under load; always ensure an adequate supply of fuel is on hand (this applies to portable generators as well); ensure all generator related alarms are functioning.

b. Hydraulic overloading – Hydraulic overloading is considered as any amount of flow that exceeds the design capacity of the plant to effectively treat that amount of flow. Hydraulic overloading is most often associated with storm events. Hydraulic overloading can have many serious consequences: decreased plant performance; short term and/or long-term effluent quality violations; mechanical breakdowns; overflows; and grit and sludge accumulation from the scouring of sewer lines.

c. Blockages, ruptures, overflows and construction accidents – Blockages and ruptures could occur at any time. A blockage is typically caused by grease build-up or root penetration resulting in an interruption of flow, often resulting in an overflow from a manhole or within a business or residential basement. A blockage may also be caused by an object making its way into the sewer system and lodging within a pipeline. Physical settlement of the pipeline can cause a misalignment of joints, resulting in a blockage. Sand or sludge accumulation can form an impenetrable blockage in slow moving areas of the sewer system. Overflows can occur at pump stations or low-lying manholes due to the failure of the pumping system or being overwhelmed by rainfall.

d. Equipment failure - Wastewater treatment plant environments are subject to moisture, corrosion, dust, gases, heat and chemicals. Equipment can and will break down. Developing and practicing a sound maintenance program will ensure the reliability of critical equipment. A reactive or corrective maintenance program, on the other hand, is basically a “run it until it breaks” philosophy. This approach can lead to serious equipment failure at the worst possible time, often resulting in process failure, permit violations or environmental disaster such as sewer overflows.

e. Process upsets - Most treatment plants are biological in nature and thus depend upon the activity of bacteria to treat the wastewater. Since they are living organisms, their survival and health are subject to environmental conditions. Toxic chemicals, extreme pH swings, high strength wastes, inadequate aeration and equipment malfunction can all have a detrimental effect on these organisms. All of these situations can lead to a process upset and adversely affect effluent quality.

8. Emergency Action Procedure

Specific Action Plans (APs) should also be included in the ERP, which will be used to respond to events and incidents.

1. Before beginning any emergency planning, wastewater system managers would be well advised to be familiar with local, state, and federal regulations that may affect the system’s emergency planning program.
2. The goals of an Emergency Response Plan are to document and understand the steps needed to
 - Rapidly restore wastewater service after an emergency.
 - Minimize wastewater system damage
 - Minimize impact and loss to customers
 - Minimize negative impacts on public health and employee safety
 - Minimize adverse effects on the environment
 - Provide emergency public information concerning customer service
 - Provide wastewater system information for first responders
 - Ensure effective communication between all those involved
3. In Emergency situation:
 - ERP tells how to report the incident and to notify it to the responsible authorities;
 - Measures taken to prevent or minimize the recurrence of incidents.
 - Update the emergency response plan: contact list to be updated yearly (or as soon as there is a change in the contact information) at least and overall document to be reviewed if there is any change in the MC operation.
 - Practice the emergency response; an emergency response drill should be conducted once a year.
4. As part of ERP procedures, it is necessary to provide essential maps and plans of the entire treatment plant grounds in a secure location and keep back-up copies of sensitive documents in an off-site secure location.
5. Establish a **Chain of Command Structure** having clear lines of authority and the delegation of responsibilities will help to avoid confusion when an incident occurs.
6. Emergency contact list should be posted at every phone location

7. Emergency Response Procedures for Specific Events will have its own specific action plan, depending upon the severity and its potential impact.

The following are some examples of response issues for events that may occur:

9. Natural Disaster (Flood)

Natural disaster such as flood, earthquake or storm surge may potentially occur at the MC area. It is noted that such emergencies usually develop gradually and there is usually adequate time to respond in order to prevent the condition from worsening.

1. First Responder Actions

When personnel gauge that there is a potential for the site to be adversely affected by natural disasters, the following procedures should be adopted:

- Assess the condition of the site;
- Raise concerns with Incident Leader; and
- Wait for further instruction from Incident Leader.

2. Emergency Response Team (ERT)

The Incident Leader shall take the following steps:

- Assess the situation and decide if the situation warrants activation of the ERP;
- Instruct ERT members to perform specific tasks such as constructing a dike around low areas, etc. as required; and
- Instruct the necessary call out if assistance from external emergency services is required.

10. Fire Hazards

• Before the Emergency

Know the location of the nearest Fire Department and know how to contact them. Know the nearest water sources.

• Identify the Emergency

Workers at site must act as an observer to detect any occurrence of fire episodes. Alert all workers when someone actually sees smoke or fire. Operation Commander should be notified immediately so that the Fire Department can be called.

• Take appropriate action

The affected area must be evacuated immediately.

Should you decide to fight a small fire yourself (Using Fire Extinguisher), be sure to aim the charge of the extinguisher at the base of the fire.

• Caution!!! Never use water fire extinguisher on an electrical fire

Any damage or injuries should be reported to the command post. Other necessary action will be determined by the Operation Commander or his deputy.

A supervisor will be responsible for securing sensitive items or materials. A separate manual list of materials should be taken into consideration. These lists will be made available to the fire department and others as necessary.

Do not re-enter the site until instructed to do so. In case of any injuries, arrange for medical facilities including place for treatment or casualties.

- **End of Crisis**

Designated officers will develop a follow-up plan for each type of crises and hold a debriefing to discuss problems or improvement action plans. Written documentation of the particular crisis will be prepared for future use.

Ensure that accurate log of events is kept and that evidence and records are preserved for use in investigations.

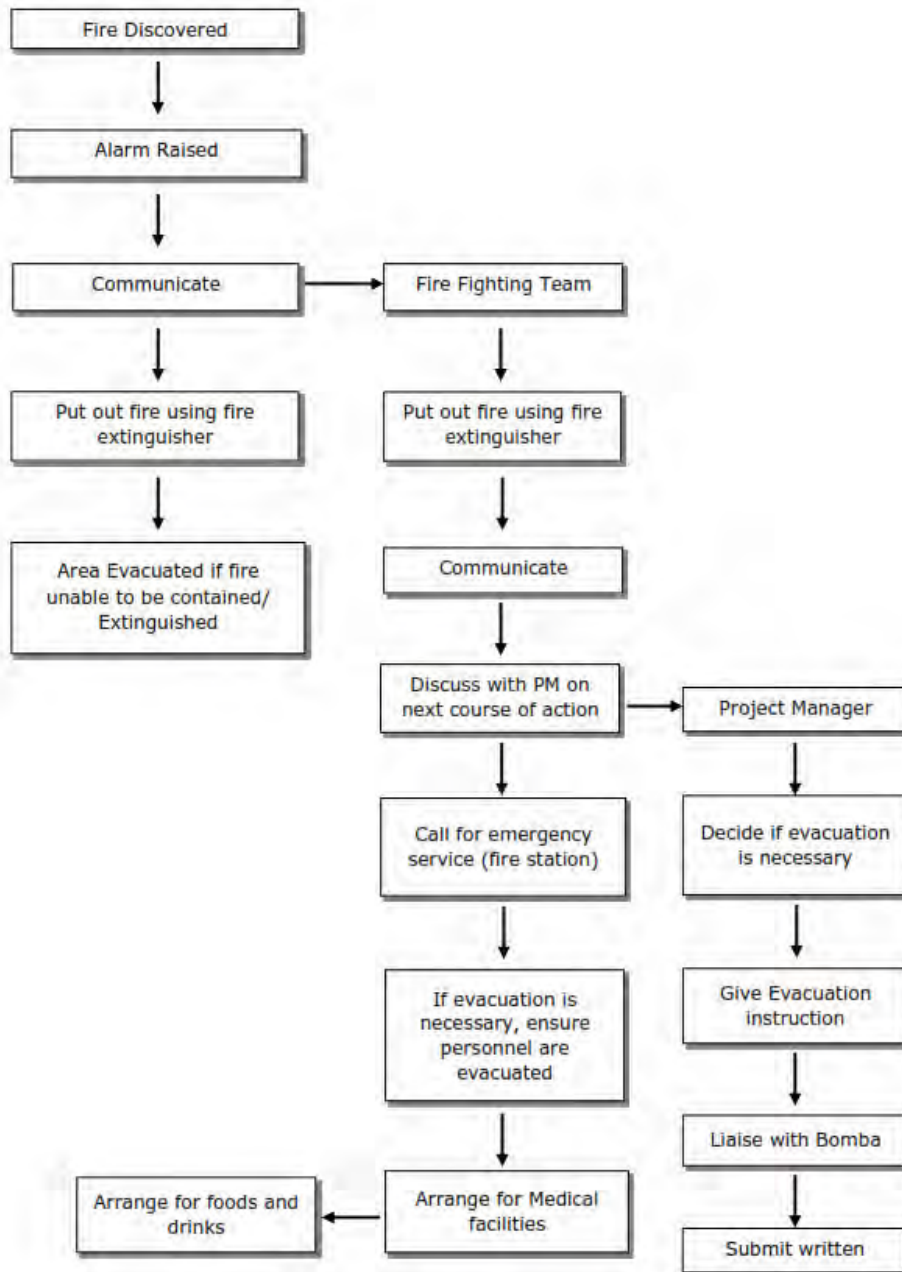


Figure 1: Emergency Response Procedure Flow Chart-Fire

11. Sewage Overflow

Failure at any point within the sanitary sewer system can cause sewage to overflow onto public and/or private property and/or waterways, thereby increasing the risk of a possible public health hazard and contamination of the environment.

The first crew responding to a sewer overflow must protect public health and the environment from the effects of the spilled sewage. The ERT shall be notified immediately.

- **Take appropriate action**

The site personnel will investigate every reported sewer overflow.

Visual Inspection

- 1) Unusual

Discharge

If the sewage discharge has an unusual colour or odour, the site personnel should contact the Fire Department to alert them of the condition and await their instruction. The site personnel should also contact the Plant Manager to have a sample taken.

- 2) No Obvious Sewage

Spill

The site personnel will do a visual inspection of the site and the upstream manholes to determine the nature and potential cause of the problem. The site personnel will contact the reporting party to obtain further information if necessary. If the problem is not sewer related, the site investigation information will be sent to the Public Work Department to redirect to the appropriate personnel.

- 3) Obvious

Spill

In the case of an obvious sewage spill, the site personnel will follow the Sewage Overflow Response Procedures.

2. End of Crisis

The emergency will be considered over when determined by the proper authorities.

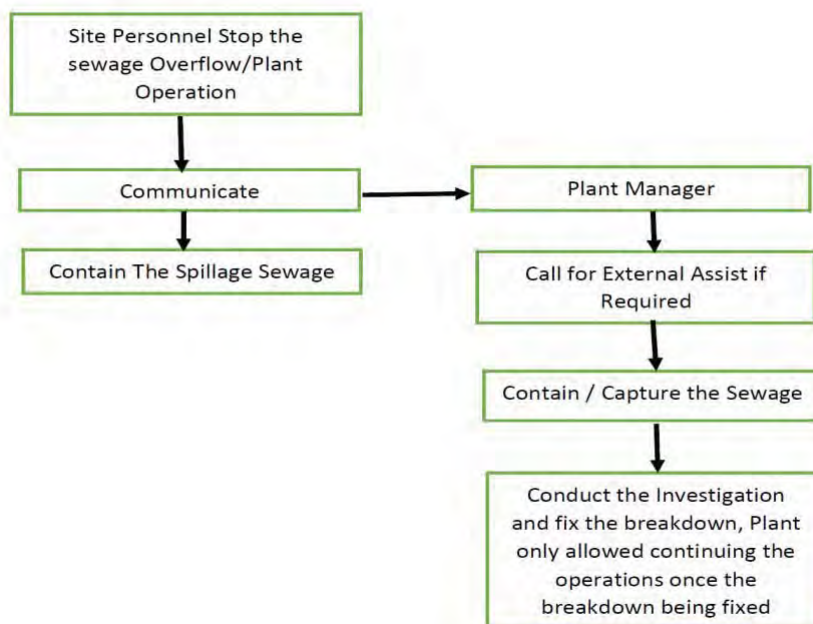


Figure 2: Emergency Response Procedure Flow Chart – Emergency Overflow

12. Power Failure

There is a potential for power failure due to unforeseen circumstances. Power failure can interrupt the entire MC operation, so generator should be provided to ensure uninterrupted operation.

(i) First Responder Actions

In the event of power failure, the first responder shall adopt the following procedures:

- Notify the situation to the immediate supervisor and/or Incident Leader; and
- Wait for further instruction from Incident Leader.

(ii) Emergency Response Team (ERT)

The Incident Leader shall adopt the following procedures:

- Assess the situation and determine whether it is internal or external power supply interruption;
- If it is internal interruption, notify the person in charge to evaluate the situation; and
- If it is due to external appropriate authority for further information e.g., Power Development Board (PDB) for power supply interruption.

13. Protection Measures

This section gives several measures required to protect sewage treatment facilities from emergencies.

– Warning Devices

There are several types of warning devices available, but generally they can be classified as follows:

1. Alarms- which may be audio visual
2. Indicating Lights-tell the operator which equipment is required to run, equipment running, power on and off, etc.
3. Indicators – mechanical (gauge), electrical (counters, indicators, recorders) or electro mechanical (flow and/or pressure recorders).

– Adequate Preventive Maintenance

Always maintain good records on all equipment purchased. Such things as date of purchase, equipment manufacturer, local service representative's name and phone number, instruction manuals, service instructions, etc. should be filed on each piece of equipment for handy reference. All preventive maintenance performed by waste treatment plant personnel should always be done in accordance with equipment manufacturer's recommendations. The ERP should be updated from time to time as may be required and form part of the EMP document.

Appendix 13: Environmental Audit Checklist of the Existing Facility

Environmental Audit Checklist

The purpose of this checklist is to identify potential environment and social issues related to project development, construction and operation. This is a generalized checklist (nonexhaustive) format for infrastructure projects. The user/ project proponent may complete the format, which will be reviewed by environmental professionals retained by the financial institution to help determine project eligibility for financing and initial environmental risk rating.

A. Project Background

SI No.	Name of Proposed Project	Construction of Medical Center at Akhaura Land Port
1.	Location	The proposed project consists of the construction of a 2 storied medical center with a 6 storied foundation which will also be used as a screening and isolation center for COVID-19 affected Personnel during border pass in Akhaura land port. The proposed 2 storied medical facilities with 6 storied foundations are designed by the department of architecture (DoA).
2.	Project objective	The medical/screening center will help identifying the COVID-19 affected persons during border crossing and isolation center will help stopping it form further spread among local community.
3.	Capacity or size of the Project	The proposed project includes only construction of one Medical/Screening Center at Akhaura Land port.
4.	Category	The environmental category of the sub-project is not listed in Schedule – 1 of ECR. However, the construction of Multi Storied Medical Centre is relevant to the Multi-storied Building and the sub-project is listed in Schedule – 1 of ECR and falls in Orange B. However, DoE has issued a circular dated 07/08/2018 with a memo no. 22.00.0000.074.18.001.17-242 and exempted for any kind of environmental clearance certificate from DoE for building which height is less than 19.8m (6 storied) located other than Dhaka metropolitan city. Therefore, this subproject/package is not required any clearance from DoE also. The project is assigned to Category B as per ADB guideline.

B. Activities on E&S List of Excluded Activities

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
1.	Is there a possibility of activities under the project that constitute excluded activities?		No	There is no possibility of any activities under the project that constitute excluded activities
2.	If yes, can they be eliminated through adequate application of the provisions of the ADB SPS 2009?			

C. International Waterways and Disputed Territories

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
1.	Is there a possibility of activities supported by the project that have impacts on international waterways?		No	Impact on international waterways is not anticipated from this project. There are no any such activities that might have impacts on international waterways
2.	Is the project site located in disputed territory?		No	There is no disputed area within the project site. The development work will be

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
				carried out on land owned by the akhaura land port authority.

D. Environmental Screening of Sub-Project

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
Potential Environmental Impacts				
1.	Will the renovation work disturb other commercial/community/residential activities?		No	The proposed site is within the boundary of the land port authority.
2.	Project's siting: Is the project site adjacent to or within any of the following sensitive receptors?			
	i. Cultural heritage site		No	The project site is not located inside or near any cultural heritage site.
	ii. Natural habitats and/ or legally protected areas (wetlands, forests, estuary, buffer zones, nature reserves); if yes, is there possibility of a critical habitat present?		No	The project is not located adjacent to any ECA.
	iii. Fragmentation of habitat of flora and fauna?		No	The project is not expected to fragment habitat of flora and fauna.
	iv. Are rivers and reservoirs present in direct proximity to project site?		No	There is no such waterbody. One pond is located almost 100m far from the site.
	v. Are canals and irrigation systems present in direct proximity to project site?		No	No canals or irrigation systems present close proximity to the proposed project site.
	vi. Is the proposed site located on agricultural land?		No	The project will be implemented in the unproductive land and there is no agricultural activity within the project site.
3.	Will the project potentially cause:			If select " yes", please describe and briefly assess impact's level
	i. Encroachment on historical/cultural areas		No	Due to the project activities, there is no possibility to encroachment on historical/cultural areas.
	ii. Impacts on natural resources that constitute livelihoods of community (e.g., water resources, fishing or hunting grounds)?		No	The land of the project site is fully owned by the land port authority.
	iii. Disfiguration of landscape?		No	Though, there are low lying areas and water logging areas surrounding the site. It has been communicated by the BLPA officials that the site is not getting inundated during heavy rain and the same has been observed during the site visit.
	iv. Change of surface water quality or water flows?		No	Most of watercourses that flow through Akhaura and adjoining areas originate in the hills of Tripura hills in the east, and flow towards the west, north, and south in consonance with the general slope of the land. The area is drained by five river systems: (i) the Titas River in the northern part; (ii) the Gumti river and the Dakatia

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
				river in the central part; (iii) the Little Feni River in the southeastern part; and (iv) the Meghna River in the western part.
	v. Increase in waste generation?	Yes		The construction and operation of the proposed project will generate waste which will need appropriate collection, transportation, primary treatment and disposal in an environmentally acceptable manner and as per the statutory requirements by Department of Environment (DoE), Government of Bangladesh and ADB SPS 2009. <ul style="list-style-type: none"> Construction and demolition waste will be disposal in designated waste disposal area. Separate waste management plan and medical waste management plan have been prepared for the project and presented as Appendix in IEE report.
	<ul style="list-style-type: none"> Increase water turbidity due to runoff and erosion? 		No	No runoff and erosion would be occurred.
	<ul style="list-style-type: none"> Waste water from camping sites to be directly discharged to the surface water resources or not? 		No	No waste water would directly discharge to the surface water.
	<ul style="list-style-type: none"> Construction waste directly discharged to the surface water? 		No	Construction waste would be managed as per existing best practices.
Potential Community and Occupational Health and Safety Impacts				
4.	Will the project create major noise/vibration?	Yes		Construction activities, vehicle movement, vessels movement, jetty activity, loading and unloading of goods, power generation during operation of generates will create noise. Although existing jetty operation and movement of vessels are not creating any significant impact. The mitigation measures are kept in place: <ul style="list-style-type: none"> BLPA will ensure mitigation of noise through control measures such as acoustic enclosures for generators, rubber padding for motors, pumps and compressors All machinery and equipment provided with adequate maintenance to ensure reduction of unwanted noise from loose components High noise generating activities will be prevented during night time A green zone will be developed to reduce noise reaching nearby residential areas All workers engaged in the high noise generating area will be provided with ear plugs and ear muffs

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
				<ul style="list-style-type: none"> • Movement of vehicle movement is strictly monitored and aware truck drivers about noise pollution.
5.	Will it create dust problem around the sites?	Yes		<p>Project related construction activities are likely to add on to the existing particulate matter and dust levels in the area. Improper handling and storage of construction material may lead to dust dispersion during high wind periods. Following mitigation measures have been provided to mitigate dust pollution:</p> <ul style="list-style-type: none"> • Trucks / dumpers/ vessels engaged for transportation of friable construction materials and spoil will be covered • Daily sprinkling of water within construction area, at least 3-4 times per day • Wetting of the stockpile • Proper location of material stockpiles • Win breaks for stockpiles, covering of soil and material at site • Installation of wind break barrier such as trap curtain or wind fence
6.	Will it temporarily stop the water supply and sanitation system?		No	The project is not expected to stop water supply and sanitation facility
7.	Will any refrigeration/air conditioning units be removed/ disposed?		No	There is no possibility to removed/ disposed any refrigeration/air conditioning units.
8.	Will any liquid waste, or an item containing liquids (including oils), need to be transported off-site for reuse, recycle or disposal?	Yes		Used machine oil would be refined into oil refineries and generated liquid wastes would be treated into wastewater treatment plants. Generated oils for diesel generator will be disposed to authorized vendors to dispose as per regulatory guidelines.
9.	Are explosive and hazardous chemicals used within the project?		No	<p>No explosive and hazardous chemicals would be used in the project. Use of paints and coatings are to be used in the site for various operations/equipment. Following mitigation measures would be provided:</p> <ul style="list-style-type: none"> • Painting tasks should be done in a control environment to mitigate scatter and loss of pollutants • Workers will use protective gears for the handling of such chemicals
10.	Will equipment containing polychlorinated biphenyls (PCB's) be removed (i.e. transformers, capacitors, hydraulic and heat transfer systems, etc.)?		No	It will be managed by following the environmental protocol to minimizing the impacts.
11.	In the past, there was any accident incurred due to landmines or explosive materials remaining from the war?		No	There is no previous record for such kinds of accident in the project area

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
12.	Will project's construction cause disturbance to the transportation in the project's site?	Yes		Minor impact will be occurred due to excessive traffic movement but this will be controlled by traffic management plan
13.	Will building materials containing asbestos be removed/disposed?		No	No asbestos containing materials will be disposed without proper treatment or following the environmental protocol.
14.	Will any building materials be removed/disposed that are coated with lead-based paint?		No	No building materials coated with lead-based paint will be disposed without proper treatment or following the environmental protocol.
15.	Will any building materials be removed/disposed that contain lead, silver or chrome?		No	No building materials that contain lead, silver or chrome will be disposed without proper treatment or following the environmental protocol.
16.	Will mercury-containing devices (switches, gauges, thermostats) be removed/disposed?	Yes		It will be disposed by following environmental protocols and waste management plan
17.	Will the workers be provided protective equipment, devices and clothing and be ensured those are used?	Yes		Yes, workers will be provided with appropriate personal protective equipment (PPE) like safety jackets, helmets, gloves, fall protection, goggles, face mask, apron, ear plugs, suits, splash, safety boots etc. depending upon the work they are assigned. The BLPA will execute Occupational Health Safety Plan and with adequate trainings.
18.	Will there be substantial migrant labor required? If so, what are the potential impacts on local communities?		No	Substantial numbers of workers/ labors will be required during construction phase. As the surrounding areas of project occupies influx of workers/ labor, therefore no migrated workers would be required for the project. Workers form the local area will cover.
19.	Is there any risk of disease dissemination from construction workers to the local peoples (and vice versa)?		No	Estimated number of groups of workers to be hired for project construction in the commune/ district.
20.	Is there any potential for conflict between construction workers and local peoples (and vice versa)?		No	The local people are helpful and concerned about the project activities. So, there is no possibility to arise any conflict between construction workers and local peoples.
Potential Social Impacts				
21.	Permanent land acquisition		No	N/A
22.	Temporary land acquisition		No	N/A
23.	Impacts on livelihoods/economic displacement?		No	The project will bring positive impacts on livelihood for local people
24.	Is there any household need to be relocated?		No	The project will be implemented within the proponent's own land, so There is no resettlement issue due to the project activity.
25.	Would the resettlement site environmentally and/or culturally sensitive?		No	The project will implement within the proponent's own land.
26.	Project's construction will cause any damage to the existing local roads system?		No	During construction period, the traffic movement of that area will be increase

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
				but it is assumed that it will not damage the existing road.
27.	Will soil excavation during project's construction cause soil erosion?	Yes		Minor soil erosion would be occurred during project's construction.
28.	Will project need to open new access roads?	Yes		The site located nearby the existing road, so a short length connected road is needed to construct for the project site.
29.	Will project cause impact on air transportation?		No	The construction will be on a minimum height that did not hamper the air transportation

E. List of Environmentally and Socially Sensitive Activities

Sl. No.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
1.	Activities involving large-scale physical and/or economic displacement resulting from land related transactions.		No	The project will be implemented within the proponent's own land, so there is no resettlement issue due to the project activity.
2.	Activities in or near critical habitats and/or legally protected areas?		No	There are no critical habitats and/or legally protected areas within the project site
3.	Activities involving adverse impacts on tribal peoples and/or small ethnic communities?		No	There are no tribal peoples and/ or small ethnic communities within the project site
4.	Activities involving significant adverse impacts on critical cultural heritage areas?		No	There are no cultural heritage areas within the project site. Therefore, the project does not affect any cultural heritage areas.

Appendix 14: Detailed Design of the Proposed Medical Center

Preliminary Structural Information for Estimation for Covid-19 Medical Center at Land ports at

Akhaura, Brahmanbaria.

This structural information is based on preliminary architectural drawing sent by EE, Brahmanbaria via email (Receiving date: 11-12-2022) and only SPT value of the proposed site sent by EE, Brahmanbaria. via email (Receiving date: 11-12-2022)

Foundation considered for 06 (Six) storied building which must be confirmed.

1. Material:

a) Concrete: (For All structural Elements except Pile)

- $f_c = 25$ MPa, minimum $f_{cr} = 33.5$ MPa in nominal mix 1:1.5:3) with Stone Chips (100% Sand of F.M. 2.2) [CE's PWD SoR 2022 Item Code : 07.3]

b) Concrete: (For Precast Piles Only)

- $f_c = 30$ MPa, minimum $f_{cr} = 38.5$ MPa in nominal mix 1:1.25:2.5) with Stone Chips (100% Sand of F.M. 2.2) [CE's PWD SoR 2022 Item Code : 09.10]

c) Reinforcement:

- $F_y = 400$ MPa but f_y not exceeding 480 MPa. [CE's PWD SoR 2022 Item Code : 08.1.2]

2. Foundation:

- Foundation considered for 06 (Six) storied building which must be confirmed.
- Precast Pile : 14"x14" , Length= 85'-0" (-3'-0" From EGL)

Capacity: 70 ton (140 kips)

Total Nos. of Service Pile= 62

In addition to this, 02 Nos. of Test Pile required. [See Pile Long Section for details]

- Pile Cap :

PC1 : 2'-8"x2'-8" (12 Nos.) , T= 24"

PC2 : 6'-10"x2'-8" (22 Nos.) , T= 30"

PC3: 6'-10"x5'-3" (02 Nos.) , T= 30"

Reinforcement in Pile Cap= 1.25%

- 3. Column size = 15"x 20" (28 nos.) & 15" dia (8 nos)
Column reinforcement = 3.0%

- 4. Grade beam = 12" x 18"
Grade beam reinforcement = 2.0%

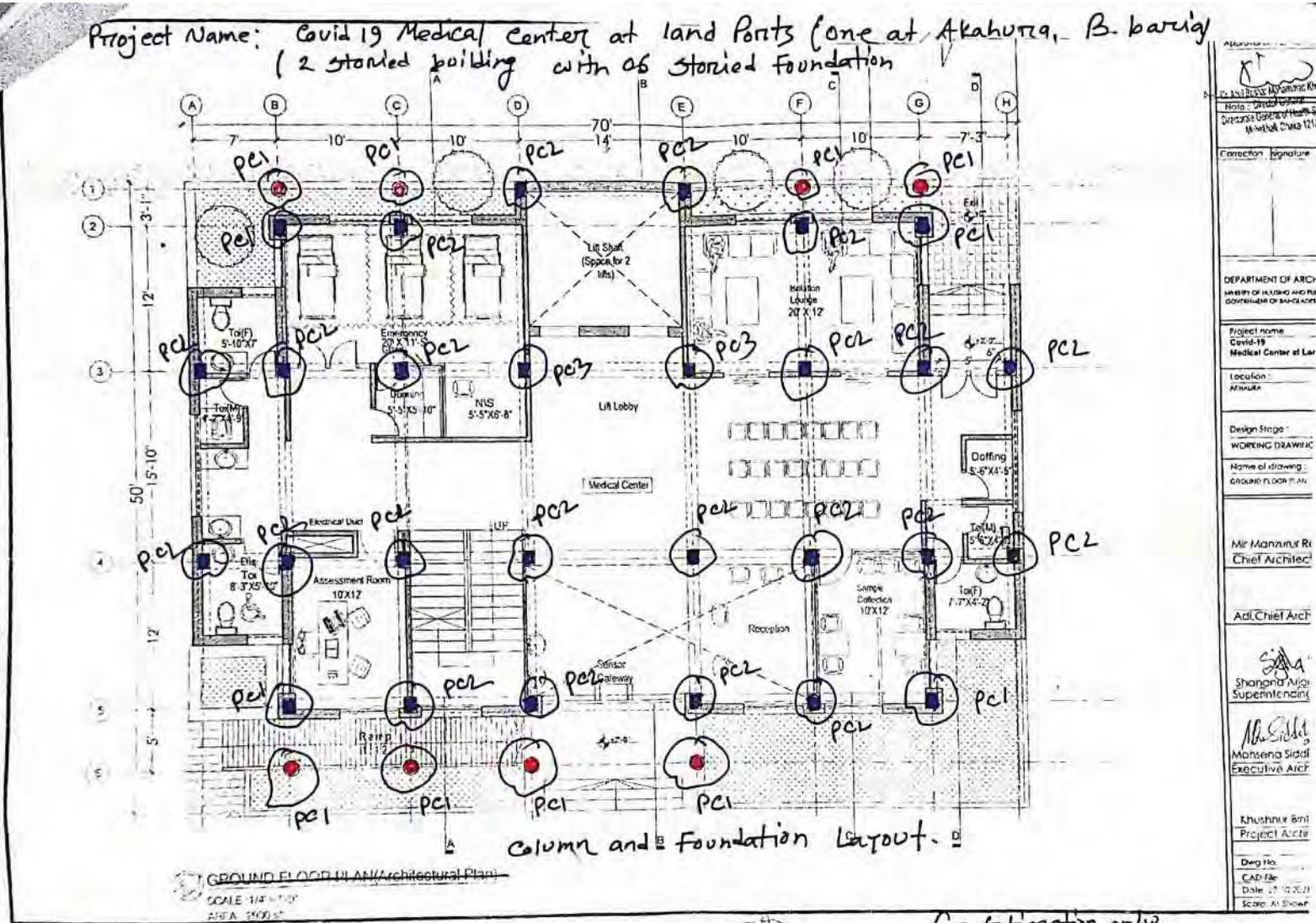
- 5. Floor beam = 15" x 18"
Floor beam reinforcement = 2.5%

- 6. Average Slab thickness = 5"
Slab reinforcement = 1.25%

- 7. Stair: Waist Slab Thickness = 7"
Stair Reinforcement = 1.5%

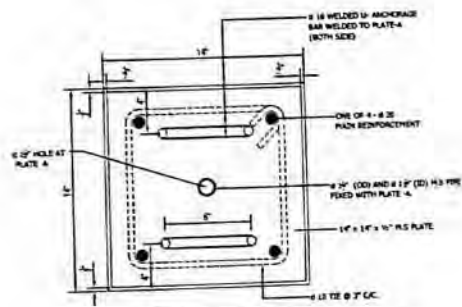
- 8. Final Architectural drawing, spot level data and digital survey report required for final structural drawing.

13/12/2022
মোহাম্মদ ফাতেহ আজম খান
নির্বাহী প্রকৌশলী (সেভার)
গণশুভ বিশেষ ডিজাইন ইন্সটিটিউট-২
পূর্ব ভবন, ঢাকা।

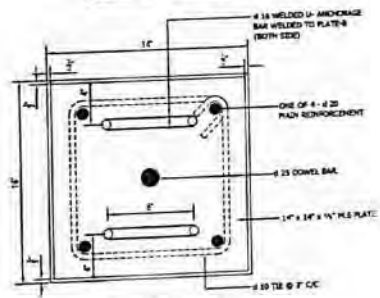


for estimation only
 Mr. Md. Nazimul Islam
 General Director
 Bangladesh Inland Water Transport Corporation

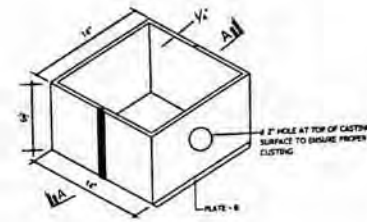
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 নির্বাহী প্রকৌশলী (চরমাঃ)
 গণপথ বিশেষ ডিজাইন ইউনিট-২
 গভঃ জলন নাবগাঃ



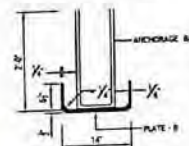
PLAN OF M.S. PLATE - 'A'



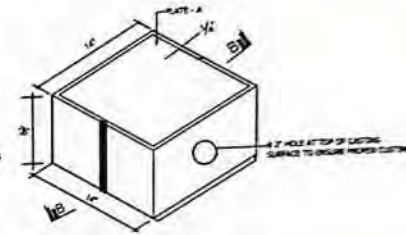
PLAN OF M.S. PLATE - 'B'



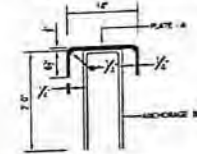
UPPER PART CAP (3D VIEW)



SEC. ON A - A OF UPPER PART CAP

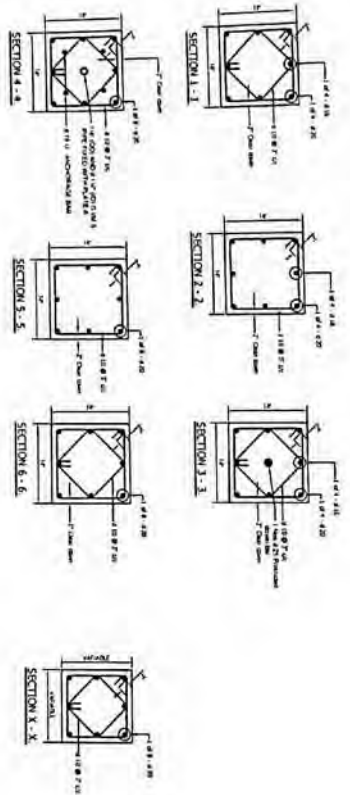
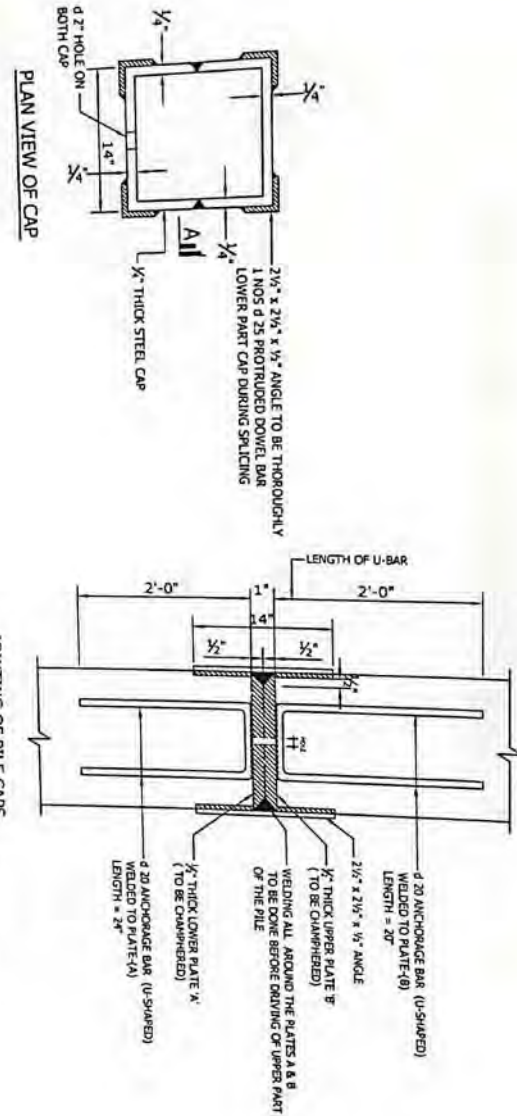


LOWER PART CAP (3D VIEW)



SEC. ON B - B OF LOWER PART CAP

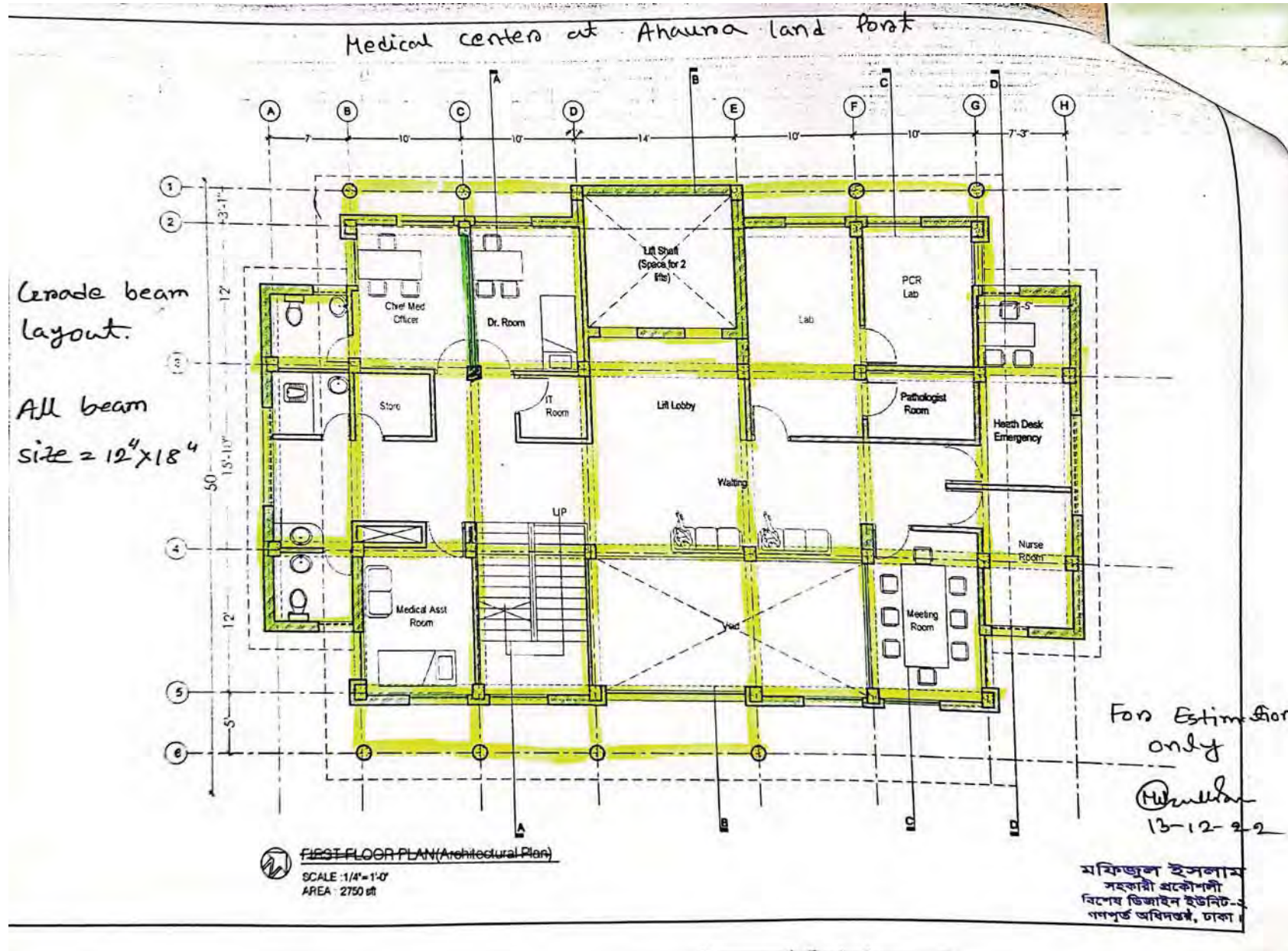
for estimation only
 15/12/2022
 মোহাম্মদ ফজ্জুহ আজম খান
 নির্বাহী প্রকৌশলী (সেতাস)
 গণস্বর্গ বিশেষ ডিজাইন ইউনিট-২
 গুর্ড ভবন, ঢাকা।



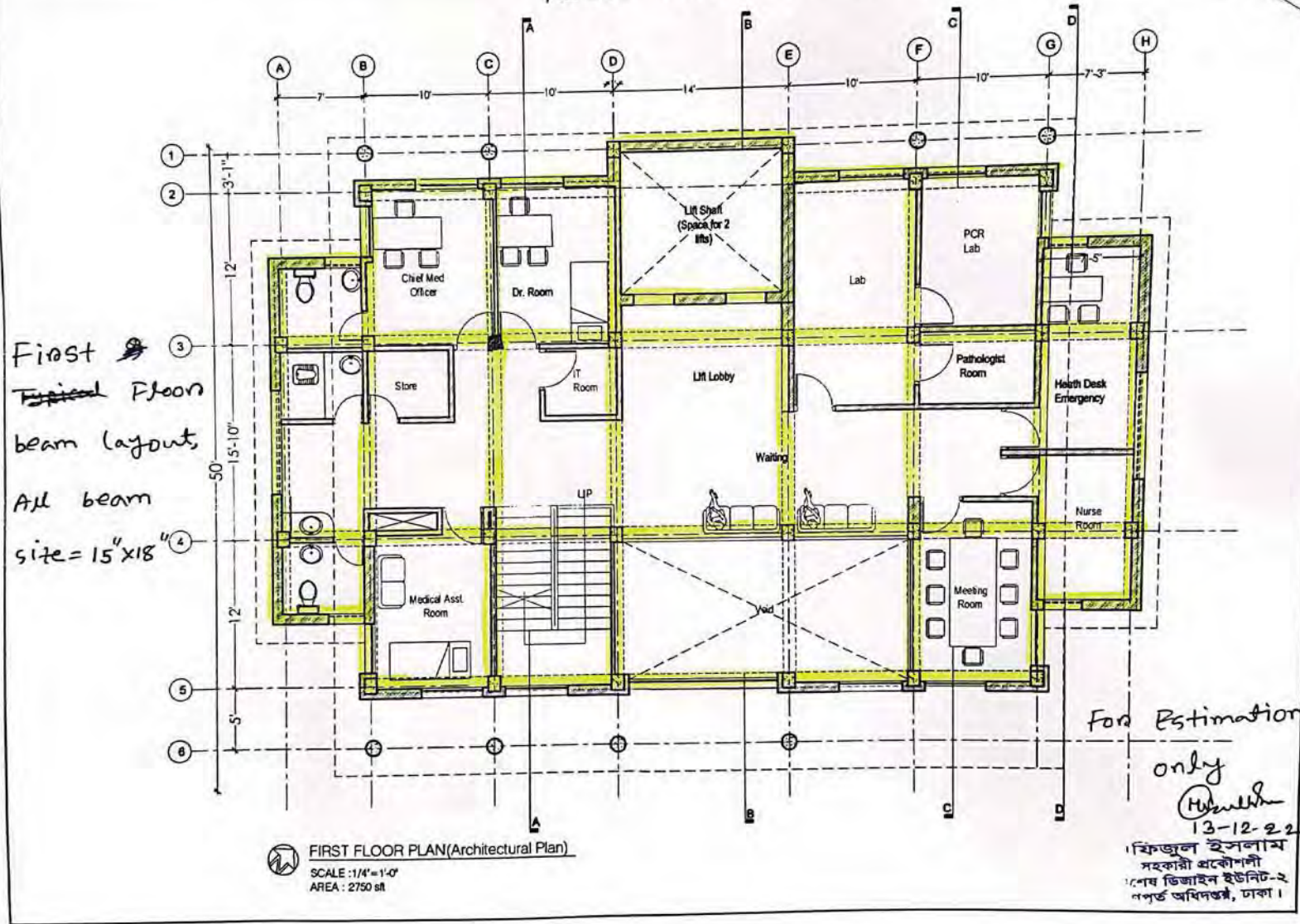
For Estimation only

for 13/12/2022

স্বাক্ষরিত করেছেন
 বিদ্যুৎ সঞ্চালনা (সেটা)
 মাস্টার ইঞ্জিনিয়ার
 সিস্টেম ইঞ্জিনিয়ার-২
 সিস্টেম ইঞ্জিনিয়ার, পিসা ১



Medical centers at Atr Akhaura Land Port



কিছু ইসলাম
 সহকারী প্রকৌশলী
 শেখ ডিজাইন ইউনিট-২
 নপ্ত অবিদগর, ঢাকা।

