BANGLADESH LAND PORT AUTHORITY

Bangladesh Regional Connectivity Project-1 (BRCP-1)

IDA Credit No. 6002-BD

Environmental and Social Impact Assessment (ESIA)
Bholaganj Land Port

REPORT

January 2024

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Acronyms

BGB	:	Border Guard Bangladesh
BLPA	:	Bangladesh Land Port Authority
BOP	:	Border Outposts
BP	:	Bank Procedure
CSC	:	Construction Supervision Consultant
DoE	:	Department of Environment
E&S	:	Environmental and Social
EA	:	Environmental Assessment
ECA	:	Environmental Conservation Act; Ecologically Critical Areas
ECR	:	Environment Conservation Rules
EHS	:	Environmental Health and Safety
EIA	:	Environmental Impact Assessment
EMP	:	Environmental Management Plan
ESMP	:	Environmental Management Plan
GoB	:	Government of Bangladesh
GRC	:	Grievances Redress Committee
GRM	:	Grievances Redress Mechanism
IEE	:	Initial Environmental Examination
LC	:	Land Customs
lpcd	:	Liter per capita per day
OP	:	Operational Policy
PM	:	Particulate Matter
BLP	:	Bholaganj Land Port
WB	:	World Bank
BPDB	:	Bangladesh Power Development Board
BREB	:	Bnagladesh Rural Electrification Board
BPBS	:	Bangladesh Polly Biddut Shomity

Executive Summary

1. **E.1 Introduction:** The Bangladesh Regional Connectivity Project 1 (the Project) is the proposed project by the Government of Bangladesh (GoB) to lower time and costs associated with trade and improve infrastructure and conditions for trade along strategically important regional transport corridors. One of the components of the Project includes investments to develop key land ports essential for trade with India and Bhutan. These include the development of a new land port in Bholaganj at Companiganj, Sylhet. This Environmental and Social Impact Assessment Report (ESIA) presents the environmental and social assessment of the proposed Bholaganj Land Port (the Subproject). The 52.30 acres (excluding the area of existing Border Hat) Government owned (khash) and non-agricultural barren land are proposed for development of Bholaganj land port. At this stage, development of Bholaganj land port will be on 25 acres (exclude the no man's land i.e. 150 yards from zero line). There are some residential or commercial structures situated on the proposed land. A separate Livelihood Assistance Plan is required for assess and compensation if any.

2. The above-mentioned project activities will impact on environment moderately and within short term during implementation period only, so World Bank Safeguard Policy Guideline OP/BP 4.01 Environmental Assessment and OP/BP 4.12 Involuntary Resettlement/Compensation will be triggered for this project. But there has no need of land acquisition. The project authority intended to develop and implement the project in a sustainable manner as per DoE and WB Guidelines. Short-term impact will be mitigated through construction contractors, however long-term disruption will be assessed and mitigated as per level of impact in construction and operation period.

3. **E.2 Policy, Legal Administrative and Regulatory Framework:** The Environmental Conservation Act (ECA, 1995) is the main legislative framework related to environmental protection in Bangladesh. This umbrella Act includes laws for conservation of the environment, improvement of environmental standards, and control and mitigation of environmental pollution. In accordance with this Act, the proposed Project will need to be cleared by DoE before commencing the project following procedures given in the Environment Conservation Rules (ECR) 1997 amended on 2010 and subsequently on March 5, 2023. ECR classifies the projects into various categories (Green, Yellow, Orange, and Red) for the purpose of environmental clearances. Construction of land port is not included in the classification of different industrial units or projects list in ECR Schedule 1.

4. However, considering the previous experience of BLPA on obtaining environmental clearances for other land ports and scope of works involved in those ports, it can be expected that development of new land port or up gradation of existing land ports will also fall in to **'Orange'** category. The Project is expected to be categorized as "Orange" and hence BLPA will submit the following documents to DoE: An Initial Environmental Examination (IEE) with Environmental Management Plan (EMP).

5. Among the World Bank Safeguards, from an environmental perspective, the Environmental Assessment (OP/BP 4.01) and Involuntary Resettlement/Compensation are triggered. AS this project does not require any land acquisition although some structures and livelihood will be temporary affected by the project. In this case, the affected families or persons will get assistance for improving their socio-economic condition or at least pre-project level. Since most of these impacts are site specific and can be mitigated with standard mitigation measures, hence the proposed project falls under category B. Environmental and Social Impact Assessment (ESIA) report prepared for Bholaganj land port in compliance with the World Bank policy. Stakeholder and face to face consultation and disclosure requirements are performed duly on March 4th, 19th, 20th

2023 and consultation with PAPs on June 02, 2023, as per the World Bank Policy.

6. **E.3 Project Description:** Bholaganj was declared as a Land Port in July 2019. The land port currently has no infrastructure apart from a small temporary Tin Shaded structure customs station for NBR. This customs station handled around 500 loaded import trucks from India per day without providing any weighing mechanism. The main import material is limestone (more than 50 percent) with the remaining being stone, boulders, and other materials. The lack of infrastructure facilities and the absence of banking facilities are hindering trade activities. BLPA will get long term lease from the GoB 52.30 acres of Khas land, which means government owned fallow land, where nobody has property rights. It is the land which is deemed to be owned by the government and available for allocation to the other governmental agency or department according to government priorities. Accordingly, BLPA applied to the concerned ministry of the government then concerned ministry has given their permission with a letter to BLPA for development the land port. This land is located near the zero point/line for land port development. Presently proposed development of land port will be outside the no man's land i.e., 150 yards from border zero line.

7. Customs Station (LCS) started its operation for import activities that were conducted through the road since 2009. Recently considering the number of vehicles using Bholaganj LC is increasing over time and the importance of the location and connectivity from Sylhet, the Government has already declared the Bholaganj LC station as Bholaganj Land Port in July 2019. The World Bank will finance the development of the following components of the Bholaganj land port. The implementing agency for this project is Bangladesh Land Port Authority (BLPA).

8. The proposed facilities to be built are:

- **Port facilities**: Administrative Building, Passenger Terminal Building, Warehouses, Transhipment Sheds, Open stack yards, Yard Office, Generator Building, Bangladesh, India Truck Parking Area.
- **Service Areas**: Guest House, Barrack, Dormitory, Food and Shop, Substation/Generator, Toilet Facilities, Weigh Bridge, Hospital and Mosque.
- **Infrastructure**: Fencing/Boundary wall, Internal Road network, Drains, Footpath, Bus/Car Parking, and landscaping, tree plantation along the boundary wall and walkway.
- **Electrification Works**: Area lighting, Boundary wall lighting, Footpath lighting, Road lighting, Substation equipment, Diesel generators and Solar power.
- **Water Supply and Sanitation Works**: Water supply and sanitation facilities, Toilet Complex.
- **Safety and Security**: Fire protection and detection system, Watch Tower, first aid facilities, CCTV system, intruder alarm system, car park management, access control system, physical security, and watch towers.

9. Other facilities considered are separate toilet facilities for women, women-only waiting rooms and differently able users, and address safety-related issues for all users. All terminals will be provided with separate women counters, waiting rooms and toilets for women passengers, and ramps for movement of differently able people and need to be provided with drinking water facilities for future use.

10. **E.4 Environmental and Social Baseline:** The project area is characterized by high land which is mainly above normal inundation level. Elevation of the area is around 16.77m from MSL. Piyain River is located at east side and about 500 m from the project boundary and existing highway. In between the Piyain River and land port a tourism complex will be developed under Tourism Department of Bangladesh. According to BNBC (2020), project site lies in the seismic zone-IV which

is also called most severe intensity seismic zone with basic seismic coefficient of 0.36g.

11. The Project is in the high land surrounded by medium low land area, belongs no forest and agricultural land. The land is over the inundation level and free from any flooding. The soil of the area belongs to Northern and Western Hills Region of Indian Physiography. In this region, hills have been dissected to different degrees over different rocks. There are some water bodies (River, Low lying area, etc.) and other infrastructure. Companiganj Upazila (Sylhet district) area is 278.55 square kilometres (107.55 sq. mi), located in between 24°58' and 25°11' north latitudes and in between 91°41' and 91°53' east longitudes. It is bounded by Meghalaya (state of India) on the north, Sylhet Sadar on the south, Gowainghat Upazila on the east and Chhatak Upazila on the west. Companiganj is home to Bangladesh's largest quarry, the Bholaganj stone quarry.

12. Different types of ecological resources, flora and fauna are available around the project location which is discussed in section 4.9. For development of the Bholaganj Land Port no cutting of hil and no filling of wetland is required.

13. A Border Hat was constructed on the zero line which is 150 yards from the proposed land port boundary but not in operation after construction due to Corona Pandemic. The Hat was in dilapidated condition but renovated recently. Operation of the Border Hut has been inaugurated by both the countries representative and open twice in a week. Operational activities will not be interrupted due to the land port development. Free area will be kept and walkway to the Border Hat area will be constructed by the project.

14. A Tourist Zone has been proposed at the bank of river Piayain and right-hand side (east side) of the proposed land port area. The traffic movement will be diverted from the existing highway inside the land port area so aesthetic view and movement of tourist will be free from any kind of hazardous emissions. Buffer zone will be constructed by planting close trees in the land port area along the left side of the existing road to minimize dust and noise impact to the tourist zone create from land port activities.

15. Adarsha Gram Primary School is located adjacent to the southern boundary of the proposed land port area. A permanent boundary wall will be constructed at the school boundary. A free space will be kept between boundary wall and port area with construction of buffer zone by planting close trees to minimize dust and noise impact to the school area create from land port activities. Signalling system will be provided in front of the school and signalman will be provided during construction and operation period at starting and closing time of the school.

16. In the project area there are 15 households are living in their temporary houses. Out of them 13 are male-headed and the remaining 2 are female-headed. These households have 82 people, of which 43 are male and 39 are females. The average household size is 5.5. The sex ratio is 110 referring to that more than 110 males per 100 females. Most of them are involved in day labouring activities such as working in stone crushing. A very few of them are involved in service and business. On the other hand, women are mostly housewives. The educational status found that most of the household members are educated between class VI to X. These households have grid electricity connection and solar electricity. Each household uses a ring-slab for sanitation. They collect drinking water from tube wells. This land less group shows their unity in the context of getting allocation of khash land in surrounding area. For this reason, they formed a local association called “Bholaganj Adarshagram Sarbeek Gram Unnoyan Somity”. This association approaches the local political leaders and local administration (UNO Companiganj) in dealing with the khash land allocation. However, the land allocation is under process.

17. The people in the area are traditionally dependent on agriculture, but many people in the region have changed their source of income and involved in garments sector, transport industry,

and other industries. Bangladesh imports lime stones, boulders and other stones through the Bholaganj Customs Station at Companiganj Upazila in Sylhet district. Many importers and workers livelihoods depend on the boulder crushing equipment in Companiganj Upazila. Population totals 174,029 in which male 89,649, female 84,380.

18. From BBS Statistics 2011, 2022 and information collected from Upazila office, it was found that population density of Companiganj Upazila during 2011 was 587 per sq. km. Noted total educational institutions in Companiganj Upazila are 26. Out of these Colleges 2, Madrasha 4, Secondary School 20and Koummy Madrassah 42. One Upazila Heath Centre, 3 Family Planning Centres, one Satellite Clinic are in the Upazila complex area. Sources of drinking water Tube well 70.61%, tap 0.84%, pond 15.24% and others 10.30%. Arsenic level has been detected as higher than the tolerable limit in 12.5% of Shallow Tube well in this Upazila. About 11.48% (urban 33.20% and rural 9.16%) of dwelling households in Upazila are using sanitary latrines. About 60.97% (urban 55.49% and rural 61.56%) of dwelling households use non-sanitary latrines. 27.54% of households do not have latrine facilities.

19. **E.5 Public Consultation and Disclosure:** Public discussion (face to Face consultation) meeting was held on 4th, 19th and 20th March, 2023 at 1 no. West Islampur Union Parishad Office, Customs Officers of Existing Customs Station, BGB Representatives of BGB Camp, Upazila Parishad Offices (in all concern governmental offices) of Companiganj Upazila in the district of Sylhet. The face-to-face discussion and sharing the views from local people, Stone Importers Associations, Truck drivers, Workers of Stone Crusher Machine, which represent the affected persons, local community and relevant stakeholders including both Govt. and private sector representatives. Furter public consultation was held on June 20, 2023, in the project area. Their valuable opinions were recorded.

20. **E.6 Identification of Potential Impact:** Construction phase activities would have major impacts on land use, air quality, demography socioeconomics and noise quality. It could also develop minor impacts on water use, water quality and ecology. During construction phase, the major activities to be considered important for identification of impacts are-site preparation: transportation of filling materials for land development, excavation and backfilling; hauling of earth materials and wastes; cutting and drilling; mixing of concrete and mortar; concrete construction; erection of steel structures; internal and access road construction; painting and finishing; clean-up operations; construction of infrastructural facilities; landscaping and a forestation. Along with labor management and labor influx plans, labor camp site management also needs to be developed to mitigate or reduce the impact of migrant workers on the local community.

21. The environmental and social aspects and impact of the Bholaganj Land Port related to operational activities and services are identified. To the identification and assessment of the environmental aspects; the Bholaganj Land Port has been identified as divided into several functions which are-electricity generation, vehicle movement, office activities and transports. Considering the operation of the hat, provisions has been considered in the design of the land port components that operation of the land port will not interfere with the border hat. As the hat is once or twice in a week, special provisions in terms of traffic management will be implemented during the construction and operation period of land port. Provision has been made for separate traffic route for the vehicles entering the land port which will not interfere the tourist zone bound traffic. The boundary wall and green belt around the land port will enhance the aesthetic view of the area and will be a tourist attraction. A guest house is also proposed in the land port premises which may be used by the different Government Official, Bank Officers, BGB etc, and tourist. After analysis potential adverse impacts for land port are- Air Pollution, Noise Pollution, waste disposal,

Accident & Human health, Water Pollution, Labour Influx and Beneficial impact are-Employment opportunity, Socio-economic condition, new trade/business, Family finance, Social Amenities & Infrastructural Facilities.

22. **E.7 Environmental Management Plan and Monitoring Plan:** The ESMP for Bholaganj Land Port Administration/Management has been prepared based upon optimum and reasonable costs that are needed for mitigation measures on a "least-cost" basis. Activities that need to be carried out for the environmental management and monitoring of the proposed plan is divided into three phases: during pre-construction, construction, and operation phases.

23. Environmental and Social Management and Mitigation Plans provide recommendations for environmental and social management measures based on the available information at this stage of the project. The port administration/management will formulate the environment management cell with vision to operate the ESMP requirements as suggested in the Chapter 7.

24. **E:8 Capacity Building:** Capacity building for effective implementation of the environmental and social safeguard requirements is a key element of the EMP. Capacity building for environmental and social safeguard management will need to be carried out at all tiers of the project, including BLPA, E&S Cell, CSC, and the contractors. At the construction site, CSC will take the lead in implementing the capacity building plan, though the contractors will also be responsible to conduct trainings for their own staff and workers. The various aspects that are covered under the capacity building will include general environmental and social awareness, key environmental and social sensitivities of the area and key environmental and social impacts of the project, EMP requirements, OHS aspects and waste disposal. Section 7.5 is also suggested various environmental and social trainings to be conducted at the construction site.

25. **E.9 Documentation and Reporting:** Project Construction Management and Supervision Consultants will collect all data and information related to the implementation of ESMP on behalf of PIU and submits monthly, half yearly and yearly reports to the Project Director during construction. During operational phase, the BLPA will give additional responsibility to one of the officers from Bholaganj Land Port, who will collect related data and information regularly and prepare reports as desired by project management.

26. **E.10 Cost Estimation for Environmental Mitigation Measures and Monitoring:** Detailed cost estimates for environmental mitigation is given in Chapter 8. Total ESMP implementation cost for Bholaganj Land Port will be BDT 9,270,000.00. Cost for total environmental management, training and monitoring will be BDT 10,790,000.00. This cost will not include in the cost of feasibility study but will be mentioned during bid document preparation.

27. **E.11 Disaster Management Plan:** Disaster of Land Port consists of two principal hazards. This is because of employ, many different processes involving a huge, weighted quantity of imported materials (limestone and boulders). The common hazards are fire, explosion, sudden fall of large stone blocks and environmental damage.

28. For this project, emergency response systems should be in place to deal with dangerous goods uncontrolled releases of dust and noise, natural calamities fire burns and injuries. There are to be trained emergency response teams, specific contingency plans, and incidence specific equipment packages in place to cope with these types of emergencies. In case of an emergency incident occur, immediate action must be taken to mitigate the impacts.

29. Earthquakes are unpredictable natural disasters which are of short duration, but the consequences can be severe. Based on the information available in the public domain and research publications indicates that the project area comes under the seismic zone – IV with seismic coefficient 0.36 (Z=0.36) having seismic intensity high. Detailed Earthquake Management Plan is

included in this report in Annex-20.

30. **E.12 Grievance Redress Mechanism (GRM**): The Land Port Authority have a GRM Management policy & a two tier Grievance Redress Committee. One at community level and the other at headquarter level. The community level committee is to be formed with seven members headed by one officer of the land port. There will be 3 staff/workers & 3 local community representatives including one female member in the committee. The complainer can inform his/her problem including GBV/SEA/SH concerns both verbally and in writing. For verbal complain, the cell number of concern officer may be used. Written complaints may be sent through post office/currier services or in person or dropping in the grievance box. Concern member of field level GRC will be trained how to receive and handle the complain of GBV/SEA/SH. He/She will verify the cases modalities of reporting and adherence to the response protocol including the referral to existing GBV service providers. This will allow them to discern whether the complaint is project induced or general (domestic violence etc.) to determine follow up modalities. To make the GRM more responsive to SEA/SH and GBV issues, an information sharing protocol with GBV service providers will be developed so that survivor related information is carefully managed, and confidentiality is maintained. GRM will be trailers to the existing GVB Action Plan for BRCP-1. In addition, awareness campaign and development of IEC materials on GRM will be done for the communities and stakeholders using easily accessible methods. Details of Grievance Redress Mechanism (GRM) procedure is given in Section 9.11.

31. **E.13 Conclusion and Recommendation:** Several environmental and social considerations need to be comprehensively addressed to improve the sustainability of the project. Some of these improvement proposals recommended are summarized in Chapter 10.

1 Introduction

1.1 Background

32. The Government of Bangladesh has started a project named "Bangladesh Regional Connectivity Project 1(BRCP-1)" which is jointly implemented by the Bangladesh Land Port Authority (BLPA), National Board of Revenue (NBR) and Ministry of Commerce (MoC). This project is carryout with a loan of USD150 million from the World Bank with GoB funding of USD 20.42.

33. This Project consists of three major components of which Component-1 include Invest in infrastructure, systems, and procedures to modernize key selected land ports essential for trade with India, Bhutan, and Nepal. Under this component, the implementation procedure has been started for four land ports Sheola, Ramgarh, Bhomra and up gradation of Security system at Benapole. As of this reporting period implementation works are going on in Sheola, Ramgarh and Benapole land ports. No works has yet been implemented at Bhomra under BRCP-1 project due to conflict on construction in 150 yards from zero line with BSF, India and tender evaluation process. Bholaganj was declared as a land port in July 2019. BLPA proposed for development land port 53 acres of khash (Government owned) barren non-agricultural land near the zero line and left side of the existing Sylhet Bholaganj highway. The land port currently has no infrastructure apart from a small temporary tin-shed for NBR customs. This customs station handles around 500 loaded import trucks from India per day. The lack of infrastructure facilities and the absence of banking are hindering trade. A project proposal for development of Bholaganj land port was sent to Planning Commission for inclusion in the 2022-23 Annual Development Plan (ADP). The Programming Division of the Planning Commission included the land port in the unapproved project list of 2022-23 ADP. The Planning Commission recommended that BLPA should utilize the cancelled IDA amount from Bhomra land port to develop this new port. The bank team noted that it will consider the request for Bholaganj but will require a feasibility study to determine its economic and financial viability. In addition to that an Environment and Social Impact Assessment (ESIA) report is also required. At this stage a new land port in Bholaganj at Companiganj Upazila in the district of Sylhet is included under BRCP-1. BLPA will get long term lease from the GoB 52.30 acres of Khas land, which means government owned fallow land, where nobody has property rights. It is the land which is deemed to be owned by the government and available for allocation to the other governmental agency or department according to government priorities. Accordingly, BLPA applied to the concerned ministry of the government then concerned ministry has given their permission with a letter to BLPA for development the land port. This Environmental and Social Impact Assessment Report (ESIA) presents the environmental and social assessment of the proposed development of Bholaganj Land Port (the Subproject). Feasibility Study is being prepared by another Consultant and will be presented in separate covers. There are some residential or commercial structures are situated on the proposed land compensation against their structure and livelihood may be allowed for the reason separate Livelihood Assistance Plan (LAP) will be prepared in a separate cover.

1.2 Importance of the Project

34. Bangladesh Land Port Authority (BLPA) came into being under Bangladesh Land Port Authority Act, 2001 (Act 20 of 2001) as statutory body to facilitate and improve the export-import activities with the neighbouring countries through the land routes. Since inception, Bangladesh Land Port Authority has been functioning under the Ministry of Shipping. So far 24 Land Customs Stations have been declared as Land Ports. Out of them 12 land ports are wholly in operation. At present BLPA is working as a development partner of the government through providing service-oriented port management, earning government revenue, and creating employment opportunity. As a result, the working scope of this body is exponentially increased day by day on multi-dimensional basis.

35. The proposed Bholaganj land port located near the hilly area of Meghalaya border of India. There is a tourist zone at Chirapunji in the district of Shillong in Meghalaya state is about 20 km from Bangladesh border. The main import materials limestone (Raw materials for Cement Factories) which is more than 50% with the remaining being stone, boulders, and other minerals. The land port has no infrastructure apart from a small temporary tin shed for NBR customs. The lack of infrastructure facilities and the absence of banking is hindering the trade. Loading and unloading operation without any measurement instrument, store on the open unpaved stack yard haphazardly and uncontrolled management of dust and traffic movement. This mismanagement will be controlled with installation of measuring instrument, construction of paved yard and environment friendly controlled traffic management system should be considered during design of the facilities. Regular dust control system will be included in the design, which will be implemented in the land port operational phase. In Bangladesh there is no sufficient source of construction materials like stones and raw materials for cement factories. But to fulfil the present and future need the demand of construction materials is continuously increasing. The present operating system at custom station is poor and without minimum facilities as a result it is not providing adequate service delivery to the importers. Therefore, this land port development will contribute in

i. Strengthen in regional trade among the neighbouring countries.
ii. It will help to achieve the SDG's goals.
iii. Trade with India will be expanded.
iv. Regional Connectivity will be improved.
v. Implementation of tariff modernisation plan will be easy.
vi. Infrastructure development program in Bangladesh will be stimulated.
vii. Contributing resource mobilization and employment and
viii. Establishing opportunity and linkages for developing tourist industries in this region.

36. The land port will be developed along the west side of the existing highway from Sylhet to zero point at Bholaganj land port. All the land port facilities will be constructed in 25 acres of land out of 52.30 acres at this stage (exclude the no man's land i.e. 150 yards from zero line). The proposed land port is in the mouza – Kalashadok, 1 no. West Islampur Union of Companiganj Upazila in in Sylhet district. The distance of Bholaganj from Companiganj is 7.00 km and 35.00 km from Sylhet district Headquarter. The Indian part of it is called tourist zone Cherrapunji in the district of Shillong under Meghalaya state of India. The distance from Bholaganj to Cherrapunji is about 26.00 km, to Shillong district is about 80.00 km and to Meghalaya state city is about 146.00 km. Location of Bholaganj Land Port is shown in Figure 1. The World Bank is considering financing of this subproject with the condition of preparation of feasibility and environment and social safeguard report. The implementing agency for this project is Bangladesh Land Port Authority (BLPA). The objective of the overall Project is to lower trade transaction costs associated with complying with Government regulatory requirements for import and export activities; reduce border crossing times at selected border crossing points; and enhance connectivity for trade along strategically important regional transport corridors. While the expected outcomes of the subproject are: (i) reduction in border crossing time at Bholaganj, (ii) increased cross-border trade flows, (iii) enhanced connectivity between economic centres in Bangladesh and NE India states, and (iv) reduction in the time required to comply with regulatory requirements associated with import/export activities.

1.3 Objectives

1.3.1 Objectives of the Project

37. The objective of the Bangladesh Regional Connectivity Project-1 (BRCP-1) is to improve conditions for trade through improving connectivity, reducing logistics bottlenecks, and supporting

the adoption of modern approaches to border management and trade facilitation, essential for trade with India, Bhutan, and Nepal. This Project Component, Development of Bholaganj land port is to invest in infrastructures, system, and procedures to modernize key selected land port essential for trade with India, Bhutan and Nepal and it is being implemented by Bangladesh Land Port Authority BLPA. The following key results are expected from the project:

- To develop physical infrastructures for imported and exportable goods and vehicles at Bholaganj;
- Enhance the connectivity between Bangladesh and India;
- Increase cross border trade facilities through land routes with India;
- Modern border management concept will be piloted with Meghalaya State, Northern India;
- Better monitoring, improved governance, and management of trade activity.

1.3.2 Objectives of ESIA

38. The principal objective of the study is to provide an examination and assessment of the environmental impacts of due to the construction of the said land port and its mitigation process through documenting the present environmental base line study, preparing environmental management and mitigation plan. The specific objectives of the study are:

- Present a brief discussion on the IEE/ESIA process and its role in the planning and implementation of the project;
- Present a general description of the project and the process;
- Present a description of the pre-project environment;
- Delineate the significant environmental issues found and believed to be involved;
- Identify the environmental impacts of the project and quantify them to the possible extent; and
- Suggest the plan for management of the environment both during the construction and operation of the project.

1.4 Scope

39. The scope of work for the ESIA study involves identifies initial environmental impacts of development of Bholaganj Land Port. The study will present the current environmental condition of the project area and helps to identify anticipated impacts to make an Environmental and Social Monitoring Plan (ESMP) with details Environmental and Social Impact Assessment (ESIA).

40. The ESIA study provides information on the baseline environmental condition (physical, biological, social and environment) of the study area. Suggestion and recommendation are to be made for abatement/mitigation/management measures to ensure environmental, biological, health and social compatibility and to comply with the national and international environmental legal requirements and environmental quality standards.

41. To conduct the ESIA study, the team carried out field survey/study to collect primary data/information both for environment and social condition. At the same time face-to-face interview were held during field study and survey on 4, 19 and 20 March 2023. Beside this, secondary data and information were collected from different govt. offices, govt. reports, publications, etc. Further public consultation has been conducted on June 02, 2023, inside the

project area and outcome are included in this report.

1.5 Challenges

42. Major Challenges identified for this project are:

- Control any illegal issues arise due to port activities;
- Control any impact on surrounding environment and ecosystem;
- Complete the project within the project schedule.

1.6 Consistency with DoE Guidelines

43. Environmental Conservation Act (ECA 95) is the main legislative document relating to environmental protection in Bangladesh. No development project shall be established or adopted without obtaining environmental clearance, in the manner prescribed by the rules (ECR 97, amended 2017 and 2023), from the Director General, Department of Environment.

44. The rules (ECR 2023) mainly consist of:

- Categorization of the projects (Green, Yellow, Orange, and Red)
- Application format to obtain environmental clearance
- Ambient standards in relation to air pollution, water pollution, noise pollution as well as permitted discharge/emission levels of pollutions due to development activities or industry.

45. The rules incorporate inclusion lists of projects requiring varying degrees of environmental investigation e.g. all the new projects under Orange and Red category generally will require two steps assessment procedure, firstly an initial environmental examination (IEE) for site clearance and secondly, if required, a full Environmental Impact Assessment (EIA) for technical clearance. The Bholaganj Land Port Project falls under "Orange" category and requires IEE report. This present ESIA study will fulfil the requirement of both DoE and World Bank.

1.7 Consistency with World Bank Safeguard Policy/Guidelines

46. The objective of these policies is to prevent and mitigate undue harm to people and their environment due to development process. Safeguard policies provide a platform for the participation of stakeholders in project design, and act as an important instrument for building ownership among local populations. The effectiveness and sustainability of development projects and programs supported by the Bank has substantially increased because of attention to these policies.

1.8 Methodology

47. The report is based on the primary data generated during field study and survey works. Field visits were conducted in project area located at 1 no. West Islampur Union Parishad in Companiganj upazila of Sylhet district and its adjoining areas with a view to reconnaissance and detail physical survey of the surrounding locations. Discussions with different types of stakeholders were conducted to know the apprehended problems and their probable solutions. Secondary data were collected from various sources like government offices, different publications, journals, etc. These were followed by evaluation of the information to delineate the major environmental and social issues relating to the Project. During the process the following steps were followed:

- Collect information from project areas related to study;
- Detail understanding of scope of assignment, activities involved and the intervention areas and its surrounding environment;

- Engage resource persons/field staff for the assignment;
- Collection of all possible data on the environmental, social and natural resource components and parameters;
- Collection and review of pertinent report and other references which particularly are included in environmental policies, ECA 95, ECR 97, ECR 2023 and also World bank safeguard policies;
- Meet concerned agencies and gather information from various government and other agencies, local govt. bodies, etc.;
- Undertake field visit and field survey which are representative of geographical, geological and also potential environmental and social problem areas;
- Conduct representative survey of a wide section of people of proposed project areas to acquire field level data on existing environment, biodiversity, health and socio-economic and apprehended impacts of projects;
- Identification of possible environmental impacts and evaluation of their significance and consequences;
- Development of Environmental and Social Management Plan (ESMP), for possible mitigation of negative impacts and enhancing measures for beneficial impacts and prepare an Environmental Monitoring Plan
- Suggestion of mitigation measures for residual impacts (if any); and
- Finally prepare the EIA report.

1.9 ESIA Team

48. A multidisciplinary team of professionals having experience of conducting Environment & Social Impact Assessment studies for Industrial parks, Industrial cluster, Special Economic Zones, DTA, Economic Zones, Area development, Industrial Corridors etc. were involved in carrying out EIA study for this project. Details of the professionals are given in the Table below:

Table 1: ESIA team

Sl. No.	Position	Sl. No.	Position
1.	Sr. Social development Specialist (Team Leader)	4.	Labor and Occupational Health and Safety Expert
2.	Environment Specialist	5.	Gender and SEA/SH Expert
3.	Cumulative Impact Assessment Specialist	6.	Surveyor-3 nos.

2 Policies and Legislation

2.1 Regulatory Requirement for the Project

49. This chapter presents a review of the existing laws and policies related to the environmental and social dimensions of the project. Along with providing a summary of the relevant laws and policies, this chapter also presents the World Bank's Guideline Operational Policies (OP) and Bank Procedures (BP). Gaps between the relevant Government Laws and World Bank OP/BP are presented in this chapter and remedial measures to address the gaps.

Table 2: Summary of Applicable Regulations of GoB

S.N.	Policy/Acts/Rules	Key Provisions and Purpose	Applicability to the Project
1.	National Environmental Policy	Major elements of the policy are: • maintaining the ecological balance for ensuring sustainable development. • protection of the country against natural disasters. • identifying and controlling activities that are polluting and destroying the environment. • ensuring environmentally friendly development in all sectors. • promoting sustainable and sound management of natural resources; and • active collaboration with international initiatives related to the environment	The environmental policy aims at prevention of pollution and degradation of resources.
2.	Environment Conservation Act (ECA), 1995 (with all amendments)	The main objectives of ECA are: • Conservation and improvement of the environment; and • Control and mitigation of pollution of the environment. • 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 are harmful to 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.	According to this law, 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 rules.
3.	Environment Conservation Rules, 1997 (with all amendments)	The Environment Conservation Rules, 1997, were issued by the GOB to exercise power conferred under the Environment Conservation Act (Section 20), 1995 and further amendment in 2023. 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	Following the Environment Conservation Rules (ECR) of 1997 and amendment in 2023 the Project is classified as an Orange Category, requiring IEE for BLPA to obtain clearance for construction.

		• Determination of environmental standards.	
4.	Air Pollution Control Rules 2022	The main objectives of the Rules are: • APCR, 2022 contains air quality standards based on WHO Guidelines (Interim Goals). • Emissions limits and technical specifications for key sectors. • Mandates and coordination mechanisms among relevant line ministries to control both household and outdoor air pollution.	To regulate Air quality during the construction phase.
5.	Solid Waste Management Rules 2021	The main provisions of the Regulations are: i. When recovering resources from waste, the principles of management that consider the waste hierarchy, such as the 3Rs (reduce, reuse, and recycle), segregation, and reduction, must be followed at all stages from waste generation to final disposal. ii. Responsibilities of waste generators, consumers, and users: iii. Responsibilities of manufacturers and importers of products:	Adequate measures should be taken to prevent pollution of environment due to the activities in labor camp, construction site office during construction phase and port activities during operation phase.
6.	Hazardous Waste (e-waste) Management Rules, 2021	The main provisions of this regulation are: i. Manufacturers, traders, sellers, transporters, repairers, collection centres, recyclers, dismantlers, etc. of the subject products are required to register with a prescribed form to the DoE. ii. Registered manufacturers, recyclers, etc. shall obtain environmental clearance in accordance with the Bangladesh Environmental Protection Rules,97. iii.To facilitate the proper management of the WEEE, the name, address and contact information of the trader or seller as well as the information on the registered collection centre shall be displayed on the product or on the product label, or this information shall be provided to consumers or large consumers. iv.Traders, sellers, and collectors of the WEEE shall receive them from consumers at designated points and transport them to collection centres.	Adequate measures should be taken to prevent pollution of environment due to the activities in labor camp, construction site office during construction phase and port activities during operation phase.
7.	National Conservation Strategy, 1992	The key aspects of the strategy are as follows: • All industries shall be subject to an ESIA, and the adoption of pollution prevention/ control technologies shall be enforced. • Hazardous or toxic materials/wastes shall not be imported as raw materials for industry. • Import of appropriate and environmentally sound technology shall be ensured; and • Dependence on imported technology and machinery should gradually be reduced in favor of sustainable local skills and resources.	Adequate measures should be taken to prevent pollution of environment due to the activities in labor camp, construction site office during construction phase and port activities during operation phase.
8.	National Environmental Management Action Plan (NEMAP), 1995	The NEMAP was developed with the following objectives: • to identify key environmental issues affecting Bangladesh. • to identify actions to halt or reduce the rate of environmental degradation. • to improve management of the natural environment.	The plan proposes developing and applying guidelines to avoid environmental pollution due to transport and communication systems. It emphasizes different environmental pollution, hampers of natural drainage

		• to conserve and protect habitats and biodiversity. • to promote sustainable development; and • to improve the quality of life.	patterns, and agricultural land acquisition due to the development of the transport system.
9.	Environmental Courts Act, 2000	This Act sets out policy for effective pursuance and completion of legal proceedings related to environmental crimes. Under this Act, the Director General of the DoE has the power to impose heavy penalties on industrial polluters who are dumping untreated wastewater into the environment or not operating their legally mandated ETPs.	According to this act, the government can take legal actions if any environmental problem occurs due to project interventions.
10.	Noise Pollution (Control) Rules, 2006	Noise Pollution (Control) Rules have been established to manage noise generating activities which have the potential to impact the health and wellbeing of workers and the surrounding communities. Under this legislation, control zones are listed as- silent area, residential area, mixed area, commercial area, and industrial area.	Measures to be taken to control the noise impact to the surrounding land port area.
11.	The Forest Act (1927), the Forest (Amendment) Act (2000)	It is the main legislative context for forestry protection and management in Bangladesh. It was enacted to control trespass illegal resources extraction from forests and to provide a framework for the forestry revenue collection system.	The Act is relevant to the sub-project as construction of the project intervention will require cutting some trees.
12.	The Private Forests Ordinance, 1959	An Ordinance to provide for the conservation of private forests and the afforestation in some wetlands in Bangladesh.	According to Sec. 61 of this Ordinance, any land is required for any of the purposes of this Ordinance; such land shall be deemed to be needed for a public purpose.
13.	National Forest Policy (Amendment), 1994	The policy is designed to conserve the existing forest areas, bring about 20% of the country's land area under the Forestation Program, and increase reserve forests by 10% per year to 2015.	The Act is relevant to the project as construction of the project intervention will require cutting some trees.
14	National Biodiversity Strategy & Action Plan, 2004	A major focus of the NBSAP, 2004 is the need for cross-sect oral linkages, reflecting the fact that in Bangladesh, biodiversity conservation is closely interwoven with social and economic development.	The Act is relevant to the project as construction work will be in rural and underdeveloped area.
15.	Bangladesh Wildlife (Conservation & Security) Act, 2012	This Act protects 1,307 species of plants and animals under four schedules that mandate imprisonment and fines for wildlife poaching, capturing, trapping, and trading.	This Act is relevant to the project as an intervention may affect wildlife habitation obstruct movement.
16	National Water Policy, 1999	The Act recognizes the significance of managing all water resources in the natural flow of surface water and recharge of groundwater. No individuals or organizations will be allowed to extract, distribute, use, develop, protect, and conserve water resources, nor will they build any structure that impedes rivers and creeks' natural flow.	To regulate the water quality during the construction phase.
17.	The Groundwater Management Ordinance, 1985	This Act authorizes the Thana Parishad to grant a license for installing tube wells under its jurisdiction. The Upazila/Thana Parishad may grant the license if the Parishad is satisfied that the installation of the tube well: i) Will be beneficial to the areas where it is to be installed. ii) Will not have any adverse effect upon the	The project area will be located at Companiganj Upazila.

		surrounding areas. iii) otherwise, feasible.	
18.	National Water Management Plan, 2001 (Approved in 2004)	The planned activity programs have been presented in the eight sub-sect oral clusters: i) Institutional Development, ii) Enabling Environment, iii) Main River, iv) Towns and Rural Areas, v) Major Cities. vi) Disaster Management. vii) Agriculture and Water Management, and viii) Environment and Aquatic Resources.	Project location Rural areas.
19.	National Water Body Protection Act, 2000	The characterization of water bodies as rivers, canals, tanks, or flood plain identified in the master plans formulating under the laws establishing municipalities in the division and district towns shall not be changed without approval of concerned ministry.	The Surrounding of the project areas are low and flood plain.
20.	National Water Act, 2013	As per this Act, all forms of water (e.g., surface water, groundwater, seawater, rainwater, and atmospheric water) within the territory of Bangladesh belong to the Government on behalf of the people.	Prior permission should be collected from the concerned authority before use of surface and ground water during construction phase.
21.	Protection and Conservation of Fish Act 1950 (Amended 1982)	This is framework legislation with rulemaking powers. Among others, some of these rules may prohibit the destruction of, or any attempt to destroy, fish by the poisoning of water or the depletion of fisheries by pollution, by industrial effluent, or otherwise.	The project requires proper action to prevent biodiversity in all-natural water bodies and the marine environment.
22.	National Fisheries Policy, 1999	The National Fisheries Policy focuses on aquaculture and marine fisheries development. The policy suggests, among others, that biodiversity will be maintained in all-natural water bodies and marine environment, and control measures will be taken against activities that harm fisheries, resources, and vice-versa.	The project required proper action to prevent biodiversity in all-natural water bodies and the aquatic environment.
23.	National Land Use Policy, 2001	The main contents of this policy are: • Stopping the high conversion rate of agricultural land to nonagricultural purposes. • Utilizing agro-ecological zones to determine maximum land-use efficiency. • Adopting measures to discourage the conversion of agricultural land for urban or development purposes. • Improving the environmental sustainability of land-use practices.	The proposed project must adhere to this policy to ensure the environmental sustainability of land-use practices.
24.	National Agriculture Policy, 2013	This policy aims to make the nation self-sufficient in food through increasing production of all crops, including cereals, and ensure a dependable and secure food system for all.	Due to project intervention's construction activities, adequate measures should be taken to reduce waterlogging and hamper the irrigation system.
25.	National Livestock Development Policy, 2007	The constraints facing the sector in general include: (i) lack of infrastructure beyond the Upazila Head Quarters for providing services to poultry farmers. (ii) shortage of skilled manpower. (iii) shortage of quality chicks and breeding materials. (iv) shortage of poultry, feed/feed ingredients and high prices.	During construction phase staying or movement for numbers of laborers in the project area. For their daily need demand of poultry and others will be increased.

		(v) poor quality of inputs. (vi) lack of quality control facilities for medicine, vaccines and biological products, feed and feed ingredients, chicks, eggs, and birds. (vii) drug and vaccine residues in poultry meat. (viii) shortage of vaccines. (ix) lack of organized marketing systems. (x) poor provision of veterinary services; and (xi) insufficient credit and capital specially for the poor.	
26.	National Land Transport Policy, 2004	The objectives of this policy are: • To introduce long-term network planning. • Maintain the road network at a level that protects the value of the investment. • To secure a sustainable means of funding road maintenance. • To improve the management of traffic. • Management of roadside activities. • To develop an integrated planning approach in road construction. • To involve the private sector more in infrastructure, services, and maintenance.	According to the policy, major improvements, tolled or otherwise, are subjected to an Environmental and Social Impact Assessment (ESIA).
27.	Standing Order on Disaster, 2010	The regulatory framework provides the relevant legislative, policy and best practice framework under which the activity of Disaster Risk Reduction (DRR) and Emergency Response Management (ERM) in Bangladesh is managed and implemented.	Huge quantity of construction work and during operation use of heavy equipment's need disaster management plan.
28.	Strategy for Waste Management	The concept of this strategy is minimizing waste impacts in terms of quantity or ill-effects, by reducing the number of waste products with simple treatments and recycling the wastes by using it as resources to produce same or modified products.	Due to project intervention's construction activities and operation phase adequate measures should be taken to manage waste properly.
29.	The Energy Policy, 1996	The first National Energy Policy (NEP) in 1996, which brought Government attention to the urgency of ensuring proper exploration, production, distribution, and rational use of energy sources to meet the growing energy demand of the country	Applicable as the project involves the use of energy in construction and operation phase.
30.	Bangladesh National Building Code, 2020	The purpose of the Code is to establish minimum standards for design, construction, quality of materials, use and occupancy, location, and maintenance of buildings within Bangladesh to safeguard, within achievable limits, life limb, health, property, and public welfare.	Applicable as the project involves building construction activities.
31.	The Panel Code, 1860	Penal Code provides offenses effective public health, safety, convenience, decency, and morals; • Falling Water or Public Spring or Reservoir; • Making Atmosphere Noxious to Health; • Negligent Conduct due to Poisonous Substance; • Negligent Conduct with Respect to Fire or Combustible Matter; and • Negligent Conduct due to Explosive Substance. • Whoever voluntarily corrupts or fouls the water of any public spring or reservoir, to render it less fit for the purpose for which it is ordinarily used will be punished under the law. • Whoever voluntarily vitiates the atmosphere in any place to make it noxious to the health of persons in	Applicable as the project activities will fallow the several Governmental laws.

		general dwelling or carrying on business in the neighborhood or passing along a public way will get punishment.	
32.	The Acquisition and Requisition of Immovable Property Act, 1017 ARIPA)	The ARIPA 2017 requires that compensation be paid for (i) land and assets permanently acquired (including standing crops, trees, houses); and (ii) any other damages caused by such acquisition. The Act also provides for the acquisition of properties belonging to religious organizations like mosques, temples, pagodas, and graveyards if they are acquired for public interest. The ARIPA, however, excluded the acquisition of properties used by the public for the purpose of religious worship, graveyards, and cremation grounds. The Act stipulates certain safeguards for the landowners and provides for payment of "fair value" for the properties acquired.	The nature of the civil works related to the project will entail the land acquisition and subsequent economic and physical displacement. ARIPA 2017 defines the land acquisition process and contains appropriate compensation paid to titleholders.
33.	Labor Related Laws	Standards for labor and Working Conditions are defined in the Labor Act 2006; Bangladesh Labor Rules 2015; and Occupational Health and Safety Policies 2013. The Bangladesh Labor Act 2006 is a comprehensive legislation and addresses three areas: (i) Conditions of service and employment including wages and payment, the establishment of Wages Boards, employment of young people, maternity benefits, working hours, and leave. (ii) Health, safety, hygiene, welfare, and compensation for injury. (iii) Trade unions and industrial relations. (iv) Minimum age of employment should be 14 years for light duty and 18 years for normal or heavy duty.	To carry out the civil works, labor will be required to be hired. Therefore, these laws will be triggered to safeguard the interest of the labor, host community, project authorities, Contractors, and other project stakeholders. The project will ensure that the stipulations of the law are duly followed when it comes to labor-related activities
34.	High Court Directives on SEA/SH	High Court Division of the Bangladesh Supreme Court issued a set of Guidelines defining sexual delinquency to prevent any kind of physical, mental, or sexual harassment of women, girls and children at their workplaces, educational institutions and other public places including roads across the country. The HC directed the government to make a law based on the Guidelines and ruled that the Guidelines will be treated as a law until the law is made.	Adequate measure will be taken during project activities to follow the HC Guidelines

2.2 Conventions, Treaties and Protocols

50. Environmental problems which migrate beyond the jurisdiction (Trans-boundary) require power to control such issues through international co-operation by becoming a Contracting Party (CP) i.e., ratifying treaties or as Signatory by officially signing the treaties and agreeing to carry out provisions of various treaties on environment and social safeguards. Bangladesh has been signed and ratified various Multilateral Environmental Agreements (MEAs), International Labour Organization (ILO) Conventions, and International Maritime Conventions. The relevant international conventions have been summarized in the in the Table below.

Table 3: Applicable International Conventions

Treaty or Convention & holding year	Brief Description
Convention on Protection of birds, Paris, 1950	Protection of birds in wild state
Convention on oil pollution damage (Brussels), 1969	Civil liability on oil pollution damage from ships
Ramsar Convention, 1971	Protection of wetlands
World Cultural and Natural Heritage (Paris), 1972	Protection of major cultural and natural monuments
CITES Convention (Washington), 1973	Ban and restrictions on international trade in endangered species of wild fauna and flora
Bonn Convention, 1979	Convention of migratory species of wild animal
Prevention and Control of Occupational Hazards (Geneva) 1974	Protect workers against occupational exposure to carcinogenic substances and agents
Occupational hazards due to air pollution, noise, and vibration (Geneva) 1977	Protect workers against occupational hazards in the working environment
Occupational safety and health in working environment (Geneva) 1981	Prevent accidents and injury to health by minimizing hazards in the working environment
Occupational Health Services (Geneva) 1985	To promote a safe and healthy working environment
Vienna convention, 1985	Protection of ozone layer
Civil liability on transport of dangerous goods (Geneva), 1989	Safe methods for transport of dangerous goods by road, railway, and inland vessels
Convention on oil pollution (London), 1990	Legal framework and preparedness for control of oil pollution
London Protocol, 1990	Control of global emissions that deplete ozone layer
UN Framework convention on climate change (Rio de Janeiro), 1992	Regulation of greenhouse gases emissions
Convention on Biological Diversity (Rio de Janeiro), 1992	Conservation of biodiversity, sustainable use of its components and access to genetic resources
International Convention on Climate Changes (Kyoto Protocol), 1997	International treaty on climate change and emission of greenhouse gases
Protocol on biological safety (Cartagena Protocol), 2000	Biological safety in transport and use of bio-products

2.3 World Bank Environmental and Social Safeguard Policies

51. The World Bank has ten environmental, social, and legal safeguard policies which are listed below:

Environmental policies:

- OP/BP 4.01 Environmental Assessment
- OP/BP 4.04 Natural Habitats
- OP/BP 4.09 Pest Management
- OP/BP 4.11 Physical Cultural Resources
- OP/BP 4.36 Forests
- OP/BP 4.37 Safety of Dams

Social policies

- OP/BP 4.10 Indigenous Peoples
- OP/BP 4.12 Involuntary Resettlement and Legal Policies

- OP/BP 7.50 International Waterways
- OP/BP 7.60 Disputed Areas

52. Operational Policies (OP) are the statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank, whereas Bank Procedures (BP) is the mandatory procedures to be followed by the Borrower and the Bank. Apart from these, the IFC guidelines for Environmental Health and safety have been adopted by the World Bank Group which is also relevant for environmental protection and monitoring. In addition to that the Policy on Access to Information of World Bank also relates to environmental safeguard, details in Annex-4.

2.4 Applicable World Bank Policies to the Project

53. The applicable World Bank Policies for the development of Bholaganj Land Port are given in Table 4.

Table 4: Triggering the World Bank Policies for the Project

Directives	Policy	Applicability for the Project	Explanation
Environmental Assessment	OP/BP 4.01	Triggered	Construction and operation of land port expected to cause impact on natural environment (air and noise quality) and health and safety of local community and workforce. This project falls into Category B since most of these impacts are site specific and can be mitigated with standard mitigation measures.
Natural Habitats	OP/BP 4.04	Not Triggered	No important species (flora and fauna) were found within the influence area (1km radius) during field assessment. There is not any natural habitat formed largely by native plant and animal species in or surrounding the project inflence area. Also, precautions will be taken during construction and operation activities to control the impact on the biological environment. So, OP/BP 4.04 will not be triggered for this project.
Pest Management	OP 4.09	Not Triggered	The project will not procure any pesticides, nor will they induce an increased use of pesticides.
Physical Cultural Resources	OP 4.11	May be Triggered	Though no PCRs are thought to be in the proposed project, there is a chance find. If it happens then the chance to find procedural guidelines must be considered if previously unknown heritage resources which are exposed or found during the life of the project.
Indigenous Peoples	OP/BP 4.10	Not triggered	There are no indigenous people near the project.
Involuntary Resettlement	OP/BP 4.12	Partially Triggered	52.30 acres of Khash Land (Government Owned) is proposed for the project infrastructure facilities. Following official procedure, transfer to BLPA is ongoing. There is no permanent legal residential and commercial structure in the

			proposed land, but some temporary residential and commercial structures are in the project area. Livelihood Assistance Plan (LAP) will be prepared for Involuntary Resettlement/ Compensation if any.
Forests	OP/BP 4.36	Not triggered.	Within 1 km area there are no significant forests or trees. There are not any natural habitats formed largely by native plant and animal species in or surrounding the project influence area. Only some naturally growth trees and Barren non-agricultural lands are available. Also, emission of any pollutants will not be very high because mitigation measures will be taken by contractor and port authority to control their dispersion. So, OP/BP 4.36 will not be triggered for this project.
Safety of Dams	OP/BP 4.37	Not triggered	N/A
Projects in International Waterways	OP/BP/GP 7.50	Not triggered	The river Piyain a tributary of the Surma river, originates from the Umgat river and the hilly areas of Assam. Flowing southward, the Old Piyain river enters Bangladesh through this part of the Sylhet district at about 500 meters from the proposed land port area. In between the River and proposed land port the existing area will be developed as a tourist complex by the Tourism Department of Bangladesh. No impact from development of proposed land port. This Old Piyain receives life during the rainy season but there is no record of overflow the surrounding area and therefore OP 7.50 is not triggered.
Projects in Disputed Areas	OP/BP 7.60	Not triggered	The project is not located in a disputed area
Access to Information		Applicable to the project.	ESIA will be disclosed in country (on BLPA Project website) and will be sent to WB Info Shop. Face to face consultations with the local community were held at Bholaganj, 1 no. West Islampur Union Parishad and Companiganj Upazila on 2nd, 19th, and 20th March 2023. Further on June 02, 2023, in project area. The executive summary of the ESIA will be translated into Bangla that will be made available in hard copy in locally accessible locations in the project area, including BLPA/Customs Offices.

2.5 Gap Analysis of World Bank Requirements and National Laws

54. There is no significant gap between WB safeguard policies and GoB's National

Environmental Policy 1992, Bangladesh Environmental Conservation Act (ECA), 1995 amended 2002 & Environment Conservation Rules (ECR) 1997 amended 2003 and finally in 2023. Project Authority/Executing Agency/Implementing Agency will follow the World Bank labour influx guideline on "major civil works" (2016) during the project implementation period. No gap with GoB Guideline and World Bank labour influx guidelines. Another Gap analysis is given in table below.

Table 5:Gap Analysis between GoB Laws & the WB safeguard policies related to the project.

Subject	OP/BP 4.01/4.12	GoB laws/regulations
Environmental Assessment OP/BP 4.01	This policy is the umbrella safeguard policy to identify, avoid, and mitigate the potential negative environmental and social impacts associated with Bank lending operations. In World Bank operations, the purpose of Environmental Assessment is to improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted. The borrower is responsible for carrying out the EA and the Bank advises the borrower on the Bank's EA requirements. The Bank classifies the proposed project into three major categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts: **Category A**: The proposed project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. **Category B**: The proposed project's potential adverse environmental impacts on human population or environmentally important areas- including wetlands, forests, grasslands, or other natural habitats- are less adverse than those of Category A projects. These impacts are site specific; few if any of them are irreversible; and in	***National Environmental Policy 1992, Bangladesh Environmental Conservation Act (ECA), 1995 amended 2002, 2023.*** This umbrella Act includes laws for conservation of the environment, improvement of environmental standards, and control and mitigation of environmental pollution. It is currently the main legislative framework document relating to environmental protection in Bangladesh, which repealed the earlier Environment Pollution Control ordinance of 1977. ***Environment Conservation Rules (ECR) 1997 amended 2003, finally in 2023.*** Rule 7 of Environment Conservation Rules (ECR) has classified the projects into following four categories based on their site conditions and the impacts on the environment; **(a) Green, (b) Yellow, (c) Orange and (d) Red**. Various industries and projects falling under each category have been listed in schedule 1 of ECR 2023. According to the Rules, Environmental Clearance Certificate is issued to all existing and proposed industrial units and projects, falling in the Green Category no IEE. However, for category Yellow, Orange and for "Red" projects, require a location clearance certificate and followed by the issuing of Environmental Clearance upon the satisfactory submission of the required documents. Green listed industries are considered relatively pollution-free, and therefore do not require site clearance from the DoE. On the other hand, Red listed industries are those that can cause 'significant adverse' environmental impacts and are, therefore, required to

Subject	OP/BP 4.01/4.12	GoB laws/regulations
	most cases mitigation measures can be designed more readily than Category A projects. **Category C**: The proposed project is likely to have minimal or no adverse environmental impacts.	submit an EIA report. These industrial projects may obtain an initial Site Clearance based on an IEE based on the DoE's prescribed format, and subsequently submit an EIA report for obtaining Environmental Clearance.
Involuntary Resettlement **OP/BP 4.12**	The impacts covered under the WB policy; the borrower will prepare a resettlement plan covering the following: i) Informed the displaced persons about their options and rights pertaining to resettlement. ii) Consulted on, offered choices among and provide with technically and economically feasible resettlement alternatives. iii) Provide prompt and effective compensation at full replacement cost for losses of assets directly attributable to the project. If the impacts include physical relocation, the resettlement plan will insure the displaced persons will get assistance (moving allowance) during relocation. They will get residential housing, or housing sites or, as required, agricultural sites for which a combination of productive potential, locational advantages, at least equivalent to the old site. Where necessary the displaced persons will be offered support after displacement, for a transition period to restore their livelihood and standards of living. Provide development assistance in addition to compensation measures. Other measures are preparation of land, credit facilities, training, or job opportunities.	**The Acquisition and Requisition of Immoveable Property Act, 2017** was published gazette by the Government of Bangladesh. Applies to permanent or temporary physical and economic displacement resulting from different types of land acquisition and restrictions on access. It does not apply to voluntary market transactions, except where these affect third parties. Provides criteria for "voluntary" land donations, sale of community land, and parties obtaining income from illegal rentals. Prohibits forced eviction (removal against the will of affected people, without legal and other protection including all applicable procedures and principles in OP/BP 4.12. Requires that acquisition of land and assets is initiated only after payment of compensation and resettlement has occurred. Requires community engagement and consultation, disclosure of information, and a grievance mechanism. **Gaps** (i) Does not require RAP preparation in the case of non-titled entities. (ii) Does not provide compensation or assistance to those who do not have a formal legal claim to the land. (iii) does not provide transitional allowances for restoration of livelihoods for informal settlers. (iv) relies on cash compensation, no developmental objectives. (v) no provision to give special attention to the vulnerable groups (vi) valuation of lost asset is not based on "replacement cost' standard.

2.6 Compliance Status with Bangladesh and World Bank Requirements

55. The present compliance status of the project with Bangladesh legislation and World Bank safeguard policies is indicated in Table below:

Table 6: Compliance of the Project with GOB Legislation and WB Safeguard Policies

Policy	Legislation/ Policy	Actions Taken to Comply
GoB requirements	Environmental Conservation Rules	BLPA will obtain Site Clearance Certificate from DoE, and renewal of ECC will be obtained regularly.
	International treaties	No protected or vulnerable sites that remain under international treaties are noticed in the project area.
	Public information and disclosure	The ESIA report will be disclosed on BLPA's project website. Face to face consultations meetings were held on Bholaganj Land Port on 4 and 19-20 March 2023, at the site union and upazila office, Companiganj.
World Bank requirements	Early Screening and Scoping	Screening using structured questionnaires was carried out during the feasibility study of the Project.
	Participatory approach	Key informant interviews, participatory rural appraisals, consultation meetings and focus group discussions were held in March 2023 and June 2023.
	Integrate environmental and social assessment	Natural environment, public health, and social aspects are incorporated into ESIA.
	Risk assessment	Health and safety risks for population and workers are identified in the ESIA and management measures will be included in tender documents. BLPA capacity will also be strengthened on health and safety risk management. Bholaganj land port needs to be developed and expanded in a planned and integrated manner. The proposed development has been designed. There are no risks due to the land acquisition and design updates. Because the land Government Owned land.
	Climate Change and Floods	Impact of floods and climate change effects are considered for feasibility study of the Bholaganj land port.
	Alternatives	Alternatives have been considered for the location of the proposed land port including multimodal transport alternatives; and various layouts for sitting of required facilities in the selected are produced.
	Pollution	To observe the pollution profile in the project site, baseline survey of air, noise and water quality has been carried out. Environmental Code of Practices (ECoPs) will be provided during design period.
	Physical Cultural Resources	No physical, cultural resources which warrant special treatment under the World Bank OP 4.11 were identified in the proposed land port area. A mosque is in the proposed area, but no graveyards are in the proposed land port area. Chance Find Procedure is to be followed if it is required.

Policy	Legislation/ Policy	Actions Taken to Comply
	Social impacts	For negative social impacts on land/assets/livelihood/ access to resources etc. mitigation plans will be prepared in keeping with the Bank's Operational policies triggered.
	Gender	Women participated in the consultation meetings in the project feasibility study program, and they suggested that waiting rooms and toilets for women should be included in the design of the infrastructures.
	Public Health	Public health aspects were studied, and public health impacts are covered in EIA. Ramp will be used for disabled people.
	Consultation and access to information	The ESIA will be disclosed on BLPA website and will also be disclosed on WB website. The executive summary of the EIA has been translated into Bangla and was circulated to the local community. Face to face consultations were held in held on 4 and 19-20 March 2023 and public consultation on June 02, 2023, at Bholaganj Land Port area and union and Upazila Companiganj.

3 THE PROJECT

3.1 Project Overview

56. The Land Port proposed for development at Bholaganj in 1 no. West Islampur Union Parishad at Companiganj Uupazila under Sylhet district. Bholaganj land port will be a border crossing between Bangladesh and tourist spot Cherrapunji in the district of Shillong of Meghalaya state in India. There are currently rudimentary facilities (Customs Station) with NBR only and BLPA plans to develop this facility into a formal land port facility. Development of Bholaganj land port located along the west side of the existing highway from Sylhet to Zero Point at Bholaganj. All the land port facilities will be constructed in 25.00 acres of out 52.30 acres at this stage. No man's land area i.e. 150 yards from zero line is avoided now. The proposed land port is in the mouza – Kalashadok of 1 no. West Islampur Union Parishad at Companiganj Upazila in Sylhet district. The opening of new land port between Bangladesh and the northern states of India through this Bholaganj-Shillong border point is considered as a high potential commercial and tourism-oriented route in near future, should a formal border station be erected.

3.2 Location of Bholaganj Land Port

57. Bholaganj Land Port is located at the northeast part of Bangladesh in 1 no. West Islampur Union Parishad at Companiganj Upazila of Sylhet District. The closest Indian border area is Cherrapunji of Shillong district of Meghalaya state. The Project site is adjacent and west side to the Sylhet- Bholaganj Zero-point highway and the natural borderline between Bangladesh and India. The distance of Bholaganj from Companiganj Upazila is 7 km and 35 km from Sylhet district Headquarter. The Indian part of it is called tourist zone Cherrapunji in the district of Shillong under Meghalaya state of India. The distance from Bholaganj to Cherrapunji is about 26 km, to Shillong district Headquarter is about 80 km and to Meghalaya state city is about 146 km. Location of Bholaganj Land Port is shown in Figure 1. Electricity is available at Parua Sub-station at 5 km from Bholaganj land port in Companiganj Upazila, from which the land port can connect to for smooth operation of land port activities. A 3200 KVA power line to be added by PBS from the available capacity at Parua Sub-station. This can be extended over the existing line along the roadside. Hence there is no impact of electromagnetic radiation, crop loss and tree cutting. During extension of power line safety measure is required only. In addition to the power line, a solar power of 25 kW and 2 standby Generators will be installed as a backup power source. There is mobile network coverage in the area. There are currently Customs facilities in this area although a BOP of BGB is located adjacent to the proposed land port area. The proposed 52.30 acres of Government owned Khash land is in transferring process under section 10 of "Non-Agricultural Khash Land Settlement Policy, 1995". There is no dispute over the land and no legal impediments to use the land for developing the proposed land port on the site. At this stage, development of Bholaganj land port will be on 25 acres (exclude the no man's land i.e. 150 yards from zero line). There are some residential or commercial structures situated on the proposed land. A separate Livelihood Assistance Plan is required for assess and compensation if any.

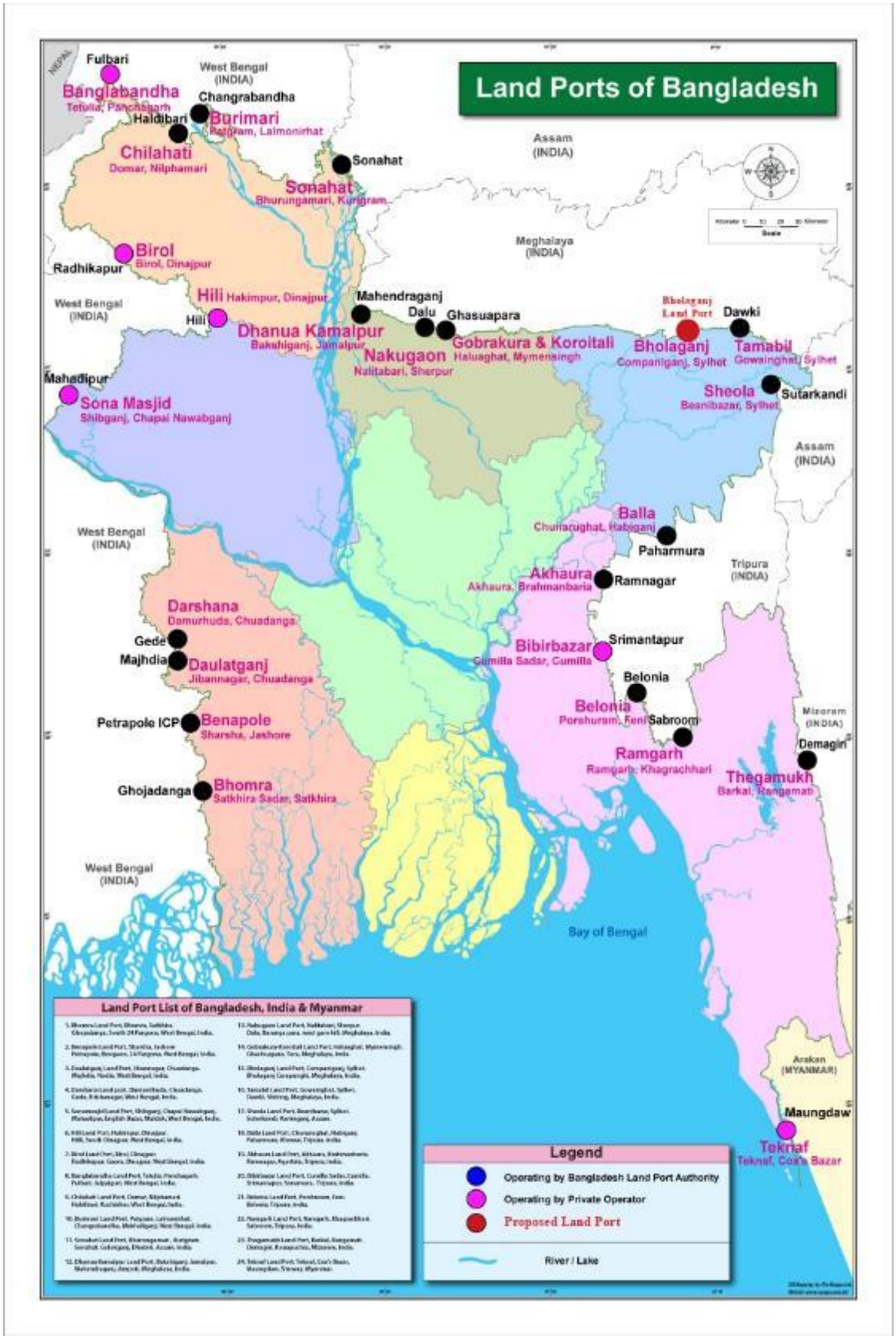


Figure 1: Location of Bholaganj land port in Bangladesh Map

3.3 Project Activities

58. The development may be divided into two packages, as the demand will take time to speed up and early development without demand will keep the assets idle for an indefinite time. Two Packages is recommended to be done in the similar construction type. No development is taken in no man's land where land clearance is required from BSF India. After negotiation with BSF regarding development work in the no man's land further development will be considered.

59. The development is proposed in two packages for ease of implementation and employing resources at the pace of need of growth and expansion. If all the structures are constructed before the target requirement, then land port is likely to have resources remaining idle. Therefore, it is recommended for two packages for catering the needs during the periods 2023 -2024 and 2024-2025. Ministry of Land, Government of Bangladesh has agreed to transfer the 52.30 acres khash land (Government Owned) to Bangladesh Land Port (BLPA) and transfer procedure are under process.

60. Present environmental study is carried out for all these 2 packages facilities under consideration. Following activities will be carried out and facilities will be developed –

Table 7: Proposed activities and facilities of Bholaganj Land Port

Activities	Proposed facilities for Bholaganj Land Port	
• Consultancy Services • Arrangement of available khash land from Government • Construction and development of different facilities • Social Impacts Mitigation • Environmental Impact Mitigation	• Pavement • Permanent Boundary Wall • Internal Road Network • Garbage Bins • Landscaping • One stop Port Building • Warehouse • Parking Area • Transshipment Yard Shed • Bangladesh Truck Parking Area • Indian Truck Parking Area • Barrack • Facilities for Drivers and Labors	• Check post for Border. • Open Stack Yard • Area internal Lighting, road, etc. • Substation Building • Watch Tower • Toilet Complex • Septic tank, soak well • Water Pipe network • Area Drainage • Substation Equipment • Pump House • Weighing Bridge • IT Solution system, Networking etc. • Security system, CCTV, alarm etc. • Fire detection, Fire protection system

3.4 Expected People, Waste Generation and Utility Requirement

- **Expected people at the port facility.**

61. The expected permanent staff will work in the Bholaganj land port during the operation phase is 45 numbers of persons. Beside this, passenger traffic in Bholaganj land port is expected to be around 200 per day during operation phase of the port.

- **Waste generation**

62. Following table shows the expected amount of waste which will be generated from the activities of Bholaganj Land Port during operation phase:

Table 8: Waste generation during operation

Units/ Offices	No. of Port users	SW generation rate		Total Solid Wastes/day	
	Nos.	kg/c/d	l /c/d	Kg	l
Custom passenger Terminal	200	0.2	0.8	40	160
Administrative building	50	0.2	0.8	10	40
Transshipment area	200	0.3	1.2	60	240
C&F	200	0.2	0.8	40	160
Residential area	50	0.2	0.8	10	40
			Total	**160**	**640**

- **Expected water demand/requirement.**

63. During Construction phase expected water demand in the development of Bholaganj land port will be 5000 litter per day.

64. During operation phase expected water demand in the Bholaganj Land Port will be as following:

Table 9: Expected water demand during operation.

Building/Unit	Users, no.	Water Use Rate, lpcd
Residence	50	75
Office	75	20
Public Wash Block	100	50
Public Wash Block	50	50

- **Electricity supply**

65. Power supply at the Bholaganj Land Port area will be following:

Table 10: Electricity supply system at the Bholaganj Land Port

Item	Particulars
Overhead Incoming Expressed 11 KV Feeder	• 33/11KV Power can be fed from existing 33/11KV Sub-Station at Parua Sub-station in Companiganj Upazila installed by Pally Biddut Samity (PBS), Sylhet at a distance 5 km from proposed land port. • A 3200 KVA power line to be added by PBS from existing capacity at Parus Sub-station. In addition to the power line, a Solar Power of 25 kW and 2 Generators will be installed as a power source.
Power Sub-station	Major components are as follows: • Ring Main Unit for 2nos. 11KV Incoming Feeders • Medium Voltage Switchgears (11KV) • Power Transformers of 2nos. 1250KVA, 11/0.415KV, 50Hz, • DYn11, dry type cast resin and maintenance free • Low Voltage (LV) Switchgears and ELT switchgears • Power Factor Improvement Plants

3.5 Key Elements of Master Plan

66. In this proposed planning all the different relevant departments are integrated under one roof. The key elements taken into consideration for finalizing master plan are as follows:

- Transhipment Yard
- Truck Parking Area
- Open Stack Yard
- Warehouse
- Visitor Transit Area
- One Stop Service in Terminal/Port Building

- **Transhipment Yard**

67. Transhipment yard will use to direct transfer of cargo form Indian trucks to Bangladeshi trucks. Indian trucks will unload goods at transhipment yard and return to India afterwards. The facility will be developed in Package BLPA-W6A, as this area located in no objection area.

- **Truck Parking Area**

68. As most of the goods through land ports are transported through trucks it is highly necessary to start with organized truck parking area from the beginning. Parking area for Indian and Bangladeshi trucks are strongly recommended and a provision of planned for future use. In Package BLPA-W6B, parking areas both Bangladeshi and Indian trucks are required to be developed.

- **Open Stack Yard**

69. Open stack yard is useful for staying of non-perishable goods due to relatively less expensive storage space. Such yard needs to be established at the beginning as part of Package BLPA-W6B development. Approximately on average 10,000 tons of goods are predicted to be stored in the yard. These are mostly limestone, boulders and others non-perishable goods which are imported in bulk and usually take more space than those stored in warehouse. These heavy materials will keep in open air of which 50 per cent are stored and assumed to be kept for two days on average. Therefore, the open stack yard space is recommended to be established with 86,000 sqm.

- **Warehouse**

70. Mainly perishable goods are stored in the warehouse, which are assumed to stay for two-three days. Out of predicted cargo volume by 2055, approximately 5,000 tons are estimated to be warehoused. Therefore, a warehouse with 2,000 sqm space is planned to be built in Package BLPA-W6B. Proper ventilation and lighting have been considered in the design.

- **Immigration Building**

71. In average daily 250 persons cross the Tamabil Border in 2022, the nearest land port from Bholaganj. Presently there is no passenger traffic at through Bholaganj. Annual passenger traffic crossing through Tamabil border in 2022 was 75,000. If facilities are provided the passenger movement is expected to rise sharply as the attractive tourist spot at Cherrapunji in Shillong district under Meghalaya, India is the shortest distance. Passenger traffic in Bholaganj is expected to be around 200 per day, after development of the land port and gradually will be increase. Therefore, a passenger terminal building of with 2,000 sqm space is recommended to be built in future in Bholaganj.

- **One Stop Port Service Building/Port Building**

72. Bholaganj will need a one-stop service building or port building for smooth operation of the port by integrating the port users i.e., exporters, importers, C&F Agents, transport associations, labors, customs, quarantines, BGB and other port users. For reducing the waiting and travel time of the port users and for streamlining the port services, a one-stop service building or port building

is proposed. Offices to be housed by the proposed one stop port service building or port building are BLPA, Immigration, Customs, BGB, Banks, Labor Union, Labor Contractor, Health Inspection and C&F Agents.

73. The size of the building has been derived from the functional and space requirement of the different offices that will operate in coordination with the port authority. The size of each office is calculated based on 20 sqm per person, multiplied by the number of persons for the target year 2050. A building with 2,000 sqm space is recommended for one stop services.

74. Separate waste management system will be constructed to manage sewage and solid waste management to treat all liquids generated from human excreta and other activities in the land port area during operations.

Proposed Port Service Building/Port Building

3.6 Present setup

75. Currently there is no infrastructure of the land port, as it is to be developed from open barren field Government owned khash land. No land acquisition is required and after approval from Ministry of Land transferring process from Deputy Commissioner Office to BLPA is underway.

3.7 Layout Plan

76. A conceptual Masterplan for Bholaganj Land Portis given below:

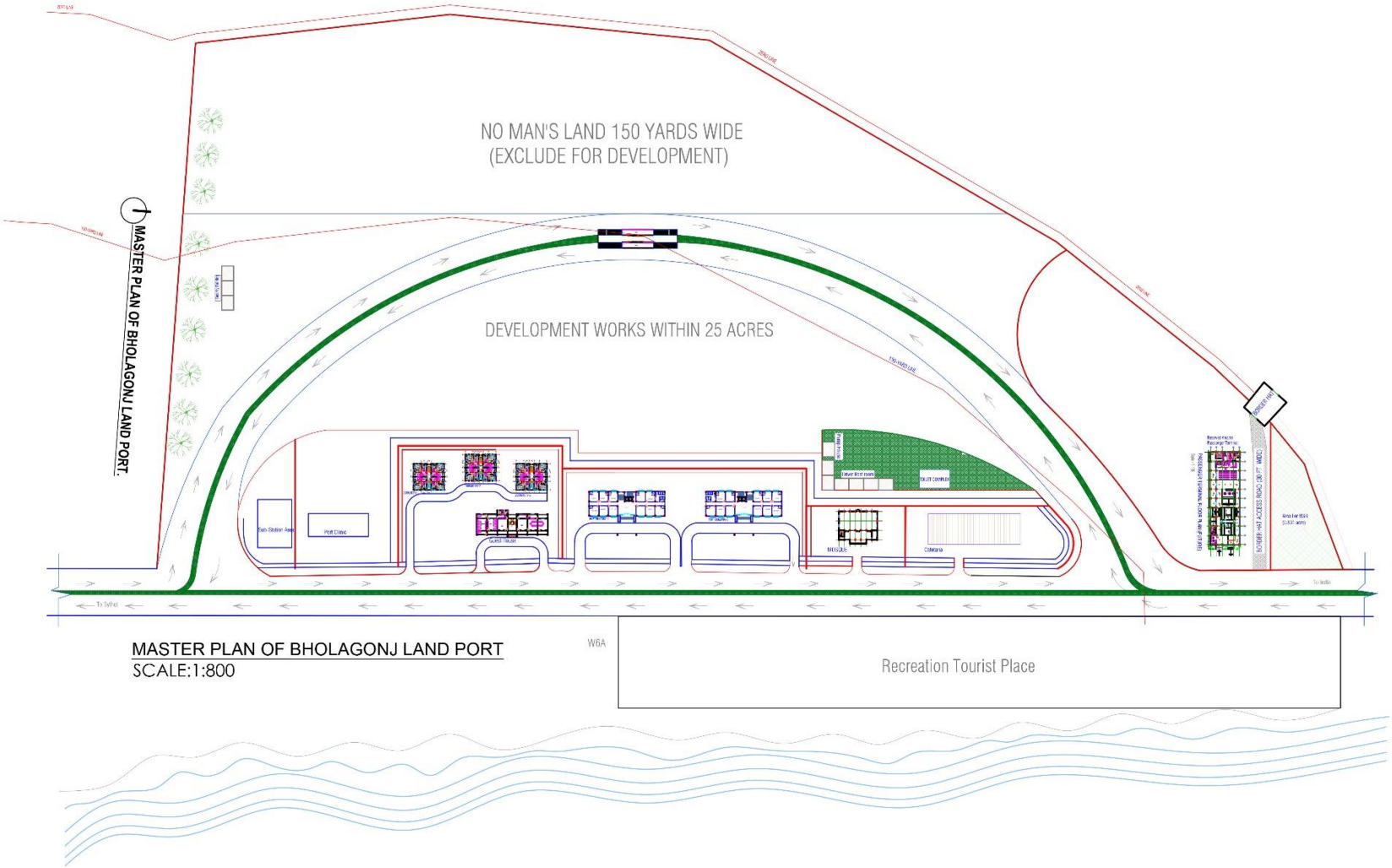


Figure 2: Conceptual Masterplan for Bholaganj Land Port

3.8 Analysis of Alternatives

3.8.1 Alternatives for Location of the Land Port

77. To select the present location of Bholaganj Land Port all the options, traditional design has been analysed to get most of the benefit. The advantages and disadvantages of options are illustrated below:

Traditional

- This type of land port has a wide level of acceptability because both has a long history of using such method of border management;
- Handling of goods/vehicles/labours is more effective and easier in this method;
- Cross border coordination is required at a reduced level;
- Inter-ministerial correspondence is required at a limited level that will increase the speed of operation at any level;
- Only road development is required to get maximum benefit from this type of management;
- Land custom (LC) stations of both of the countries will enjoy absolute independence functionally and operationally;
- Land Port Authority will be able to execute and exercise their command at a highest level.

Co-located or Juxtaposed

- From the discussion with C&F Agent, Local Businessmen and Truck Drivers those have continuous movement across the border, there is no activities found in the Indian side to develop any masterplan for develop a land port. There have a customs station inside the Indian part to manage their export of stones, limestones, and other materials.
- Bholaganj Land Port site is one of the LC stations and currently a Border out Post (BOP) guarded by BGB. This BOP is under Battalion Commander at Companiganj Upazila and under the Adjutant of BGB, Sylhet. The BOP is on the other side of the road 100 meters from the land port area.
- Coordinated effort for transshipment will not be very effective in this pattern due to difference in language, religion, social, nature and behavior of people and truck driver is different of diversity.
- Infrastructure within no man's land is highly restricted by both neighboring governments, for necessity and comfort of port users in both countries this issue may be solved soon.

Staggered

- Coordination will not be very strong in land port due to the composed team of different countries;
- Such a type of poor coordination may result in mismanagement of the land port area.

78. From above analyses it is found that the proposed location is acceptable for land port development. Besides, the distance of main source of imported material (Boulder and Limestone) from India to Bangladesh border by this route is minimum. This construction materials will be used in other development work in Bangladesh. At construction work for land port development these construction materials may be used

after import from India. So, this location is selection is very important for economy of Bangladesh. The importers have licence for their activities maintaining all governmental rules and regulations.

3.8.2 Alternatives for Single Modal and Multi Modal Transport

79. At present Bholaganj-Sylhet Highway is the only option for transportation and this is the shortest distance connectivity from Sylhet to Indian border.

3.9 Development in two separate packages

80. As there are some observations from the neighbouring country for conducting any development work in no man's land area but some of the facilities are most essential to construct near zero line (in no man's land). After negotiation between the countries development in this area will be taken up in future. At this stage Bholaganj Land Port will be developed into two packages considering similar type of works. Present study is conducted for the development work of two packages.

81. For Package BLPA-W6A and Package BLPA-W6B, the essential facilities that need to be constructed and operated for the land port are given below.

Table 11: Proposed facilities for all two stages

Package BLPA-W6A		Package BLPA-W6B	
• Site Office and Others • Construction stage EMP Measures • Site Development • Internal Sanitary and Water Supply • External Sanitary and Water Supply • Landscaping • One stop Port Building • Internal Electrical Works	• Supply of Furniture • Area internal Lighting, road, etc. • Substation Building • Water Pipe network • Area Drainage • Substation equipment • Pump House • Barrack Building • IT Solution system, Networking, etc. • Security system, CCTV, alarm etc. • Fire detection, Fire protection system • Customs Inspection Building • External Electrical Works	• Site Office and Others • Boundary Wall • Bangladesh Bus/Vehicle Parking Area • Border Check Post • Open Yard • Trans-shipment Shed. • Warehouse • Yard Office • Toilet Complex • Fire Protection System	• Pavement • Heavy stack yard • Bangladesh Truck Parking Area • Septic tank, soak well • Weighing Scale 2 nos. • 2 nos. Watch Tower • Construction stage EMP Measures

82. As part of planning considerations, best practices of different ports in developed countries were studied. In the existing land ports different departments mostly are scattered around the site, which creates a system loss leading to inefficiency. Therefore, in this planning exercise, all the different departments (i.e. exporters, importers, C&F Agents, transport associations, labors, customs, quarantines, BGB and other port users) will be integrated under one roof.

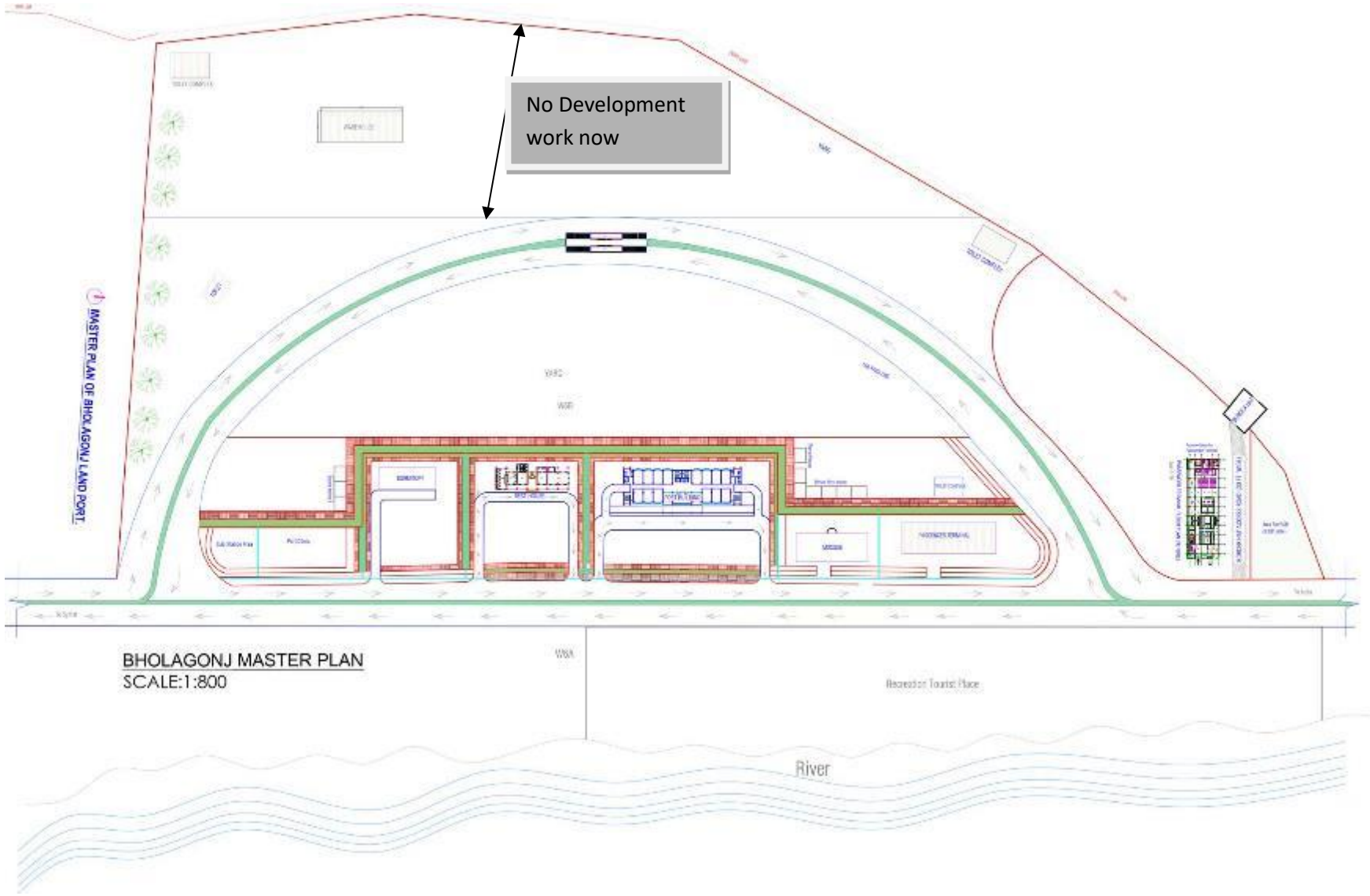


Figure 3: Conceptual layout plan showing area for two Packages development

3.10 Implementation schedule

83. The development is proposed in two stages for ease of implementation and employing resources at the pace of need of growth and expansion. If all the structures are constructed before the target requirement, then land port is likely to have resources remaining idle. Also, there are complexities regarding observation from BSF, India for Construction work in no man's land (150 yard from zero line at border) will the implementation time. Therefore, it is recommended for two packages for catering the needs during the periods 2023 -2024 and 2024-2025.

Table 12: Implementation Schedule

	2023								2024												2025			
Item	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
Consultancy Services CSC																								
RCC Pavement																								
Permanent Boundary Wall																								
Internal Road Network																								
Garbage Bin																								
Land Scaping with walkways																								
One stop Port building																								
Warehouse																								
Parking Area																								
Transshipment Yard Shed																								
Truck Parking Area																								
Facilities for Drivers and Labour																								
Border Check Post																								
Open Stack Yard																								
Watch Tower																								
Toilet Complex																								
Passenger Terminal Building																								
Water Supply System, DTW with Pump House																								
Electrical works with Substation																								
Internal Drainage works																								
Installation of Weighbridge																								
IT Solution System with networking																								
Security system, CCTV, Alarm etc.																								
Fire Detection & Protection System etc.																								
Social Impact Mitigation																								
Environmental Impact Mitigation																								

4 Environmental and Social Baseline

4.1 Introduction

84. The environmental and social baseline is the existing status of physical, biological, and social environmental components of the project area. The main objective of examining the present environment is to provide an environmental baseline against which potential impacts from construction and operational phases of any project can be compared. On this basis the information gathered from various secondary sources and field studies the existing condition of the prevailing environmental status have been identified and presented in following sections. The major sources of noise during the construction phase are vehicular traffic & construction equipment like concrete mixers, cranes, generators, pumps, compressors, etc. The noise produced during construction will have a significant impact on the existing ambient noise levels. The nearby people of the settlements/educational institutes, etc which are within 1 km either from the project boundary or from the township boundary may feel disturbance created by the construction noise. One km radius area is generally considered as direct influence area because of disturbance created by the project activities during both construction and operation phase and is shown in Figure 5.

85. Position of proposed Bholaganj Land Port is in Mouza Kalashadok, Upazila Companiganj under the District Sylhet. The following Table and Figure illustrate the summary of various environmental settings and location map with 1km affected area, respectively.

Table 13: Existing environmental settings[1]

Particulars	Details	
Location	Mouza Kalashadok, of Companiganj Upazila under Sylhet District	
Total Area	52.30 Acres	
Site Elevation	Around 16.77 m from MSL	
Surroundings of the project site	North	Indian Border with hilly area
	West	Indian Border with hilly area
	East	Sylhet-Bholaganj Highway and Selected for Development of Tourist area of Bangladesh, now open khash land
	South	School area and open khash land
Agro ecological Zone	Hilly area at Northern and Western area in India	
Agricultural Activity	Main crops of Companiganj Upazila are paddy, mustard, cassia leaf, betel leaf.	
Flood	Since May 2022 Bangladesh has been hit one of the worst floods in 122 years in the District of Sylhet and Sunamganj area. The project area also affected by this worst flood.	
Climatic Condition	In Sylhet, the wet season is hot, oppressive, and mostly cloudy and the dry season is warm and mostly clear. The average monthly temp.at Sylhet varies from 16.8°C to 29.2°C. Maximum temp. occurs in the month of April and minimum temp. in January. Mean annual rainfall in this region is about 3,851 mm at Sylhet. About 70% of annual rainfall occurs during May to August.	
Seismic Zone	Zone IV, Most Severe (Seismic co-efficient is 0.36g) (BNBC, 2020, Table 6.2.14 Page 628 Final Version)	

[1]Field visit, BBS, 2011 & Google Earth

Particulars	Details
Forests	There is no prominent forest near the project site, but some natural vegetation is observed at the east and south side of the project area.
Major Water Body	Piyain River.
Ecologically Critical Area	None.
Environmental and Social Hotspots	River, some homestead and natural vegetation, educational institute, religious and historical sites etc.

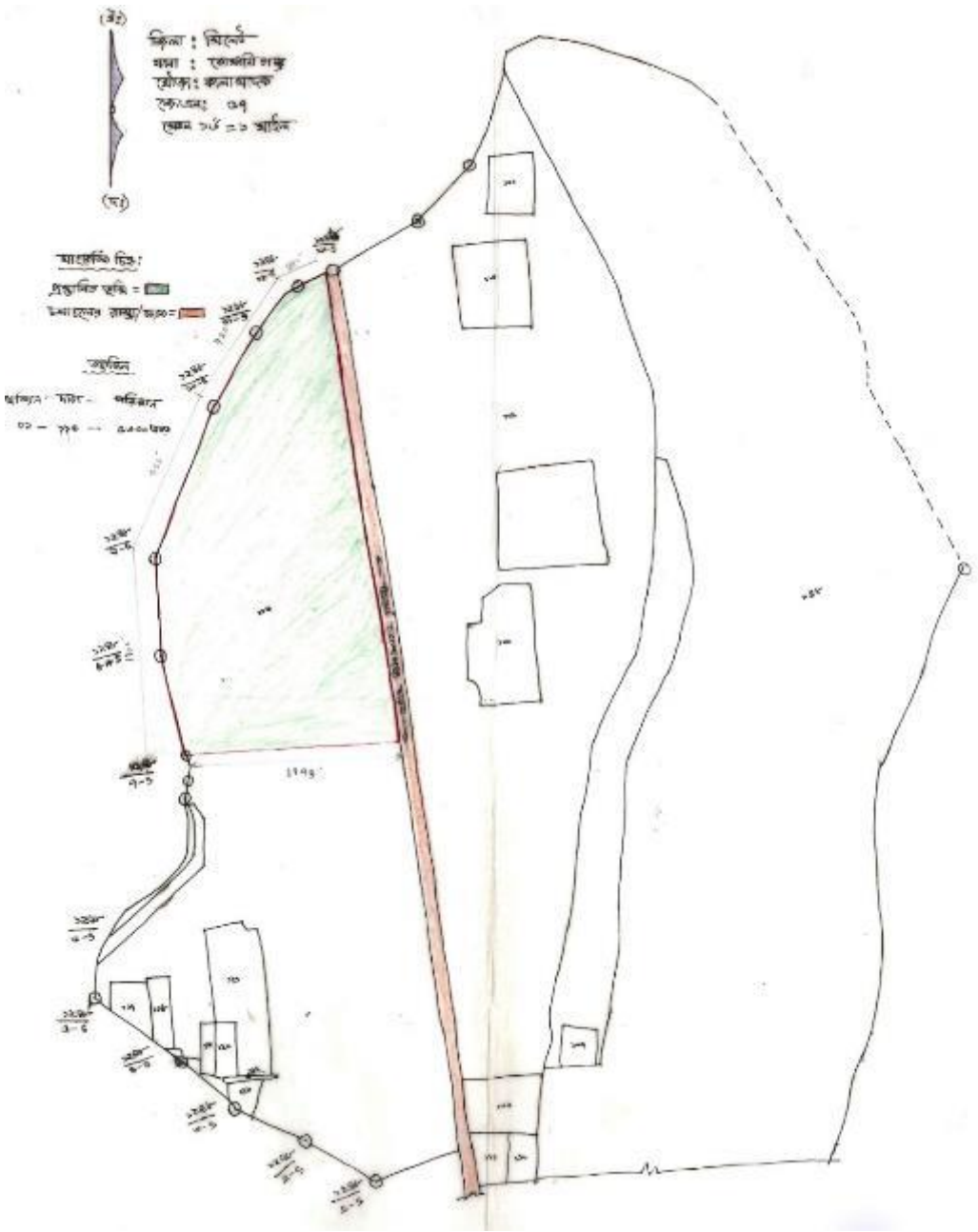


Figure 4: Mouza Map for Bholaganj Land Port

Figure 5: Project location with 1 km radius (in Bangladesh area) influence area

4.2 Meteorology

86. Bangladesh is in the tropical monsoon region and its climate is characterized by high temperature, heavy rainfall, often excessive humidity and fairly marked seasonal variations. The climatic sub-regions of Bangladesh are presented in the following Figure and as per that, the Companiganj Upazila of Sylhet District falls in climatic sub-region namely North-Eastern Zone. The nearest meteorological station of Bangladesh Meteorological Department (BMD) is at Sylhet. The climatic conditions as recorded at Sylhet are therefore considered applicable for the proposed project. To assess the climatic conditions of the area, climatology data has been collected from BMD.

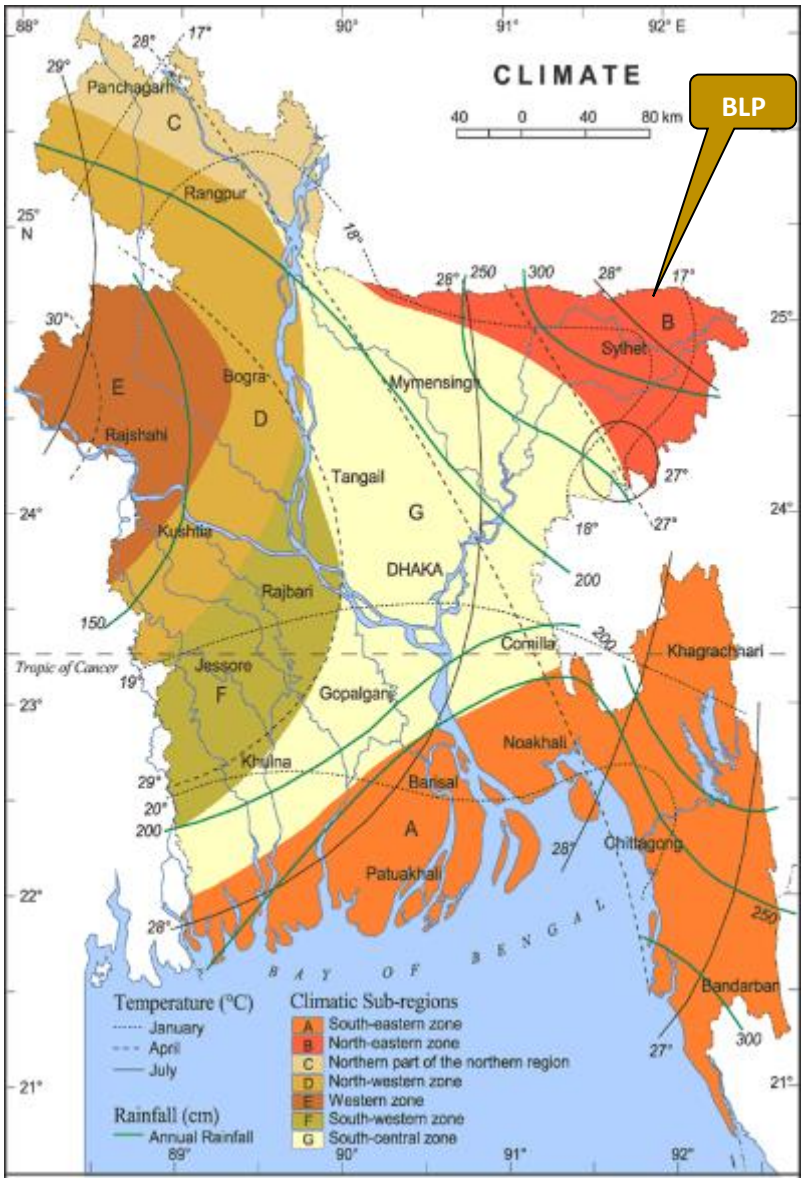


Figure 6: Climatic sub-regions of Bangladesh[1]

4.2.1 Temperature

87. Bangladesh has warm temperatures throughout the year, with relatively little variation from month to month. Figure 7 shows the mean daily maximum and minimum air

[1]www.thebangladesh.net

temperature of 30 years of Sylhet. As temperature record shows, April is the warmest month. Although in short spell, there exists a winter season in Bangladesh from November to February.

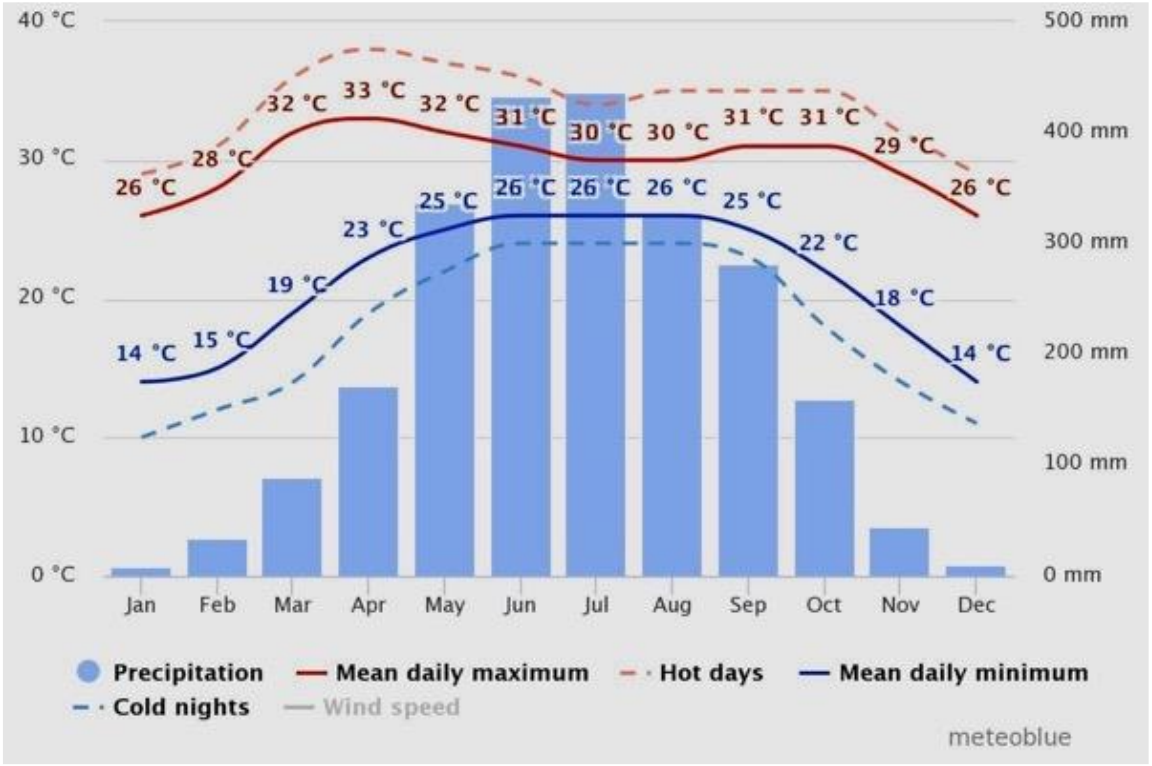


Figure 7: Temperature and Rainfall in Sylhet

88. The “main daily” maximum” (solid red line) shows the maximum temperature of an average day for every month. Likewise, “mean daily” minimum” (solid blue line) shows the average minimum temperature. Hot days and cold nights (dashed red and blue lines) show the average of the hottest day and coldest night of each month of the last 30 years monthly precipitations above 150mm are mostly wet, below 30mm mostly dry.

4.2.2 Humidity

89. Due to heavy rainfall and proximity to Bay of Bengal, the humidity levels in Bangladesh remains high. Annual average relative humidity in the project area is around 84%. In September highest average humidity is found about 90% and in March least average humidity is found as 68% in the project area. Humidity fluctuations are stable every year in project area in view of seasonal humidity change. The difference in the average humidity between respective months is rather small except for the months from February to May. The monthly variation of humidity patterns of Sylhet from nearby station in Shillong, India has been given in the following Figure.

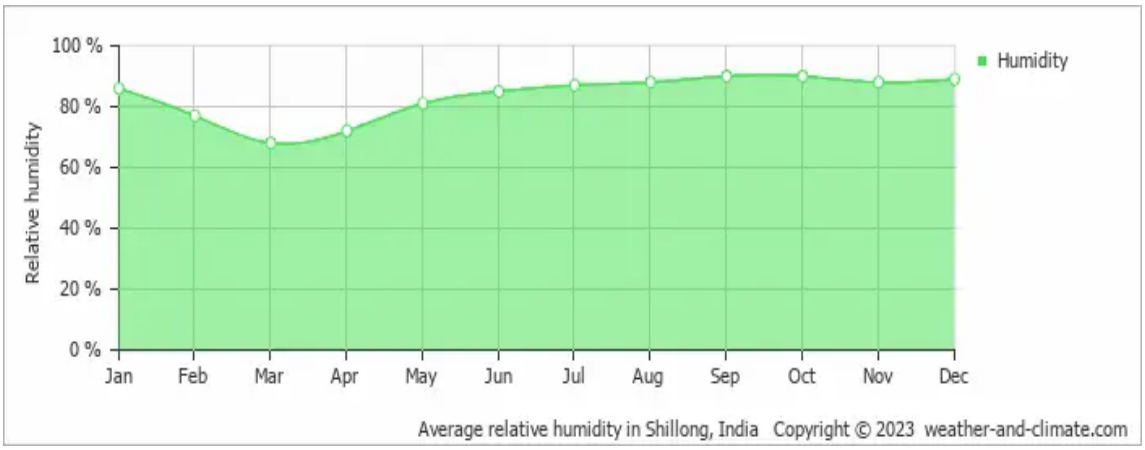


Figure 8: Average Humidity in Sylhet

4.2.3 Rainfall

90. Heavy rainfall is characteristic of Bangladesh frequently causing flood across the country or at local scale. Except for the relatively dry western region of Rajshahi, where the annual rainfall is about 1,600mm (63.0 inch), most parts of the country receive at least 2,300mm (90.6 inch) of rainfall per year. About 80% of Bangladesh's rain falls during the monsoon season. Maximum rainfall occurs during May to September and the lowest rainfall occurs in November to February during winter season. The number of sunny, partly cloudy and nos. pf rainy day is given in Figure below.

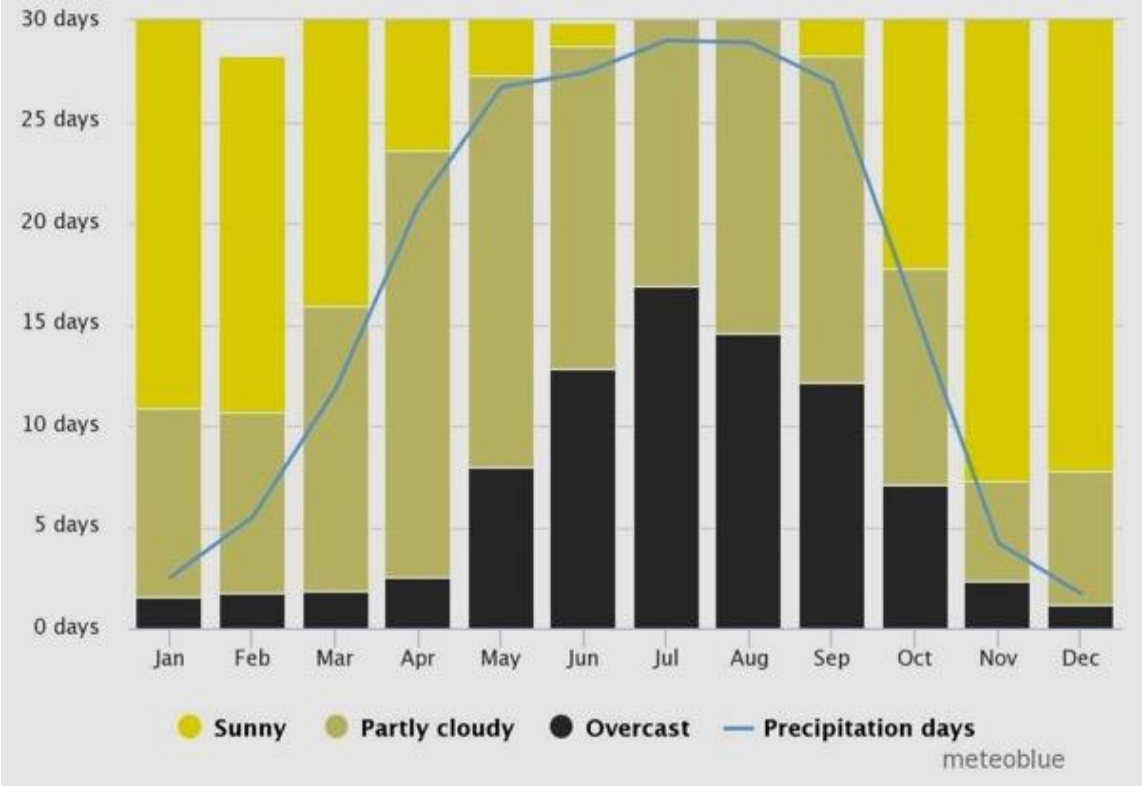


Figure 9: Number of Sunny, Rainfall and Cloud Coverage Days in Bangladesh

91. Average Rainfall in Sylhet area is shown in following figure. It shows that maximum average rainfall (600 mm) calculated in the month of July, then June (above 500 mm) and August (450 mm). Minimum rainfall observed during the month of December and January.

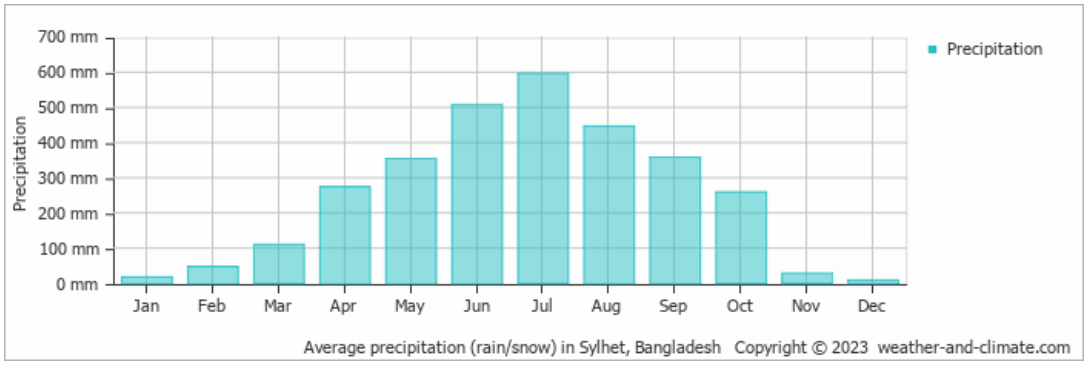


Figure 10: Average Rainfall in Sylhet

4.2.4 Sunshine Hours

92. Sunshine duration or sunshine hours is a climatological indicator, measuring duration of sunshine in a given period (usually, a day or a year) for a given location on Earth; typically expressed as an averaged value over several years. It is a general indicator of cloudiness of a location, and thus differs from insolation, which measures the total energy delivered by sunlight over a given period. Sunshine duration is usually expressed in hours per year, or in (average) hours per day. The graph shows the monthly number of sunny, partly cloudy, overcast and precipitation days. days with less than 20% cloud cover are considered as sunny, with 20-80% cloud cover as partly cloudy and with more than *0% as overcast.

4.2.5 Wind Speed and Direction

93. Wind could be biggest and most influential weather fact. So, it is extremely important to know the direction and velocity. The Wind Rose model is used to understand wind factors. The wind rose (Figure 11) provides an overview of prevailing wind conditions within the project area.

94. The wind rose shows how many hours per year the wind blows from the indicated direction. From the entire wind rose diagram it can be said that the region is predominantly characterized by East, East-Southeast and South-East wind flow. The average wind speed ranges from 5 to 19 km/h during most of the months of the year.

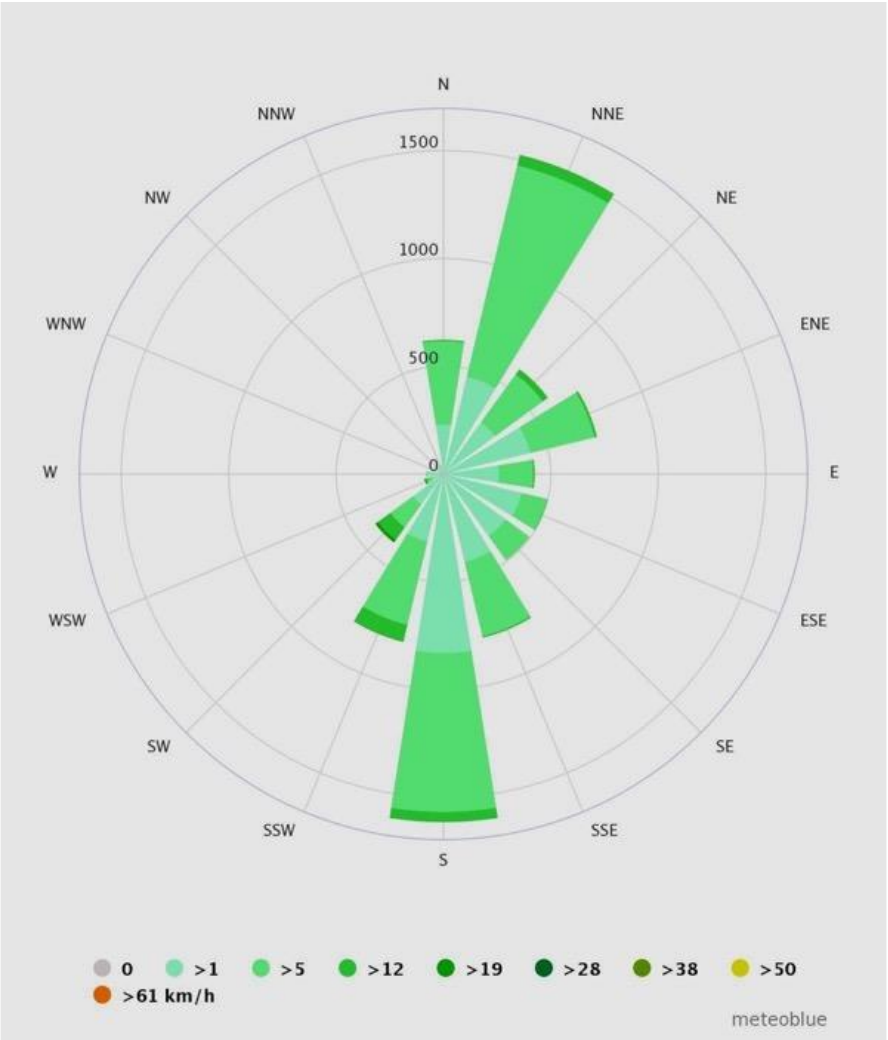


Figure 11: Wind Rose Diagram in Sylhet

95. The wind rose diagram shows how many hours per year the wind blows from the indicated direction. From all the wind rose diagrams it can be said that the region is predominantly characterized by North-Northeast, and South wind flow. The average wind speed ranges from 5 to 19 km/h during maximum period in a year.

4.3 Baseline Studies

96. Existing background i.e., baseline condition of environment states the present status of different components of environment before implementation of the project. The main objective of examining the present environment is to provide an environmental baseline against which potential impacts from construction and operational phases of the project can be compared.

97. A second important function of establishing a baseline for parameters such as air, water and noise quality is to ensure that any problems arising from existing sources are not erroneously attributed to the project under study. In the present study the different environmental components, examined for setting baseline conditions of the project area, are physio-chemical, biological, and socio-economical.

98. The task is generally achieved by reviewing all available material on the project and environmental setting and by performing reconnaissance of the site. If the available data is insufficient to make a reliable assessment of likely environmental impacts, additional data

as required should be obtained through field monitoring and studies. It would be desirable to seek advice of the environmental related agencies concerned to save efforts and minimize cos.

99. Site visits would help identify many of the important resources likely to be affected, such as soils, vegetation condition, water regime, relationship to the nearest communities and public opinion. These visits will uncover many unforeseen factors that cannot be otherwise anticipated.

100. It is desirable that informal interviews are held with residents and communities likely to be affected to assess the local situation. This will make it possible to gauge public reaction, possible support or opposition to the project and the reasons for such opinions. They may also be asked how the proposal should be revised to render it acceptable or supportable.

4.3.1 Setting of Boundaries for Study ESIA by identifying significant issues

101. The most important step of the IEE/ESIA exercise for the project is the collection of baseline information based on deciding the area of boundaries of the required environmental examination. The elements of scoping include geographical boundary, time horizon for alternative actions to be considered, affected groups, institutions, agencies, and significant environmental issues to be investigated. The scoping should cover all phases of project that is siting, construction, and operation. Where and how the public will be affected by the activity of the project and other interested parties as well. The environmental features within 1 km of the project area are shown in the table below:

Table 14: Existing environmental Features[1]

S. N.	Locations	Environmental Features
1.	North side of the project area	Indian border with hilly area and a Border Hat on zero line
2.	West side of the Project area	Hilly area with valley and naturally growth plantation area
3.	East side of the project area	Designated for Tourist area adjacent to the river Piayain
4.	South side of the Project area	Adarsha Gram Primary School and some temporary homesteads

- **Collection of Filling materials for Land Development**

102. As per detailed design of the land port components quantity of filling materials is required 1,26,465.00 cum. For these quantities of filling materials borrow area need to be identified. During site investigation and consultation with local people it was found that surrounding area (within 2 km radius) land may be categorized as barren land; no agricultural activity was observed and reported by the local people. It was also confirmed that the land is khash land (Government Owned land).

103. Hence land near the proposed site (within 2 km) can be used as borrow area/borrow pit. At the end of the construction of the said project this borrows area will be converted into fish culture pond or irrigation pond and it will also act as a ground water recharge area. The borrow area may be used with the permission of the Deputy Commissioner/Upazila office and may be reclaimed as suggested with the consultation of local people and public

[1]Field visit, BBS, 2011 & Google Earth

representatives.

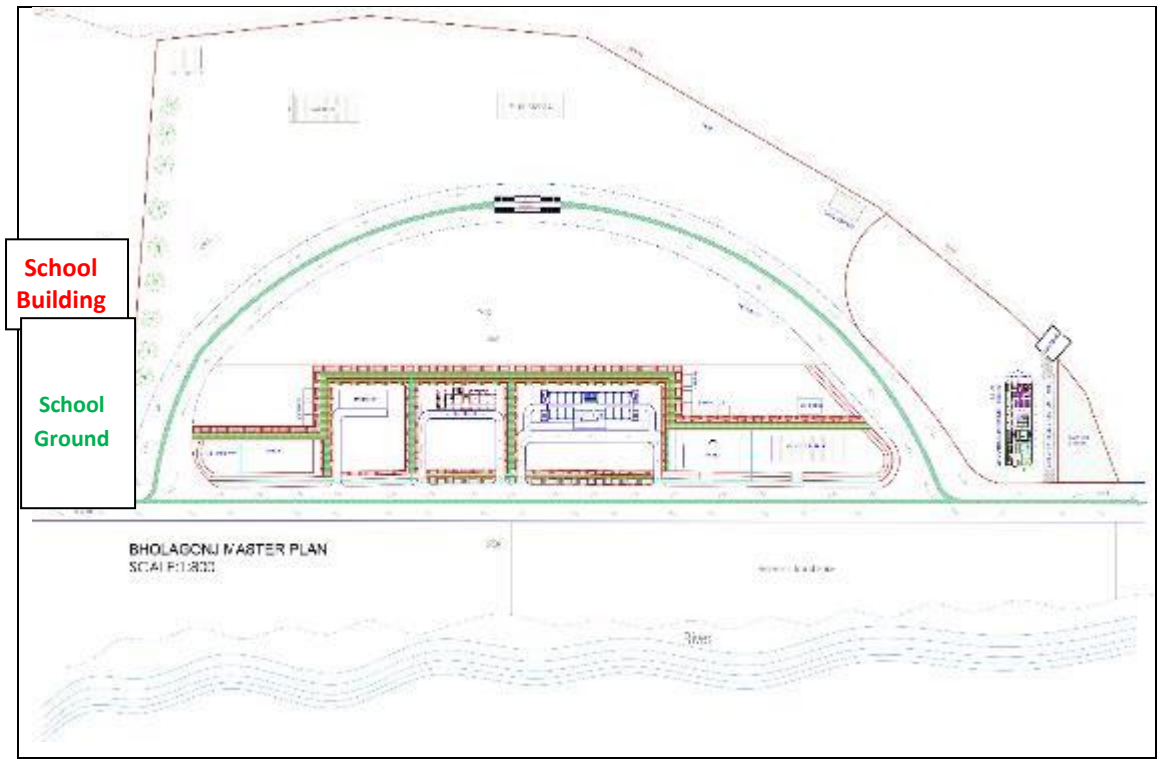
- **Existing Border Hat on the zero line**

104. At 150 yards from the proposed land port boundary a border hat was constructed over border zero line at Bholaganj. During several site visits it was found to be non-functional. It was reported by the local people and BGB personnel that the border hat is not in operation after the construction due to the spread of Corona Pandemic over the countries since March 2020. The hat is now in dilapidated condition.

105. Considering future hope for operation of the hat provisions has been considered in the design of the land port components that operation of the land port will not interfere with the border hat. As the hat is once or twice in a week, special provisions in terms of traffic management will be implemented during the construction and operation period of land port.

- **Existing Adarsha Gram Primary School**

106. Adarsha Gram Primary School is situated adjacent to the south boundary of the proposed land port area. It is discussed with the design consultant and decided that between the boundary wall of the land port and land port activity area, sufficient space will be kept for planting close vegetation for creating buffer zone. Boundary wall of the port area in that location (beside the school area) will be wider and of sufficient height (15 inch thick and 15 ft height), which will act as a noise barrier. Signalling provision with signal man during school time (starting and closing) will be provided near school location during construction and operation of the land port for smooth and safety crossing.



Location of Adarsha Gram Primary School

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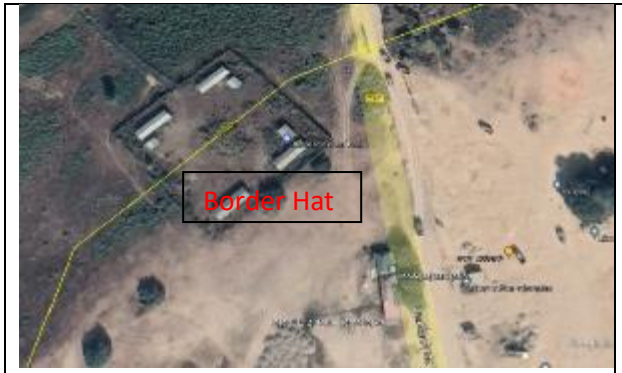
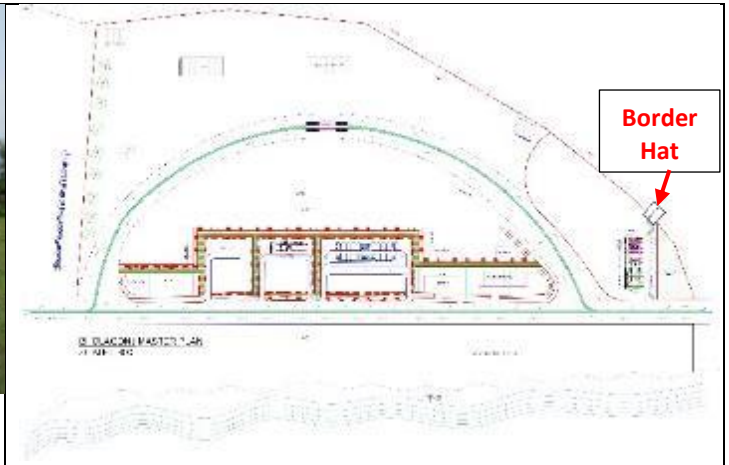
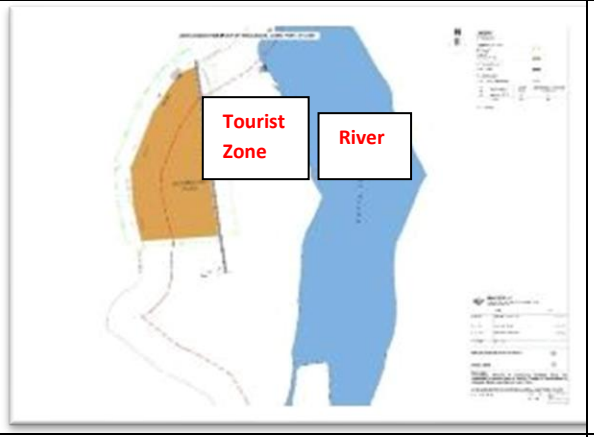
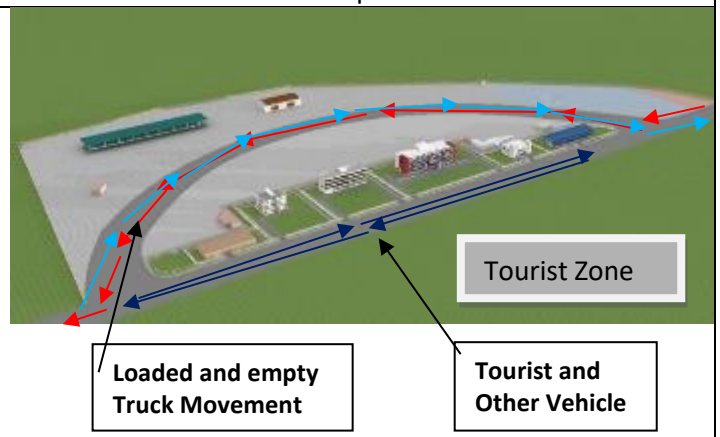
<tr><td> 
</td><td>  </td><td> 
</td></tr>
<tr><td>Location of Border Hat in Google Map</td><td>Existing Border Hat Photograph</td><td>Border Hat outside the Proposed land port development</td></tr>
<tr><td> 
</td><td>  </td><td> 
</td></tr>
<tr><td>Land Port Area and Tourist Zone in Google Map</td><td>Photograph at Tourist Zone</td><td>Flow of Traffic Flow for Land Port and Tourist and others</td></tr>
</table>

- **Tourism facilities**

107. A Tourist Zone has been proposed at the bank of the Piayain River and right-hand side (east side) of the proposed land port. No impact on existing River due to the land port development. In the design of the land port components, provision has been made for separate traffic route for the vehicles entering the land port which will not interfere the tourist zone bound traffic. The boundary wall and green belt around the land port will enhance the aesthetic view of the area and will be a tourist attraction. A guest house is also proposed in the land port premises which may be used by the Customs Officers, Land Port Officers, Bank Officers, BGB Officers, Police Officers, Others Governmental Officers, and tourist with tariff will make an opportunity revenue earning.

108. Future provision of a legal land border will attract more tourists for Cherapunji and other tourist location in Meghalaya state in India. Hence the project will have positive impact on tourism.

109. Baseline studies are generally divided into two sections:

- Those related to the project activities and
- Those related to the background environmental features of the site. (This should cover not only the project site in proper, but generally an area of 1 km radius around the site and the surface water systems neighbouring the site)

Table 15: Location Investigation for environmental Parameters

Sample No.	Locations		Environmental Parameters
	Area	Latitude, Longitude	
AQ1, NL1	Land Customs Station	25.15422671N, 91.74670136E	Ambient Air Quality Test, Ambient Noise
AQ2, NL2, SQ1, GW1	Crushing Machine Section	25.14878303N, 91.74736673E	Ambient Air Quality Test, Ambient Noise, Soil Sampling, Ground Water Sampling
AQ3, NL3, GW2	Adarsha Gram Primary School	25.14683532N, 91.7475551E	Ambient Air Quality Test, Ambient Noise, Ground Water Sampling
AQ4, NL4	Guchcha Gram Area	25.14704951N, 91.74797517E	Ambient Air Quality Test, Ambient Noise
SW1, SW2	Dholai/Piyain River	25.14909943N, 91.75095952E 25.13888333N, 91.75241944E	Surface Water Sampling

4.3.2 Ambient Air Quality of the project site

110. Ambient air quality of the Port area has been measured by a third party named EnviroCare International Ltd. on 20 March 2023 (Annex-2). The portable OCEANUS AQM-09 Air Quality Monitoring Station shown in was used to scan, measure, and document critical pollutants including SPM, PM_{10}, $PM_{2.5}$, SO_X, NO_X and CO. Sampling and analysis of ambient air quality was conducted by referring to the recommendation of the United States Environmental Protection Agency (USEPA). Air quality data was measured automatically every one minute and directly recorded onsite for measured parameters (SPM, PM_{10}, $PM_{2.5}$, SO_X, NO_X and CO) as shown in Table 10. Different analysis methods, such as Particulates 90° Infrared Light Scattering for particulate matters (SPM, PM_{10}, $PM_{2.5}$), and electrochemical sensors for toxic gases (SO_X, NO_X and CO) are integrated in the device.

Table 16: Methods of Air Quality Sampling and Analysis

Parameter	Instrument Name	Method of Testing	Method of Analysis
SPM	OCENAUS AQM-09	On Site Recording	Light Scattering Nephotometer
$PM_{2.5}$	OCENAUS AQM-09	On Site Recording	Light Scattering Nephotometer
PM_{10}	OCENAUS AQM-09	On Site Recording	Light Scattering Nephotometer
SOx	OCENAUS AQM-09	On Site Recording	High Sensitivity Electrochemical
NOx	OCENAUS AQM-09	On Site Recording	High Sensitivity Electrochemical
CO	OCENAUS AQM-09	On Site Recording	High Sensitivity Electrochemical

111. As per the National Standard, SPM, CO and NO_2 was monitored to compare with the National Standard for 8 hours. For PM_{10}, $PM_{2.5}$ and SO_2, the standard duration is 24-hours. Generalized calculation approach was applied to all data, and the averages generated to be able to compare results to the GoB standards.

112. Ambient air quality was monitored at Four (04) locations in Land Port area on 20 March 2023. Air quality was measured to verify the current quality of air. The parameters of air quality include Suspended Particulate Matter (SPM), Particulate Matter 2.5 ($PM_{2.5}$) and 10 (PM_{10}), Sulfur Dioxide (SO_2), Nitrogen Oxides (NO_2) and Carbon Monoxide (CO). The aim was to collect the present air quality data and to compare the data with the air quality data during

future project activities to check if there is any high air pollution level due to the construction activities and to design adequate mitigation measures, as applicable.

113. A total of Six (06) parameters (SPM, PM_{10}, $PM_{2.5}$, NO_2, SO_2 and CO) of ambient air quality have been analyzed. The summary result of air quality monitoring is given in Table.

Table 17: Results of the Ambient Air Quality at the project site

Locations	SPM **(µg/m3)**	$PM_{2.5}$ **(µg/m3)**	PM_{10} **(µg/m3)**	SO_2 **(µg/m3)**	NO_2 **(µg/m3)**	CO **(mg/m3)**
Land Customs Station	157.44	47.51	106.49	3.40	3.03	0.89
Crushing Machine Area	279.87	86.68	162.54	3.26	2.21	1.01
Adarsha Gram P. School	162.16	48.37	110.76	2.82	1.94	0.97
Guchcho Gram Area	149.50	44.96	101.88	2.48	1.89	1.73
Duration (Hours)	**8**	**24**	**24**	**24**	**24**	**8**
Bangladesh Standard*	**200**	**65**	**150**	**80**	**80**	**5**
WHO AQS 2021	**NYS**	**15**	**45**	**40**	**10**	**4**

* Standard: Air Pollution Control Rules on 26th July 2022; vide S.R.O. No. 255-Law/2022 and Environment Conservation Rules (ECR) 1997 through its subsequent amendment on 19th July 2005; vide S.R.O. No.220-Law/2005

There are four (4) air quality samples that were collected to know the baseline Air Quality condition of the project area. The samples were on 20th March 2023 which was in the summer season that's why the weather condition was good, and no significant air pollution source was identified. However, the wind blow rate was high, but no significant dust was observed. The summary results of Air Quality monitoring are given in **Table 17.** Overall, the results showed that the level of gaseous pollutants [SO_2, NO_2, and CO] in the monitored locations were found within the national standard according to air pollution control rules, 2022. Whereas the average concentration of SPM, $PM_{2.5}$ and PM_{10} exceeded the national standards at location (In front of Crushing Machine). It could be due to the crushing machine running in that area and heavy dust existed due to broken stone there. However, another location SPM, $PM_{2.5}$ and PM_{10} were within the Bangladesh standard. Air quality near the school is found to be significantly above the WHO Standard now due to because of operation of Stone Crushing Machineries near the school area. After taking over the project site from DC Office and completion of livelihood compensation, all the machinery will be removed from the project site/near the school area. The intensity of pollution will be reduced and after providing buffer zones around the land port air pollution will be further reduced. The detailed analysis is given in **Annex 10** of this Report.

AQ1: Customs Station

AQ2: Crushing Machine Area

	
AQ3: Adarsha Gram Primary School	AQ4: Guchcha Gram Area

4.3.3 Ambient Noise Level of the Project Site

114. The noise levels were measured with the help of a portable precision digital sound level meter (Model-Sl-4033 SD, made in Taiwan). The instrument calibration was achieved using a manufacturer-supplied pistonphone calibrator capable of producing a known sound pressure level. Sampling was done to measure the Sound Level for daytime and night-time at the project site. During the sampling procedure, the instruction stated in the Work Instruction **EIL SOP 01** was followed.

115. Noise level monitoring was carried out in Four (04) locations of the project corridor on 20th March 2023. Noise levels were monitored for 10-minute duration both day (6 am – 9 pm) and night-time (9 pm–6 am) with 1 min equivalent continuous sound pressure levels. Noise level has been compared with national standard (Noise Pollution Control Rules, 2006). The summary findings of noise level analysis are given in **Table 18.** Data indicates that the existing noise levels in proposed area are within the range of Bangladesh Environmental Quality Standard as well as WB General EHS Guidelines, 2007 for residential zone. This report uses the primary data as baseline data of noise environment.

Table 18: Results of the Noise level in the project area

Sam. No.	Location	Monitoring Time	Noise Level [dB(A)]			Standard* [dB(A)]	Land Use Category
			Leq	L_{max}	L_{min}		
NL1	Land Customs Station	Day	72.47	88.9	63.4	70	Commercial
		Night	55.24	65.2	40.2	60	
NL2	Crushing Machine Area	Day	82.32	90.3	76.8	70	Commercial
		Night	57.35	66.8	46.2	60	
NL3	Adarsha Gram Primary School	Day	68.37	76.8	58.3	60	Mixed
		Night	54.78	65.9	50.7	50	
NL4	Guchcha Gram Area	Day	67.92	78.4	57.0	50	Residential
		Night	48.79	55.0	42.9	40	

*Standard: The Environment Conservation Rules (ECR), 1997 and subsequent amendment in 2006

116. The monitoring locations are belonged to Commercial (Sample No. 1 & 2), Mixed (Sample. No. 3) and Residential (Sample. No. 4) zone. The analysis result indicates that the noise pollution level is exceeded the national standard both day and night-time during the monitoring period except night-time of Land Customs Station and Crushing Machine Area. Where traffic is one of the major sources of noise which also multiplies due to drivers' behaviour; for example: frequent braking and/or honking. Other important factors that affecting noise values are continuity of the commercial activities, running of crushing machine, construction related work, dimension of the roads, position of the roads, people's mobility etc. The details analysis is given in **Annex 11** of this report.

			
Day	Night	Day	Night
NL1: Customs Station		NL2: Crushing Machine Area	
			
Day	Night	Day	Night
NL3: Adarsha Gram Primary School		NL4: Guchcha Gram Area	

4.3.4 Water Resources and Hydrology

117. Bangladesh and the western portion of the Indian State of Bengal are located within the "Bengal Basin". According to Rahman et al (2003), this basin includes the world's largest river delta, which is 140,000 sq.km (the Ganges-Padma, Jamuna-Brahmaputra-Tista and Meghna Rivers and numerous tributary complexes) and the World's largest submarine fan complex (the Bengal Fan). These river systems carry a combined annual sediment load of 1.5 to 2.4 billion metric tons.

118. The headwaters of both the Ganges-Padma and Brahmaputra-Jamuna-Tista River systems are situated in the Himalayas ranges. Water in the Meghna River originates from Shillong Plateau. It drains one of the heaviest rainfall areas of the world. As a result of these extensive catchments, flooding is an annual occurrence in Bangladesh and occurs mainly during the rainy season between May to October when the rainfall in the catchments is its maximum intensity.

119. Bangladesh has an average annual surface flow of approximately 1,073 million-acre-ft (MAF), of which about 870 MAF (93%) are received from India as inflow and the remaining 203 MAF (7%) as rainfall. This water is enough to cover the entire country to a depth of 9.14m. About 132 MAF (65% of rainfall and 12% of total) is lost to evaporation each year (aa4.30 cm), the remainder flows out to the Bay of Bengal.

120. Bangladesh is located over a subsiding basin of tectonic origin with a great thickness of sedimentary strata. This forms an unconsolidated alluvial deposit of recent age, overlaying marine sediments. The near surface Quaternary alluvium contains good groundwater aquifer characteristics (transmission and storage coefficients). The typical groundwater reservoirs in Bangladesh have three (3) divisions: i) upper clay and silt layer, ii) middle composite aquifer (fine to very fine sand), and iii) main deep aquifer consisting of medium to coarse sand.

121. Average annual rainfall in the country varies from greater than 5.00 meters in the northwest to less than 1.50 meters in the west. The majority of Bangladesh receives between 1.50 and 2.50 meters of precipitation annually (Reimann, 1993) and the Project area is in a relatively high rainfall area. Under natural conditions a large proportion of the precipitation enters surface water as runoff and a large portion infiltrate through the soils to groundwater aquifers. Most rivers in Bangladesh lose water to groundwater aquifers during the wet season and gain water from February through April (Pitman, 1993). The rate of water transfer

depends on the extent which the river is incised into permeable aquifer materials. Groundwater level in most area of the Bangladesh is within 2.00 meters of the ground surface during July through October. Groundwater levels during the dry season vary across the country depending upon the proximity to surface water, depth and type of aquifer, extent of irrigation, and many other factors.

122. There are no remarkable industries around and along the riparian area of Piyain River and the river slope is comparatively high and only during rainy season the river has flowing water with high velocity. During the dry season the rivers remains almost dry. Besides the land port will not produce any effluent. Hence water pollution of this area due the development of land port is not significant.

4.3.5 Surface Water

123. Surface waters are found in the project area is in adjacent river Piyain. The overall quality of surface water around the project site and its surroundings varies throughout the year. Typically, water quality improves during the monsoon due to the influx of fresh rainwater and worsens during the dry season as water evaporates and the concentration of contaminants increases. As there are no remarkable industries are found around the area, no chance of hazardous waste is expecting in the surface water source. Water sampling and analysis were undertaken to understand the overall baseline water quality characteristics of the surface and groundwater in the project area.

124. The surface water quality assessment in the project influence area has been carried out for the most important parameters. The surface water sampling was based on the identification of the major surface water body and its interaction with the project. However, the team collected two surface water samples from two locations of the river Piyain/Dholai. Surface water samples were collected by grab water sampler to a 1-liter sterilized clean PET bottle for complete physico-chemical tests respectively. The samples were placed into appropriate labelled black bottles. After collected, the samples were submitted to GoB accredited laboratory Bangladesh Environmental Engineering Training & Lab Service Ltd for analysis of parameters **(Annex 13)**. Surface water results have been compared with national standard [ECR-2023-schedule 2]. The following **Table 19** shows the laboratory name and methods of analysis.

Table 19: Methods of Surface Water Analysis

Parameter	Laboratory	Methods/Instrument to be used for Analysis
pH	BEETLSL Laboratory	pH Meter
Dissolved Oxygen (DO)	BEETLSL Laboratory	Multi meter
Biochemical Oxygen Demand (BOD)	BEETLSL Laboratory	5 days Incubation
Chemical Oxygen Demand (COD)	BEETLSL Laboratory	Closed Reflux Method (CRM)
Total Suspended Solids (TSS)	BEETLSL Laboratory	Gravimetric Method
Nitrate	BEETLSL Laboratory	UV Visible Spectrophotometer
Phosphate	BEETLSL Laboratory	UV Visible Spectrophotometer

125. The test results are shown in Annex-10. From the report is revealed that pH value and DO are within standard limit, BOD is higher than the standard limit and standard limit has not yet been fixed for remaining COD, TSS, Nitrate and Phosphate in DoE, Government of Bangladesh. Major constituents of water & safe limit/maximum safe limit as of DoE Standard except COD, TSS, Nitrate and Phosphate are shown in Table 20 below.

	
SW1: From the Piyain/Dholai River (Nearest point from Land Port area	SW2: From the Piyain/Dholai River; 1.5 km far from the land port area

Table 20: Surface Water Quality with safe limit/maximum safe limit

Location	pH	DO mg/L	BOD mg/L	COD mg/L	TSS mg/L	Nitrate mg/L	Phosphate mg/L
SW1: Dholai/ Piyain River	7.7	6.52	13	44	16	5.42	3.57
SW2: Dholai/ Piyain River	7.4	6.43	27	34	12	10.74	2.96
ECR' 2023 Standard	**6.5-8.5**	**6 or above**	**2 or less**	**NYS**	**NYS**	**NYS**	**NYS**

4.3.6 Ground Water

126. The recharge of the aquifer in the project area is predominantly from deep percolation of rain and flood water. As the surrounding area is open with vegetation recharge rate to the ground water aquifer is higher in rainy season. Reportedly, the ground water level in the Project area during the dry season is little bit lower.

127. Some of the people are using hand tube wells and some of the people are using tap line. Tap is much convenient than hand tube well which need muscle power during water withdrawal and when ground water layer stays at lower-level elevation (msl) in dry season water withdrawal become very tedious job by hand tube well for drinking and other domestic purposes. Water supplied to tap from irrigation deep tube well for drinking purpose. People now use tap water for drinking and for all other domestic and household uses. Ponds and other sources of surface water are now used only for cultivation of fish and animal, birds raring.

128. Groundwater level in the project area is lower in dry season and in normal level in wet season. Recharging of groundwater occur mainly in between four monsoon months June-September (about 80% of rainfall occur in monsoon period in Bangladesh) and replenishment of water level by annual rainfall is overruled by annual increasing amount of withdrawal. It is to be noted that Bangladesh Agricultural Development Corporation (BADC) has developed a Computer Readable Groundwater Management Tool known as Groundwater Zoning Map in technical support of BUET. Latest updated map of it is shown below.

129. It is to be also mentioned that this tool has been developed for the critical area of ground water level depletion. This land port area is beyond the critical area i.e. in North-East area (shown as green colour) where comparatively least number DTWs operate. From the

Groundwater Monitoring report of BADC it is seen that the groundwater level fluctuates from 0 – 5.30m in Sylhet Automatic groundwater level recorder (the nearest Recording Station).

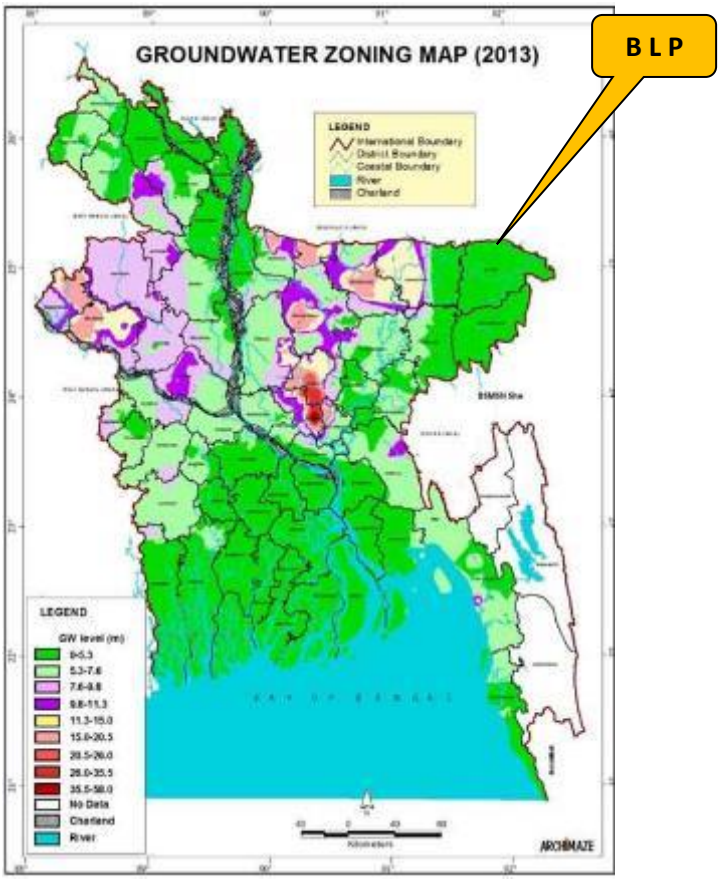


Figure 12: Groundwater Zoning Map of Bangladesh[1]

130. The groundwater samples were collected by maintaining standard procedures from 2 (Two) locations of the project corridor. After collection, the sample were placed into appropriate and labelled black bottle and kept in an ice cooler. Then the samples were submitted to GoB authorized laboratory Bangladesh Environmental Engineering Training & Lab Services Ltd. for analysis of parameters. Ground water results have been compared with National Standard [ECR-2023-Shedule-2]. The analysis methods of different parameters of ground water are given in the following Table 21.

Table 21: Methods of Ground Water Analysis

Parameter	Laboratory	Methods/Instrument to be used for Analysis
pH	BEETLSL Laboratory	pH Meter
Total Hardness	BEETLSL Laboratory	Titrimetric
Arsenic (As)	BEETLSL Laboratory	Atomic Absorption Spectrophotometer (AAS)
Iron (Fe)	BEETLSL Laboratory	Atomic Absorption Spectrophotometer (AAS)
Fecal Coliform	BEETLSL Laboratory	Membrane Filtration Method (MFM)
Total Coliform	BEETLSL Laboratory	Membrane Filtration Method (MFM)

131. The groundwater quality parameters, measured in and around the project area during the field survey as shown in Photographs, were found to comply with the quality standards set by the DoE. The groundwater samples were collected near selected locations where

[1]Final Report on Reduced Level (RL) Detection of Deep Tube Well and Shallow Tube Well, BADC, 2015

several numbers of worker will be deployed due to heavy construction activities. The reason of the selection was to compare the existing water quality with national standard and to ensure good potable water for the workers during construction period. The collected samples were submitted to GoB accredited laboratory Bangladesh Environmental Engineering Training & Lab Services Ltd. for parameters analysis. The groundwater quality of the area is presented in Table 22.

Table 22: Ground Water Quality with safe limit/maximum safe limit

Location	pH	Total Hardness mg/l	Arsenic (As) mg/l	Iron (Fe) mg/L	Fecal Coliform (FC) N/100mL	Total Coliform (TC) N/100mL
GW1: Adarsha Gram P. School	7.3	287	0.006	2.18	28	0
GW2: Crushing Machine Section	7.5	346	0.008	2.66	0	0
ECR' 2023 Standard	**6.5-8.5**	**200-500**	**0.05**	**0.3-1.0**	**0**	**0**

GW1: Near Crushing Machine area

GW2: Adarsha Gram Primary School

132. Dust samples were collected from one (01) location of the project area. The samples were collected in a composite sampling method by steel spoons above the surface level. The samples were placed in zipped lock plastic bags and then transferred to appropriate plastic labelled jar. The collected dust samples were tested from BCSIR, Dhaka. The parameters were including Aluminium, Silicon, and Iron. WD-XRF analysis was performed in the BCSIR laboratory, and the results (Annex 12) are shown in the Table below:

Table 23: Results of the Dust Sample near the Crushing Machine

Sample Name	Name of the Project	Address of the Project	Sample Source	Parameter	Results (%)
Broken stone Dust	Bholaganj Land Port	Bholaganj, Companiganj, Sylhet	Broken stone Dust sample from crushing machine	Silicon (Si)	2.80
				Aluminium (Al)	0.72
				Iron (Fe)	0.97

		Dust created due to the Stone Crushing Machine and dust collected from near the stone crushing machine area

133. Analysis of dust sample results shown that there has significant quantity of Silicon (Si) present in the dust created for crushing of stone with inadequate precautionary measures on the stone crushing machines. Breathing in dust from silica-containing materials can lead to Silicosis. Symptoms of Silicosis are Cough, Fatigue, Shortness of Breath, and Chest pain. Chronic Silicosis typically occurs after 10 or more years of exposure to respirable crystalline silica.

4.4 Geology

4.4.1 Physiography

134. The project area is falls under North and Eastern Terrace Land of Physiographical Classification of Bangladesh. This region includes the country's area of hillocks and hills are confined to a narrow strip along the southern spur of the Shillong Plateau, to the eastern and northern portions of the Sylhet district.[1]

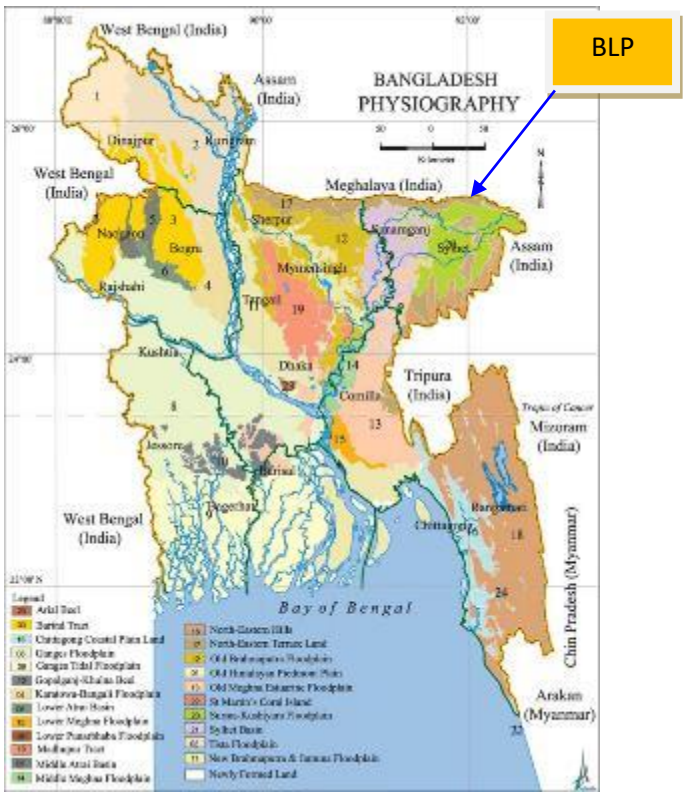


Figure 13: Physiography of Bangladesh[2]

[1]Banglapedia, 2020
[2]Banglapedia, 2020

4.4.2 Soil Regions

135. The project area falls in the region of Non-calcareous Alluvium, which is like calcareous alluvium, except they are non-calcareous in soil profiles. These types of soils are stratified or raw alluvium throughout or below the cultivated layer. These soils occupy extensive areas on the active Tista and Brahmaputra-Jamuna floodplains. They are sandy or silty, grey, or olive, neutral to slightly alkaline. Most of these soils have been included as Eutric Fluvisols.[1]

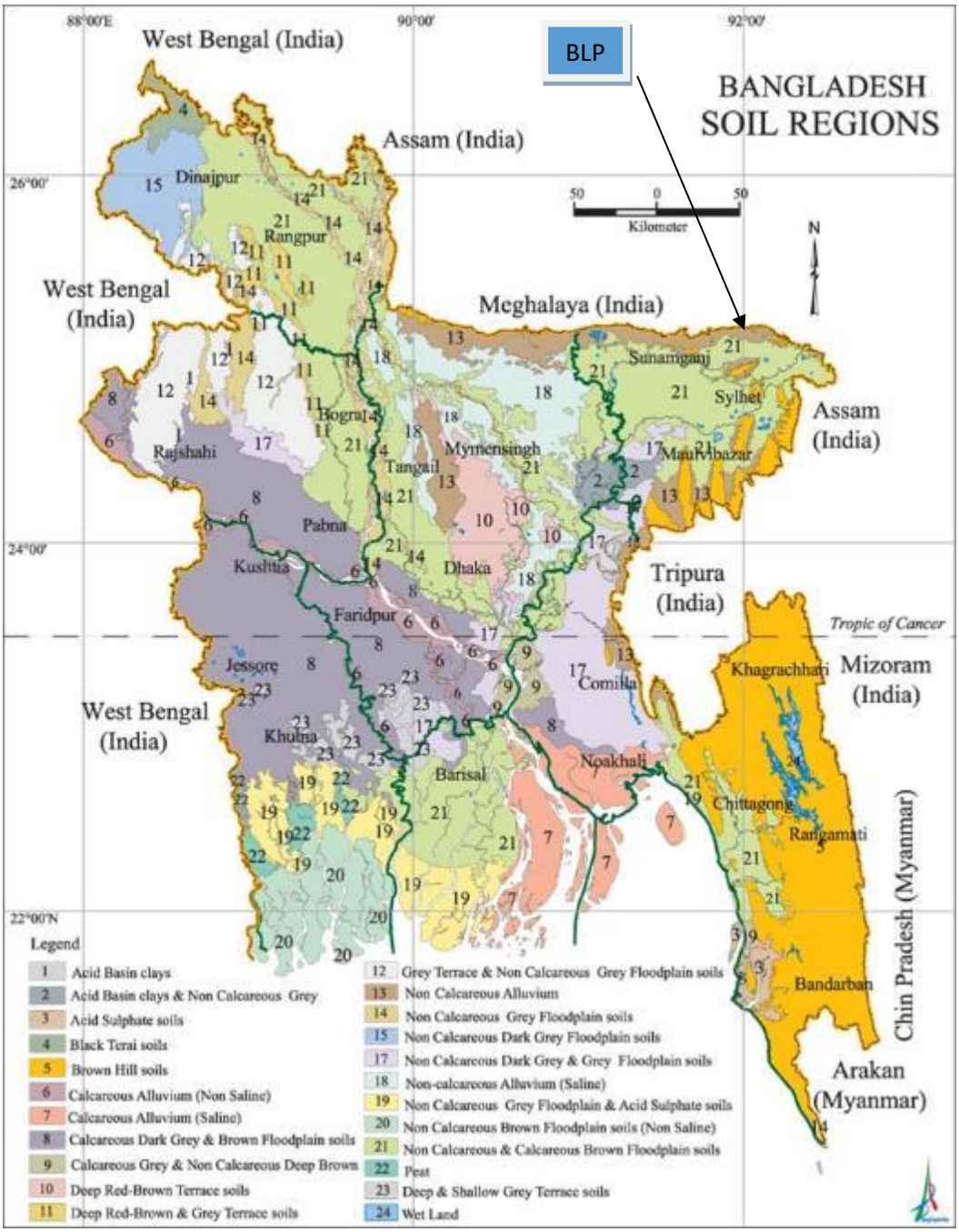


Figure 14: Soil regions of Bangladesh[2]

[1]BBS Agricultural Year Book, 2018
[2]Banglapedia, 2020

136. Soil samples were collected from one (01) location of the project area. The samples were collected in a composite sampling method by Auger boring below the surface level. The samples were first placed in zipped lock plastic bags and then transferred to appropriate plastic labelled jars. The collected soil samples were tested from Soil Resource Development Institute (SRDI) Divisional Laboratory, Dhaka. The analysis methods of different parameters of soil are given in the following Table 24. The results are shown in the following Table 25 (Annex 17).

Table 24: Methods of Soil Quality Analysis

Parameter	Methods/Instrument to be used for Analysis	Unit	Dutch Standard for Soil
pH	pH Meter		
Total Nitrogen (TN)	Atomic Absorption Spectrophotometric	%	NYS
Phosphorus (P)	Atomic Absorption Spectrophotometric	ppm	NYS
Potassium (K)	Atomic Absorption Spectrophotometric	meq/100g	NYS
Sulphur (S)	Atomic Absorption Spectrophotometric	ppm	NYS
Calcium (Ca)	Atomic Absorption Spectrophotometric	meq/100g	NYS
Magnesium (Mg)	Atomic Absorption Spectrophotometric	meq/100g	NYS
Boron (B)	Atomic Absorption Spectrophotometric	ppm	NYS
Zinc (Zn)	Atomic Absorption Spectrophotometric	ppm	140
Organic Matter (OM)	Wet Oxidation Method	%	NYS

Table 25: Results of the Soil Quality Analysis

Parameter	Concentration Present	Unit	Dutch Standard for Soil
pH	7.5		
Total Nitrogen (TN)	0.07	%	NYS
Phosphorus (P)	5.87	PPM	NYS
Potassium (K)	0.15	meq/100g	NYS
Sulphur (S)	326.33	PPM	NYS
Calcium (Ca)	35.25	meq/100g	NYS
Magnesium (Mg)	0.58	meq/100g	NYS
Boron (B)	0.20	PPM	NYS
Zinc (Zn)	0.98	PPM	140
Organic Matter (OM)	1.20	%	NYS

Soil Sample collected from the middle area of the land port

4.4.3 Tectonic Setting

137. The thickness of sedimentary column on the stable shelf of Bengal Basin varies from less than 200m to 8,000m. A large part of the basin is covered by Sylhet limestone of Eocene age (58 million years to 37 million years ago). On seismic reflections, Sylhet Limestone as a marker horizon to define the basin ward extent of the stable shelf. In Bangladesh part coal, limestone and hard rocks are major mineral resources found on the shelf. However, there are evidence that precious metal and base metal of Indian shield are also present. There are also possibilities of finding oil and gas as in many other sedimentary basins it had been found that oil and gas migrate to the shallower part of the basin. Moreover, Sylhet Limestone on the stable shelf may act both as source rock and reservoir rock for oil and gas deposits. (Mahmood Alam)

138. Hinge Zone relates to Bengal Foredeep by deep basement faults that probably started with the breakup of Gondwanaland. Since then, they have been repeatedly reactivated. In the northeast of Bangladesh, the Hinge Zone turns to the east and seems to relate to the Dauki Fault, probably by a series of east-west trending faults. (ASM Woobaidullah) The Proposed Project area falls near Dauki Fault, Figure showing below.

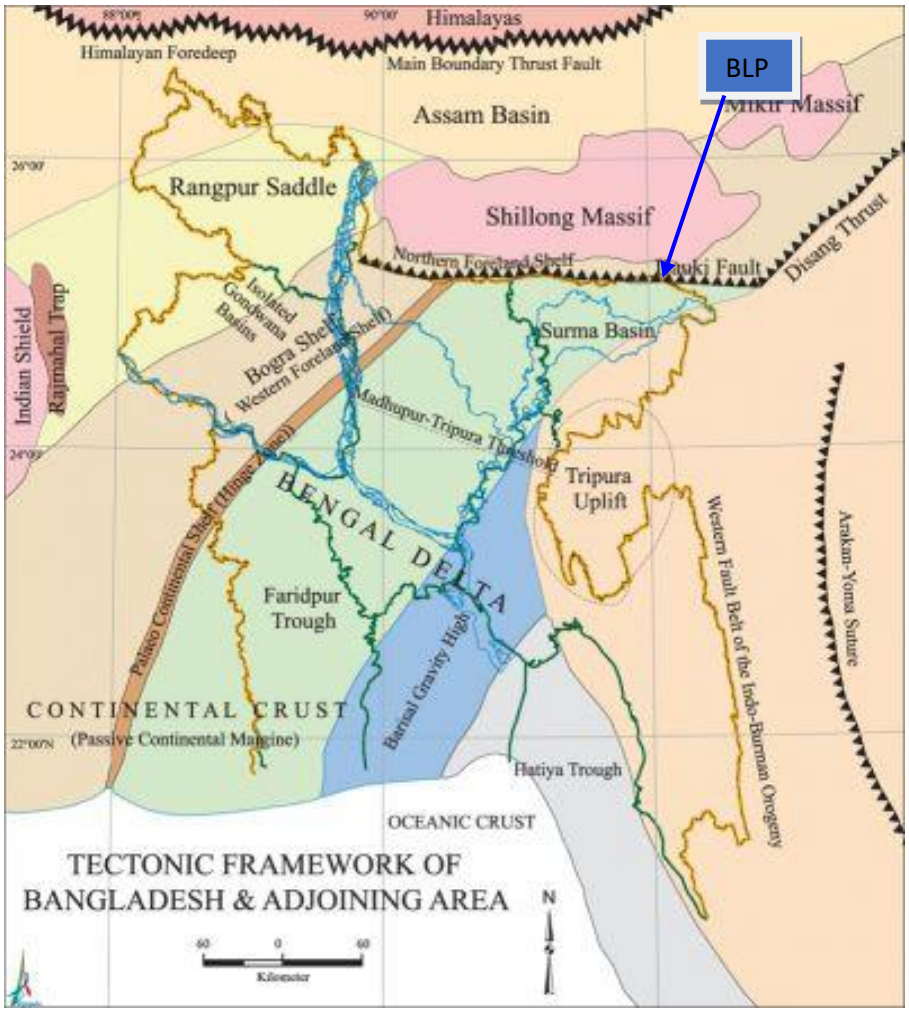


Figure 15:Tectonic setting of Bangladesh and surrounding[1]

[1]Banglapedia, 2020

4.5 Natural Hazards

4.5.1 Seismicity

139. Bangladesh is situated in one of the most tectonically active regions in the world. Here are where three major plates meet (the Indian Plate, the Tibet Sub-Plate, and the Burmese Sub-Plate). The project area is located over the Indian Plate, which is moving north. However due to the location of relevant plates, fault lines and hinge zone, Bangladesh itself is divided into four (4) seismic zones, based on the ranges of the seismic coefficient (note: the seismic coefficient is a measure of how strong an earthquake has the potential to be based on a combination of the mass of the plate and the seismic forces acting on it, as well as how frequently these quakes are likely to occur). As per the seismic zone classifications in Figure 16 project site lies in the **seismic zone iv** which is also called most severe intensity seismic zone with basic seismic coefficient of 0.36g. Seismic structural strength assessment of existing buildings, strengthening of existing proposed foundation system and superstructures of critical structures, incorporation of liquefaction potential criteria in the structural design process for structures and other related considerations are to be kept in mind. A preventive measure can be coordinated by ensuring anti-seismic design (end bearing pile foundation including bored or driven piles and use reinforced concrete raft for shallow foundation), quality control (selection of adequate material and appropriate workmanship) under expert supervision. Having location in **Zone-iv**, the land buildings and land-based structures for this project should be designed according to BNBC, 2020. Where the probable imposed loads (mass) at the time of earthquake are more correctly assessed, the designer may go for higher percentage of live load.

140. As a result of seismic activity, several tremors have affected different parts of the country over the last few years. However, only one event has caused significant damage to life and/or property near the project site in recent times. On 8th May 1997 the Sylhet Earthquake (magnitude of 5.6) struck, with its epicentre in north-eastern Sylhet, near Jaintapur. Several buildings were damaged in and around Sylhet during the earthquake. These included the Sylhet Airport building, a college near Jaintapur and the Grameen Bank building near Barlekha. Another earthquake occurred on July 8, 1918, in the Balisera Valley, south of Sreemangal. Although this earthquake measured 7.6 on the Richter Scale, no significant loss of life was recorded.

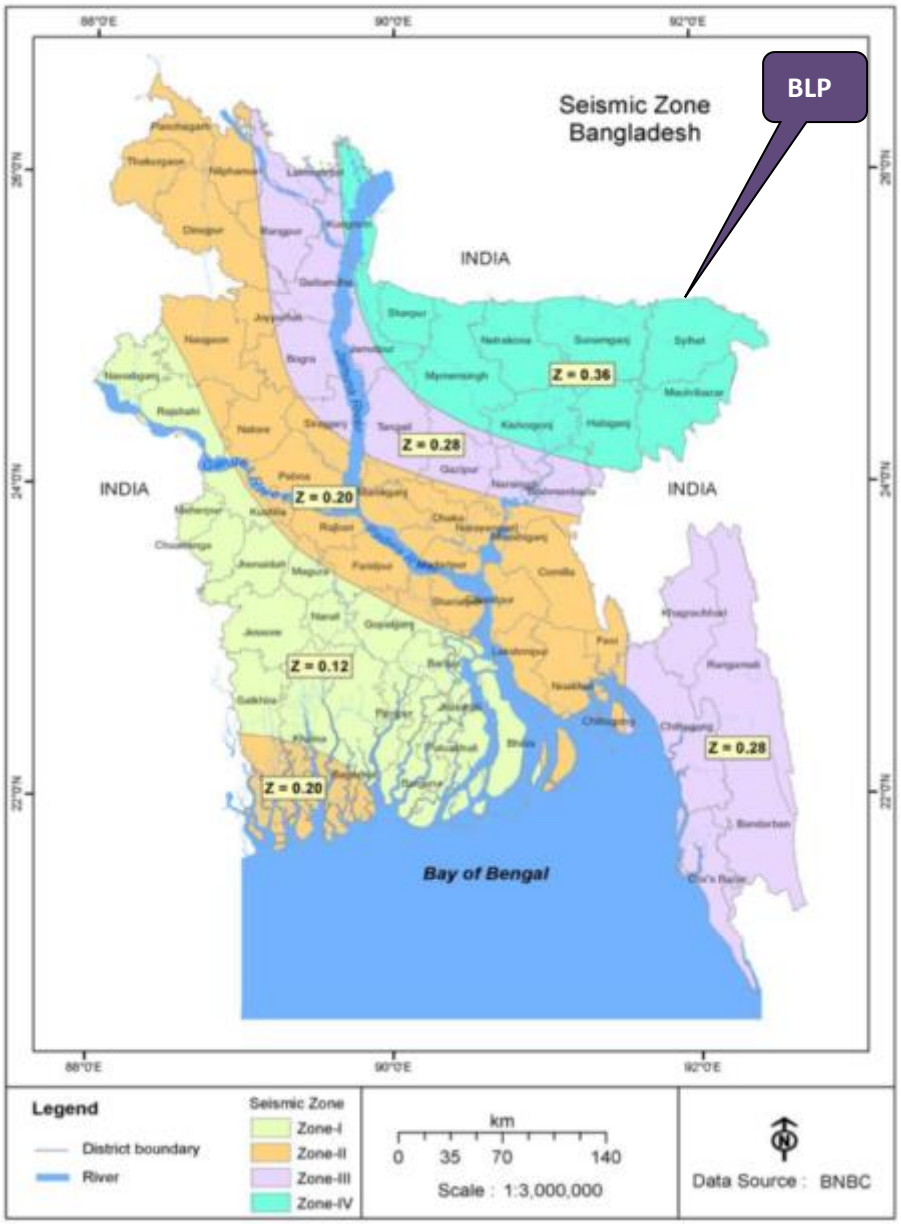


Figure 16: Seismic zones of Bangladesh

4.5.2 Flood and Cyclones

141. Due to the geographic location, severe to moderate flash flood occurs regularly in the project area as shown in Figure 17. However, the topography of the surrounding area has been considerably changed due to rapid land filling by the land developers and it has been envisaged that the floodplain of the Kushiyara rivers would progressively be encroached by rapid filling. Considering the present land filling trend and future urbanisation, the water levels of both Kushiyara will rise. With the rising of the water level of the surrounding rivers and unpredictable local and upstream of Indian side in a short duration due to climate change, the plinth level of the land port needs to be determined. Hence, an accurate estimation of highwater level design within the study area is a must.

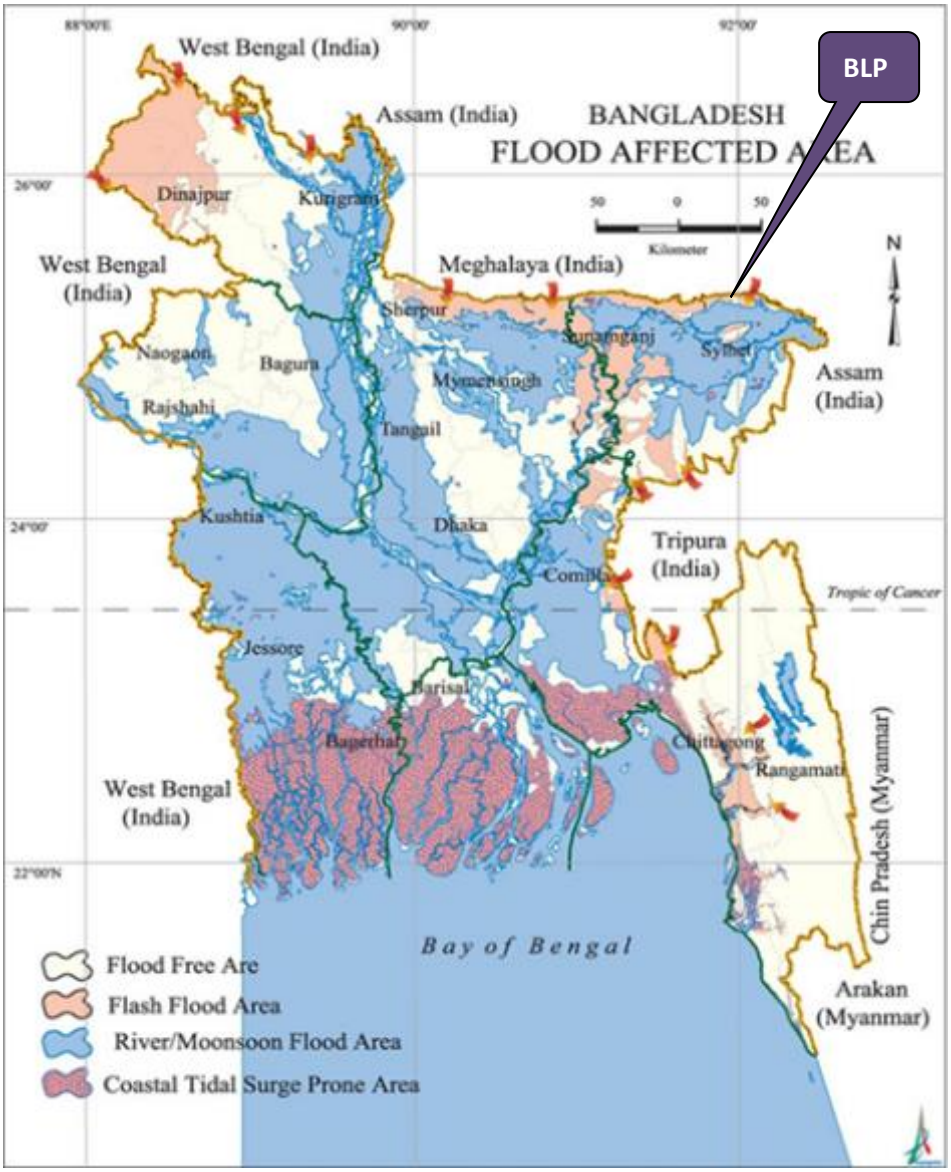


Figure 17:Position of project at flood prone areas of Bangladesh[1]

142. Bangladesh, due to its unique geographic location, suffers from devastating tropical cyclones frequently. The funnel-shaped northern portion of the Bay of Bengal causes tidal when cyclones make landfall due to which thousands of people living in the coastal areas are affected. Some of the most devastating natural disasters in recorded history with high casualties were tropical cyclones that hit the region now forming Bangladesh. The project area does not fall under the risk zone of Cyclone as shown in Figure 18.

[1]www.thebangladesh.net

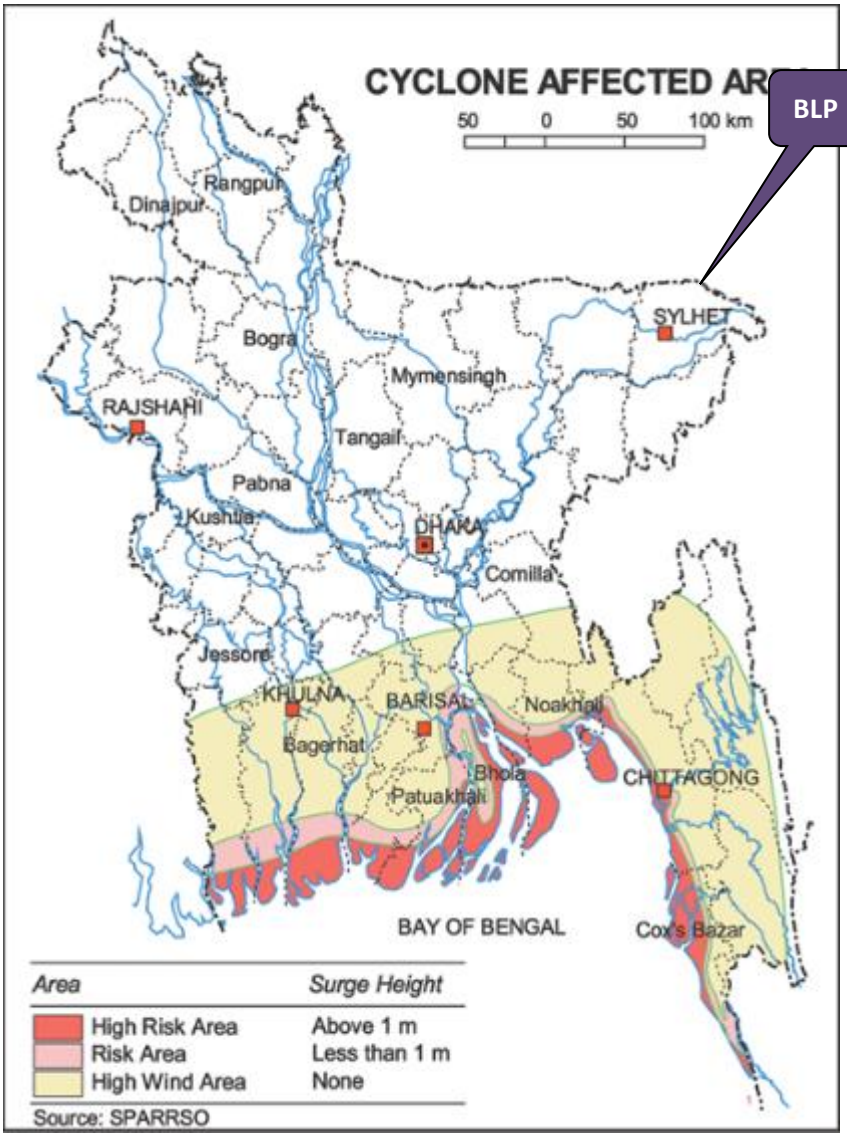


Figure 18: Position of project at cyclone affected areas of Bangladesh[1]

4.5.3 Salinity

143. Project area is free from salinity. Because of higher position from sea level there is no possibility of salinity to be found in water or soil of the project area.

[1]SPARRSO

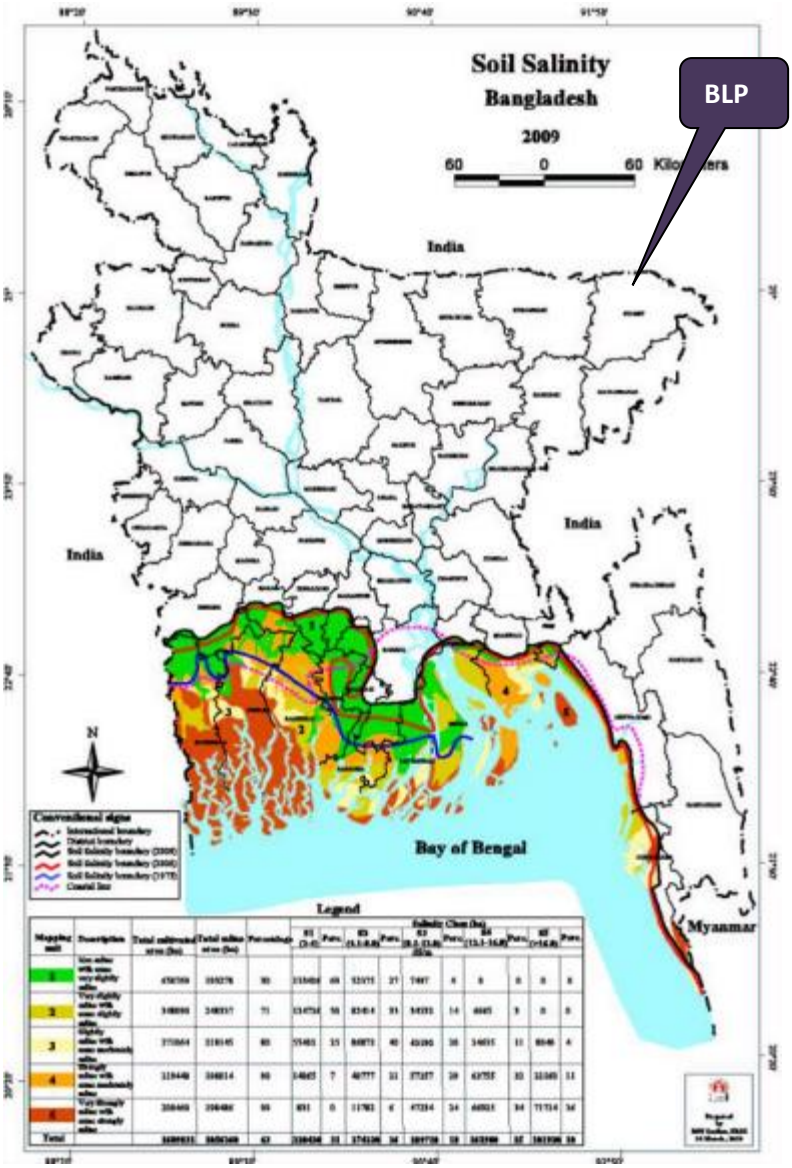


Figure 19: Saline zones of Bangladesh[1]

4.5.4 Drainage Congestion and Water Logging

144. Project location is mainly valley of nearby hilly area in Indian side with slope. Besides, there is Piyian River in the eastern side of the project. So, naturally the area is well drained and there is very little chance of water congestion of this area. If proper drainage system is developed, the inside of the project area will be free from water congestion.

4.5.5 Erosion and Sedimentation

145. The river erosion map of Bangladesh indicates that the proposed project area is free from risk of River erosion which is given in following Figure.

[1]SRDI

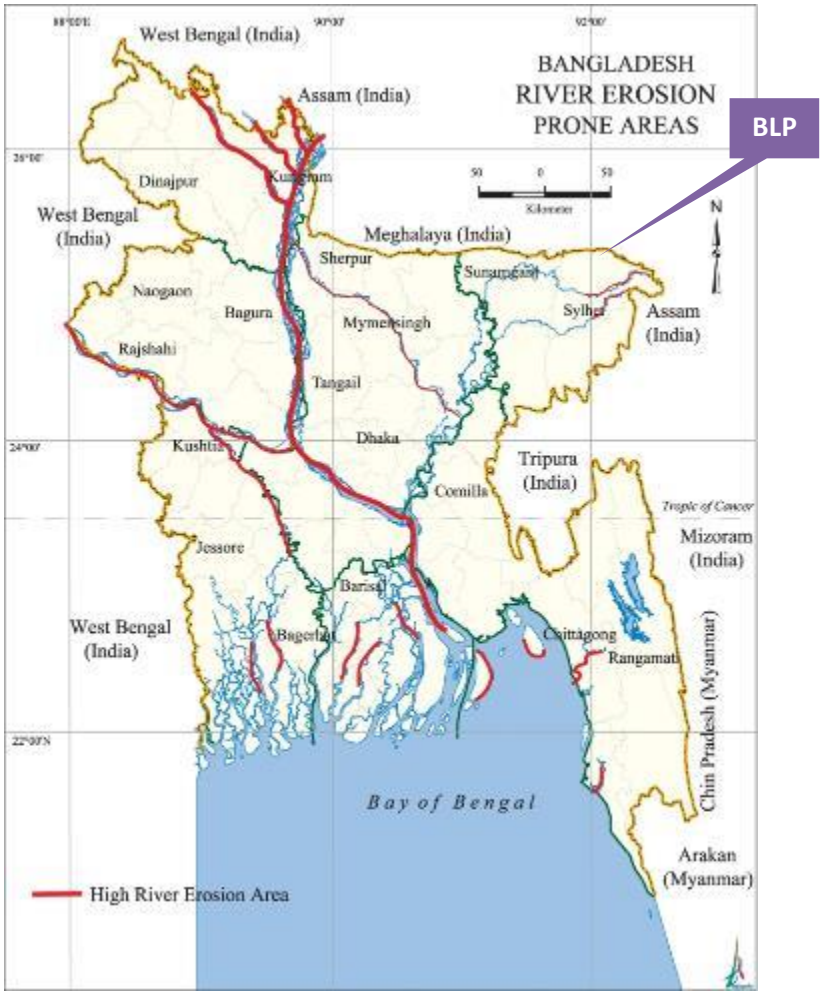


Figure 20:Erosion prone areas of Bangladesh including the project area

4.5.6 Agro-ecological regions

146. Agro-ecological Zones are land areas categorized based on four elements such as physiography, soils, land levels in relation to flooding and agro-climatology. Physiography forms the primary element in defining and delineating the agro-ecological regions in Bangladesh. Soils form the second element in defining and differentiating agro-ecological zones as soil conditions determine important properties for Port area growth, moisture supply, root aeration and nutrient supply. The third factor is land level in relation to flooding. The last one is related to different agricultural products for different climatic conditions of the regions.[1]

147. The agro-ecological zones of Bangladesh have been divided in 30 regions. The proposed project falls under the Northern and Eastern Piedmont Floodplain Zone. This region comprises merging alluvial fans which slope gently outward from the foot of the northern and eastern hills into smooth, low-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, slightly acidic to strongly acidic in reaction. General fertility level is low to medium.[2]

[1]Banglapedia, 2020
[2] BBS Yearbook of Agricultural Statistics, 2018

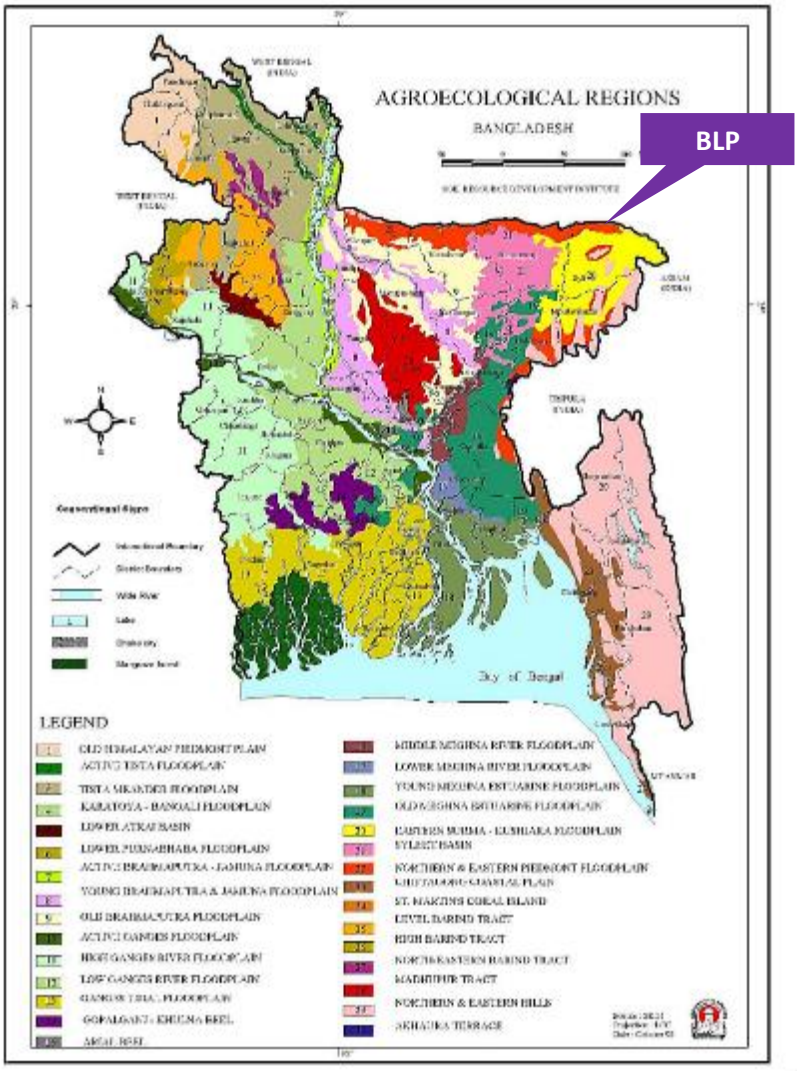


Figure 21: Agro-ecological regions of Bangladesh

4.5.7 Land Types

148. The proposed project area is in high land and over the inundation level. So, this area is free from any flooding and this area is also above normal inundation level. Following map shows the position of proposed project in inundation map of Bangladesh.

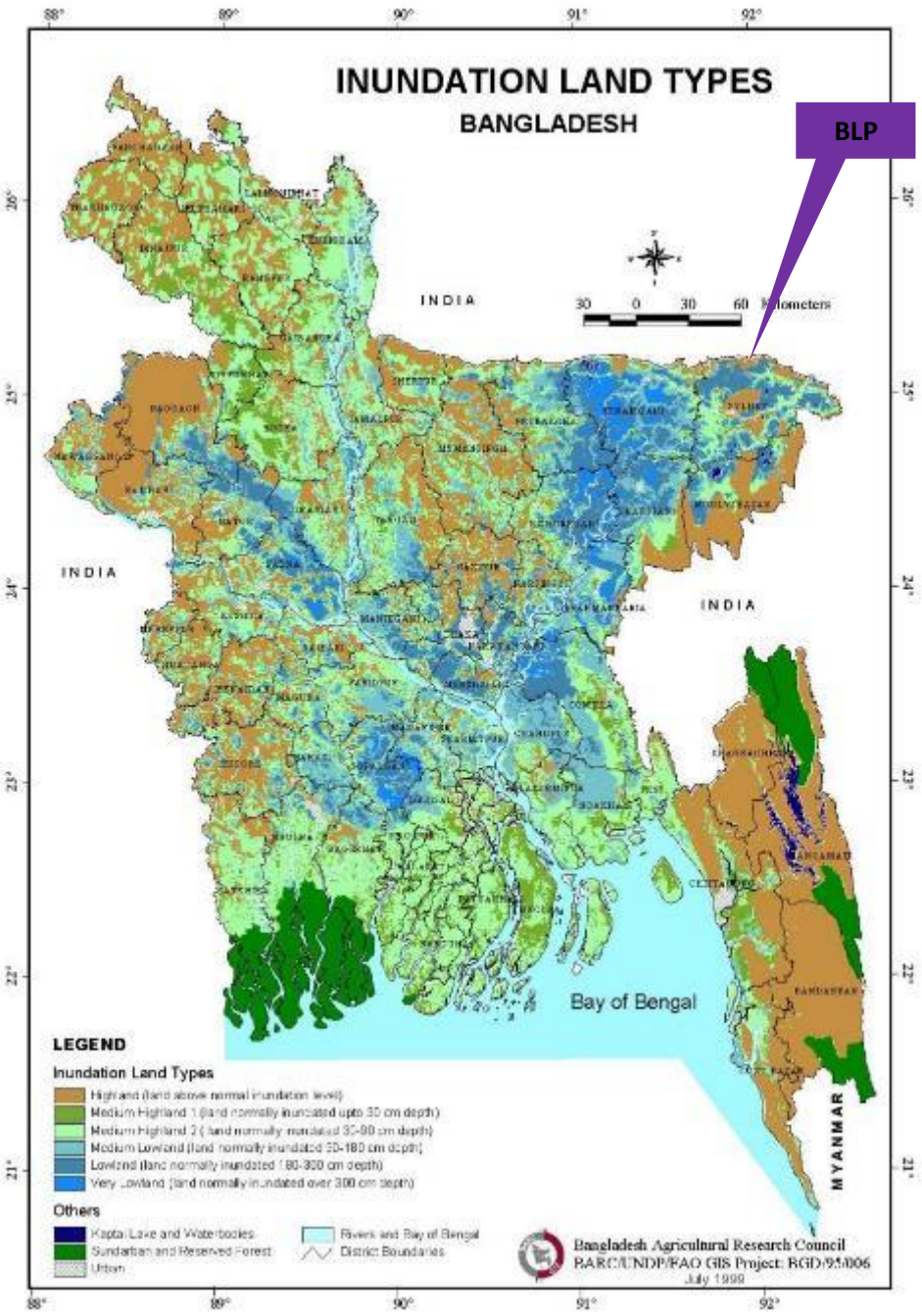


Figure 22: Land types of maps of Bangladesh indicating the project site[1]

4.5.8 Land Use

149. Project area is mainly hilly land surrounded by medium low land area, no forest and agriculture land. There are some water bodies (River, Ditches Low lying Areas, etc.) and other infrastructure. Companiganj Upazila (Sylhet district) area 278.55 square kilometres (107.55 sq mi), located in between 24°58' and 25°11' north latitudes and in between 91°41' and 91°53' east longitudes. It is bounded by Meghalaya (state of India) on the north, Sylhet Sadar on the south, Gowainghat Upazila on the east and Chhatak Upazila on the west. Companiganj was home to Bangladesh's largest quarry, the Bholaganj stone quarry. Land use map of white stone located area in Bholaganj in Companiganj Upazila of Sylhet District.

Allowing visual map, the centre point of Bholaganj; Latitude 25.149636°, Longitude 91.746234°, then 5 kilometres catchment area (buffer zone) has been selected from Landsat 8 image. LC08_L1TP_137043_20230408_20230420_02_T1 and classified accordingly:

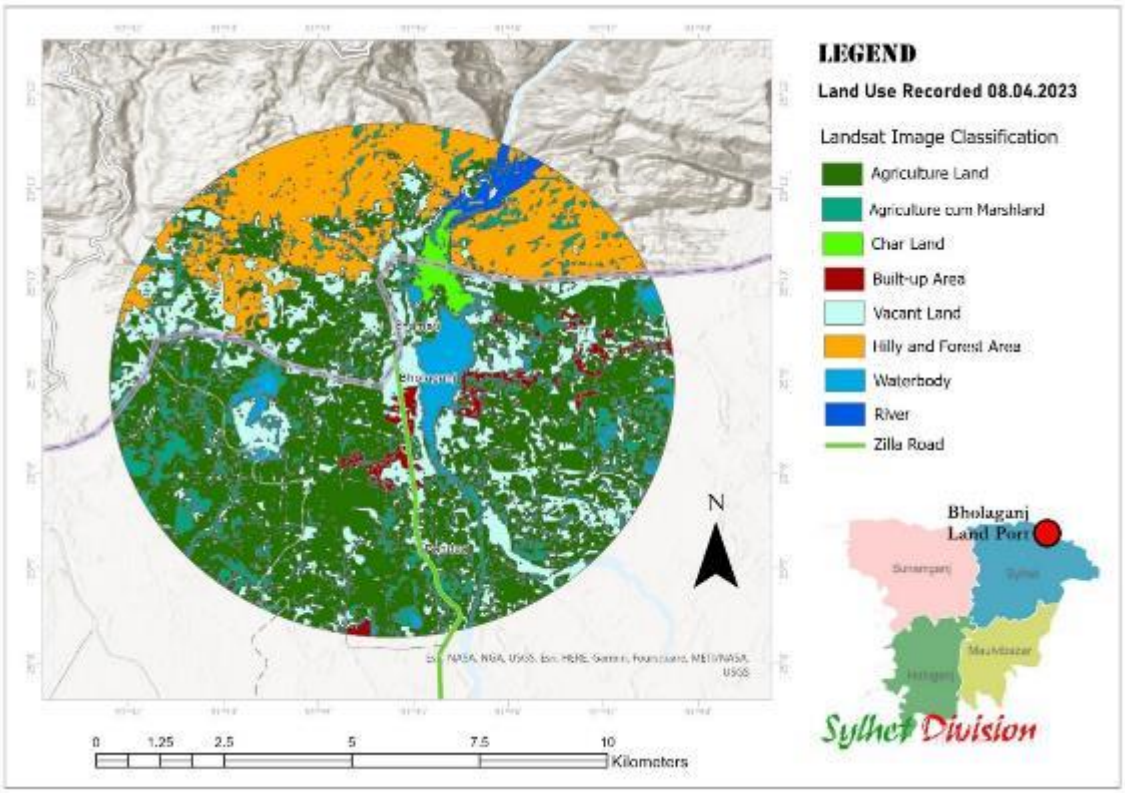


Figure 23: land use map of Bholaganj Area[1]

Table 26: Landsat image analysis of 5 km catchment area of Bholaganj

Sl. No.	Name	Hectares	Acres	Percent (%)
1	Agriculture cum Marshland	877.60	2169.48	11.80
2	Agriculture Land	3507.81	8671.49	44.69
3	Char Land	86.19	213.07	1.10
4	Hilly and Forest Area	1330.84	3289.92	16.96
5	River	89.88	222.19	1.15
6	Settlement and Vegetation	152.87	377.92	1.95
7	Vacant Land	1538.65	3803.63	19.60
8	Waterbody	264.88	654.80	3.37
	TOTAL	**7848.73**	**19402.50**	**100.00**

1. USGS https://ers.cr.usgs.gov/
2. https://www.travelmate.com.bd/bholaganj-sada-pathor-sylhet/

The largest stone quarry in the country, Bholaganj of Companyganj Upazila in the Sylhet District. In the rainy season, collection of stone mainly from Khashia Janita hills in Maghalaya State. In the dry season stone collected from Bholaganj (Indian Part) quarry mainly used to dig out the stones. There are white stones scattered around. It has nature spread a white bed and clear blue water surrounded by a few hills, large and small. All in all, a nature is like a

[1] SRDI

wonderful paradise. Tourists from far and wide flock to enjoy this wonder full place in the land white rocks.

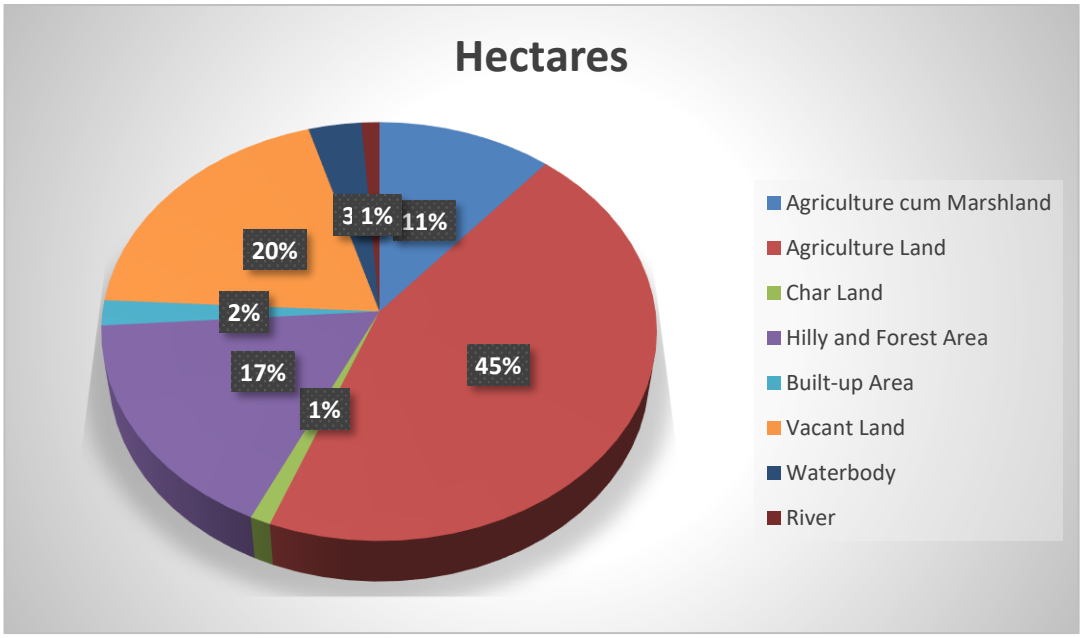


Figure 24: land use map of Bholaganj Area[1]

Data indicate the fact that in 5 km radius around the project area the dominant land use is agricultural land (44.69%) followed by vacant land (19.60%) and hilly and forest area (16.96%) which is in the Indian part. Other use is agriculture cum marsh land (11.80%), water body (3.37%), settlement and vegetation (built-up) (1.95%), river area (1.15%) and char land (1.10%).

4.6 Agricultural Resources

4.6.1 Farming Practice

150. The project area is mostly fallow land. There are some agricultural lands in the surrounding of the project area. In the surrounding area main crops are - Paddy, Mustard, Cassia leaf, Betel leaf. Extinct or nearly extinct crops are - Tobacco, Ganja (hemp). Main fruits grown are - Orange, Mango, Jackfruit, Litchi, Multa, Batabi Lemon, Pineapple, Guaba, Lemon in different species, Satkora, Betel nut.Main sources of income - Agriculture 60.81%, non-agricultural labourer 12.81%, industry 0.57%, commerce 15.01%, transport and communication 0.86%, service 1.71%, construction 0.36%, religious service 0.27%, rent and remittance 1.18% and others 6.42%. The major income generating activities of the people in this area is agriculture. But the status of non-farm activities in the district is increasing.

4.6.2 Crop Production

151. In the surrounding area main crops are - Paddy, Mustard, Cassia leaf, Betel leaf. Extinct or nearly extinct crops are - Tobacco, Ganja (hemp). Main fruits grown are - Orange, Mango, Jackfruit, Litchi, Multa, Batabi Lemon, Pineapple, Guaba, Lemon in different species, Satkora, Betel nut.

[1] SRDI

Table 27:Production of Crops in Companiganj Upazila[1]

Year	Types of Crops (Area in Hector and Production in M ton)									
	Boro		Aus		Aman		Wheat/Bhutta		Vegetables	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.
2021-2022	5970	20203	3545	7567	9920	17817	20	80	3030	18234

Source: Upazila Agricultural Office Companiganj

4.7 Fisheries

4.7.1 Fish Production

152. Fisheries are one of the main resources in Bangladesh. The fisheries sector contributed 4.43% to national GDP, 22.21% to the agricultural GDP, and 2.73% to foreign exchange earnings by exporting fish products in 2010-11. Fish provides 60% of national animal protein consumption and plays an important role in rural employment generation and poverty alleviation in the country. In 2010-11, the total fish production was 30.62 lakh Metric Ton (MT). Average annual growth rate of fish production in the last 3 years was 6.11%. The production from closed water bodies has increased sharply due to dissemination of adaptive technologies and needs-based extension services rendered by Department of Fisheries. There are 260 freshwater and 475 marine fish species in the country. About 12 exotic species are being cultured in the country. Fish for local consumption is generally of freshwater varieties. There are three categories of major fisheries resources in the country, as follows (Source: www.fisheries.gov.bd):

- Inland Capture Fisheries

153. Comprises of rivers, ponds, estuaries, beels, floodplains, haors, baors, brackish water etc. There are 260 fish and 24 prawn species in inland fresh water in the country. Fish production from aquaculture has increased to a great extent but open water fish production is in slow progress. Now only about 34% of total fish production comes from inland open water.

- Inland Culture Fisheries

154. About 12 exotic species are being cultured in the country. Indian major carps and exotic carp are largely cultured in the country. Beside Carp aquaculture, monoculture of Thai Pungus, Tilapia, Shorputi, Thai Koi are also practiced in the other part of this Upazila. Average fish production in the ponds is 3285 kg/ha/year. About 48% of total fish production comes from inland culture fisheries.

- Marine Capture (18%) Fisheries

155. The Bay of Bengal is situated in the south of Bangladesh. There is a total of 166,000 sq. km. water area including Exclusive Economic Zone (EEZ). Fishing is only confined within 200-meter depth. Pelagic and deep-sea resources are still untapped. In the year 2010-11 total fish production from Marine source was 5.46 lakh metric MT (18%). There is no marine capture fishing in the project area.

[1] BBS,2011

4.8 Inland Fishing undertaken in the project area includes

- River/Canal Capture Fishing

156. Fishes are caught year-round within the Piyan and its branch rivers around the project area. The fish catch tends to peak in May to June, with the mass migration upstream of different type of fish in October to November, when the floods subside and fish return from floodplain to the rivers. The fish species are mainly carps, catfish, small shrimp, miscellaneous small fish, etc. Presently, it is very hard to see the various kinds of fish in some rivers and canals because of overfishing and huge silt from different regions.

	
Locally Captured Fishes from Beels& others	Locally Captured Fishes from Rivers & Others

- Floodplain Subsistence Capture Fishing

157. There is open access fishing across all flooded areas, *beels* (seasonal freshwater lakes and marshes of the flood plains, which is bowl-shaped depression between the natural levees of a river) during the monsoon season. Subsistence fishing is generally undertaken by all most all rural households in the project area during this period. The common species available within the water bodies are catfish, snakehead, live fish and other smaller fishes.

- Culture Fishing

158. Generally, culture fishing undertaken by the rural households surrounding the project area from their cultured ponds and tanks. But no ponds and other water reservoir has been built for the fish culture, the cultural fishes are transported from the other upazila and other nearby district of the country.

	Cultural Fishes transported from the other Upazila and other nearest district of the country

4.9 Ecological Resources

4.9.1 Bio-ecological Zone for Project

159. IUCN, The World Conservation Union, has divided Bangladesh into 25 Bio-ecological Zones (Nishat et al, 2002) in the context of physiographic and biological diversity. The study area has fallen under bio-ecological zone of Himalayan Piedmont Plain. The area (both directly and indirectly impacted area) occupies terrestrial as well as aquatic ecosystems. A map of the Bio-ecological zone is presented in the figure below.

160. This bio-ecological zone is distinctive region is developed in an old Tista alluvial fan extending from the foot of the Himalayas. It has a complex relief pattern. Deep, rapidly permeable sandy loams and sandy clay loams are predominant in this region. They are strongly acidic in Topsoil and moderately acidic in subsoil, low in weather able K minerals. Seven general soil types occur in the region, of which non-calcareous brown floodplain soils, black terrain soils, and non-calcareous dark grey floodplain soils predominate. Organic matter contents are generally higher than in most flood plain soils of Bangladesh. The natural fertility of the soil is moderate but well sustained. Soil fertility problems include rapid leaching of N, K, S, Ca, Mg and B. Most of Panchagarh and Thakurgaon districts and the north-western part of Dinajpur district are included in this zone.

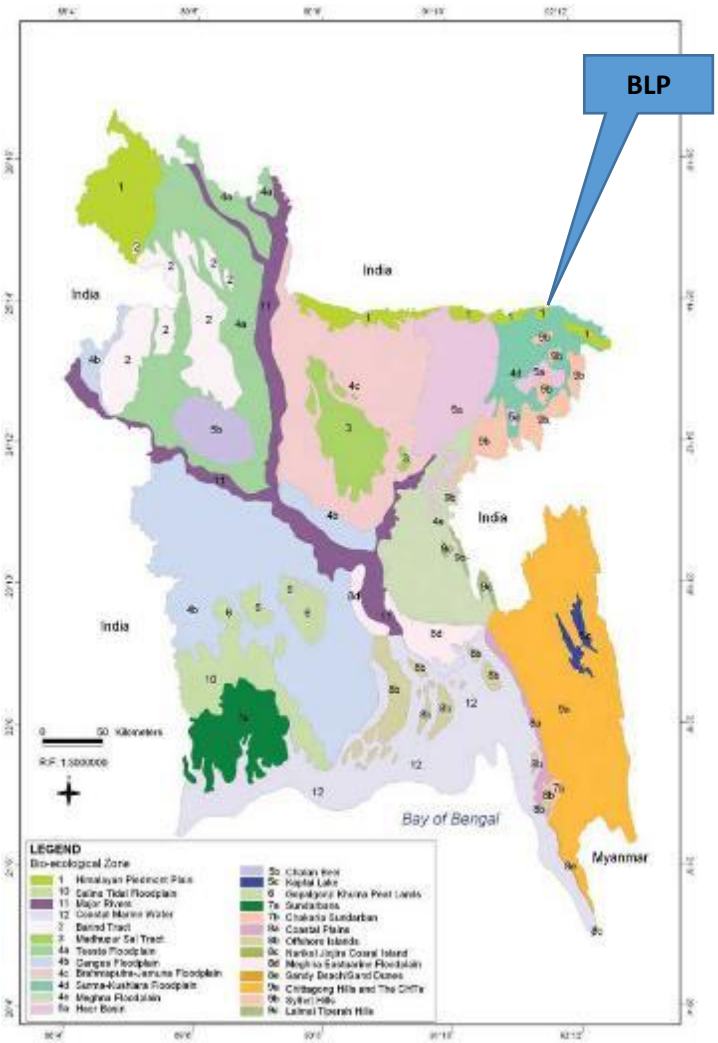


Figure 25: Bio-ecological zones of Bangladesh[1]

[1] www.thebangladesh.net

4.9.2 Flora and Fauna in the Project Influence Area

161. Ecosystems are functional units of interacting abiotic, biotic, and cultural (anthropogenic) components. All-natural ecosystems are open systems where energy and matter are transferred in and out through the complex interactions of energy, water, carbon, oxygen, nitrogen, phosphorus, sulfur and other cycles. The project site is in rural natural grass land with some vegetation. Appropriate mitigation program will be undertaken to protect the existing ecosystem from dust and gaseous emissions discharge from the proposed project.

Flora:

162. The project area and its surrounding are barren area no plantation was observed with in 1km radius of the project location. In surrounding villages towns plantation was observed during the site visits. The existing road from Sylhet to Bholaganj constructed recently (2020) plantation along the roadside is not yet grown.

163. In the surrounding of the project area (> 1km port area) different species of herbs, shrubs, grasses, and trees are found during field survey which is important for both economical as well as for environmental sustainability of the area. Mango, Jack fruit, Wood apple Coconut, Betel nut, Palm, Litchi, Velvet apple (Bono gub), Plum, Jujube (Boroi), papaya, Banana, Guava, Lemon etc. are generally found around the project area. Among the wood trees bur flower-tree (Kodom), Mahagoni, Neem, Lebbeck (Koroi), Indian fig tree (Dumur) and different types of bamboo are available in the study area.

164. Terrestrial ecosystem at the included settlement planting, strip plantation and block plantations. Dominant tree species in strip plantation observed are rain tree (*Samanea saman),* krishnachura (Cassia spp.), debadaru (*Polyalthia longifolia*), mahogany (*Swietoniaspp), raj koroi (Albiziarichrdiana), babla (Albizianilotica), eucalyptus (Eucalyptus* camaldulensis), jack fruit (Artocurpusheterophylus), mango (Maniferaindica), etc. Settlement species are mango (*Mangifera indica*), black berry *(Syzygiumcumini),* and jack fruit (*Artocarpusheterophyllus*), coconut (*Cocos nucifera*), betel nut (*Areca catechu*), hijal (*Baringtoniaacutangula*), mandar (Erithrinaindica), bamboo and several fuel wood species.

165. No community forestry or reserved forest is located within 5 km of the project area. But many naturally growth flora (trees and vegetation) is present surrounding area. Trees are identified in medium sizes from semi mature trees to saplings. The terrestrial flora species are mainly mango, black berry, Jack fruit, mahogany, Akashmoni, Raintree, Battle nut, Bamboo bushes, etc. In addition, some homestead trees were identified.

Fauna:

166. As stated earlier the project area is a barren land and presently used for stone dumping and stone crushing. The existing activity does not allow any animal to make its habitat inside the project area. The diversified habitat and ecosystem in the project area support various types of animals. Primary and secondary mode was adopted for identification of fauna. Most of the birds are identified through direct observation rather than from people. Most of the Amphibians, Reptiles and Mammals were identified by using books and description of the local people during the field survey. The list of these species with their vulnerability status is given in the following table. During field survey and discussion with local people it was revealed that the terrestrial fauna in the nearby villages and settlements mammals, birds, reptiles, and amphibians are available in the area. During field survey local people reported presence of different types of fauna around the project area such as-Dog, Cow, Goat, Pig, House muse, Field mouse, Roof rat, field rat, Wild cat, Mongoose, different types of Frog and Snakes. Different types of Earthworms are very common in this area. Among

the birds House crow, Magpie-robin (Doel), Indian Myna (Shalik), House sparrow (Chorui), Red headed bulbul, spotted dove, red feather dove etc. are found around the project area. Besides, different types of butterflies are also found in this area.

Scientific Name	English Name	Local Name	IUCV Status
Amphibia			
Bufo melanostictus	Common Toad	Kuno bang	LC
Hoplobatrachus tigerinus	Bull Frog	Kola bang	LC
Euphlyctis cyanophlyctis	Skipper Frog	Kotkoti bang	LC
Reptilia			
Hemidactylus flaviviridis	Common House Lizard	Tiktiki	LC
Mabuya carinata	Common skink	Anjon	LC
Varanus bengalensis	Bengal monitor	Gui shap	NT
Xenochrophis piscator	Checkered keelback	Dhora shap	LC
Amphiiesma stolata	Stripped keelback	Dora shap	LC
Atretium schistosum	Olive keelback	Maitta shap	LC
Aves			
Ardeola grayii	Indian pond heron	Kani bok	LC
Casmerodius albus	Great egret	Sada bok	LC
Anastomus oscitans	Asian Openbill	Shamuk-khol	LC
Haliastur indus	Brahminy kite	Shankho chil	LC
Actitis hypoleucos	Common sandpiper	Kada Khocha	LC
Columba livia	Rock pigeon	Jalali Kobutar	LC
Spilopelia chinensis	Spotted dove	Tila Ghughu	LC
Psittacula krameri	Rose-ringed parakeet	Tia	LC
Eudynamys scolopacea	Asian cuckoo	Kokil	LC
Tyto alba	Barn owl	Laxmi Pencha	LC
Alcedo atthis	Common kingfisher	Choto Maachranga	LC
Dinopium benghalense	Black-rumped flameback	Kaththokra	LC
Corvus aplendens	House cRow	Pati Kak	LC
Corvus levaillantii	Jungle cRow	Dar Kak	LC
Copsychus saularis	Oriental magpie robin	Doel	LC
Acridotheres tristis	Common myna	Bath Shalik	LC
Orthotomus sutorius	Common tailorbird	Tuntuni	LC
Passer domesticus	House sparRoW	Charui	LC
Mammalia			
Pteropus gigantenus	Flying Fox	Badur	LC
Pipistrellus coromandra	Indian Pipistrelle	Chamchika	LC
Herpestes auropunctatus	Small Indian Mangoose	Benji	LC
Vulprs bengalensis	Bengal Fox	Khek shial	VU
Rattus rattus	Common House Rat	Indur	LC
Mus musculus	House Mouse	Nengri Indur	LC
Suncus murinus	House Shrew	Chicka	LC

4.10 Demographic and Socio-Economic Information of the Project Area

Socio Economic Information of Sylhet District

4.10.1 Population and Composition

167. Total population of Bangladesh was 165.16 million in August 2022 and 144.05 million was in 2011. The average annual growth rate of 1.22% in 2022 (Population & Housing Census 2022' during 15-21 June 2022. However, due to the sudden flash flood, the data collection period was extended up to June 28 in Sylhet, Sunamganj, Moulvibazar and Netrokona districts, following the international protocol of census). The total population of Sylhet District and others are presented in Table A-1.1 and A-1.12 of Annex1, based on the population and households (HHs) census of the BBS (2022).

Table 28: Demography of Population in Sylhet District

District	Total Population	Population by Sex				Sex Ratio	HHs (no)	Average HHs size
		Male	Female	Hijra	Total			
Sylhet	3,857,037	1,894,232	1,959,054	284	3,853,570	96.69	746,867	5.16

Source: Population and household Census, BBS, Results July 2022)

Table 29: Demography of Population in Upazila Project Area

Name. of Upazila:	Total Area (Hector)	Total Household	Population			Average HHs size
			Both	Male	Female	
Sylhet Sadar	853026	596081	3434188	1726965	1707223	5.76
Companiganj	29388	28756	174029	89649	84380	6.05
Beani Bazar	62579	42119	253616	123939	129667	6.02
DakhsinSurna	46373	43004	253388	126315	127073	5.89
Golapganj	68777	50465	316149	154249	161900	6.26
Gowainghat	118889	47992	287512	143877	143635	5.99
Jaintapur	65758	27719	161744	80769	80975	5.84
Kanaighat	96814	46147	263969	129319	144650	5.72
Total	**1341604**	**882283**	**5144595**	**2575082**	**2579503**	**5.83**

Source: Project area, Population & Housing Ensure- BBS 2011

Table 30: Demography of Population in Union Project Area

Name of Union	Area (Acre)	Population		Literacy Rate (%)
		Male	Female	
West Islampur	7811	15007	13316	26.92
East Islampur	9166	11439	10435	29.44
Ishakalas	12390	7141	6510	31.28
Telikhal	9545	10363	9408	19.66
Ranikhal North	10736	7691	7249	16.54
Ranikhal South	14584	8117	7108	19.41

Source: Project area, Population & Housing Ensure- BBS 2011

4.10.2 Health and Education Facilities in Sylhet District

168. The health service facilities like elsewhere in Sylhet district and project area are provided by public and private sector organizations, NGOs, and individual medical practitioners. GoB is responsible for providing health services, education and training, hospital management and health policies. The private sector came in recent years making commercial investment in Health and Education sectors or under PPP (Private Partnership Projects). The situation regarding health services and education facilities in Sylhet District are shown Table below.

Health service	Number	Education facilities	Number
Government Health Complex	1304	Government Primary Schools	506
Private Hospitals/Clinics	57	Non-Government and other Primary level Institutes	165
Diagnostic Centre	84	Non-Registered Primary Schools	21
Missionary Hospitals	4	Kinder Garden Schools	266
Number of physicians	1272	Number of NGO Schools	425
Number of Health Centre/Family Planning	51		
Community Clinics	87	Government Secondary Schools	2
		Non- Government Secondary Schools	185
		School and College Jointly	261
		Government Colleges	2
		Non-Government Colleges	47
		Number of all Madrashas	92
		Kawmi Madrashas	235
		Medical Colleges	6
		Agriculture and Veterinary College	1
		Engineering College	2
		Private University	4

4.10.3 Socio-Economic Condition of the Companiganj Upazila

169. The people in the area are traditionally dependent on agriculture, but many people in the region have changed their source of income to include the garments sector, transport industry, and other industries. Bangladesh imports lime stones, boulders and others stones through the Bholaganj Customs Station at Companiganj Upazila in Sylhet district. Many importers and workers livelihoods depend on the boulder crushing equipment in Companiganj Upazila.

Male Female Workers are working in the Stone Crushing Machine

4.10.4 Socio-Economic information of Companiganj Upazila

170. Companiganj Upazila (Sylhet district) area 296.00 square kilometres, located in between 24°58' and 25°11' north latitudes and in between 91°41' and 91°53' east longitudes. It is bounded by Meghalaya (state of India) on the north, Sylhet Sadar on the south, Gowainghat upazila on the east and Chhatak upazila on the west. Companiganj is home to Bangladesh's largest quarry, the Bholaganj stone quarry. Population totals 174,029 in which male 89,649, female 84,380.

171. Category wise family in Companiganj Upazila are collected from Agricultural Development Department, Companiganj Upazila as of 13 October 2022 are shown below:

➢ Land less farmer (less than 5%)	=	2367
➢ Marginal farmer (5% to less than 15%)	=	4475
➢ Small farmer (15% to less than 25%)	=	5626
➢ Medium farmer (25% to 75%)	=	2530
➢ Farmer (over the 75%)	=	397
Total number of family (Farmer)	=	15395
Number of family (Other than Farmer)	=	12500
Total number of Family in the Upazila	=	27895
Female headed farmer family	=	1054

172. One Upazila Heath Centre, 3 Family Planning Centres, one Satellite Clinic are in the Upazila complex area. Sources of drinking water Tube well 70.61%, tap 0.84%, pond 15.24% and others 10.30%. Arsenic level has been detected as higher than the tolerable limit in 12.5% of Shallow Tube well in this Upazila. About 11.48% (urban 33.20% and rural 9.16%) of dwelling households in Upazila are using sanitary latrines. About 60.97% (urban 55.49% and rural 61.56%) of dwelling households use non-sanitary latrines. 27.54% of households do not have latrine facilities.

4.10.5 Socioeconomic information at the project area

Demography

173. As per the field survey no ethnic community or religious minorities are present in the project area. Bangla is the local language commonly used for their communication because everyone can understand the Bangla. There are 15 households will be affected in the proposed land, of them 13 are male-headed and the remaining two are female-headed. These households have 82 people, of which 43 are male and 39 are females. The age composition-wise distribution of household members shows that most of them (39%) belong to the 15-29 age group. About 4.9% are elderly people. An adequate number of labourers are available in the project area. The labourers expressed their uncomfortable feelings in working at the stone crushing activities. If they get any offer for an alternate way of earning source, they will feel better. In the above situation migration of the people is the common phenomena in the project area. Their main commercial activities are the operation of stone crushing machines in and around the project area. A few other shops are found along the Sylhet Bholaganj highway. No child labour is working in those commercial activities.

174. As per the feedback from the consultation with BGB and local people, there are no cases reported earlier at the Bholaganj area regarding sexual harassment or abuse in workplace.

Distribution of household member by age category

Age category	Male		Female		Total	
	No.	%	No.	%	No.	%
Under 15	15	18	14	17	29	35.4
15-29	17	21	15	18	32	39.0
30-44	4	5	5	6	9	11.0
45-59	4	5	4	5	8	9.8
Above 60	3	4	1	1	4	4.9
Total	43	52	39	48	82	100.0

175. The distribution of household members according to the marital status shows that 49% are married and equally 49% are unmarried. Females are more married than males. One female member was found widowed.

Distribution of household members by marital status

Marital status	Male		Female		Total	
	No.	%	No.	%	No.	%
Married	16	23	19	27	35	49
Unmarried	22	31	13	18	35	49
Widowed	0	0	1	1	1	1
Total	38	54	33	46	71	100

Livelihoods

176. The following table shows the distribution of household members according to their main occupation. Most of them are involved in day labouring activities such as working in stone crushing. A very vey of them are involved in service and business. On the other hand, women are mostly housewives. About 7.9% work in stone crushing as daily workers. The labourers working in the stone crushing machine may be treated as vulnerable in the project area.

Distribution of household members by main occupation

Type of main occupation	Male		Female		Total	
	No.	%	No.	%	No.	%
Agriculture	-	-	1	2.6	1	1.3
Teacher	-	-	1	2.6	1	1.3
Service	3	7.1	-	-	-	-
Housewife	-	-	14	36.8	14	17.5
Business	5	11.9	-	-	5	6.3
Day labourers	11	26.2	3	7.9	14	17.5
Unemployed	1	2.4	5	13.2	6	7.5
Tailor	-	-	1	2.6	1	1.3
Local Pharmacist	1	2.4	-	-	1	1.3
Students	16	38.1	7	18.4	23	28.8
Children	5	11.9	6	15.8	11	13.8
Total	**42**	**100**	**38**	**100**	**80**	**100**

Land control/holding

177. These people are absolute landless and have neither operated nor homestead land. The proposed land under their control, therefore, is state-owned khash land (government owned), although they have been living here for a couple of decades. Thus, these people do not have legal rights/entitlement on the land they are living in.

Education

178. The educational status shows that most of the household members are in the education level between class 6 to 10. Primary level students were found 17.2%, and undergraduate level students were found 19%. Of household members, about 5.2% are presently pursuing their postgraduate degrees. The tendency to education was found growing because of their landless and poor socio-economic condition.

Distribution of household members by educational status

Education level	Male		Female		Total	
	No.	%	No.	%	No.	%
Primary	5	17.2	5	17.2	10	17.2
Class 6 to 10	8	27.6	7	24.1	15	25.9
SSC equivalent	5	17.2	2	6.9	7	12.1
HSC and equivalent	3	10.3	1	3.4	4	6.9
Undergraduate/BA	3	10.3	8	27.6	11	19.0
Postgraduate/Masters	1	3.4	2	6.9	3	5.2
Hafez (memorization of Quran)	2	6.9	2	6.9	4	6.9
Literate (can sign only)	-	-	1	3.4	1	1.7
Illiterate	2	6.9	1	3.4	3	5.2
Total	29	100.0	29	100	58	100.0

Household income

179. According to the following table, 27% household have monthly income of less than BDT 10,000. Household income of 47% household is between BDT 10,000 to 20,000.

Income Range	Household income	
	Nos.	%
<10000	4	27
10000-20000	7	47
20000-30000	4	27
Total	15	100

4.11 Significant Benefits on Surrounding Economic Activities

180. The local economy will be boosted by port-related activities gradually expanding urbanization and industrialization. The port will spur the economic activities like banking, insurance, finance, logistics etc. which will create employment both directly and indirectly. Direct employment generation will be in port related activities. Indirect employment increases will be due to increased trading, transport, industrialization and increase in other services like banking and insurance. So, the future potential of the project is quite prospective.

181. After expansion of the land port cross border trade and movement of passengers will be intensified resulting both social and economic relation between the two bordering

countries. The local economy and society of the region will benefit not only from increased cross border trade and passenger movement but also from increased trading, transport, industrialization, real-estate development and housing. It will help local labour getting more employment and local producers will get better marketing opportunity of the goods and services produced.

182. The bordering regions of the two countries have relatives living on the other side of the border. Improved port facility will increase visits to relatives that will improve social relation not only among the relatives but also among the broader communities in the two countries. This will discourage unlawful border crossing. Increased cross border mobility will enhance tourism, education, and health services.

183. Bholaganj is one of the nearest land ports from Meghalaya into Sylhet. The new land port will open possibility of Sylhet – Shillong in Meghalaya India bus service in a shorter route.

184. The project's positive impacts include:

- Further improvement of transport and communication infrastructure in the adjoining districts.
- Tourism development in Piyain – Sadapthar in Bholaganj as well cross boarder tourism to Meghalaya and Assam state of India.
- Economic opportunities of the local people will improve in trade, transport, and operating clearing & forwarding agencies.
- Companiganj town as well as the surrounding area will attract businesses and tourism and will become an important town from a small township.
- There is possibility of further improving land port into cross boarder port which will allow the tourist, business community and patients to access Indian side through shortest route.

185. Table below shows the probable positive impact of the proposed land port development.

Table 31: Positive Impact of the Project

SN	Type of Impact	Positive Impact	Comments
1.	Income opportunity for poor	• Construction period work opportunity • Beyond construction, Operation of the land port • Increase business opportunity. • Poor vulnerable women will be assisted to establish business	• Probable labor influx may grab part of the construction related work opportunity
1.1.	Income opportunity for businessman	Cross border trade will increase. Due to the improvement of Dhaka-Sylhet and Bholaganj Highway the pace of urbanization and construction industry will flourish rapidly. So, demand for labor will be high.	Urbanization in and around the Bholaganj and Companiganj Upazila will increase and create new work opportunity
2.	Transport sector	Transport worker, owners will get more income	Increased traffic volume and number of vehicles
2.1.	Trade improvement	Trans border trade will increase	At present no export from Bangladesh to India. Opportunity of export from will be created.

SN	Type of Impact	Positive Impact	Comments
2.2.	Tourism	As there are many tourist spots in Sylhet region, more tourists will come from different area of the country and from India to visit.	Need development and improvement of tourism facilities around Bholaganj including all the tourist spots in these regions.
2.3.	Education	May increase provided quality of education improves in Bangladesh.	Students from hilly area of Shillong, Meghalaya India will have an opportunity to avail quality education in Sylhet regions.
2.4.	Healthcare Tourism	May increase provided good quality of health service improves in Sylhet.	Patients from hilly area of Shillong, Meghalaya will have an opportunity to avail quality medical care in Sylhet regions and vice versa.
2.5.	Investment	Will be increased particularly investment by local entrepreneurs from other districts	Direct foreign investment will be limited initially but will be attracted once infrastructure developed
2.6.	Environment Enhancement	Environmental condition of the area will improve with legal trade and legal provisions for existing illegal stone crusher	Legal crusher will get guideline and instruction from DoE and local administration for dust suppression
2.7.	Health Improvement of the workers	Health condition of the labour working in illegal crusher will improve with legal trade and legal provisions for existing illegal stone crusher	Legal crushers will get guidelines and instruction from DOE and local administration for dust suppression. This will limit the stone dust exposure.
2.8.	Income opportunity for women	Most of the household members including females have been working in the stone crushing industry since their working age. Thus, the eviction of crushing machines from present occupation, will affect temporarily on their livelihoods.	• BLPA will provide a grant to cover temporary loss of income. • In addition, women-headed household will also receive a one-time grant package.

4.12 Historical, Cultural and Archaeological Sites

186. No specific archaeological relic, historical site or architectural structure for tourist attraction exists alongside the project location. Piyain River adjacent to the project location is one of the tourist attractions. Tourists enjoy boating in the river and travel to a point called Sada Pathar (White Stone) which is unique in Bangladesh. Development of the land port and improved administrative set up will promote tourism in the area.

187. However, there are many sightseeing itineraries in the Sylhet district that attract both local and expatriate tourists.

5 Public Consultation and Disclosure

5.1 Introduction

188. Community participation always plays a key role for sustainable development. According to the guidelines of the DoE and the development partners, people's participation in planning and implementation phases of category A & B projects (usually red category) is essential to take necessary actions for minimizing any undue socio-cultural, political or any other conflicts and to address environmental issues. People have the right to know about what is going to happen in their surroundings. They must be informed about the positive and negative impacts for obtaining their perceptions, views, and feed backs on the probable changes likely to happen within the study area.

189. Public consultation was initiated with an explicit objective to ensure peoples' participation right from the planning to operation through implementation stage of the project. The purpose of public consultation includes the following:

- To ascertain the public views on various environmental and social issues related to the project;
- To encourage and provide for people's participation in project implementation;
- To obtain new insight and site-specific information and to appropriating possible mitigation measures based on local knowledge of the communities; and
- To ensure minimization of social conflicts regarding the project, if any.

5.2 Objectives of Public Consultation and Disclosure

190. The primary objective of the Public Consultations and Disclosure is to incorporate the opinions and suggestions of the public and all other stakeholders at the project planning stage to ensure wider acceptability of the project. The key objectives are as follows:

- To provide information on the economic, environmental, and social benefits as well as potential negative impacts from the project;
- To ensure that stakeholders and local communities are engaged in a meaningful dialogue and are well informed prior to the decision of the project proponent as to the nature and extent of social and environmental impacts attributable to the proposed project with respect to planning;
- To ensure that the concerns of, and issues raised by the stakeholders, and local communities are incorporated and adequately addressed in the ESIA study;
- To engage in a participatory exercise with stakeholders, and local communities and obtain expertise and local, traditional wisdom and knowledge from them to plan the mitigation measures; and
- To facilitate periodic opportunities to the principal stakeholders to offer their inputs on all key components of the project.

5.3 Approach and Methodology of Public Consultation and Disclosure

191. The field survey team visited the Bholaganj Land Port at 1 no. West Islampur Union, in Companiganj Upazila of Sylhet in district and its adjoining areas and collected the ideas of different types of stakeholders about both the adverse and beneficial impacts and its probable mitigation measures. More specifically, this was aimed at improving the study considering, the opinions of the people of the impacted areas.

192. A combination of mixed methods of information disclosure and consultation process was adopted at this stage of ESIA preparation. To take free and unbiased opinions from the local people, both individual and group consultations were conducted. In this process, the method selected for consultation was basically designed keeping in mind the profile of the stakeholders, type of information desired and level of engagement required. In each consultation session the consultant introduced themselves, introduced the project and the purpose of engagement with the respective stakeholder.

193. Knowledgeable persons like Stone Importers Associations, C & F Agents, businessmen, workers, public representative, shop owner, teacher, local elites, workers & staff, and officer of the upazila level officers of concerned areas were identified and contacted. The team talked with 25 persons. Out of them 15 were local community people and 5 businessmen. They have also visited 5 upazila level offices and collected information and ideas of 4 officers/staff about the environmental and social impacts of the Bholaganj land port. The report included the lists of stakeholders; their name, address, profession, cell number and signature where available and signature sheet (Annex-14) & photograph of public consultation in Annex-15.

5.4 Public Consultation and Disclosure

194. Face to Face discussions were held on 4th, 19th and 20th March, 2023 at project site, 1 no. West Islampur Union Parishad, Livestock and Dairy Development Office, DPHE, Agricultural Development Corporation, Upazila Health Complex, Upazila Parishad, Companiganj Upazila, Sylhet. Further to the above a consultation meeting was conducted on June 02, 2023, at 11.00 AM near one house of PAPs inside the project area following the standard procedure of consultation. 47 persons (teacher, businessmen, labour, student, driver) were participated in this meeting in which number of women were present at this consultation meeting and expressed their views in development of the land port.

	
Consultation Meeting in Bholaganj land port area on June 02, 2023	Comments from women working at crushing machine

195. The discussion meeting also conducted at the Upazila level offices with more than 30 people including other staffs from said offices, which represent the affected persons, local community and relevant stakeholders including both govt. and private sector representatives.

196. The list of participants and attendance sheet has been provided as Annex 14 Public Consultations, face to face consultation and FGD meeting outcome has been given in table below. The following key agenda was fixed for the public consulting.

- Brief description of the project.

- Expected key information about environmental and social benefits as well as potential negative impacts from different types of stakeholders and their suggestions to be taken during construction and operation phase of the land port;
- Scope of the ESIA study

Table 32:Face to Face Consultations and Public consultation outcome

Participant in the consultation	Discussion / Comments	Feedback from BLPA
Representatives from Importer Association.	They constructed a one storied office building in the Government owned khash land without any permission from concerned authority. They have been taking illegal advantages in their own business (Stone import and crushing) using the government land. If required, they will move to the other side of the project area at their own cost.	BLPA will assist in shifting their structures before commencement of work activities.
Representative of Bholaganj Customs Station, NBR, Bholaganj	About 400 loaded truck carrying stones daily from India. Following the law and schedule of Customs duty they are facing difficulties performing their duties for lacking weighing scale. If land port is developed, they will perform their duty efficiently to play their role to collect adequate government revenue.	Inclusion of weighing scale and banking facilities will be provided in land port premises.
Representative from Business Committee, Stone Crusher Association.	They have installed a temporary stone crusher machine, with some temporary sheds for waiting stations where laborers take their lunch, drinks, and other purposes on the project area (khash land). But they have no legal document in support of their activities there. If required, they will move to the other side of the project area at their own cost including their labors.	BLPA will assist in shifting their structures before commencement of work activities.
Local Public Representative Chairman 1 no. Islampur Union Parishad.	After development of Land Port Socio economic condition of the surrounding area will be upgraded, will create job opportunity, small and medium level business opportunity, increasing tourism to India and inside Bangladesh.	BLPA will ensure to engage the local people in different type of work activities as per their skill ness during land port development and operation.

Participant in the consultation	Discussion / Comments	Feedback from BLPA
Representative from Bholaganj BGB Camp, Bholaganj.	They have performed their duty smoothly without any hassle. There is no record or any evidence of human trafficking through this BCP.	During construction and operation of the land port BLPA will keep close relation with BGB.
Representative from Truck Driver Association, Bholaganj Land Port	In the opposite side of border in Indian area road condition is poor. He has bad experience in his driving the loaded truck from India to Bangladesh. Transportation of heavy loaded truck will be easier if road is development in Indian part.	BLPA will keep periodical communications with Indian Land Port Authority regarding the issues.
Glossary Shopkeeper, Bholaganj land port	The existing shop is on Government land, only workers coming from crushing equipment purchase their necessary goods from his shop. During development of the land port, he will shift the shop to another location near the land port and that area also in Government land. After development, he is expecting more people will come his shop for purchase of goods and his income level will increase.	BLPA will assist in shifting their structures before commencement of work activities.
Crushing Machine Operator, Bholaganj land port	Under the control/management of one operator they have more than one equipment temporarily installed and in operation, some of them are inactive and lying idle. During the development of land ports, they will shift their equipment to the other places (that also Government land) and continue their business as usual. After development of communication and land port in both sides (Bangladesh and India) more goods will be imported, and they will increase the number of crushing machines resulting the increase their earning.	BLPA will assist in shifting their structures before commencement of work activities.
Marginal Farmer, 1 no. West Islampur Union Parishad	He is living in a house in Guchcha Gram, he has some vegetable culture in and around his house and trying farming on other people's land. He cannot earn adequate money for his family. If the land port is developed and during operation	BLPA will ensure to engage the local people in different type of work activities as per their skill ness during land port development and operation.

Participant in the consultation	Discussion / Comments	Feedback from BLPA
	new sources of income may be created.	
Representative from the Female workers at Crushing Machine	Most of the household members including females have been working in the stone crushing industry since their working age. Thus, the eviction of crushing machine from present occupation, will affect temporary on their livelihoods.	• BLPA will provide a grant to cover temporary loss of income. • In addition, women-headed household will also receive a one-time grant package.

5.5 Findings of Survey

5.5.1 Findings of the consultation

197. The overall opinion of the participants other than above list which has been expressed during the consultation is positive toward development of land port like pre-construction, construction, and operation phases. They are happy for the land port development. As trades and business has already got new dimension ventilating new avenues of earnings. Scope of small and medium scale business will result in renting of houses, employment opportunities, tourism, and communication developments.

198. There are some positive as well as negative impacts of the project reported by the local people. The advantages and disadvantages of the project reported by the stakeholder are given bellow:

- **Advantages:**

- The land port construction will create employment opportunities for local people. Moreover, it will create more employment for local people during operation phase initiating new small to medium trade and business.
- All stake holders are hopeful to enhance the socio- economic condition of the people.
- It will develop medical facilities and educational facilities in the area.
- Participants seem to be happy for the implementation of such a project.

- **The disadvantages are noticed by local people:**

- The project has impacted on road communication system and created traffic congestion.
- Environnemental Pollution like noise, air, water etc.
- Mismanagement of solid and liquid waste
- Natural drainage systems may also be disturbed.
- Suggestion from local people

- The suggestions are noticed by local people

- Adéquate management of air pollution, solidwaste, noise pollution, etc.
- Take appropriate measures about the water logging during the rainy season.
- Prevent discharging of any liquid waste to nearby water bodies
- Proper management of solid waste

Findings of the meeting with Govt. Officials

199. Meetings were held with the local govt. officials and their valuable opinion were recorded and described as follows:

200. Mr. Lusikanto Hazong, Upazila Nirbahi Officer, Companiganj expressed his cordial cooperation in development of the land port with modern facilities to reduce and manage the existing unhealthy and unauthorized activities i.e., operation of stone crushing not maintaining existing national law and not maintaining the provision of health hazards. With adequate management maintaining existing national law import activities will be increased resulting the national revenue earning. Upazila administration and land department are ready to extend full support to transfer the Government Owned Khash land to Bangladesh Land Port Authority (BLPA) and development works are done peacefully. Any unauthorized claim will not be claimed to the BLPA and might get justified decision in presence of all parties so that none is derived from legal claim.

201. As measures of above-mentioned problems, he suggested as follows:

- Bholaganj land port will ventilate multi-sectarian scope of development in Trade & commerce, Import, Tourism in regional and neighbouring country, Industrialization. It will facilitate marketing and mobility of agricultural products.
- Probability of alternative works scope may compensate their existing unhealthy activities like worker as a stone crushing machine. Removal of some bushes and small tree cutting from the proposed area should have to be compensated by double replacement so that environmental balance remains sustainable. Establishment of Bholaganj Land Port Management should take necessary protection to keep the pollution within tolerable limit.

202. Hossain Mohammad Ershad, Upazila Agriculture Officer, Companiganj was in the Sylhet district office in his official meeting, over telephone he mentioned that to attain the industrialization and urbanisation is utmost essential but not in lieu of agriculture or environment.

203. To attain the expansion of Trade & commerce, Import &enhance the tourism, Industrialization and global connectivity is utmost essential but not in lieu of agriculture or environment. Proposed Bholaganj Land Port will be erected in 53 acres of land which covers mostly barren and non-agricultural area and no permanent home stead in this area. Some naturally growth trees are found in the proposed area. Companiganj area is partly undulated plain land, partly agricultural and partly low-lying area. Expansion of road and creation of new connectivity no remarkable tree cutting will be happened. Pre-construction, construction and post-construction may cause air pollution, sound pollution and constructional hazard might be kept within tolerable limit.

204. Dr. Md. Shariful Alam, Upazila Livestock Officer was busy in Sylhet district office due to his official meeting, in absence of him Mr. Nabid Hasnain, Upazila Livestock Extension Officer expressed that it is a historical step to highlight Bholaganj's position as before. International Connectivity will enrich Companiganj Upazila as well as nation. He also said that authority should take necessary steps to compensate affected people with due compensation and enhance to get new work facilities in the area or other part in the Upazila.

205. Mr. Sanjoy Kumar Das, Upazila Sub-Assistant Forest Conservation Officer opined that erection of Bholaganj Land Port will contribute abrupt change in socio-economic condition of Companiganj. Companiganj Upazila will regain its lost image. Besides, urbanization may

encourage criminal to promote addiction. He also suggested that project pre-implementation, implementation; post implementation pollution might be kept within tolerable limit. Law and order authority should be vigilant so that international criminal gets no scope to promote addiction, human trafficking and smuggling etc.

206. In absence of Upazila Secondary Education Officer, Md. Abul Kalam Azad, Accountant Upazila Secondary Education Office, Companiganj expressed that erection of Land port at Bholaganj will ventilate abrupt change in socio-economic condition of Companiganj Upazila. Global connectivity will enrich its trade and commerce, social structure, sports, and cultural position, now it is degraded as Upazila. With degradation of its administrative position its economy, education, sports, and cultural heritage is degrading day by day. If Bholaganj Land Port is established to create connectivity with Chirapunji, Shilong district, Meghalaya State, India it will be extended up to Nepal, Bhutan. The lost dignity of Companiganj will be regained by its remarkable development.

207. Md. Ruhul Amin, Sub-Assistant Engineer, Department of Public Health Engineering (DPHE), Companiganj Upazila expressed good hope about the Land port at Bholaganj. No impact on Ground Water depilation due to the project activities.

5.6 Impacts identified

- **Adverse**

- Air Pollution
- Noise Pollution
- Increase the possibility of accidents.
- Increase traffic congestion.
- Probability of Pollution of river water is less.
- Discontinuity of works in crushing machine for laborers is for short time (temporary) livelihood impact.

- **Beneficial**

- Industrialization.
- Employment opportunity for the adjacent local community during construction and operation phases.
- Socioeconomic development.
- The land value around the project will be increased.
- Education, health, shopping, telecom, hotel & restaurant facilities will be increased.
- New small to medium-scale business will be introduced.

6 Identification of Potential Risks and Impact

6.1 General Consideration

208. This section identifies and predicts the probable impacts on different environmental parameters due to construction and operation of the proposed project. After studying the existing baseline environmental scenario, environmental monitoring parameters, reviewing the process and related statutory norms, detailing the waste management measures, the major impacts can be identified during construction and operational phases. Relevant important aspects of environment are therefore selected which may have significant impacts due to project activities.

209. As is the case for most development projects, potential negative impacts sometime could be far more numerous than beneficial impacts. The regional and national benefits associated with the implementation of any development project are considered to fall outside the scope of ESIA, and therefore not considered here. However, it is generally expected that these long-term benefits will ultimately trickle down to the local pollution and will contribute to an improvement in the quality of life. Likewise, the indirect benefits of strengthening technical capabilities of local persons through association with experts and other training elements which may form part of a project, have been considered to fall outside the scope of ESIA.

210. Every development project has both positive and negative impacts during construction as well as during operational phases. The impacts of Bholaganj Land Port have been studied and summarized as follows.

6.2 Impact during Construction Phase

211. During construction phase, the major activities to be considered important for identification of impacts is:

- Construction phase activities would have major impacts on land use, air quality, demography socioeconomics and noise quality.
- It could also develop minor impacts on water use, water quality and ecology.

212. The possible cause and effect relationship between the different project activities on each of the major environmental components has been presented on Environmental Impact Matrix and has been summarized as below:

213. Following table possible cause and effect relationship of Environmental Impact Matrix

• Site Preparation including land development. • Excavation and Backfilling • Hauling of Earth Materials and Wastes • Cutting and Drilling • Mixing of Concrete and Mortar • Concrete Construction • Drainage • Solid Waste Management • Waste management, wastewater from Construction activities or overflow of the septic tanks	• Pollution from infilling • Extraction of ground water • Erection of Steel Structures • Internal and Access Road Construction • Painting and Finishing • Clean up Operations. • Construction of Infrastructural Facilities • Landscaping and A forestation • Probable impact due to present COVID-19 pandemic

during construction stage:

Table 33: Environmental Impact Matrix during construction stage

Project Activity	Affected Attribute	Nature of impact	High/Low	Direct/ Indirect	Reversible /Irreversible
1.Civil Works	Water quality	Minor Change	Low to Medium	Direct	Reversible
	Hydrology	Depletion	low	Indirect	Reversible
	Air quality	Degradation	low	Direct	Partly reversible & irreversible
	Noise and odour	Increase and may cause some discomfort to local people	High	Direct	Reversible
	Employment	Improvement due to employment of both skilled and unskilled construction workers.	High	Direct	Reversible
	Land use	Minor Change	low	Direct	Irreversible
	Services	Improvement	Medium	Direct	Irreversible
	Air quality	Degradation due to earth moving equipment.	High	Direct	Reversible
	Water Quality	Due discharge into river	Low	Direct	Reversible
	Noise level	Increase in noise level	High	Direct	Reversible
	Services	Improvement	Medium	Direct	Partly reversible & irreversible
	Employment	Improvement	Medium	Direct	Partly reversible & irreversible
	Ground water	Depletion and quality deterioration	Low	Direct	Reversible
	Noise	Increase in noise level	Low	Direct	Reversible
	Employment	Beneficial, local people may also get some direct/ indirect Employment	Medium	Direct	Partly reversible & irreversible
	Services	Improvement, increase in their activities	Medium	Direct	Partly reversible & irreversible
	Air quality	Degradation; dust Contamination	Low	Direct	Reversible
	Noise level	Increase (Degradation)	Low	Direct	Reversible
	Employment	Beneficial: local people may get direct/indirect	Low	Direct	Partly reversible & irreversible

Project Activity	Affected Attribute	Nature of impact	High/Low	Direct/ Indirect	Reversible /Irreversible
		employment			
	Services	Improvement, Commercial activity would increase	Medium	Direct	Partly reversible & irreversible
	Health	Some effect due to movement of vehicles	Low	Direct	Reversible
	Water Quality	Degradation	Low to Medium	Direct	Reversible
	Housing	Increase through more staff quarters	Low	Direct	Irreversible
	Services	Improvement	Low	Direct	Irreversible
	Health & Education	Improvement	Low	Direct	Partly reversible & irreversible
	Land use	Marginal alteration	Low	Direct	Irreversible

214. The environmental matrix points out each activity and its impact on specific environmental parameters. The final assessment of environmental quality is done after considering for the operational phase of the project and all pollution control measures to be implemented during the project work. This matrix is based on Leopold method. The vertical side of this matrix gives project activities and horizontal axis gives the environmental factors for physical, ecological, and human environment. From the Table 33, significant impacts are identified. They are further elaborated with characterization and assessment in Environmental Impact matrix for the construction phase is given below in Table-34.

Table 34:Characteristics of Environmental Impacts from Construction Activities

Activities	Air Quality	Noise	Surface Water	Ground Water	Climate	Land & Soil	Ecology	Employment
Site Clearing and land filling	*	*				*	*	*
Raw material storage & handling	*	*	*			*	*	*
Water requirement				*				
Water quality			*	*				
Ready-mix concrete preparation	*	*				*		
Transportation of raw materials	*	*	*			*		*
Construction activities on land	*	*			*	*	*	*
Staff housing	*	*	*					*

"*" indicates some environmental impact either beneficial or detrimental

6.3 Impact during Operation Phase

215. The environmental aspects and impact of the Bholaganj Land Port related to operational activities and services are identified. To the identification and assessment of the environmental aspects; the Bholaganj Land Port has several functions. These are:

- Electricity generation

- Vehicle movement
- Office activities
- Warehouse
- Transports
- Waste management
- Wastewater from Construction activities or overflow of the septic tanks
- Probability of Runoff of oils to the river is negative.

216. In each case, the function has been sub-divided into activities, and, for each activity, several environmental aspects have been identified. These are the aspects which will be scored to identify those areas where improvements should be made as a priority.

217. The aim is to cover all the activities which take place in the Bholaganj Land Port and to ensure that all the potential environmental aspects and their impacts have been assessed.

218. Operational phase activities may have impacts of minor or major, positive, or negative, on all the environmental disciplines as soils, surface and groundwater, hydrology, micrometeorology, land use, water use, water and air quality, terrestrial and aquatic ecology, socioeconomics, and noise.

219. Based on the activities of operational phase of the Bholaganj Land Port, the operation phase impact matrix has been prepared and is given below (Table 35). This matrix is based on Leopold method. The vertical side of this matrix gives project activities and horizontal axis gives the environmental factors for physical, ecological, and human environment.

Table 35: Operation phase impact matrix

Activities	Air Quality	Noise and Odor	Surface Water	Ground water	Service	Land and Soil	Climate	Socioeconomic	Aesthetic	Ecology	Employment	Health and Education
Vehicle movement	*	*			*						*	*
Solid waste disposal (indirect)	*	*	*	*		*						
Wastewater disposal			*	*		*						
Buildings									*			
Operation of Compressors		*										
Vehicular Movement	*	*										
Air Emissions from Stack and another Unit process	*						*					
Water requirement				*								
Water quality			*	*								
Material handling					*						*	
Equipment breakdown	*	*	*		*							
Staff colony			*		*			*				*

"*" indicates some environmental impact either beneficial or detrimental.

6.4 Impact on Air Quality

6.4.1 Impact during Construction

220. Impacts of construction activities on air quality are cause for concern mainly in the dry months due to dust particles. The main sources of emission during the construction period are the movement of equipment at the construction site and dust emitted during construction related activities. The dust emitted during the above-mentioned activities depends upon the ambient humidity levels. The impact will be for short duration and confined locally to the construction site. The composition of dust in this kind of operation is, however, inorganic, and non-toxic in nature.

221. Particulate matter would be the predominant pollutant affecting the air quality during the construction phase. Undesirable gases such as SO_2, NOx and CO would be generated mostly by the automobile traffic and construction machineries; however, this is not expected to lead to any tangible effects, particularly, if the traffic is scheduled to avoid unnecessary congestion in the area.

222. The impact of such activities would be temporary and restricted to the construction phase only. It is recommended that access roads be given suitable surface treatment to curb dust generation; sprinkling of water from trucks or other suitable means should be undertaken at the sites for suppression of fugitive dust. Suitable Port area actions should be initiated around the construction sites for arresting of air borne dust, which would also contribute to improving the aesthetic quality of the area. All the proposed measures that would greatly reduce the impact on the air quality during the construction phase of the project. The impact of such activities would be temporary and restricted to the construction phase only and will be confined within the project premises.

- **Pollution from Infilling**

223. There has no adverse impact of pollution from infilling activities during construction period. Adequate precaution will be taken during filling activities. During carrying of filling materials tarpaulin will be used on the loaded vehicle, water will be spread in and around the area where filling is done. The filling operation will be performed during initial stage of construction, numbers of labourer will be less than at the mid time of construction period. So, impact will be less and short time also.

- **Erosion**

224. As the existing river is 500 m away from the proposed land port site and there is a highway and designated tourist zone is between the land port area and the river therefore, the chance of erosion in the river is negative due to the land port activities.

- **Drainage and infiltration**

225. Total leased area 52.3 acres, in which present project area will be 25.0 acres, out of these 12.5 acres will be covered/paved area. These 12.5 acres of area will be non-infiltration area. Surrounding area are open with low land with vegetation and river, The small area of 12.5 acres with have no significant impact on infiltration capacity of the area.

226. Drainage water/surface runoff of the project area will be channelised to the low land area which will help in ground recharge.

- **Extraction of Ground Water**

227. Although ground water is low in dry season for one to two months. Discussion with

local Upazila DPHE it was found that ground water ground water recharge rate is high in the area, Depletion of ground water ground water in dry season get recharged in rainy season which generally starts from April in the area. River flow also get improved with the rainy season.

228. As the Construction period is only for 24 months including the rainy season and not a continuous process, hence lowering of the ground water table will get sufficient time to get recharged. The impact will be moderate in nature and will of short time.

6.4.2 Impact during Operation

229. In operational phase, air quality degradation caused by the generator for electricity generation and dust generation will be created for movement of vehicle and only, no crushing imported materials will be allowed inside the land port premises. The number of pollutants emitted depends upon the type and quality of fuel used, burning method and operating conditions etc. Micro ovens may be used for domestic purpose only. There are no possibilities of allowing the construction for brick production or stone crushing industries in and around the project area.

230. Most activities performed in Bholaganj Land Port produce atmospheric emissions. Air emissions can be classified according to the nature of their sources:

Point sources:	**Diffusive:**
• Micro Ovens for domestic use • Storage tanks	• Solvent-based • Warehouses • Spills • Emissions from waiting trucks

6.5 Impact due to Waste Generation

6.5.1 Impact during Construction

231. Project construction activities will result in generation of considerable amount of inert solid wastes, including lumber, excess concrete, metal, and glass scrap. Management of these wastes will be the responsibility of the Contractors as recommended in the ESMP section of this report. Typical management practice includes proper temporary storage of waste and debris, and good housekeeping of work areas. No part of this construction waste should be mixed with the domestic solid waste. Separation of saleable solid waste through screening process and dispose to the secondary users can be mitigation measures. Rest of the insignificant waste shall be disposed in a safe manner and finally disposed to the selected waste management area in the land port with a systematic design.

6.5.2 Impact during Operation

232. The primary wastes generated from wastes from offices, residences, etc. and the long waiting of imported materials at the port due to administrative problem or mismanagement. At the present activities no perishable organic and inorganic materials, agricultural farm product and packaging materials are imported through this border crossing point, there is no probability of pollution is less except air and noise. Further the defunct electric/IT items, solar PV, and batteries (e.g., lead acid) and at their end-of-life may lead to environmental degradation (e.g., air, water, and soil contamination) if they are not properly disposed.

233. Efficient and prompt services of port management will eliminate this problem with the joint management of Customs Office effectively.

6.6 Impact on Noise

6.6.1 Impact during Construction

234. The major sources of noise during the construction phase are vehicular traffic & construction equipment are as follows:

Concrete Batching Plant	Water Pump	Tractor and Trolly
Mixture Machine	Water Tanker	Mini Tractor
Generator	Crusher Machine	Excavator
Submergible Pump	Dump Truck	Payloader
Transformer	Motor Bike	Pick Up Van
Welding Generator	Soil Compactor	Mobile Crane
Vibrating Rollers	Piling Equipment	

The noise produced during construction activities in the land port development from the equipment to be used will have temporary impact on the existing ambient noise levels for a very short period. However, PPE will be provided to the workers at site and construction machinery will be maintained properly to check on noise and emission levels within prescribed limits. The nearby people of the settlements which are beyond 1 km from the Port area boundary may feel minimum disturbance created by the construction noise only and for short time. Careful planning of the operation of the high-noise machines therefore is required during this period so that minimum disturbances are caused and hence the impact will be insignificance.

6.6.2 Impact during Operation

235. The main source of originating noise pollution in Bholaganj Land Port is from generator for producing electricity, movement of truck and offloading of goods. Machineries like water pump, water tanker, tractor and trolly, mini tractor, motor bike and pick up van used for port management and maintenance and road transports also produce noise, but this is not considered as serious issue, since they will generate little noise and for the short time. Air quality near the school is found to be significantly above due to because of operation of Stone Crushing Machineries near the school area. After taking over the project site from DC Office and completion of livelihood compensation, all the machinery will be removed from the project site/near the school area. The intensity of pollution will be reduced and after providing buffer zone near the boundary wall air pollution will be further reduced. In addition, there will be no other close by sensitive receptors such as labour camps or residential dwellings within the land port area.

- **Impact on use of Solar Power**

236. Electricity generation is responsible for 42.50% of global CO_2 emissions. Of this, 73% can be attributed to coal-fired power plants, which emit 950 grams of CO_2 for every kilowatt-hour of electricity they generate, compared with 350 grams for gas-fired power plants.

- Electricity requirement per day for outside lighting at Bholaganj land port = 40 KW
- Duration of lighting = 12 hours (6 PM to 6 AM)
- Total electric power consumption/day – 40X12 = 480 KWH
- Every Kilowatt-hour of electricity generate = 950 grams of CO_2/KWH
  (0.95 Kg of CO_2)/KWH
- Electricity consumed for outside lighting = 480 KWH/day
  = 175,200 KWH/year

- Responsible for CO_2 emissions = 175,200 X 0.95 Kg
  = 166,440 Kg of CO_2/year
  = 166.44 Tons of CO_2/year

By using Solar Panel Bholaganj Land Port will save emission of 166.44 Tons of CO_2 (GHG) emissions/year.

6.7 Impact on Terrestrial Ecology

6.7.1 Impact during Construction

237. The impact of the construction activities would be primarily confined to the project sites, as stated earlier, the site areas include non-agricultural barren land and no permanent homesteads. Thus, the site development works would not lead to any significant loss of important institutions.

238. Removal of topsoil often leads to soil erosion. Deposition of fugitive dust on pubescent leaves of nearby crop land may lead to temporary reduction of photosynthesis. Such impacts would, however, be confined mostly to the initial periods of the construction phase and would also be regulated and minimized through adoption of such control measures as paving and surface treatment, water sprinkling and Port area action schemes.

6.7.2 Impact during Operation

239. The impact on the terrestrial ecosystem due to operation of the project i.e. frequent movement of trucks and covered vans and other road transports is significant because of uncontrolled use of horn especially hydraulic horns.

6.8 Impact on Aquatic Ecology

- **Impact during Construction**

240. There is no chance of impact on aquatic species because no discharge into the river. Between the Land Port and the river Piyain there is highway and planed tourism area will be developed by the Tourism Department. There is no chance to affect the aquatic ecology of Piyain River due to development work at land port area.

- **Impact during Operation**

241. Adverse impact will be observed on aquatic ecology, if any liquid or solid waste discharged into the water body during the operation phase. To avoid this impact Port Authority will arrange with the Tourism Department for proper management of the any liquid or solid waste before discharge into the river. Also, proper waste management plan inside the port area needs to develop to control any solid waste discharge into the river. Besides, any fishing or uptake from the river by port related person should be restricted to conserve the natural habitat of aquatic species.

6.9 Impact on Socioeconomics

- **Create new Business Opportunities**

242. For supplying goods and other necessary materials as per requirement of construction work, some small and medium trade and business will develop especially by the local people. During the construction period overall labour requirement will be 200. Adequate skill and non-skill labour are available in the project area. BLPA will take necessary monitoring to avoid labour influx. No child labour is working in the existing stone crushing machine operation, further BLPA will closely monitor to avoid engagement child labour in construction activities. Ther is no record SEA/SH compliant in past time in and around the project area, BLPA will

keep monitoring and record also with proper action against responsible person. Due to gathering of people in construction and in operation periods, the demand of small shop and vendors will increase that the local people get a chance to open a new business by investing small capital.

- **Increases Land Value and Houses**

243. By the development of road, electricity, communication facilities and other educational and health facilities things the value of adjacent land will increase.

- **Traffic and accident**

244. Improvement of road network and transport facilities will increase the vehicles movement that will create traffic and possibility of accident. But this situation will be controlled by good traffic management such as traffic scheduling, speed limit, provide signal man at the point of intersection, road crossing at commercial activities and School and creating awareness among the peoples and the drivers.

- **Women Empowerment**

245. During construction period, a lot of construction workers would be needed that creates ample opportunity for the local women to participate into the construction work. It is expected that the proposed land port will also create job opportunity into its operation periods. With the socio-economic development of the adjacent people, it is expected that the land port will contribute into the women empowerment of local people.

6.10 Scoping of Impacts

246. The potential impacts due to implementation of the Bholaganj Land Port are identified by using Simple Checklist and Graded Matrix methods. These two methods and their findings are described below.

6.10.1 Checklist

247. Checklist is a comprehensive list of environmental impacts indicator designed to stimulate the analysis to think broadly about possible consequences of contemplated actions. Following table represents the checklist developed for the present project. In this checklist actions which affect at the various stages of the project activities are listed and the degrees of significant impacts (SEIs) are shown. The term none, minor, moderate, and major are used in the checklists to evaluate the magnitude of SEIs. In the checklists, both the construction and operational phases of the proposed development are considered separately to distinguish the short term and long-term impacts. As can be observed from the checklist, major environmental components which will be adversely affected by activities of the project are water quality and socio-economic environment. All these impacts will arise in operation phase of the project. It should be noted that identification indicated in the checklists relates to the significant level of impact, assuming no mitigation of negative impacts.

6.10.2 Graded Matrix

248. Impact identification has also been carried out by using graded matrix method which also provides specific idea of the impact. This methodology basically incorporates a list of project activities with a checklist of environmental components which might be affected. Combining these lists as horizontal and vertical axis for the matrix allows the identification of cause effect relationship between specific activities and impacts. The quantified graded matrix is superior to the or the simple interaction matrix method in that it goes beyond qualitative identification of cause-effect relationship between specific activities and environmental factors, thus helping to carry the thinking out further. In this method the

"magnitude" and the "importance" of the cause-effect relationship impact each cell of matrix is donated assigning numerical values.

249. A graded system ranging 1 to 10 are used for each characteristic. The magnitude of the interaction is the extensiveness or scale and is described by the assignment of a numerical value from 1 to 10; 10 representing a large magnitude and 1 a small magnitude. The scale of importance also ranges from 1 to 10 with 10 representing very important interaction and 1 an interaction of relatively low importance. Summations of the rows and columns designated as having interactions provide insight into impact assessment and interpretation. Assignment of the numerical values for the magnitude of an interaction is based on the objective evaluation of facts while assignment of numerical value for the importance is based on subjective judgment of multidisciplinary team working in the absence of more definitive information on relevant environmental parameters. This approach is used for gross screening technique for impact identification process. Following table shows the graded matrix for the Bholaganj Land Port.

250. As can be seen from the matrix, the major actions that have the potential of producing considerable major impacts, whether beneficial or adverse, on various environmental components are the Project in operation, noise & heat pollution, liquid discharge, and employment. Hence, mitigation measures for noise and heat generation, wastewater disposal, odour generation and solid waste disposal should be given due importance.

Table 36: Graded matrix for the Bholaganj Land Port

Proposed impacts on	Project location	Project construction	Project in operation	Solid waste disposal	Odor generation	Wastewater disposal	Employment	Total
Land value	4/10							4/10
Neighboring operation			3/10	3/10				6/20
Agriculture				3/10				3/10
Surface Water drainage	2/10	2/10	2/10					6/30
Air quality		7/10	6/10	3/10	3/10			19/40
Sound/Noise		6/10	7/10	3/10				16/30
Heat		1/10	4/10	3/10				8/30
Water quality		5/10	2/10	2/10		2/10	1/10	12/50
Forestry			2/10					2/10
Human health		3/10	3/10		3/10		3/10	12/40
Fisheries							4/10	4/10
Hydrology of Piyain River	1/10						5/10	6/20
Groundwater depletion		2/10	1/10				1/10	4/30
Education		2/10	5/10				5/10	12/30

Proposed impacts on	Project location	Project construction	Project in operation	Solid waste disposal	Odor generation	Wastewater disposal	Employment	Total
Labour influx		1/10	1/10					2/20
Employment		7/10	6/10	2/10				15/30
Family finance		1/10	2/10	1/10				4/30
Socio-economic condition		6/10	8/10				8/10	22/30
Total	7/30	43/120	52/140	20/80	6/20	2/10	27/70	

Potential Impacts

Adverse impacts:	**Beneficial impacts:**
1. Air Pollution 2. Noise Pollution 3. Solid waste disposal 4. Accident & Human health 5. Water Pollution 6. Labour Influx 7. Groundwater level depletion 8. Temporary disruption of work for laborer at crushing machine	1. Employment opportunity 2. Socio-economic condition 3. New trade/ business 4. Family finance 5. Social Amenities & Infrastructural Facilities

7 Environmental and Social Management Plan and Monitoring Plan

7.1 Introduction

251. Environmental and Social Management Plan (ESMP) is a site-specific plan developed to ensure that all necessary measures including mitigation and monitoring activities are identified and implemented to preserve and protect the environment and to avoid and manage the negative impacts of the project and comply with environmental legislation. The primary objective of the ESMP is to provide a guideline for proper management and monitoring of the identified environmental and other impacts due to the project and to offer document to the implementer for accomplishing the institutional requirements of the authority. It will identify the residual impacts and unavoidable impact and its management. As GoB is committed to ensure sound environmental condition, preparation, and execution of ESMP is mandatory for preparation, implementation, and monitoring of environmental protection measures during and after commissioning of the project. ESMP indicates how various measures are proposed to be undertaken during different phases of the project including cost components.

252. The present study clarifies the following proposed ESMP:

- The mitigation measures that need to be taken during pre-construction, construction and operation phases of the project to eliminate or offset adverse environmental impacts, or reduce to acceptable limits;
- The actions needed to implement these measures; and
- A monitoring plan consisting of concrete monitoring indicator is required to assess the effectiveness of the mitigation measures employed.

253. Similarly, integrated ESMP is a necessary requirement for implementation of the project, which will be a guide for the environmental protection activities. A comprehensive measure for mitigation and monitoring of possible environmental hazards has been enlisted for ensuring safety measures and minimizing the risks and hazards due to implementation of the project in the study.

7.2 Environmental and Social Management Plans

254. The establishment and execution of proposed project is believed to have a positive impact for sustainable economic growth of the country as well as provision of employment to the local people. However, the project may also have some adverse impacts on the existing local environment, eco-system and socio-cultural activities including land use, soil quality, pollution of water, air, noise, etc. Therefore, a mitigation mechanism must be established to the affected communities regarding various harmful impacts including the effects on livelihoods, environment, agriculture, water bodies, and surrounding social infrastructures. A detail ESMP including health & safety measures has been described in the following table. The Project proponent will be responsible for accomplishing the proposed safety measures mentioned in the proposed ESMP.

255. Following are the main advantages of the environmental mitigation plan:

- Ensure the plan to fulfillment of basic environmental standards essentially required to meet during design, construction, and operation period of the project;
- Provide plan for the development of green zone development and landscaping for minimizing the negative ecological impacts due to the project;

- Reduce the potential adverse environmental impacts, causing the biophysical environment in the area to deteriorate and indirectly slow down the economy of local communities by the project.

256. The ESMP for Bholaganj Land Port has been prepared based upon optimum and reasonable costs that are needed for mitigation measures on a “least-cost” basis. Activities that need to be carried out for the environmental management and monitoring by construction supervision consultant (CSC) of the proposed plan is divided into two phases: during pre-construction and construction. In the operation phases Port Management will be responsible for environmental management and monitoring.

257. Provision of adequate number and capacity of septic tanks and sock wells has been considered in the design for sewerage management. Within premises an adequate drainage network has been considered in the design and these will be discharged into the surrounding low-lying area. As no hazardous and chemical materials will be imported through this land port so, there is no chance for pollution of surface run-off and ground water.

258. Environmental and Social Management Plans provide recommendations for environmental and social management measures based on the available information at this stage of the project.

Table37:Environmentaland Social Management Plan for Bholaganj Land port

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
Pre-Construction Phase	Air Pollution	• Involve site clearance, leveling & filling activities for development of port which generate air pollution. • Clearance of the site will involve removal of wild vegetation, land leveling & filling activities. These activities will lead to dust generation.	• To minimize dust generation, water should be sprinkled regularly at the site. • Low Sulphur diesel should be used in land leveling equipment to control the SO_2emissions. • Energy efficient diesel engines should be used in land leveling, land development & road construction machinery. • Use of good quality machineries will be ensured by the contractor and CSC	Appointed Contactor	CSC, BLPA, DoE
	Noise & Vibration	• Operation of different machineries • Running of heavy load traffic for sand transportation • Regular traffic movement	• Good quality vehicles and machinery should be regularly serviced and checked for pollution control. • Machinery to be used should comply with the noise standards prescribed by DoE; • No activities to be undertaken during night hours to prevent any disturbance to nearby residents and labors in labor camps; • Fitting noise machines with noise reduction devices.	Appointed Contactor	CSC, BLPA, DoE
	Road and Traffic Safety	• Uncontrolled movement of different type of vehicle i.e. Private and commercial vehicles for tourist, heavy loaded truck and lories carried with imported materials.	• Traffic movement should be controlled. • Safety signage and speed control mechanisms should be provided. • Signal men should be provided near the tourist area and in front of the school during starting and closing time.	Appointed Contactor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
	Water Pollution	• Impact on water quality from muddy water flowing to the river due to land reclamation work is less. • Dredged soil/carried earth probable contamination the nearby river by runoff water during rain is less	• Avoid excavation activities during rain; • Implement the national 3R (Reduce, Reuse and Recycle) strategy for both solid and liquid waste management; • Minimize run-off by using sprays for curing; • Proper management plan should take in the land filling period by contractor.	Appointed Contactor	CSC, BLPA, DoE
	Soil Pollution	• Development of the structures and construction of the access road • Land filling activities • Land will be filled and compacted	• Raw material will be stored under covered sheds and paved surface; • Fuel storage area should be of proper precaution. • Implement the national 3R (Reduce, Reuse and Recycle) strategy for both solid and liquid waste management. • Adoption of best management practices to prevent any spillage of raw materials; • Debris should be stored under covered sheds and paved surface and should be disposed off regularly to designated sites; • Waste from labor camps can be segregated at site. Food waste/wet waste should be composted in pits within the camp site; • Recyclable waste should be sold to the authorized dealers ensuring environment friendly and the remaining should be disposed off at designated sites through local agencies responsible for waste management in the area.	Appointed Contactor	CSC, BLPA, DoE
	Sediment Quality	During the land development, earth filling	• Earth filling material should be in proper arrangement. • Proper monitoring should be taken at land development.	Appointed Contactor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		material may be washed into surrounding area and chance of sedimentation in the river is less.			
	Ecosystems	• High presence of Anthropological activity • Extensive use of vehicle horns • Disrupting feeding or nesting behavior • Naturally growth trees and Bushes will be affected by the project.	• No solid or liquid waste shall be discharged into water bodies. • Septic tanks/soak pits should be provided to treat sewage to be generated from labour camps and prevent overflowing. • Toilets should be provided at site to prevent contamination of water due to open defecation in nearby areas. • Vehicle washing/equipment cleaning should not be allowed near low lying areas in project site. • Excavation and filling should be carried out in phased manner to minimize exposure of loose earth for longer duration. • Temporary storm water drainage system should be developed at site to channelize the storm water away from excavation/filling area, debris storage area and raw material storage area. • All the raw material and debris should be stored in covered sheds on paved surfaces to minimize the contamination of rainfall run-off. • If any kind of trees cut down because of the project, in that case the project proponent should plant area three times more trees in support of DAE.	Appointed Contactor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
	Hydrology	• Impact on drainage pattern & hydrology is temporarily affected by land modification. • The adjacent land may inundate by high precipitation.	• It was confirmed that the natural slope drainage systems of the adjoining areas i.e. the existing low-lying area would be kept intact during all phases of the project works; • In general, the difference in elevation between adjacent points might change but their order would be almost kept unchanged.	Appointed Contactor	CSC, BLPA, DoE
	Local Economy such as employment, livelihood	Increase of job opportunity as construction workers or commercial or new business opportunity to be created will increase the family income to lead better life is expected.	• Income loss can be mitigated by providing alternative job opportunities for PAPs; • Existing workers will be shifted to other areas and will their works, no income loss will happen. • Some segment of the population in the area is unemployed. Construction activity will provide employment to huge nos. of people including skilled, unskilled, and non-skilled workers. This will improve the quality of life of people. • Provision of proper training to all workers for handling the construction equipment.	Appointed Contactor	CSC, BLPA, DoE
	Land use and utilization of local resources	The temporary storage and stockyard are built on the nonagricultural lands, then the crop production will not be hampered in the areas.	Port area and its adjoining area which will be tentatively occupied during preconstruction will be restored to original state and returned to the landowner after construction.	Appointed Contactor	CSC, BLPA, DoE
	Air Pollution	• Health impact of workers and neighbors due to air quality deterioration. • Machinery in good condition will be used as	• The site will be fenced to reduce dust propagation. • Site will be sprinkled with water. • Covering of construction materials. • Use improved technology to minimize air pollution from sources.	Contractor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		old/bad condition machinery emits air pollutants	• Use of good quality machineries will be ensured by the contractor and CSC.		
	Noise & Vibration	• Health impact of workers. • Disturbance of workers and surrounding residence,	• The machinery should have silencing devices. • Civil work will not be carried out during undue hours and nighttime. • Noise will be within prescribed limits for neighborhood noise exposure limits. • Scheduling of vehicles to minimize disturbance to the community. • Use earmuffs when working close to the machines. • Use of vibrator insulator or pad under the electric motors and use false ceiling or wall around the generator room to minimize the sound from source.	Contractor,	CSC, BLPA, DoE
	Solid Waste Production	Spreading of disease due to contamination of environment	• Construction waste will be used as backfill. • Waste will be segregated for recycling and composting. • Toxic wastes will be transported by a licensed carrier for recycling. • Waste will be disposed of in separate space within the land port area. • Local landfill/dumping site need to develop for proper dumping of the increased waste from construction work of land port.	Contractor	CSC, BLPA, DoE
	Land Use and Local Natural Resources Usage	Soil erosion, vegetation loss, disruption of land cover	• Restrict to using nearby topsoil and contract soil from riverbed or other source considering sustainable development. • Port area planting trees and soil compaction.	Contractor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
	Geology and Soil	The loss of topsoil, damage to local existing roads during carrying of construction material and equipment, erosion of stockpiles during rain and re-suspension of dust during the dry weather, Spillage of hazardous waste from vehicles.	• Not to use fertile topsoil as for land filling. • Use cover during transport soil. • Planting trees and grass in the port area. • Taking proper measures to protect spillage.	Contractor	CSC, BLPA, DoE
	Local Economy, Employment and Livelihood	Increase in employment and business opportunities	• Employment for nearby residents as much as possible. • Consideration for nearby residents' emotions.	BLPA	CSC, BLPA, DoE
	Women Empowerment	Increased job opportunities and other facilities for women	• Employ local women as many as possible. • Ensure facilities and ensure friendly working environment for women;	BLPA	CSC, BLPA, DoE
	Accident	Loss of life and property	• Raising awareness among workers. • Mandatory for using PPEs. • Traffic control and traffic scheduling.	Contractor, BLPA	CSC, BLPA, DoE
	Occupational Health and Safety	Health & safety risks of construction workers during the construction period.	• During the CORONA pandemic, temperature checks are carried out at worksite entrance at the start of shift and records of all suspected and confirmed cases are kept. • Require workers to observe the EHS Guideline on Construction and Demolition • Personnel must have a record of attending an appropriate course on electrical safety and working at height, and they must be adequately trained and qualified to operate electrical equipment and at height.	Contractor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
			• No compliance with PPE standards will result in disciplinary action (e.g. immediate removal from site). • Ensure that adequate first aid equipment is available and that all workers are adequately trained to use it. • Provision and inspections of firefighting equipment and fire hydrant system in all sections.		
	Community Health and Safety	Community health and safety include the toppling of concrete poles, traffic and accidents, the emergency spill of materials, and villagers' access to dangerous working areas.	• Residual water must be avoided since it might serve as a breeding ground for mosquitoes and other insects. • Provide signs detailing site and office contracts in the event of a grievance during construction. • Do not leave hazardous conditions overnight unless no access from the public can be ensured. • Prevent standing water as it may become a breeding habitat for mosquitoes etc. • During construction, provide signage detailing site and office contacts in case of grievance.		
	Labor Camp	Site Selection	• The construction camps will be located at least 200-500m away from habitations at the project site. • All sites used for camps must be adequately drained, away from swamps, pools, sink holes at least 200 ft subjected to mosquito control measure. • Drainage from the camp must not endanger any domestic or public water supply. • All sites must be graded, ditched, and rendered free from depressions where water may get stagnant.	Contractor	CSC, BLPA, DoE
		Water supply	• An adequate and approved water supply must be provided in each camp for drinking, cooking, bathing, and laundry purposes.	Contractor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
			• Potable water supply systems for labour camps occupants shall be standard of DPHE and prescribed by the DoE. • The drinking water system must be monitored as per the water quality parameter prescribed by the doE. • All construction camps, Engineer's Facilities and other workplace sufficient water supply shall be maintained.		
		Toilet Facilities and Hygiene	• There shall be an adequate supply of water, close to latrines and urinals. • Within the precincts of every workplace, latrines and urinals shall be provided in an accessible place. • Toilet facilities adequate for the capacity of the camp must be provided. • A toilet must be located within 200 ft of the door of each sleeping room, not closer than 100 ft to any sleeping room, lunch area or kitchen. • Separate toilet rooms must be provided for each sex. These rooms must be marked "For Men" and "For Women". • Urinals must be provided based on one unit or 2 linear feet of urinal trough for each 25 men where water under pressure is available and adequate water flash.	Contractor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		Waste Disposal	• The sewage system for the camp must be designed, built, and operated to the DoE standard. • Garbage bins must be provided in the camps and regularly emptied, and the garbage disposed of in a hygienic manner. • Excreta may be disposed of as per the DoE guideline. • On completion of the works, all such temporary structures shall be cleared away, all rubbish burnt, excreta tank and other disposal pits or trenches filled in and effectively sealed off and the outline site left clean and tidy, at the Contractor's expense.	Contractor	CSC, BLPA, DoE
		First Aid	• Provide first aid facilities for all the construction workers. • At construction camps and at all workplaces first aid equipment and nursing staff must be provided. • Adequate transport facilities for moving the injured persons to the nearest hospital must also be provided in ready-to-move condition. • The first aid units should contain adequate supply of sterilized dressing materials.	Contractor	CSC, BLPA, DoE
		Maintenance	• All buildings, rooms, equipment, and the grounds surrounding them shall be maintained in a clean and operable condition and be protected from rubbish accumulation. • A person shall be employed to eliminate and control any infestations of insects and rodents within all parts of any labour camp.	Contractor	CSC, BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
			• Each structure made available for occupancy shall be of sound construction, shall assure adequate protection against the weather, and shall include essential facilities to permit maintenance in a clean and operable condition. • Comfort and safety of occupants shall be provided for by adequate heating, lighting, ventilation, or insulation when necessary to reduce excessive heat. • Each structure made available for occupancy shall comply with the requirements of the Uniform Building Code. This shall not apply to tent camps.		
	Road and Traffic Safety	Uncontrolled movement of different type of vehicle i.e. Private and commercial vehicles for tourist, heavy loaded truck and lories carried with imported materials and Vehicles used for carrying of construction materials.	• Traffic movement should be controlled. • Safety signage and speed control mechanism should be provided. • Signal men should be provided near the tourist area and in front of the school during starting and closing time. • Good quality and conditioned vehicle should be used. • Trained, licensed and skilled drivers should be engaged by the contractors	Contractor	CSC, BLPA, DoE
	SEA/SH Child Labor	• SEA/SH at work • Health risks of labor relating to HIV/AIDS and other sexually transmitted diseases • Employment of child labor in construction activities	• Integrate SEA/SH into existing BRCP-1 SES/SH Plan, GRM, safety talks/orientations and regular training. • Training of laborers on SEA/SH issues. • Enforce a Code of Conduct for all the workers/officials including the security personnel. • Identify hotspots for SEA/SH within the sub-project, including construction work and labor camps alongside local communities, schools, vocational training centers,	Contractor	CSC/BLPA

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		• Minimum age of child labor is 14 years in light works and 18 years in heavy work	and migrant laborers residing in rented accommodations within the village. • Awareness raising campaigns on human trafficking and SEA/SH. • Verification of age will be checked by NID Card.		
Operation Phase	Air Quality	• Air polluted with SO_x, NO_x, CO can cause health hazards. • Greenhouse gases effect • Movement of vehicle. Loading and unloading of imported materials may affect air quality	• Sufficient exhaust fans are provided to take away the dust particle/heat outside the office/warehouse. • Use indoors of covered stockpiles when open air stockpiles are unavoidable. • Design a simple, linear layout for material handling operations to reduce the need for multiple transfer points. • Ensure stack air emission test regularly.	BLPA	BLPA, DoE
	Noise Pollution	Disturbance of workers and surrounding residence, health impact of workers.	• Control use of hydraulic horn. • Proper maintenance and lubrication of machine parts. • Earplugs shall be provided to the workers, and this shall be enforced strictly. • Periodically rotate the workers in areas with high noise level to minimize noise impact. • Increase the distance between source and receiver, by altering the relative orientation of receiver and the source. • An adequate 3.00m width greenbelt shall be developed for further attenuating the noise levels. • Regular monitoring.	BLPA	BLPA, DoE
	Sewage/ Water pollution	Causes water borne diseases	• Maintenance of septic tanks, soak wells, pipes, etc. as and when required.	BLPA	BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
			• Collect the liquid waste from septic tank and soak well and finally dispose to the selected place for treatment. • Regular monitoring of water quality.		
	Waste	• Like water, air and land pollution solid waste may cause diseases to man and other lives. • Disease vector proliferation, sanitary problems. • The defunct electric/IT items, solar PV and also batteries (e.g., lead acid) and at their end-of-life may lead to environmental degradation (e.g., air, water and soil contamination) if they are not properly disposed.	• Setting up of separate waste collectors at different points. • Regular cleaning and replacing of waste collectors. • Waste disposal at a safe place. • Separate landfill should be constructed and collect solid waste every day and disposed to the landfill site. • Capacity of local landfill/dumping site need to increase for dumping of the extra waste generated from regular activities of land port. • Encourage waste sorting by the facility users. • Defunct solar PV and batteries (e.g., lead acid) installed at the substations at their end-of-life will need to be disposed of as hazardous waste. E-waste management plan to be prepared and training on e-waste management to be conducted.	BLPA	BLPA, DoE
	Energy Consumption	Greenhouse gas emissions are from the carbon dioxide emissions	• By adopting renewable energy techniques, significant energy saving can be realized. • Use day light and sky radiation as much as possible	BLPA	BLPA, DoE
	Job Creations	Increase in employment opportunities & Business facility	• Employ local people as much as possible.	BLPA	BLPA, DoE
	Risk of storage of harmful substances	• Increase in air, water, noise, and soil pollution.	• The storage shall be done under a covered shed. • Careful planning and monitoring of handling hazardous and perishable materials.	BLPA	BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		• Impact on the health of locals, Land Port workers	• Periodic health examinations of workers with treatment.		
	Poverty Group	Increased job opportunities, Changes in living standard	• Employ local people as much as possible.	BLPA	BLPA, DoE
	Gender issues	Increased job opportunities, Gender inequality and violence	• Employment of women in suitable activities as much as possible. • Ensure security for women in workplace and ensure no VAW takes to the locals and workers place by the authority and workers of the industry during and after the construction work.	Contractor	BLPA
	Local Economy, Employment and Livelihood	Increase in employment and business opportunities	• Employment for local people as much as possible. • Consideration for local people emotions.	BLPA	BLPA, DoE
	Safety and Health Hazards	• The possibilities of accidents and health hazards of the workers also consider the present COVID-19 pandemic. • Loss of life and property	• Fire extinguishers will be provided onsite. • Access route for emergency vehicles will be provided onsite. • Sufficient spittoons and dustbins. • Signboards will be placed onsite to avoid the risk of accidents. • Provide adequate training for the workers. • Use/Spray Disinfection materials every day in and outside the project area considering present COVID-19 pandemic. • Use Personal Protective Equipment (PPE) considering presentCOVID-19 pandemic during construction and operation.	BLPA	BLPA, DoE

Activity	Aspect	Environmental & Social Impacts	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
			• Ensure environmental compliance within the working environment for the workers.		
	Road and Traffic Safety	• Uncontrolled movement of different type of vehicle i.e. Private and commercial vehicles for tourist, heavy loaded truck and lories carried with imported materials.	• Traffic movement should be controlled. • Safety signage and speed control mechanism should be provided. • Signal men (Ansar employed by the BLPA) should be provided near the tourist area, in front of the school during starting and closing time and port entry and exit point.	BLPA	BLPA, DoE
	Sensitive receptors like school, tourist spot, green belt/buffer zone, acoustic barrier	• The possibilities of noise and air pollution to the nearby school and tourist spot. • The possibilities of accident on crossing the school and tourist spot	• A permanent boundary wall shall be constructed between the school area and land port area. • A free space at least 3.00m width alongside the boundary wall shall be kept between the boundary wall and land port area with construction of buffer zone by planting trees to minimize dust and noise impact. • The traffic movement shall be diverted from existing highway inside the land port area.	BLPA	BLPA, DoE

7.3 Monitoring Indicators

259. Due to establishment of the proposed project several environmental components have potential risk of disruption either during construction or operational phases that needs to be monitored for detection and management of any damage of the environment. Following are the plausible indicators with major significance that should be monitored and evaluated for the potential risks that could be beneficial for carried out proper mitigation measures:

- Drinking water
- Air quality
- Noise level
- Water quality (groundwater and surface water)
- Health & safety issues of staff and workers
- Stack air emissions concentrations
- Solid waste left on the soil.
- Worker's health and safety
- Traffic safety
- Safety measures during any outbreak of pandemic such as COVID-19

7.4 Environmental and Social Monitoring Plan

260. Environmental monitoring requires a set of indicators that could be conveniently measured, assessed, and evaluated periodically to observe the trends of change in baseline environmental quality. Provision for adequate number and capacity of septic tanks and sock wells has been considered in the design for sewerage management. Within premises adequate drainage network has been considered in the design and these will be discharged into the surrounding low-lying area. As no hazardous and chemical materials will be imported through this land port so, there is no chance for pollution of surface run-off and ground water. An Environmental and Social Monitoring Plan (ESMP) with a list of parameters to be tested, sample number and sampling frequency are given below.

Table 38:Environmental and Social Monitoring Plan

Environmental component	Parameters	Location	Samplings No./Year	Implemented by	Monitored by
Drinking water	pH, Fecal Coliform, Total aerobic bacterial count, TDS, Chloride, Total Hardness (EDTA) as $CaCO_3$	Supplied water for employees of BLP	Monthly	EHS staff of BLPA/CSC/by 3rd party	DoE, BLPA
Ambient air	SPM, PM, SO_2, NO_X, CO	In and around the Port area	2/yr	EHS staff of BLPA/CSC/by 3rd Party	DoE, BLPA
Ambient noise	Noise level decibels (dB)	In and around the Port area	2/yr	EHS staff of BLPA/CSC/by 3rd Party	DoE, BLPA
Air emissions	NOx, SO_X, CO, SPM	Stack of generators	2/yr	EHS staff of BLPA/CSC/ by 3rd Party	DoE, BLPA
Solid wastes left to soil	Dust, scrap etc. Only 1% solid waste will be found as byproduct	In dumping yard and mainly when taken to be used as land fill	During using as land fill	EHS staff of BLPA/CSC/ by 3rd Party	DoE, BLPA
Monitoring of waste disposal	Odour, dusts, scrap, etc.	Waste disposal areas	Weekly	EHS staff of BLPA/CSS/by 3rd Party	DoE, BLPA
Worker's health and safety Monitoring	No. of accidents or incidents due to operation and maintenance activities & persons affected either dead or injured	Project activities areas	Daily	EHS staff of BLPA/CSC/by 3rd Party	DoE, BLPA
Gender/SEA/SH	Identify and Record of Complain regarding Women/ SEA/SH	Inside and around the project site	Monthly	EHS staff of BLPA/CSC/by 3rd Party	CSC, BLPA
COVID-19 Pandemic & other infectious diseases	No of persons infected & persons dead	Project activities areas	Daily	EHS staff of BLPA/CSC/ by 3rd Party	DoE, BLPA

261. Besides, the following matters are to be monitored for health and safety regularly.

- Whether workers are using Laboratory apron, globes, mask, shoe and spectacles, etc.
- Is there any mini hospital having first aid medicine, equipment and medical staff i.e. complete set of primary treatment facility including ambulance to be kept in the Land Port premises.
- Whether there is separate washroom for women
- Is there any GRM for protecting from sexual harassment of woman and unequal wages.

7.5 Environment Management Cell

262. The port authority will formulate the environment management cell with vision to operate the ESMP requirements as suggested in the chapter. Environmental Management Cell must be formulated for efficient & easy operation of environment management system & operations.

263. The illustrative presentation of the EMC is proposed to be prepared and presented below in the Figure.

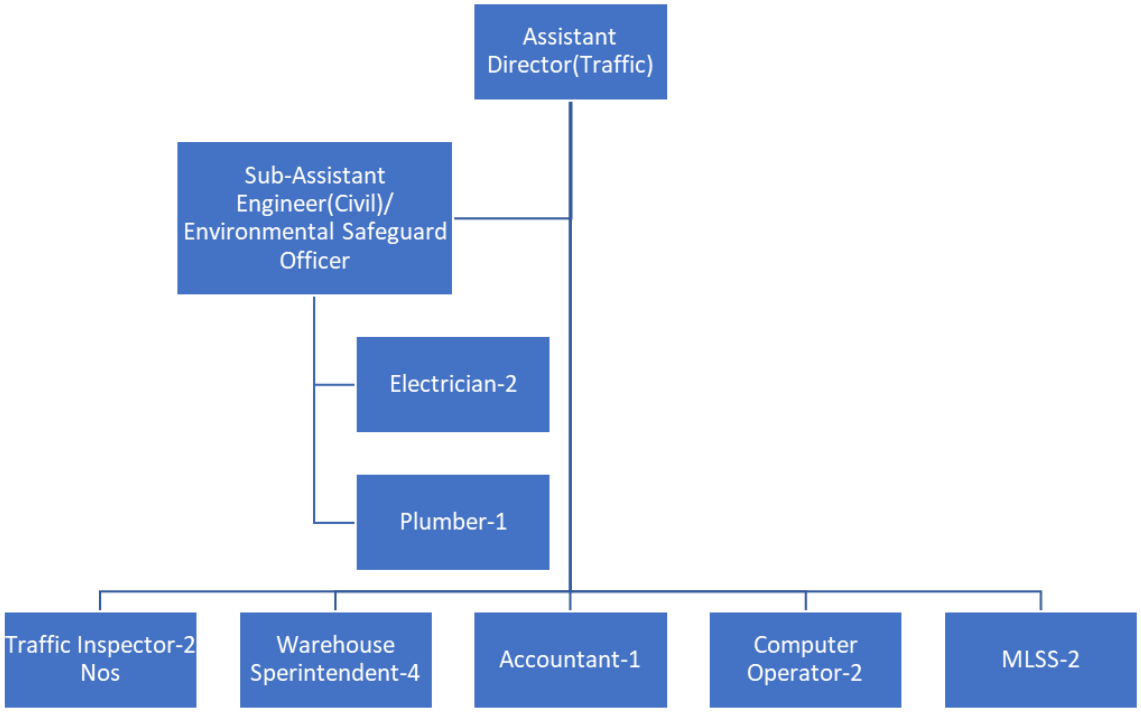


Figure 26:Environment Management Cell

264. As indicated in Organogram, Sub-Assistant Engineer will be responsible for environmental problems, health and safety problems arise due to activity. He/she should be well trained on Environmental Management. He/she is also responsible to provide emergency backup in any unwanted condition. Beside this he/she will arrange training for workers for emergency and assign some employee as emergency response team.

7.5.1 Role of Environment Cell

265. The role of environment cell is of different nature during construction and operational phases.

Role during construction phase:

- Responsible for monitoring the contractor's activities and to ensure adequate implementation of the ESMP by contractor.
- Providing guidance to the PIU and CSC regarding any environmental and social issues which may arise during pre-construction and construction phase.
- Keep track of contractor's day to day activities, their commitment for implementation of ESMP, quality of work, adherence to safety guidelines and method statements.
- Review the Environment Management Action Plan (EMAP) submitted by contractor and should check adequacy as per the ESMP for this project. This EMAP should be amendable and can be updated time to time by PIU/CSC
- Evaluate Safety, Health and Environmental (SHE) plan covering various construction activities, health of workers/labourers to be submitted by contractor for each activity. This plan should include evacuation plan, emergency management & response plan.
- As preventive measures of COVID-19 and other infectious diseases, closely monitor the sanitation and hygiene at the construction labour camp, construction site, first aid facilities at sites and labour camps, accident monitoring at the site, safety aspects, PPE usage, first aid box etc.
- Ensure that all construction and site vehicles should abide by the latest emission norms of the country.
- Monitor that all workers & labour of contractor should have valid ID cards to access the site through spray tunnel.
- Monitor that adequate safety trainings are being given to the workers, adequate mock drills are conducted at site by contractor, availability of emergency evacuation plan, emergency assembly area, availability of certified first aid trainer at all the construction sites.
- Submit monthly performance report on the level of compliance & non-compliance by the contractor.

Role during Operation phase:

266. The cell will be given the responsibility to independently monitor the overall performance of environmental management of the project, including compliance with relevant GoB and WB regulations and the provision of the environmental and social management (ESMF) developed for the project. As a part of the monitoring, they will prepare a comparison of monitoring outcomes carried out, so that lessons learned, and best practices could be replicated. They will prepare the Compliance Report and submit to the Project Management.

7.5.2 Role of Contractor

- **Capacity Building**

267. Capacity building for effective implementation of the environmental and social safeguard requirements is a key element of the ESMP. Capacity building for environmental and social safeguard management will need to be carried out at all tiers of the project, including BLPA, E&S Cell, CSC, and contractors. At the construction site, CSC will take the lead in implementing the capacity building plan, though the contractors will also be responsible to conduct trainings for their own staff and workers. The various aspects that are covered under the capacity building will include general environmental and social awareness, key environmental and social sensitivities of the area and key environmental and social impacts of the project, ESMP requirements, OHS aspects and waste disposal. Table 39 provides a

summary of various aspects of the environmental and social trainings to be conducted at the construction site. E&S Cell may revise the plan during the project implementation as required.

➢ **Implementation of ESMP**

- Monitoring the Air Quality with recognized laboratory/DoE laboratory
- Flagmen with reflected uniform should be engaged during day and night time
- Signal lighting should be installed must be in night time
- Noise level should be monitor with experienced operator
- Surface and ground water should be monitor with recognized laboratory in the country
- Monitor the solid and liquid waste management regularly
- Management system should be monitor regularly

268. During the O&M phase of the project, these trainings will continue to be conducted by BLPA staff for all relevant O&M personnel and community.

Table 39: Environmental and Social Trainings

Contents	Participants	Responsibility	Schedule
• General environmental and socioeconomic awareness. • Environmental and social sensitivity of the project influence the area. • Mitigation measures. • Community issues and workers' Code of conduct. • Grievance Mechanism. • ESMP; Awareness of transmissible diseases; Social and cultural values. • Gender and SAE/SH	• PIU • CSC • Selected contractor's crew	CSC	Prior to the start of the field activities. (To be repeated as needed.)
• ESMP. • Waste disposal. • OHS	• Construction crew	Contractors	Prior to the start of the construction activities. (To be repeated as needed.)
• Road safety. • Defensive driving • Waste disposal. • Cultural values and social sensitivity.	• Drivers.	Contractors	Before and during field operations. (To be repeated as needed.)
• Camp operation. • Waste disposal. • OHS. • Natural resource conservation. • Housekeeping.	• Camp staff	Contractors	Before and during field operations. (To be repeated as needed.)
• Restoration requirements. • Waste disposal.	• Restoration teams	Contractors	Before the start of the restoration activities.

7.5.3 Documentation and Reporting

269. Project Management and Supervision Consultants will collect all data and information related to the implementation of ESMP on behalf of PIU and submits monthly, half yearly and yearly reports to the Project Director during construction. During operational phase, the responsible person for environmental safeguard designated by Bangladesh Land Port Authority will collect related data and information regularly and prepare reports as desired by project management.

270. **Environmental Monitoring Reports:** The environmental monitoring reports will include:

- Environmental mitigation measures undertaken,
- Environmental monitoring activities undertaken,
- Details of monitoring data collected,
- Analysis of monitoring results particularly the non-compliances,
- Recommended mitigation and corrective measures,
- Environmental training conducted, and
- Environmental regulatory violations observed.

271. **Project Completion Environmental Monitoring Report:** One year after completion of construction, the responsible person environmental safeguard officer will submit a Project Completion Environmental Monitoring Report which will summarize the overall environmental impacts from the project.

272. For the land port that will be identified and designed during implementation, ESIA will be submitted by the BLPA for World Bank review and clearance.

8 Cost Estimation for Environmental Mitigation Measures and Monitoring

273. This section describes the budget plans for the environmental management and environmental monitoring by the project proponent. Proponent will take necessary environmental mitigation measures 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 their ESIA study. The costs are approximate and need calibration at the time of detailed design and estimation stage. Total cost for environmental management and monitoring will be BDT 10,790,000.00.

8.1 Budget Plan for Environmental Management

274. Most of the mitigation measures such as, dust management, construction of labour shed, supply of pick-up van for waste management, PPE and disinfection materials for protection of present COVID-19 Pandemic and trainings etc. are already included in the project cost. Main costs for mitigation measures are shown in the Table below. Detailed costs for each mitigation measure are to be calculated at the detailed design stage.

Table 40: Environmental impact mitigation cost for Construction period

Sl No	Description of Item	Unit	Quantity	Unit Rate (BDT)	Item Total Cost (BDT)
1	For dust management, Movable Dust suppression equipment (spray stream, EU origin, droplet size 1mm, and noise level maximum 73dB, 360 angles rotated) with other facilities.	No	1	2,000,000.00	2,000,000.00
2	Duckweed grown in pond and borrow pit for protection of surface water pollution.	LS			40,000.00
3	Maintenance and protection of traffic, warning signs, and posting of signboard detaining project activities	LS			100,000.00
4	Making/ construction and maintenance temporary construction/labor campsite with facilities including drinking water supply and sanitation facilities.	LS	1		500,000.00
5	Supply of Pickup van with auto unloading system for solid waste management & transport	Nos.	2	2,500,000.00	5,000,000.00
6	First aid box for treatment of injuries in emergency situations	Nos.	Package		100,000.00
7	Personal Protective Equipment also considering present COVID-19 pandemic	LS	Package		500,000.00
8	Spray of Disinfections materials to protect present COVID-19 pandemic	LS	Package		500,000.00
9	Infrared thermometer.	no	10	10,000.00	100,000.00

Sl No	Description of Item	Unit	Quantity	Unit Rate (BDT)	Item Total Cost (BDT)
10	Tree plantation and green area development plan.	LS	Package		200,000.00
11	For excess noise protection, periodical maintenance of construction vehicles and installation of sound insulation cover.	LS	Package		50,000.00
12	Water quality protection measures: soil erosion and sedimentation control at the construction site and prevention of spillages, leakages of polluting materials, etc. to be at the satisfaction of the engineer.	LS	Package		50,000.00
13	Stripping topsoil from borrowed agricultural lands, stockpiling, and replacing the same to rehabilitate the land to the entire satisfaction of the owner and the engineer.	LS	Package		30,000.00
14	Rehabilitation of ancillary sites including stockpile sites, brick crushing sites, borrow areas, work force camps/ site office, and these are to be the entire satisfaction of Engineer.	Sqm	1000	100	100,000.00
Total in Taka Ninety-Two lac Seventy thousand only					**9,270,000.00**

Table 41: Estimated annual costs for Environmental Training

SL	Component	Stage	Item	Unit Cost	Quantity	Cost (in BDT)
1	Environmental Training	During Construction	Orientation Workshop and follow up training program for capacity building/institutional development program and awareness on GBV and SEA/SH.	LS	LS	200,000.00
2	Environmental Training	During Operation	Orientation Workshop and follow up training program for capacity building/ institutional development program and awareness on GBV and SEA/SH.	LS	LS	200,000.00
Total: Tk. Six lac only						**400,000.00**

8.2 Budget Plan for Environmental Monitoring

275. In terms of budget for environmental monitoring before/during construction and operation phases, main monitoring cost related with field measurements such as air, water, and noise quality. Total costs for field measurements in the construction phase by contractor and annual costs in the operation phase by the proponent are estimated, respectively, as shown in the Table below.

Table 42: Environmental monitoring cost During Construction

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
Air Pollution (Ambient Air Quality)	During Construction	Measurement of SPM, PM_{10}, $PM_{2.5}$, NO_X, SO_2, CO, CO_2	75,000.00	4	300,000.00
Water Pollution (Surface Water)	During Construction	Measurement of pH, EC, Turbidity, DO, BOD, COD NO_3, PO_4, Oil and Grease	60,000.00	4	240,000.00
Water Pollution (Ground Water)	During Construction	Measurement of pH, FC, BOD, Nitrite, Chloride, Fe, Pb, Cd, Hg, As.	60,000.00	4	240,000.00
Waste Management	During Construction	Site inspection at waste sensitive locations and reporting	LS	LS	30,000.00
Noise (Ambient Noise Quality)	During Construction	Measurement of Sound level (dB) at day and night; Periodical maintenance of construction vehicles and installation of sound insulation cover	10,000.00	4	40,000.00
COVID-19 monitoring	During Construction	Daily thermal checkup through Temperature Scanner	LS	LS	50,000.00
COVID-19 awareness campaign	During Construction	Yearly	LS	LS	100,000.00
Reporting on Environmental Monitoring	During Construction	Quarterly Monitoring Report	30,000.00	4	120,000.00
	Total in Tk. Eleven lac twenty thousand only				**1,120,000.00**

Table 43: Estimated total costs for environmental impact management, training and monitoring

Items	Cost (in BDT)
Environmental impact mitigation and management during construction period	9,270,000.00
Estimated annual costs for Environmental Training	400,000.00
Environmental monitoring cost during construction period	1,120,000.00
Total	**10,790,000.00**

9 Disaster Management Plan

9.1 General Consideration

276. The BLPA Management's role is to facilitate the safe and efficient movement of trade at the land port of Bholaganj. The port capacity and efficiency have a significant effect on port vulnerability in which the efficiency of gantry cranes, labor productivity, free trade zone business volume, and ground access networks play crucial roles in port failure. Moreover, the risks associated with port operation are evaluated by overlapping a hazard map of areas prone to debris flows and earthquake disaster. The risk maps can assist decision makers in understanding the vulnerability and adopting appropriate strategies to minimize disaster risks.

277. Disruptions to transportation systems affect the resilience for sustaining daily operations. Among the various types of transportation systems, ports provide substantial employment and official activity, contributing to national and regional development. In addition, ports integrate the functions of supply chains such as services in logistics, information, and business, becoming the location of official and residential premises.

278. According to the geographical location of the Bholaganj land port it may be said that it is free from tidal flood, tidal surge or storm tide, salinity but there is chance flash flood Indian hilly area. On the other hand, none could understand about present worldwide health hazard COVID-19 Pandemic. Even it is not possible to predict when this situation will disappear. Hence the port authority always is to be prepared for all types of disaster and thus some preventive measures of these diseases have been incorporated in this report.

279. As the earthquake and many other disasters like probable flash flood, long time flood, etc causes emergency of almost same natures arising from dangerous goods, accidental falling of cargo, accident to any personnel, personnel entrapped in a confined area/space, fire in port buildings, offices, warehouses, passenger terminals, etc.

280. To address all possible hazards, a short but useful DMP/ESMP have been discussed below and in Annex 20.

Fire: This is one of the hazards however the consequences are generally less. The effect of fire on people usually takes the form of skin burns and is usually dependant on the exposure time and the intensity of the heat. Fire can also produce toxic fumes like Acrolein, Carbon monoxide and Cyanides. Physical structures can be damaged either by the intensity of the heat or combustion. It may also influence essential services like power and instrumentation which can cause an escalation of the incident.

Explosion: Explosions are usually heard from far away as a 'bang'. This is the result of a shock wave. This overpressure can kill people but usually the indirect effects of collapsing buildings, flying glass and debris causes far more loss of life and severe injuries. There are different types of explosions which include gas explosions and dust explosions. Gas explosions occur when a flammable gas mixes with air and is exposed to an ignition source. Dust explosions occur when imported/exportable explosive materials like flammable solids, especially metals, in the form of fine powders are intensively mixed with air and ignited.

Environmental Damage: As well as having the potential for causing injury, loss of life and damage to property, the hazards of fire, explosion and toxic releases may pose a severe threat to the environment. Release of other substances, not directly toxic to humans can cause major pollution problems. It is becoming increasingly recognized that damage to natural resources such as Port area and animal life can have serious long-term

consequences. e.g. destruction of trees is increasing the effect of global warming and extinction of animals are severely disrupting food webs and causing an increase in pests.

9.2 How to reduce risks

281. Though the above-mentioned risks are less in land port activities, still then precautionary measures are to be taken. Design and Pre-modification revieware to do periodically. This This involves proper layout, facilities, and material handling process.

Chemical Risk Assessment: Chemicals to be handled are assessed based on compatibility, flammability, toxicity, explosion hazards and storage.

Emergency Planning: A comprehensive risk analysis indicating the impact of consequences and specific written down and practiced emergency procedures along with suitable facilities should be done. This can be done by communities as well as national or regional corporation authorities.

Training: Proper training of staff and workers and protective services should be done.

Public Cooperation on the road: Public should cooperate with the police and any tankers and heavy-duty vehicles to avoid accidents and allow for the shortest possible on road time for dangerous vehicles.

Public awareness: Everyone should be aware of potential disasters and informed of protective and safety measures. MSDS sheets should be readily available to the public. Cautions must be placed to standout on dangerous household and car care products.

Proper storage of hazardous Materials: All chemicals and hazardous materials should be kept at proper storage temperature and in locked cupboards away from children and animals. Also, if reactive substances are stored, it should be stored is a watertight container.

282. In normal operation of the port, when all protection equipment works according to design specification, then there would be no environmental/social problems. Disaster may occur if the environmental protection equipment fails to work at normal condition. So, appropriate management plan should have to be taken by the project proponent to prevent any unwanted disaster in the port area. In this regard there should have a provision to stop the gas and electricity supply immediately (if necessary) during any process failure as discussed above. The disaster management plan should have, among others, the following:

- Strictly follow preventive maintenance works
- Declare the Land Port as a “No Smoking Zone”
- Mock drills by the firefighting cells/groups
- Provision and inspection of firefighting equipment and fire hydrant system in all the sections;
- Proper training of staff and workers about the importance of safety codes;
- Training also the residents of the surrounding areas/villages about the actions to be taken during an accident, disaster, etc.
- It is imperative to develop entire facility environment policy and display necessary documentation for ease in accessing information. Some of these documents include:

Emergency contacts: Emergency response procedure for fires is required. The facilities operation and monitoring are carried out under the management and help from both the employees and relevant government lead agencies. To take care of any hazards the following controls should be adopted:

283. All safety precautions and provisions covering the general cleanliness of entire

facility down to:

- Ventilation
- Lighting
- Sanitation
- First aid box provision
- Adequate fire extinguishers
- Site security by fencing, and
- Waste collection

9.3 Objective of Disaster Management Plan

284. To be in a state of readiness to face any accident or disaster caused by the project operation or others, a Disaster Management Plan is required to be prepared. Such a plan ought to cover possible disaster, on and off-site emergency preparedness plans, establishment of Emergency Control Centers (ECC), location of emergency services, and duties of the officers/staff during emergency.

9.4 Basic Contents of DMP

285. Basically, the DMP should contain the following aspects:

- Description of the Site;
- Brief Description of the Land Port;
- On-site Emergency plan;
- Off- site Emergency plan.

286. As the site and details of the project have already been elaborated in Chapter-3 and 4, it has not been separately reproduced here.

9.5 On-Site Emergency Plan

9.5.1 Objective and contents

287. The objective is to combat emergency caused by an accident, the effects of which are confined to the Port area premises involving only the people working inside. This section essentially consists of an action plan which includes identification of key personal; defined responsibilities of key personal; designated ECCs and assembly points; declaration of emergency; all clear signals; actions to be taken by non- key personal during emergency.

9.5.2 Appointment of key persons and their Role

Site controller (SC)

288. The Deputy Director (however called) or his nominated supporting officer will assume overall responsibility for the port area and its personnel.

Incident Controller (IC)

289. Assistant Director or an Officer of similar rank will be nominated to act as the IC. Immediately on learning about an emergency, he will rush to the incident sites and take overall charge and report to the SC.

Liaison Officer (LO)

290. Personnel/Administrative Manager of his nominated officer of deputy rank will work as LO and will station at the main entrance during emergency to handle police, press and another enquiry.

Forward Area Controller (FAC)

291. Departmental in charge of the concerned area will be the FAC to take care of the respective departments during emergency.

9.6 Emergency Control Centers (ECC)

292. Emergency control Room is to be set up and marked on the site plan for the knowledge of all concerned. ECC is the focal point, and it should be well connected with internal and external telephones and furnished with list of personal and their addresses.

- **Alarms**

293. Suitable sirens should be provided in the Port area, which could be operated from the ECC. The condign of the siren should be as per the standards and well circulated within the facility.

- Mutual Aid

294. It is essential to have mutual aid arrangements among the industries in the neighbourhood which would help in the case of a major disaster.

- Training and Mock Drills

295. Proper training of the key personal and other non-key personal, who will take part in case of an emergency, should be arranged. Mock drills should be performed to test the performance of the procedure laid.

9.7 Off-Site Emergency Plan

9.7.1 Objective

296. If the effects of the accidents or disaster inside the port are felt outside its premises, it calls for an off-site emergency plan, which should be prepared and documents in advance in consultation with the District Authorities.

9.7.2 Key Personnel

297. The ultimate responsibility for the management is off-site emergencies rest on the UNO. He will be assisted by representatives from all concerned organizations, departments, and services at the Upazila level. The members of the group will include:

- UNO
- Officer in-charge of police
- Union Parishad Chairman
- Upazila Level Officer of Health
- Pollution control Board Representative

298. An Operation Response Group (ORG) will then have to be constituted to implement the directives of the CMG. The various government departments, some, or all of which will be concerned, depending on the nature of the emergency, could include:

➢ Police ➢ Health & Family welfare ➢ Medical ➢ Revenue ➢ Fire service ➢ Electricity ➢ Union Parishad	➢ Animal Husbandry ➢ Agriculture ➢ Irrigation and Water management ➢ Civil Defense ➢ RHD ➢ UNO

299. The SC and IC, of the onsite emergency team, will also be responsible for communication with the CMG during the off- site emergency.

9.7.3 Education of Public

300. People living within the influence zone should have education on the emergency in a suitable manner. This can be achieved only through the Local Authorities. However, Land Port authority can extend necessary information to the Authorities.

9.8 Steps in Emergency Response

Step- 1: Determine the potential hazards associated with the incident, substance or circumstance and take appropriate action identify the type and qualities of dangerous goods involved and any known associated hazards. Determine potential hazards stemming from local conditions such as inclement weather water bodies, etc. and ensure that the initial response team is aware of these conditions.

Setp-2: Determine the source/cause of the event resulting to the emergency and prevent further losses.

Step-3: Conduct and assessment of the incident site for any further information on hazards or remedies.

Step- 4: Initiate redress procedures.

Step-5: Report the incidence, its nature, causes, impact assessed & redress procedures and any further assistance required, etc. to the appropriate company, government and/or project authority.

Step-6: Take appropriate steps with respect to hazards to wildlife, other resources and addressing public and media concerns and issues, as applicable. Response priorities are to protect human lives, property, and the environment.

9.8.1 Reporting Incidents and Accidents

301. All accidents and near-miss incidents shall be investigated to determinate what caused the problem and what action is required to prevent a recurrence. Staff/employees required to perform investigations shall be trained in accident investigation techniques. The incident/accident investigation should be a fact-finding exercise rather than fault finding. The investigations will focus on collection of evidence to find out the root cause of the incident. The recommendations of the investigation report are to be implemented in phases.

9.8.2 Approaches to Emergency Response

302. For this project, emergency response systems should be in place to deal with dangerous goods uncontrolled releases of dust and gaseous emission, natural calamities fire burns and injuries. There are to be trained emergency response teams, specific contingency plans and incidence specific equipment packages in place to cope with these types of emergencies. In case of an emergency incident occur, immediate action must be taken to mitigate the impacts.

303. To minimize the possibility of injury to the respondent and others it is important that emergency follow a specific sequence of actions as stepped out in the preceding paragraphs.

304. Preventive maintenance:

- Aware the staff and workers about electric shock;
- Declaring the Land Port, a no smoking zone;
- Mock drills by the firefighting cells/groups;
- Provision and inspection of firefighting equipment and fire hydrant system in all the sections;

- Proper training of the employee about the important of codes;
- Training the employees and the residents of the surrounding villages about the actions to be taken during an accident, disaster etc. It is imperative to develop entire facility environment policy and display necessary documentation for ease in accessing information. Some of these documents include:
  - Emergency contacts;
  - Emergency response procedures for fires

305. The facilities operation and monitoring are carried out under the management and help from both the employees and relevant government lead agencies. To take care of any hazards the following control should be adopted; all safety precautions and provisions covering the general cleanliness of the entire facility down to, ventilation, lighting, sanitary, waste collection, first aid box provision, adequate fire extinguishers and site security by fencing.

9.9 Earthquake Management Plan

306. Earthquakes are unpredictable natural disasters which are of short duration, but the consequences can be severe. Based on the information available in the public domain and research publications indicates that the project area comes under the seismic zone – IV with seismic coefficient 0.36 (Z=0.36) having seismic intensity high. All the structures have been designed under the BNBC 2020 considering the category of the earthquake zone. Emergency management plan for earthquake included in the Detailed Earthquake Management Plan in this report in Annex-20.

9.10 Environmental, Health Safety & Security Management

9.10.1 Green Environment

307. Environment has become a matter of great concern for the world at present due to pollution caused by several ways. Pollution in environment would cause it difficult to live in the world. Land Port authority feels the importance of green environment & accordingly has planned in port area to plant different types of trees along the roadside and within the port area and establish water sprinkler system to make dust free environment.

9.10.2 Health and Safety

308. Bholaganj Land Port Management has a great concern to ensure safety & security of the workers/officers working in the port area. Occupational Health and Safety Procedure of land port will be maintained as per Bangladesh Labour law & standard. Full set safety equipment is available for each person working in the Land Port. A safety policy is established, and all are bound to follow the policy. Training at a regular interval is being arranged for the worker/officers to keep them alert about safety. Fire alarm system, First Aid Box etc. are also ensured.

9.10.3 Health and Safety Plan

309. A short term and Long-term H&S are to be adopted by Land Port authority. Workers/staff are to be trained as routine work so that the workers themselves follow all the things for their own protection as given below:

- Hazard and risk-prone areas should be identified and characterized by conducting risk assessment;
- On-site and off-site disaster management plans, based on impact magnitude and its severity, need to be prepared;

- Trained medical personnel and first aid facilities as well as safety equipment such as fire extinguishers and fire alarms to be made available at place of work;
- Medical examinations to be conducted for the workers from time to time. If significant occupational health problems are observed, the management should take appropriate measures;
- Personal protective equipment (hand gloves, safety goggles, nose masks and helmets) to be provided to all the employees working in the Port area;
- Training for employees to educate them about the hazardous nature of chemicals to be exported and imported;
- Developing and implementing an emergency response program, including emergency response procedures, emergency equipment, training, review and updates.
- In annual budget under the head "Worker's health & Safety" sufficient money is be allotted.

310. 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 their EIA 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 barrier 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 COVID-19 protection and as required for safety from construction work will be available.
- A fruitful plan will be set up to minimize in-person meetings and encourage remote meetings for taking decision on construction and site management.
- A 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.).
- Guidelines on effective 'site operation plan' will be set up to minimized workforce.
- How supervisor/contractors 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 meter (3 feet) distance between two people. 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 COIVD-19 and it is more difficult to maintain physical distance of 1 meter (3 feet).

- Avoid touching your 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 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 has 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 the 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.

311. 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 it 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.

9.11 Grievance Redress Mechanism (GRM)

312. The Land Port Authority will have a GRM Management policy & a two tier Grievance Redress Committee. One at community level and the other at headquarter level. The community level committee is to be formed with seven members headed by one officer of the port. There will be 3 staff/workers & 3 community representatives including one female member in the committee. The complainer can inform his/her problem both verbally and in writing. For verbal complain, the cell number of concern officer may be used. Written complaints may be sent through post office/Currier services or in person or dropping in the grievance box.

313. The Project proponent will place grievance box under lock and key in different section of the port and another box at the visitor room and these are available for 24 hours. Once in a week say on every Monday the box is be opened in presence of committee members. If there is any complaint it is to be recorded in a register and sent to Head of the GRC for taking necessary action. The complaint is to be settled within 7 days in the community or field level and headquarter level within one month. Assistant Project Director or Environment & Social Specialist of BRCP-1 will be the responsible for registering, sorting, communicating with complaints. No anonymous grievance is acceptable in GRM. Contract number of responsible persons of GRM will be displayed at the site on visible places. If the victim/complainers are not satisfied with the action taken by authority, he may go for legal action/Labour court.

9.11.1 Mitigation Measures for SEA/SH

314. Human trafficking will be monitored and controlled in the construction and operation phase as per approved Gender and SAE/SH Action Plan of BRCP-1. BLPA has already efficiently implemented a retrofitted Gender and SEA/SH action plan under an ongoing project.

315. Preparation and display of signage on SEA/SH prevention and zero-tolerance against SEA/SH will be displayed at the site locations and surrounding areas. BLPA has a zero-tolerance policy to SEA/SH and the related display signages/notices at the project site will include information on the SEA/SH GRM with the name(s) of the contact person and phone number, including help line numbers of police and other response actors. Project GRM will take over the SEA/SH related grievances and will follow steps described above.

316. The Worker Code of Conduct will be integral part of the employment contact along with the disciplinary measures for non-compliance (e.g. termination). In addition, workers will receive orientation of SEA/SH, CoC, and BLPA will carry out stakeholder consultation and other engagement measures to inform the community about SEA/SH risks and mitigation mechanisms. Awareness campaigns on human trafficking will be carried by BLPA/ Contractor(s) in collaboration/coordination with the local government institutions (LGIS) and relevant government agencies such as, police and BGB.

10 Conclusion

10.1 Conclusion

317. Bholaganj Land Port is located at the Northeast border of Bangladesh in Companiganj Upazila of Sylhet District. The project falls under "Orange" category as per ECR, 2023 and Site Environmental Clearance (SEC) is obtained from DoE, Bangladesh.

318. An ESIA study has been conducted for the project according to the requirements of DoE and World Bank. The ESIA report has been prepared through a detailed field study under the supervision of PIU Environmental and Social Specialist having long experiences in Govt. organizations. The team members have experience in World Bank project under Ministry of Agriculture, Ministry of Local Government, Rural Development and Co-operatives and Ministry of Finance. The report has been prepared complying the regulations of DoE and the World Bank. The reports included identifications of potential impacts, their assessment, recommending possible mitigation measures for adverse impacts, and enhancing measures for positive impacts.

319. Fire hazards, health and safety issues considering present COVID-19 pandemic and impacts due to air and noise pollution are major impacts associated during construction and operation phase of the port. A well-trained firefighting unit and environmental experts are to be kept standby for any incident/accident.

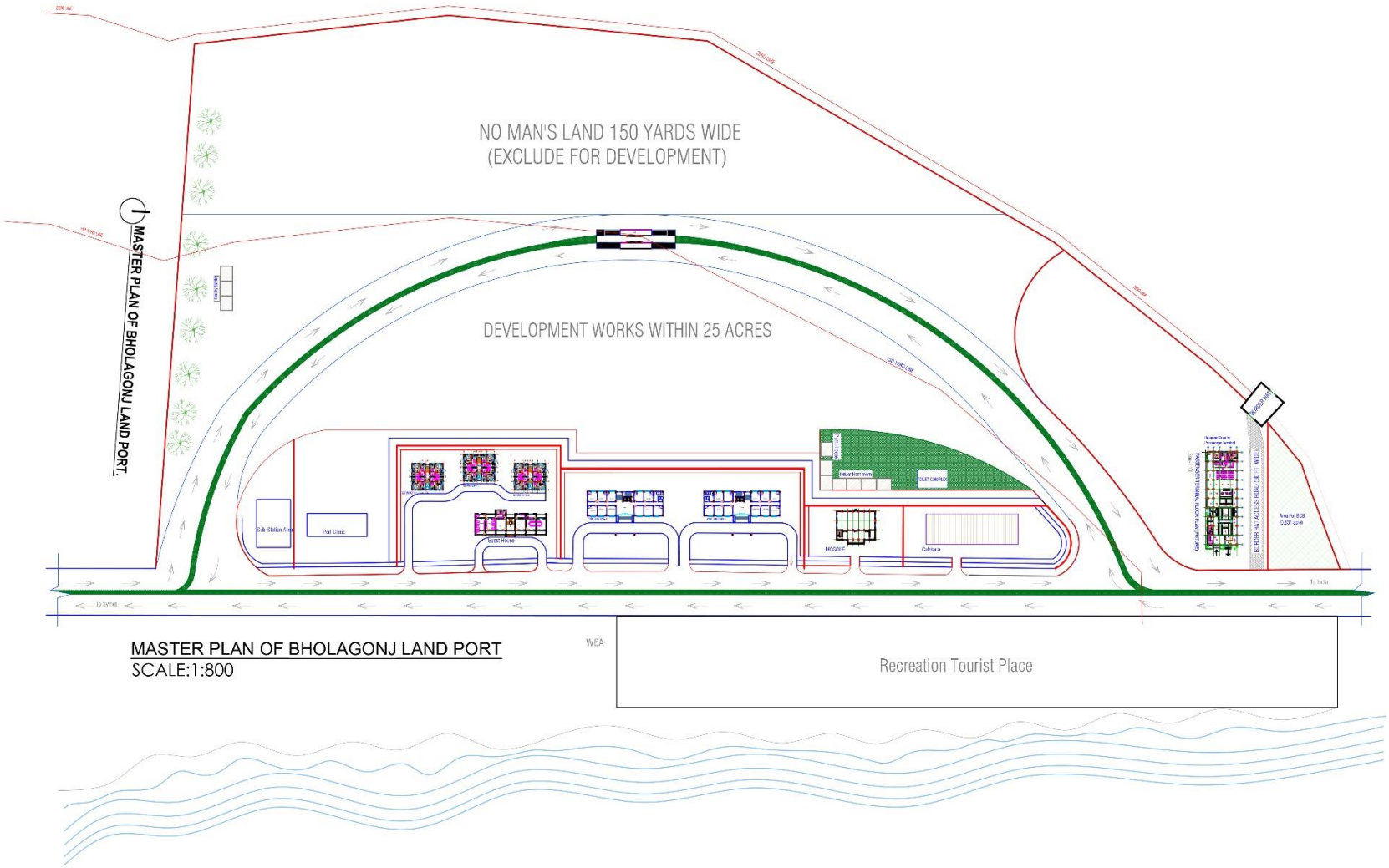
320. However, no development can be expected without any adverse impacts on environment. The beneficial effect of the development project on the nation as well as on human beings would only be meaningful and sustainable, if the adverse impacts are minimized through strict maintenance and control measures as advised in the report. No hill cutting and filling of any water body will be required for development of this land port.

10.2 Recommendations

321. Several environmental and social considerations need to be comprehensively addressed to improve the sustainability of the project. Some of these improvement proposals are summarized as follows:

- All types of support from different government and autonomous body like World Bank, Local Government, Department of Environment and others should be provided to the Port Management;
- The ESMP should be implemented timely and properly by concerned department;
- Air quality and noise level in the port area should always remain below the acceptable standard set by DOE;
- Monitoring of quality of surrounding air and soils, and drinking water and water of the nearby rivers should be conducted periodically and mitigation should be done; accordingly, and
- Local people may be given priority during recruitment.

Annex 1: Conceptual layout plan of Bholaganj Land Port



Annex 2: Proposed layout of construction labor camp, material stack yard, temporary waste bin area, quarantine/isolation area, medical Facilities, canteens, washroom For Bholaganj Land port.

National Environmental Policy, 1992

The concept of environmental protection through national efforts was first recognized and declared in Bangladesh with the adoption of the Environment Policy, 1992 and the Environment Action Plan, 1992. The major objectives of Environmental policy are to i) maintain ecological balance and overall development through protection and improvement of the environment; ii) protect country against natural disaster; iii) identify and regulate activities, which pollute and degrade the environment; iv) ensure environmentally sound development in all sectors; v) ensure sustainable, long term and environmentally sound base of natural resources; and vi) actively remain associate with all international environmental initiatives to the maximum possible extent.

Bangladesh Environmental Conservation Act (ECA) 1995

This umbrella Act (amended in 2020) includes laws for conservation of the environment, improvement of environmental standards, and control and mitigation of environmental pollution. It is currently the main legislative framework document relating to environmental protection in Bangladesh, which repealed the earlier Environment Pollution Control ordinance of 1977.The main provisions of the Act can be summarized as:

- Declaration of ecologically critical areas and restrictions on the operations and processes, which can be carried or cannot be initiated in the ecologically critical area;
- Regulation in respect of vehicles emitting smoke harmful for the environment,
- Environmental Clearance;
- Regulation of industries and other development activities with regards to discharge permits;
- Promulgation of standards for quality of air, water, noises and soils for different areas for different purposes;
- Formulation and declaration of environmental guidelines.

Environment Conservation Rules (ECR) 1997 (Amended in 2017 & 2023)

These are the first set of rules, promulgated under the Environment Conservation Act 1995. Among other things, these rules set (i) the National Environmental Quality Standards for ambient air, various types of water, industrial effluent, emission, noise, vehicular exhaust etc., (ii) requirement for and procedures to obtain Environmental Clearance, and (iii) requirements for IEE/EIA according to categories of industrial and other development interventions.

However, the rules provide the Director General a discretionary authority to grant 'Environmental Clearance' to an applicant, exempting the requirement of site/location clearance, provided the DG considers it to be appropriate.

Environment Conservation Rules (ECR) 2023 has classified the projects into following four categories based on their site conditions and the impacts on the environment; (a) Green, (b) Yellow, (c) Orange and (d) Red. Various industries and projects falling under each category have been listed in schedule 1 of ECR 2023. According to the Rules, location clearance certificate is required for category **yellow, orange, and red** projects and followed by issuing of Environmental Clearance upon the Land Port submission of the required documents. Green listed industries are considered relatively pollution-free, and therefore do not require site clearance from the DoE. On the other hand, Red listed industries are those that can cause 'significant adverse' environmental impacts and are, therefore, required to submit an EIA report. These industrial projects may obtain an initial Site Clearance based on an IEE and based on the DoE's prescribed format, and subsequently submit an EIA report for obtaining Environmental Clearance.

Air Pollution Control Rules 2022

APCR, 2022 contains air quality standards based on WHO Guidelines (Interim Goals); Emissions limits and technical specifications for key sectors; Mandates and coordination mechanisms among relevant line ministries to control both household and outdoor air pollution. The rules elevated the air quality management (AQM) dialogue and leadership beyond the environment sector, by establishing the National Committee on Air Pollution Control (NCAPC), a multi sector decision making body presided by the Cabinet Secretary to coordinate the APCR implementation and instruct relevant agencies on specific interventions to comply with the new rules. The NCPC is mandated, for example, to impose emergency measures depending on the levels of air pollution, such as restricting activities of industries or projects, vehicles, or any source of air pollution in certain area, and closure of educational institutions. APCR also envisage the objectives and minimum requirements of its implementation management tools, such as National Air Quality Plan (also covering HAP interventions and targets); Degraded air sheds declaration and management plans; Publication of list of highly air polluting industries and activities.

Prevention plans; To monitoring and control systems. Other relevant regulatory development for AQM refers to the 2019 Amendment of the Brick Manufacturing and Kiln Installation Act, 2013. The amendment set phased targets to reduce the use of clay-fired bricks in public works from 2019 to 2025, except for the construction of base/sub-base of the highways. However, implementation of this phased reform is delayed.

Solid Waste Management Rules 2021

The Solid Waste Management Regulations, 2021 were published in Bangladesh on December 23, 2021, under the Bangladesh Environmental Protection Act, 1995. The Regulations define the responsibilities of businesses involved in solid waste management and impose collection, recycling, and disposal obligations according to Extended Producer Responsibility (EPR) on manufacturers of non-biodegradable products such as glass, plastic, and bottles. The Regulations also include provisions for the treatment of solid waste such as composting and energy recovery. The main provisions of the Regulations are i. When recovering resources from waste, the principles of management that consider the waste hierarchy, such as the 3Rs (reduce, reuse and recycle), segregation, and reduction, must be followed at all stages from waste generation to final disposal; ii. Responsibilities of waste generators, consumers, and users: a. Dispose of waste in accordance with the regulations of authorities including local government; b. Dispose of waste separately; c. Do not dump, store, or burn waste outdoors; and iii. Responsibilities of manufacturers and importers of products: a. Collect non-biodegradable products such as glass, plastic, polyethylene, multi-layered packaging, bottles, and cans from consumers and recycle or dispose of them if appropriate; b. Determine work plans and implementation procedures for recycling and disposal; c. Ensure that EPR is properly implemented; d. Submit an annual report to the DoE on the amount of plastic recycled; e. Raise public awareness on proper waste management.

Hazardous Waste (E-Waste) Management Rules

On June 10, 2021, Bangladesh's Department of Environment (DoE) published the Hazardous Waste (e-waste) Management Rules, 2021 under the Bangladesh Environmental Protection Act, 1995. The E-waste rule covers the products listed in the Schedule (home appliances, monitoring and control equipment, medical equipment, automatic machines, IT and communication equipment), and establishes obligations for manufacturers, assemblers, collectors, sellers, and consumers of the products. The rule also sets provisions to limit the use of the 10 substances covered by the European Union (EU) Restriction of Hazardous

Substances (RoHS) Directive. This regulation entered into force upon publication. The main provisions of this regulation are i. Manufacturers, traders, sellers, transporters, repairers, collection centres, recyclers, dismantlers, etc. of the subject products are required to register with a prescribed form to the DoE. When applying for registration, they shall also submit the Waste Electrical and Electronic Equipment (WEEE) management plan; ii. Registered manufacturers, recyclers, etc. shall obtain environmental clearance in accordance with the Bangladesh Environmental Protection Rules, 1997 iii. Manufacturers must establish individual or joint collection centres and set aside funds for the management WEEE; iv. For fluorescent lamps and mercury incandescent lamps, if they cannot be recycled, they need to be handed over to collection centres for storage and disposal; v. Manufacturers, importers, etc. shall meet the collection targets for the WEEE as specified in the Schedule (10% in the first year of the implementation, 20% in the second year, 30% in the third year, 40% in the 4th year, and 50% in the fifth year and thereafter). vi. To facilitate the proper management of the WEEE, the name, address and contact information of the trader or seller as well as the information on the registered collection centre shall be displayed on the product or on the product label, or this information shall be provided to consumers or large consumers; vii. Traders, sellers, and collectors of the WEEE shall receive them from consumers at designated points and transport them to collection centres. Since activities of project also include installation of IT equipment and solar panel so this rules is also applicable.

National Conservation Strategy, 1992

The National Conservation Strategy, 1992 provides recommendations for sustainable development of the industrial sector. The key aspects of the strategy are as follows:

- All industries shall be subject to an EIA and the adoption of pollution prevention/ control technologies shall be enforced;
- Hazardous or toxic materials/wastes shall not be imported as raw materials for industry;
- Import of appropriate and environmentally-sound technology shall be ensured; and
- Dependence on imported technology and machinery should gradually be reduced in favor of sustainable local skills and resources.

National Environnemental Management Action Plan (NEMAP)

This is a wide-ranging and multi- faceted plan, which builds on and extends the statements, set out in the National Environmental Policy. NEMAP was developed to address issues and management requirements related to the environment during the period 1995 to 2005; it also sets out the framework within which the recommendations of the National Conservation Strategy are to be implemented. NEMAP was developed to achieve the following broad objectives: i) Identification of key environmental issues affecting Bangladesh; ii) Identification of actions necessary to halt or reduce the rate of environmental degradation; iii) Improvement of the natural environment; iv) Conservation of habitats and biodiversity; v) Promotion of sustainable development; and vi) Improvement of the quality of life of the people. To attain the above-mentioned objectives, the plan groups all the relevant necessary actions under four headings, namely: institutional, sectorial, location-specific and long-term issues.

Environment Court Act, 2000

The aim and objective of the Act is to materialize the Environmental Conservation Act, 1995 through judicial activities. This Act established Environmental Courts (one or more in every division), set the jurisdiction of the courts, and outlined the procedure of activities and

power of the courts, right of entry for judicial inspection and for appeal as well as the constitution of Appeal Court.

Noise Pollution (Control) Rules, 2006

Noise Pollution (Control) Rules have been established to manage noise generating activities which have the potential to impact the health and wellbeing of workers and the surrounding communities. Under this legislation, control zones are listed as- silent area, residential area, mixed area, commercial area, and industrial area.

The Forest Act, 1927 and the Forest (Amendment) Act, 2000

The Forest Act, 1927 is the first and omnibus law of the land for forestry. It provides for reserving forests over which the Government has an acquired property right. According to the Act the Government (Forest Department) can prohibit certain activities in the declared Reserved Forest area such as any intervention kindles, keeps or carries any fire; trespasses or pastures cattle, or permits cattle to trespass; causes any damage by negligence in felling any tree or cutting or dragging any timber etc.

Private Forests Ordinance Act, 1959

An Ordinance to provide for the conservation of private forests and for a forestation in certain cases of waste lands in Bangladesh. Whereas it is expedient to provide for conservation of forests and for a forestation of waste lands in Bangladesh where such forests or lands are not the property of the Government or where the Government have no proprietary right over such forests or lands.

National Forest Policy, 1994

The National Forest Policy of 1994 is the amended and revised version of the National Forest Policy of 1977 in the light of the National Forestry Master Plan. The major goals of the policy are to conserve the existing forest areas, bring about 20 per cent of the country's land area under the Forestation Program and increase reserve forests by 10 per cent per year to 2015 through coordinated efforts of GoB-NGOs and through active participation of the people.

Amendments of the existing laws (acts, rules, and regulations) relating to the forestry sector and creation of new laws for sectorial activities have been recognized as important conditions for achieving the policy goals and objectives. The Forestry Policy also recognizes the importance of fulfilling the responsibilities and commitments under International Conventions, Treaties and Protocols (ICTPs).

National Biodiversity Strategy & Action Plan, 2004

NBSAP for Bangladesh, 2004 provides a framework for conservation, sustainable use and sharing the benefits of Biodiversity of the country. A major focus of the NBSAP, 2004 is the need for cross-sect oral linkages, reflecting the fact that in Bangladesh, biodiversity conservation is closely interwoven with social and economic development. Thus, the NBSAP also provides a framework for securing the necessary environmental conditions to reduce poverty, ensure sustainable development and respond to the implementation of elements of the country's PRSP.

Wildlife Conservation (Protection and Safety) Act, 2012

The act has been formulated for the conservation and safety of wildlife to manage the protected areas. The act depicts 10 new types of protected areas. The bill with many other provisions proposed stern action for violation of the law. It proposed one-year imprisonment and Taka 50,000 fine for such a violation. The law also proposed at least two years and the

highest seven years of imprisonment and minimum Taka 1 (one) lakh and maximum Taka 10 lakh fine for killing a tiger or an elephant.

National Water Policy, 1999

The NWP promulgated in 1999 with the intension of guiding both public and private actions in the future for ensuring optimal development and management of water that benefit both individuals and the society at large. The policy aims to ensure progress towards fulfilling national goals of economic developments, poverty alleviation, food security, public health and safety, decent standard of living for the people and protection of natural environment. According to the policy, all agencies and departments entrusted with water resource management responsibilities (regulation, planning, construction, operation, and maintenance) will have to enhance environmental amenities and ensure that environmental resources are protected and restored in executing their tasks. Environmental needs and objectives will be treated equally with the resources management needs.

The Groundwater Management Ordinance, 1985

This is an ordinance to manage groundwater resources. This Act authorizes the Thana Parishad to grant a license for installing tube wells under its jurisdiction. The Upazila/Thana Parishad may grant the license if the Parishad is satisfied that the installation of the tube well i) Will be beneficial to the areas where it is to be installed; ii) Will not have any adverse effect upon the surrounding areas iii) otherwise feasible.

National Water Management Plan, 2001 (approved in 2004)

The National Water Resources Council approved on March 31, 2004, a 25-year National Water Management Plan. The plan provides a framework within which all concerned with the development, management, and use of water resources water services in Bangladesh can plan and implement their own activities in a coordinated and integrated manner. The planned activity programs have been presented in the eight sub-sect oral clusters: i) Institutional Development, ii) Enabling Environment, iii) Main River, iv) Towns and Rural Areas, v) Major Cities; vi) Disaster Management; vii) Agriculture and Water Management, and viii) Environment and Aquatic Resources. Each cluster comprises of several individual programs. WARPO was assigned to monitor the NWMP.

National Water Bodies Protection Act, 2000

The enforcement agency of this act is the Municipalities and the Town development authority. The characterization of water bodies as rivers, canals, tanks, or flood plain identified in the master plans formulating under the laws establishing municipalities in the division and district towns shall not be changed without approval of concerned ministry.

National Water Act, 2013

The National Water Act, 2013 is based on the NWP and provides the legal framework for integrated development, management, abstraction, distribution, usage, protection, and conservation of water resources in Bangladesh. The Act provides for the formation of a high-powered National Water Resources Council headed by the Prime Minister. An Executive Committee under the MoWR will implement the decisions taken by the council. As per this Act, all forms of water (e.g., surface water, groundwater, seawater, rainwater, and atmospheric water) within the territory of Bangladesh belong to the government on behalf of the people. Private landowners will be able to use the surface water inside their property for all purposes in accordance with the Act. Draining of wetlands that support migratory birds has been prohibited by the Act. Consequently, without prior permission from the Executive Committee, building of

any structure that can impede the natural flow of water has been prohibited. A few activities like dredging of rivers for maintaining navigability, land reclamation projects by filling wetlands, and flood control and erosion control structures will be exempted pending prior permission.

The Protection and Conservation of Fish Act 1950 (amended in 1982)

Ministry of Fisheries and Livestock is the enforcement agency of this act. Protection and Conservation of Fish in government owned water bodies is the main objective of this act.

National Fisheries Policy, 1999

The National Fisheries Policy, 1999 was formulated following review and intent of the East Bengal Protection and Conservation of Fish Act 1950, which was updated by the Protection and Conservation of Fish (Amendment) Ordinance 1982 and further refined by the Protection and Conservation of Fish (Amendment) Act 1995. These Acts and ordinance provide provisions for the protection and conservation of fish in fresh water and brackish water bodies. The Fisheries Policy highlights the need to conserve fish breeding grounds and habitats. It intends to promote fisheries development and conservation in all water bodies. The project should consider these policies to protect the habitats, migration and connectivity of fish and fisheries resources around the project area. Measures to reduce any potential negative impacts on local fish populations will be incorporated into all stages of the Project.

National Land-use Policy, 2001

The Government of Bangladesh has adopted national Land use Policy, 2001. The salient features of the policy objectives relevant to the proposed are as follows:

- To prevent the current tendency of gradual and consistent decrease of cultivable land for the production of food to meet the demand of expanding population;
- To ensure that land use is in harmony with natural environment;
- To use land resources in the best possible way and to play supplementary role in controlling the consistent increase in the number of lands less people towards the elimination of poverty and the increase of employment;
- To protect natural forest areas, prevent river erosion and destruction of hills;
- To prevent land pollution; and
- To ensure the minimal use of land for construction of both government and non-government buildings.

National Agriculture Policy, 2013

The National Agriculture Policy, 2013 approved by the Government focuses on agriculture production, alleviating poverty through generating jobs and ensuring food security. The main objective of the policy is to ensure' food and nutrition security for all and improvement of rural livelihoods through increased crop production with higher productivity and creating employment opportunities through diversification of agricultural activities. The policy outlined nine specific objectives. Although the policy does not emphasize the coastal zone separately, all specific objectives are applicable to the development of coastal zone agriculture. The government will pursue a program for agro-ecologically disadvantaged regions in the hilly area, drought-prone area, Barind tract, char land, haor-baor and the coastal belt with appropriate technological support. To increase water productivity and enhance irrigation efficiency through optimal use of available water resources the government will facilitate dissemination of water management technology. Modern irrigation, drainage and water application systems will be introduced for expanding irrigation coverage including difficult or disadvantaged areas, i.e., in char, hilly, Barind tract, drought-prone and saline areas.

National Livestock Development Policy, 2007

Under this policy the Poultry Development was considered with due importance and explained. The backyard poultry units require minimum inputs and are often part of integrated crop aquaculture-livestock farming systems. There are at present no adequate guidelines for environmental protection and bio security when establishing poultry farms. The use of antibiotics in feeds is thought to be common and a cause of public health concern. The constraints facing the sector in general include: (i) lack of infrastructure beyond the Upazila Head Quarters for providing services to poultry farmers; (ii) shortage of skilled manpower; (iii) shortage of quality chicks and breeding materials; (iv) shortage of poultry , feed/feed ingredients and high prices; (v) poor quality of inputs; (vi) lack of quality control facilities for medicine, vaccines and biological products, feed and feed ingredients, chicks, eggs and birds; (vii) drug and vaccine residues in poultry meat; (viii) shortage of vaccines; (ix) lack of organized marketing systems; (x) poor provision of veterinary services; and (xi) insufficient credit and capital especially for the poor.

National Land Transport Policy, 2004

The government approved the NLTP in April 2004, which introduced the concept of long-term network planning and integration of transport policy, planning and appraisal across land transport modes. Each sub-sector undertakes physical and institutional improvement in line with its long-term policy provided in the NLTP with each sub-sector master plan. Major issues by subsector include (i) maintenance financing, quality, safety, and overloading in major roads; (ii) better planning in rural roads; (iii) restructuring Bangladesh Railways into a commercially oriented organization in conjunction with substantial investment in infrastructure, rolling stocks and wagons, equipment, and technical modernization; (iv) efficient dredging and tariff regulation in inland waterways; and (v) operation efficiency improvements in ports. As indicated in the NLTP, environmental adaptation needs to be considered in project assessment, which will help mitigate climate change.

Standing Orders on Disaster, 2010

To manage the paradigm, shift in disaster management, a disaster management regulatory framework is established under which the Bangladesh Disaster Management Framework is implemented, and in which work of Ministries, Departments, NGOs, and civil society are undertaken. The regulatory framework provides the relevant legislative, policy and best practice framework under which the activity of Disaster Risk Reduction (DRR) and Emergency Response Management (ERM) in Bangladesh is managed and implemented.

Strategy for Waste Management

The GoB has taken some initiatives and accordingly in December 2010, the DoE under MOEFCC has formulated a national “3R” strategy for waste management in a draft form. It is the latest strategy which will take time to implement globally. The concept of this strategy is minimizing waste impacts in terms of quantity or ill-effects, by reducing the number of waste products with simple treatments and recycling the wastes by using it as resources to produce same or modified products. The principle of “3R” is stated as reducing waste, reusing, and recycling resources and products. Reducing means choosing to use with items with care to reduce the amount of waste generated. Reusing involves the repeated use of items or parts of items which still have usable aspect. Recycling means the use of waste itself as resources.

The Energy Policy, 1996

An earlier energy planning effort led to the formulation of the first National Energy Policy (NEP) in 1996, which brought Government attention to the urgency of ensuring proper

exploration, production, distribution, and rational use of energy sources to meet the growing energy demand of the country.

Bangladesh National Building Code (BNBC), 2020

The basic purpose of this code is to establish minimum standards for design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings within Bangladesh to safeguard, within achievable limits, life, limb, health, property, and public welfare. The installation and use of certain equipment, services and appurtenances related, connected, or attached to such buildings are also regulated herein to achieve the same purpose.

Bangladesh National Building Code (BNBC) 2023 clearly sets out the constructional responsibilities according to which the relevant authority of a particular construction site shall adopt some precautionary measures to ensure the safety of the workmen. To prevent workers safety from any hazards or accident, the Code in section 3.2.1 to 3.2.3 of chapter 3 of part 7 sets out the detailed requirements on the precautionary measures to start physical work. According to section 3.5.1 of the same chapter, "The height of wall constructed per day shall be restricted to ensure that the newly constructed wall does not collapse due to the lack of strength in the lower layers. Adequate number of expansion joints shall be provided in long walls to prevent crumpling". Section 3.5.2 of same chapter "Properly designed and constructed scaffolding built by competent workmen shall be provided during the construction of walls to ensure the safety of workers". Section 3.6.1 "Platforms, catch ropes, nets etc. shall be provided during the construction of roofs. Precautions shall be taken to employ the correct technique of hoisting materials, to use hoists of sufficient strength for the quantity of stores to be hoisted, and to prevent overloading and overturning of hoists or buckets, etc. Where, the floor of one story is to be used for storage of materials for the construction of roof, it shall be ensured that the total load does not exceed the capacity of the floor." Section 3.7.1 "All workmen involved in concrete work shall be provided with helmet and hand gloves, especially when concrete pumps, concrete trucks or concrete precast elements are used. Temporary fencing, either with bamboo or C. I. sheet shall be erected around heavy equipment delineating the danger zone. All cantering and shuttering materials shall be kept stacked at site before and after use. Section 3.7.3. "All gears, chains and rollers of mixer plants shall be guarded. If the mixer has a charging skip, the operator shall ensure that the workmen are at safe distance before the skip is lowered. Barriers shall be provided to prevent walking under the skip while it is being lowered". Section 3.8.1. "Scaffolds shall be made from strong bamboo poles, wooden poles, wooden posts, steel pipes or any other suitable materials. They shall be adequately tied to vertical members resting on firm floor". Section 3.8.2. "The formwork shall be strong and rigidly braced so as not to bulge or sag when concrete is placed". Section 3.8.6. "Steel shuttering shall be used for any height. In case of patented materials, the instructions of the manufacturer regarding the load carrying capacities shall be followed. Section 3.11.3. is for Health Hazards subsections 3.11.3.1. Emission, 3.11.3.2. Clothing, 3.11.3.3. Removal of Dust, 3.11.3.4. First Aid and Ambulance, Section 3.11.4. Skin Hazard, Section3.11.5. Noise Hazard etc.". Section 3.13.1. "Building higher than two stories shall have always at least one stair in usable condition. This shall be extended upward with each completed floor. Till the permanent handrails are provided, temporary provisions like ropes, bamboo poles etc. shall be provided on stair".

The Penal Code, 1860

The Penal Code of 1860 has some valid provisions related to pollution management, environment protection and protection of health and safety. Chapter XIV of the Penal Code provides offenses effective public health, safety, convenience, decency, and morals; Section 277: Falling Water or Public Spring or Reservoir; Section 278: Making Atmosphere Noxious

to Health; Section 284: Negligent Conduct with Respect to Poisonous Substance; Section 285: Negligent Conduct with Respect to Fire or Combustible Matter; and Section 286: Negligent Conduct with Respect to Explosive Substance. According to the Section 277, whoever voluntarily corrupts or fouls the water of any public spring or reservoir, to render it less fit for the purpose for which it is ordinarily used will be punished under the law. According to the Section 278, whoever voluntarily vitiates the atmosphere in any place to make it noxious to the health of persons in general dwelling or carrying on business in the neighbourhood or passing along a public way will get punishment.

National Social Acts, Rules, Polices and Strategies

The Acquisition and Requisition of Immovable Property Act, 2017

The principal legal instrument governing land acquisition in Bangladesh is Acquisition and Requisition of Immovable Property Act, 2017 (ARIPA 2017). This act is a replacement of the Acquisition/Requisition of Immovable Property Ordinance, 1982. The ARIPA 2017 requires that compensation be paid for (i) land and assets permanently acquired (including standing crops, trees, houses); and (ii) any other damages caused by such acquisition. The Act also provides for the acquisition of properties belonging to religious organizations like mosques, temples, pagodas, and graveyards if they are acquired for public interest. The ARIPA, however, excluded the acquisition of properties used by the public for the purpose of religious worship, graveyards, and cremation grounds. The Act stipulates certain safeguards for the landowners and provides for payment of "fair value" for the properties acquired.

Bangladesh Labor Act, 2006

This Act pertains to the occupational rights and safety of Land Port workers and the provision of a comfortable work environment and reasonable working conditions. In the chapter VI of this law safety precaution regarding explosive or inflammable dust/ gas, protection of eyes, protection against fire, works with cranes and other lifting machinery, lifting of excessive weights are described. And in the Chapter VIII provision safety measure like as appliances of first aid, maintenance of safety record book, rooms for children, housing facilities, medical care, group insurance etc. are illustrated.

Bangladesh Labour Rules, 2015

This Rules pertains to the occupational rights and safety of workers and the provision of a comfortable work environment and reasonable working conditions. In third chapter of this document, rules about appointment of adolescent workers are provided. Pregnancy welfare benefits related rules are provided within chapter four. Health protection measures are described within chapter five. In Chapter VI of this document safety precaution regarding explosive or inflammable dust/gas, protection of eyes, protection against fire, works with cranes and other lifting machinery, lifting of excessive weights is described. Special Regulations regarding Health, Health Rules and Safety are provided within chapter seven. In the Chapter VIII provision safety measure like as appliances of first aid, maintenance of safety record books, rooms for children, housing facilities, medical care, group insurance etc. are illustrated. Workings hours & level are described within chapter nine. In chapter ten & eleven wage &its payment, wage board are included. Within chapter twelve Compensation for Injuries of the Workers due to Accident-related rule are included.

Environmental Assessment (OP/BP 4.01)

This policy is the umbrella safeguard policy to identify, avoid, and mitigate the potential negative environmental and social impacts associated with Bank lending operations. In World Bank operations, the purpose of Environmental Assessment is to improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted. The borrower is responsible for carrying out the EA and the Bank advises the borrower on the Bank's EA requirements. The Bank classifies the proposed project into three major categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts:

Category A: The proposed project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.

Category B: The proposed project's potential adverse environmental impacts on human population or environmentally important areas-including wetlands, forests, grasslands, or other natural habitats- 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 Category A projects.

Category C: The proposed project is likely to have minimal or no adverse environmental impacts.

Natural Habitats (OP/BP 4.04)

The conservation of natural habitats is essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions in its economic and sector work, project financing, and policy dialogue. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. The Bank does not support projects that involve the significant conversion or degradation of critical natural habitats.

Pest Management (OP/BP 4.09)

The aim of the pest management policy is to minimize and manage the environmental and health risks associated with pesticide use and promote and support safe, effective, and environmentally sound pest management. The procurement of any pesticide in a Bank-financed project is contingent on an assessment of the nature and degree of associated risks, considering the proposed use and the intended user. To manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank- financed projects, the borrower addresses pest management issues in the context of the project's environmental assessment. In appraising a project that will involve pest management, the Bank assesses the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management.

Physical Cultural Resources (OP/BP 4.11)

Physical cultural resources are defined as movable or immovable objects, sites, structures,

groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Their cultural interest may be at the local, provincial, or national level, or within the international community. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. The Bank assists countries to avoid or mitigate adverse impacts on physical cultural resources from development projects that it finances. The impacts on physical cultural resources resulting from project activities, including mitigating measures, may not contravene either the borrower's national legislation, or its obligations under relevant international environmental treaties and agreements. The borrower addresses impact on physical cultural resources in projects proposed for Bank financing, as an integral part of the environmental assessment (EA) process.

Forests (OP/BP 4.36)

Forest is defined as an area of land of not less than 1.0 hectare with tree crown cover (or equivalent stocking level) of more than 10 per cent that have trees with the potential to reach a minimum height of 2 meters at maturity in situ. A forest may consist of either closed forest formations, where trees of various stories and undergrowth cover a high proportion of the ground, or open forest. The definition includes forests dedicated to forest production, protection, multiple uses, or conservation, whether formally recognized or not. The definition excludes areas where other land uses not dependent on tree cover predominate, such as agriculture, grazing or settlements. In countries with low forest cover, the definition may be expanded to include areas covered by trees that fall below the 10 per cent threshold for canopy density but are considered forest under local conditions. The Bank's forests policy recognizes the importance of forests to reduce poverty in a sustainable manner integrates forests effectively in economic development, aims to reduce deforestation, promote a forestation, and enhance the environmental contribution of forested areas. The Bank assists borrowers with the establishment and sustainable management of environmentally appropriate, socially beneficial, and economically viable forest Port area plantations to help meet growing demands for forest goods and services.

Safety of Dams (OP/BP 4.37)

When the World Bank finances new dams, the Policy Safety on Dams requires that experienced and competent professionals design and supervise construction, and that the borrower adopts and implements dam safety measures through the project cycle. The policy also applies to existing dams where they influence the performance of a project. In this case, a dam safety assessment should be carried out and necessary additional dam safety measures implemented.

Involuntary Resettlement (OP/BP 4.12)

This policy is triggered in situations involving involuntary taking of land and involuntary restrictions of access to legally designated parks and protected areas. The policy aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts. It promotes participation of displaced people in resettlement planning and implementation, and its key economic objective is to assist displaced persons in their efforts to improve or at least restore their incomes and standards of living after displacement. The policy prescribes compensation and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments prior to Bank appraisal of proposed projects.

Indigenous People (OP/BP 4.10)

The term "Indigenous Peoples" is used in a generic sense to refer to a distinct, vulnerable, social and cultural group possessing the following characteristics in varying degrees: o self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; o collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; o customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and o an indigenous language, often different from official language of the country/region.

The Bank provides project financing only where free, prior, and informed consultation results in broad community support to the project by the affected Indigenous Peoples. Such Bank-financed projects include measures to (a) avoid potentially adverse effects on the Indigenous Peoples' communities; or (b) when avoidance is not feasible, minimize, mitigate, or compensate for such effects. Bank-financed projects are also designed to ensure that the Indigenous Peoples receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive.

International Waterways (OP/BP 7.50)

Projects on international waterways may affect the relations between the World Bank and its borrowers, and between riparian states. Therefore, the Bank attaches great importance to the riparian making appropriate agreements or arrangements for the entire waterway, or parts thereof, and stands ready to assist in this regard. A borrower must notify other riparian of planned projects that could affect water quality or quantity, sufficiently far in advance to allow them to review the plans and raise any concerns or objections.

Environmental, Health and Safety (EHS) Guidelines of WBG and IFC, 2008

The Environmental, Health and Safety (EHS) Guidelines of the World Bank Group (WBG)/International Finance Corporation (IFC), 2008 is the safeguard guidelines for environment, health, and safety for the development of the industrial and other projects. They contain performance levels and measures that are achievable in new facilities at reasonable costs using existing technologies. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent. If less stringent levels or measures than those provided in these EHS Guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment.

The section 4 of EHS Guidelines for "Construction and Decommissioning" provides additional, specific guidance on prevention and control of community health and safety impacts that may occur during new project development, at the end of the project life cycle, or due to expansion or modification of existing project facilities.

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Questionnaire survey on Local Shop Keeper in Bholaganj, Sylhet

This survey aims to assess the demographic information of the local shopkeeper in Bholaganj, Sylhet. Accordingly, you have been selected by chance to participate in this survey. Your participation is completely voluntary and your response will be kept completely confidential. Anytime you may discontinue the survey if you want so".

DEMOGRAPHIC INFORMATION ON LOCAL SHOP KEEPER

Questionnaire ID: 01	Village Name	Ward No:	Latitude	Longitude
Date: 20.03.23	Adarsha village, Bholaganj	10	25.147147	91.747537

01. Name of the respondent	02. Sex 1=Male 2=Female	03. Age	04. Educational qualification Illiterate=1 Able to sign=2 Under SSC=3 Above SSC=4	05. No. of family member	06. Occupation	07. Average monthly income (taka)	08. Contact No.	09. National ID Card Number
Anjon Chandra	1	35 yrs	3	8	Business man	15000		N/A.

Questionnaire Survey on Crushing Machine Section in Bholaganj, Sylhet

This survey aims to assess the demographic information and occupational health & safety of the running crushing machine in Bholaganj, Sylhet. Accordingly, you have been selected by chance to participate in this survey. Your participation is completely voluntary and your response will be kept completely confidential. Anytime you may discontinue the survey if you want so".

SECTION O1: DEMOGRAPHIC INFORMATION

Questionnaire ID:	Location Name	Number of the Operator	Sex	Latitude	Longitude
01	Land Custom Ghat	2	1=Male 2=Female		
Date:					

No. of Workers	Average Age	Educational qualification	Working Hour	Start Time	End Time	Contact No of the Operator and NID Number
20	28	Illiterate=1 Able to sign=2 Under SSC=3 Above SSC=4	8 hour	8-4am	4 pm	

SECTION O2: INFORMATION ON OCUPATIONAL HEALT IMPACT

Which types of pollution sources mentioned here are available in your locality? [Code: 1= Water pollution, 2= Air pollution, 3= Noise pollution, 4= Soil pollution	

1	(A) Are your family members suffering from bad water quality? (Code: 1=Yes, No=0)	
	(B) If yes, What illnesses are you afflicted with?	No
2	(A) Are your family members suffering from bad Air quality? (Code: 1=Yes, No=0)	
	(B) If yes, What illnesses are you afflicted with?	
3	(A) Are your family members suffering from noise pollution? (Code: 1=Yes, No=0)	
	(B) If yes, What illnesses are you afflicted with?	
4	(A) Are your family members suffering from bad soil quality? (Code: 1=Yes, No=0)	
	(B) If yes, What illnesses are you afflicted with?	

Annex 6: Chance Find Procedures

(Ref: The World Bank Operational Manual, 1999 OP4.11)

Works could impact sites of social, sacred, religious, or heritage value. “Chance finds” procedures would apply when those sites are identified during the design phase or during the actual construction period and the related activity will not be eligible for financing under the project.

(1) Cultural property includes monuments, structures, works of art, or sites of significant points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards, and graves.

(2) The list of negative project attributes which would make a project ineligible for support includes any activity that would adversely impact cultural property.

(3) In the event of finding properties of cultural value during construction, the following procedures for identification, protection from theft, and treatment of discovered artifacts should be followed and included in the standard bidding document.

(a) Stop the construction activities in the area of the chance find;

(b) Delineate the discovered site or area;

(c) Secure the site to prevent any damage or loss of removable objects.

(d) Notify the supervisory Engineer who in turn will notify the responsible local authorities.

(e) Responsible local authorities and the relevant Ministry would oversee protecting and preserving the site before deciding on subsequent appropriate procedures.

(f) Decisions on how to handle the finding shall be taken by the responsible authorities and the relevant Ministry. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance), conservation, restoration, and salvage.

(g) Implementation of the authority decision concerning the management of the finding shall be communicated in writing by the relevant Ministry.

(h) Construction work could resume only after permission is given from the responsible local authorities and the relevant Ministry concerning safeguard of the heritage.

(4) These procedures must be referred to as standard provisions in construction contracts. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered.

(5) Relevant findings will be recorded in World Bank Supervision Reports and Implementation Completion Reports will assess the overall effectiveness of the project’s cultural property mitigation, management, and activities, as appropriate.

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
1. Will construction, operation or decommissioning of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)?	Yes, the proposed land is an undulated medium high land and carrying excavated earth will be required for filling up the low land to the design level.	Yes, the natural drainage pattern will be changed due to filling within the proposed land port area.
2. Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?	Yes. Carrying earth would be required for developing the land. Petroleum products will be required for both construction (construction equipment) and operation of land port.	Yes, due to land filling and construction activities.
3. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?	Yes. Petroleum products may need to be stored at the port facilities for the operation of standby generators.	No, since closed storage yards will be developed for storing of petroleum and other hazardous cargo.
4. Will the Project produce solid wastes during construction or operation or decommissioning?	Yes. Both solid and liquid waste will be produced by the land port during construction (construction related waste) and operation (cargo waste).	Yes. Solid waste will be generated at the land port. Proper collection and disposal of solid waste will be required.
5. Will the Project release pollutants or any hazardous, toxic or noxious substances to air?	Yes. Dust and emissions from construction equipment and vehicular traffic will be a concern both during construction and operation.	No, dust control measures will be adopted in the design (e.g. paved roads) and will be regularly maintained (e.g. regular sweeping or water spraying).
6. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?	Yes. Construction and operation works generate noise levels from machinery and	No, adequate buffer zone will be established around the port facilities to control the noise

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
	traffic.	levels.
7. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater, coastal wasters or the sea?	Yes. There is a risk of contamination from construction; and also from port facilities and cargo storages.	Yes, the risk contamination is more due to changes in the drainage pattern in the project area. Proper drainage pattern will be required.
8. Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?	Yes. Construction works may pose health and safety hazards to the workers and nearby community. During operation, major sources are dust and emissions from with activities associated with land port and related facilities and traffic.	Yes. There are risks of physical hazards (cargo handling and use) and chemical hazards (dust and emissions form fuels. There are also risks of safety hazards due to non-use of personal protective equipment (e.g. safety shoes and helmets) during manual handling of cargo. Safe drinking and sanitation facilities are to be provided for both the office staff and working labourers.
9. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?	Yes. The project will generate employment opportunities for the local community both during construction and operation phases. The local communities and their lifestyle could be impacted by increasing of their exposure to outside communities.	Yes, several employment opportunities will be generated in and around the port facilities, and in the associated business opportunity.
10. Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned	No	No

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
activities in the locality?		
11. Are there any areas on or around the location which are protected under international or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the project?	No. The proposed facilities for extension are located in a human disturbed land. No areas that are protected under international and national legislation are located around the port facilities.	No.
12. Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other water bodies, the coastal zone, mountains, forests or woodlands, which could be affected by the project?	No. Piyain River is about 500 meters from the land port area and separated by existing highway and Government designated tourist area. No hill and forest are located near the project area.	No. Because any direct discharge (liquid or solid) into the river will be prohibited. Cutting hill or trees are not required due the development of land port.
13. Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, overwintering, migration, which could be affected by the project?	No.	No
14. Are there any inland, coastal, marine or underground waters on or around the location which could be affected by the project?	No.	No.
15. Are there any areas or features of high landscape or scenic value on or around the location which could be affected by the project?	No	No
16. Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?	Yes. There is a Border Hat on the zero line but outside the project development boundary which will be in operation soon. Tourism spot will be developed opposite	No. Provision of access facility to the Border Hat will be considered in the design. Road facility to access to the cemetery will be provided. Traffic flow will be diverted

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
	side of the land port.	from the existing highway to through inside the land port area.
17. Are there any transport routes on or around the location which are susceptible to congestion, or which cause environmental problems, which could be affected by the project?	Yes, the road leading to the border is susceptible to traffic congestion.	No significant effect will be happened because traffic congestion would be controlled properly.
18. Is the project in a location where it is likely to be highly visible to many people?	No, the facilities will be located in a rural setting	No.
19. Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?	Yes. There is a renowned tourist spot Shada Pathor area. Tourists from different parts of the country visited regularly using the existing road, which is beside the land port area.	No. Traffic related to land port will be diverted through inside the land port area with proper management.
20. Is the project located in a previously undeveloped area where there will be loss of green field land?	Yes, the proposed location was previously underdeveloped but no green field in the project area.	Yes, the drainage pattern would be affected if adequate drainage measures were not taken in the design.
21. Are there existing land uses on or around the location e.g. homes, gardens, other private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining or quarrying which could be affected by the project?	Yes, there are a tourism spot. Tourists are travelling through the existing road and by the side of the land port.	No, because no land acquisition is required because existing land owned by the Government that will be transfer to BLPA following proper Government rules.
22. Are there any plans for future land uses on or around the location which could be affected by the project?	No	No
23. Are there any areas on or around the location which are densely populated or built-up, which could be affected by the project?	No	No

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
24. Are there any areas on or around the locations which are occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities, which could be affected by the project?	Yes. There is a Primary School south adjacent to the project boundary.	No. Project authority will construct a high boundary wall with development of buffer zone by the side of the boundary walls to protect noise impact to the students in the school.
25. Are there any areas on or around the location which contain important, high quality or scarce resources e.g. groundwater, surface waters, forestry, agriculture, fisheries, tourism, minerals, which could be affected by the project?	No	No
26. Are there any areas on or around the location which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?	No	No.
27. Is the project location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems?	Yes, risk of earthquake is a concern in the Project area.	No, the design of port facilities will consider adequate building standards.

Checklist of Bholaganj Land Port

		SEIs without mitigation measures				Type		
		None	Minor	Medium	Major	Adverse	Beneficial	
Construction Phase	Site Clearing and land filling			x			x	Bholaganj Land Port has prepared and committed to taking appropriate measures to reduce all kinds of adverse impacts and to enhance the positive impacts. They also committed to comply all the regulations of Department of Environment (DoE) and World Bank (WB).
	Raw material storage & handling			x		x		
	Ready-mix concrete preparation			x		x		
	Transportation of raw materials				x	x		
	Construction activities on land				x	x		
	Staff housing			x			x	
	Services				x		x	
	Employment generation				x		x	
	Loss of and displacement from homestead land		x			x		
	Loss and displacement from agricultural land		x			x		
	Disruption to drainage pattern		x			x		
	Encroachment to precious ecology	x				x		
	Runoff erosion	x						
	Worker accident		x			x		
	Sanitation diseases hazard		x			x		
	Noise and vibration hazard			x		x		
	Traffic congestion		x			x		
	Labor Influx		x			x		
	Employment				x		x	
Operation phase	Vehicular Movement				x	x		
	Air Emissions from Generator & engines of automobiles				x	x		
	Depreciation of Environmental Aesthetics		x				x	
	Erosion and silt runoff		x			x		
	Pollution from solid waste		x			x		
	Air quality by dust generated by vehicles other transports			x		x		
	Odor hazard		x			x		

		SEIs without mitigation measures				Type		
		None	Minor	Medium	Major	Adverse	Beneficial	
	Occupational health hazards			x		x		
	Traffic congestion		x					
	Noise hazard			x		x		
	Labor Influx	x						
	Employment				x		x	

Terms of Reference (TOR) for the Environmental Impact Assessment (EIA) /Environmental and Social Impact Assessment (ESIA) of Bholaganj Land Port, Companiganj Upazila of Sylhet District.

Environmental Impact Assessment (EIA)) is a report which identifies and analyzes the potential impacts on the environment by the activities of a structural project or industry. This report not only predicts the impacts but also explains the remedies and plans to reduce the impacts. The EIA is a report based on detailed field study prepared by third party professionals having members of specific educational qualifications and experiences in Environmental and social Impact Assessment. EIA report also includes the study of significant environmental and social impacts to be identified in field study, public consultation, or other means of impact identification. ESIA report would cover the following aspects:

0. Executive Summary
1. Introduction: Background and brief description of the project, Objectives of the project, Objectives of EIA, scope of study, methodology, ESIA team (with name, educational qualifications, present/former positions/designation in GOs/NGOs), years of experiences and signature), limitation, etc.
2. Legislative, Regulation and Policy Consideration: Covering the relevant legal, administrative, environmental planning and policy framework, like National Environmental Policy 1992, Environmental Conservation Act (ECA) 1995 (Amended in 2010), Environment Conservation Rules (ECR), 1997 (Amended in 2003), National Environmental Management Action Plan (NEMAP), Environmental, Health and Safety (EHS) Guidelines of WBG and IFC 2008, World Bank Environmental and Social Safeguard Policies, etc. within which the EIA will be prepared.
3. Project Activities: Project overview, description of project area, environmental category, utility services, location map, layout plan, list of main project activities to be undertaken during site clearing, construction and operation phase, present status of the project, etc.
4. Baseline Environmental Condition: Physical environment like, geology, topology, geography, soils, meteorology, hydrology, etc.
    - Biological environment like, habitat, niches, flora, fauna, aquatic ecology, terrestrial ecology, etc.
    - Environmental quality like air and water quality, noise pollution, etc.
    - Socio-economic environment: Including settlement and housing, traffic and transports, public utilities (water, gas, electricity, etc.), economy and employment, demography, indigenous people, resettlement, etc.
5. Stakeholders' Consultation /Public Consultation: To ensure that consultation with the interested stakeholder and general people will take place and their pertinent views are considered in planning and implementation/operation of the project.
6. Analysis of Potential Alternatives
7. Identification of Potential Impacts: Including assessment of positive and negative impacts likely to result from the proposed project activities.
8. Environmental and Social Impacts Analysis and Mitigation Measures: Including prediction, evaluation and description of both technically and economically feasible mitigation measures for minimizing, eliminating or offsetting unavoidable adverse effects.
9. Environmental and Social Management & Monitoring plan: Plan of identified potential adverse environmental impacts & their mitigation measures and implementation

strategy, monitoring indicators and monitoring plan, Environmental Monitoring Cost, etc.

10. Disaster Management Plan with GRM
11. Conclusions and recommendations.

It is to be mentioned that EIA team should consist of at least 4 members. The team leader should have a Post Graduate degree in Environmental Engineering/ Environmental Science/ any related subject with at least 5 yrs. field experience in GO, NGO or in Donor financed GoB project. One Economist/ Sociologist having experience in government/autonomous body/NGOs in natural resources management. One junior Environmental Specialists and one baseline survey and field study expert. One member of the team having work experience as a Safeguard Specialist (Environmental and Social) in GO, NGO or in Donor financed GoB project should be given preference.

EnviroCare International Ltd.
A house of Inspection, Testing, Assessment &Consultancy

Report No.	:	*ECIL/2023/03/AAQ*
Project Name	:	Bholaganj Land Port.
Project Zone	:	Bholaganj, 1 no. West Islampur, Companiganj, Sylhet, Bangladesh.
Sample collector	:	EnviroCare Monitoring Team
Description of Sample	:	Ambient Air Quality Analysis Report
Sampling Date	:	20-03-23
Reporting Date	:	March, 2023

Environmental Condition:

Ambient Temperature (Average)	:	High / Low (29.8/ 24.5 °C)
Relative Humidity	:	71.8 % RH
Weather Condition	:	Clear

Description of Analysis

Sample ID	Monitoring Date	SPM ($\mu g/m^3$)	PM 2.5 ($\mu g/m^3$)	PM 10 ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)
AQ 01	20.03.2023	157.44	47.51	106.49	3.40	3.03	0.89
AQ 02	20.03.2023	279.87	86.68	162.54	3.26	2.21	1.01
AQ 03	20.03.2023	162.16	48.37	110.76	2.82	1.94	0.97
AQ 04	20.03.2023	149.50	44.96	101.88	2.48	1.89	1.73
Duration (Hours)		**8**	**24**	**24**	**24**	**24**	**8**
Bangladesh Standard*		**200**	**65**	**150**	**80**	**80**	**5**

* Standard: Air Pollution Control Rules on 26th July 2022; vide S.R.O No. 255-Law/2022 and Environment Conservation Rules (ECR) 1997 through its subsequent amendment on 19th July, 2005; vide S.R.O. No.220-Law/2005

Exceeding Standard Level

Envirocare International Ltd. Dhaka

Prepared By	Reviewed By	Approved By:
Md. Samrat Hossain	Sanjoy Kumar Mondol	Shorov Roy
B.Sc. in Environmental Science and Resource Management (MBSTU)	B.Sc. in ESRM (MBSTU)	B.Sc. in ESRM (MBSTU)
MS in Environmental Science (MBSTU)	MS in Environmental Science (MBSTU)	MS in Environmental Science (BAU)
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EnviroCare International Ltd.
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Report No.	:	*ECIL/2023/2265/NLI*
Project Name	:	Bholaganj Land Port.
Project Zone	:	Bholaganj, 1 no. West Islampur, Companiganj, Sylhet, Bangladesh.
Sample collector	:	EnviroCare Monitoring Team
Description of Sample	:	Noise Quality Analysis Report
Sampling Date	:	20 March, 2023
Reporting Date	:	March, 2023

Environmental Condition:

Ambient Temperature (Average)	:	High / Low (29.8/ 24.5 °C)
Relative Humidity	:	71.8 % RH
Weather Condition	:	Clear

Description of Analysis

Location ID	Monitoring Time	Noise level [dB(A)]			Standard* [dB(A)]	Land Use Category
		Leq	L_{max}	L_{min}		
NL 01	Day	72.47	88.9	63.4	70	Commercial
	Night	55.24	65.2	40.2	60	
NL 02	Day	82.32	90.3	76.8	70	Commercial
	Night	57.35	66.8	46.2	60	
NL 03	Day	68.37	76.8	58.3	60	Mixed
	Night	54.78	65.9	50.7	50	
NL 04	Day	67.92	78.4	57.0	50	Residential
	Night	48.79	55.0	42.9	40	

*Standard: The Environment Conservation Rules (ECR), 1997 and Subsequent amendment in 2006

Exceeding Standard Level

Envirocare International Ltd. Dhaka

Prepared By	Reviewed By	Approved By:
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জীবনের জন্য বিজ্ঞান
"শেখ হাসিনার দর্শন, সব মানুষের উন্নয়ন"

কাচ ও সিরামিক গবেষণা ও পরীক্ষণ ইনস্টিটিউট

INSTITUTE OF GLASS AND CERAMIC RESEARCH & TESTING (IGCRT)

Analysis Report

Ref. no.: IGCRT/Admin/Analysis/44/1-2/2001/45 Dated: 30/03/2023
Analytical service cell sample No: **G-47** Dated: 30/03/2023

Sub: Analytical report on **supplied samples** by **EnviroCare International Ltd. House 9 (3rd floor), Road 6, Sector 12, Uttara, Dhaka-1230, Bangladesh.**

Report Details

WD-XRF analysis report of the supplied samples are given below:

Sample ID	Sample Name	Name of the Project	Address of the Project	Sample Source	Parameter	Results (%)
01	Stone Broken Dust	Bholaganj Land Port	Bholaganj, Companyganj, Sylhet	Stone broken dust sample from crushing machine	Silicon (Si)	2.80
					Aluminum(Al)	0.72
					Iron (Fe)	0.97

06/04/2023
Analyst
SABRINA MOSTOFA
Senior Scientific Officer
IGCRT, BCSIR
Dhaka-1205

06.04.2023
Lab./Division In charge
DR. SHIRIN AKTER JAHAN
Principal Scientific Officer
IGCRT, BCSIR, Dhaka-1205

09.04.2023
For In-Charge/Director
Md Habibur Rahman Bhuiyan
Director (Additional Charge)
Institute of Glass & Ceramic Research & Testing
BCSIR, Dr. Qudrat-I-Khuda Road
Dhaka-1205

Note:

i. The result reported above pertain only to the sample supplied in this laboratory.
ii. This report or any part of this should not be published without prior permission of the issuing authority.
iii. Any overwriting /erasing in the test results should not be acceptable. Overwriting/erasing in the test results must have to be reported to the issuing authorities as early as possible.
iv. Any complain about test report will not be acceptable after one month from the date of issuing of the said report.
v. This report is free from any legal litigation and IGCRT, BCSIR is not liable for any legal implication relating the report

Bangladesh Council of Scientific and Industrial Research (BCSIR)
Dr. Qudrat-I-Khuda Road, Dhanmondi, Dhaka-1205.
Tel : 88-02- 9669677, E-mail : igcrtbcsir@gmail.com

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Customer/Accounts/Office Copy

Physical/ Chemical/ Bacteriological Analysis of Water Sample

Name of Project	: Bholaganj Land Port
Description of sample	: Surface Water Sample collection
Sample ID	: SW-01
Location	: Dholai River, Bholaganj
Sample Collector	: Collected by Envirocare Technical Team
Analyzed By	: BEETLSL Laboratory
Monitoring Date	: 20 March, 2023
GPS Location	: 25°8'56.76"N; 91°45'3.45"E

LABORATORY TEST RESULTS:

Parameters	Unit	Method	Concentration Present	ECR'97 Standard*
			SW 01	
pH	--	pH Meter	7.7	6.5-8.5
DO	mg/L	Multimeter	6.52	6 or above
Biochemical Oxygen Demand (BOD)	mg/L	5 Days Incubation	13	2 or less
Chemical Oxygen Demand (COD)	mg/L	CRM	44	NYS
Total Suspended Solids (TSS)	mg/l	Gravity Multimeter	16	NYS
Nitrate	mg/l	AAS	5.42	NYS
Phosphate	mg/l	AAS	3.57	NYS

*The Environment Conservation Rules (ECR) 1997, Schedule 3(A)
N.B: AAS- Atomic Absorption Spectrophotometer, CRM- Closed Reflux Method, NYS-Not Yet Standardized

Lab Test Performed by	Reviewed and checked by	Approved By
Mahadi Hasan Executive (Environmental Lab), BEETLSL	**Md. Nasim Reza** Environmental Monitoring Officer (Executive), BEETLSL.	**Dr. Fatima Akter** Director, BEETLSL
16.04.2023	16.04.2023	17.04.2023

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Customer/Accounts/Office Copy

Physical/ Chemical/ Bacteriological Analysis of Water Sample

Name of Project	: Bholaganj Land Port
Description of sample	: Surface Water Sample collection
Sample ID	: SW-02
Location	: Dholai River, Bholaganj
Sample Collector	: Collected by Envirocare Technical Team
Analyzed By	: BEETLSL Laboratory
Monitoring Date	: 20 March, 2023
GPS Location	: 25°8'19.98"N; 91°45'8.71"E

LABORATORY TEST RESULTS:

Parameters	Unit	Method	Concentration Present	ECR'97 Standard*
			SW 02	
pH	–	pH Meter	7.4	6.5-8.5
DO	mg/L	Multimeter	6.43	6 or above
Biochemical Oxygen Demand (BOD)	mg/L	5 Days Incubation	27	2 or less
Chemical Oxygen Demand (COD)	mg/L	CRM	34	NYS
Total Suspended Solids (TSS)	mg/l	Gravity Multimeter	12	NYS
Nitrate	mg/l	AAS	10.74	NYS
Phosphate	mg/l	AAS	2.96	NYS

*The Environment Conservation Rules (ECR) 1997, Schedule 3(A)
N.B: AAS- Atomic Absorption Spectrophotometer, CRM- Closed Reflux Method, NYS-Not Yet Standardized

Lab Test Performed by	Reviewed and checked by	Approved By
Mahadi Hasan Executive (Environmental Lab), BEETLSL	**Md. Nasim Reza** Environmental Monitoring Officer (Executive), BEETLSL.	**Dr. Fatima Akter** Director, BEETLSL
16.04.2023	16.04.2023	17.04.2023

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Customer/Accounts/Office Copy

Physical/ Chemical/ Bacteriological Analysis of Water Sample

Name of Project	: Bholaganj Land Port
Description of sample	: Groundwater Sample collection
Sample ID	: GW-01
Location	: Adarsha Gram Primary School, Bholaganj
Sample Collector	: Collected by Envirocare Technical Team
Analyzed By	: BEETLSL Laboratory
Monitoring Date	: 20 March, 2023
GPS Location	: 25°8'47.21"N; 91°44'49.33"E

LABORATORY TEST RESULTS:

Parameters	Unit	Method	Concentration Present	ECR'97 Standard
			GW 01	*
pH	--	pH Meter	7.3	6.5-8.5
Total Hardness (as CaCO3)	mg/l	Titrimetric	287	200-500
Arsenic (As)	mg/l	AAS	0.006	0.05
Iron (Fe)	mg/l	AAS	2.18	0.3-1
Fecal Coliform (FC)	N/100mL	MFM	28	0
Total Coliform (TC)	N/100mL	MFM	0	0

*The Environment Conservation Rules (ECR) 1997, Schedule 3(B)
N.B: AAS- Atomic Absorption Spectrophotometer, MFM-Membrane Filtration Method

Lab Test Performed by	Reviewed and checked by	Approved By
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Email: info.beetlsl@gmail.com

Customer/Accounts/Office Copy

Physical/ Chemical/ Bacteriological Analysis of Water Sample

Name of Project	: Bholaganj Land Port
Description of sample	: Groundwater Sample collection
Sample ID	: GW-02
Location	: Crushing Machine Section, Bholaganj
Sample Collector	: Collected by Envirocare Technical Team
Analyzed By	: BEETLSL Laboratory
Monitoring Date	: 20 March, 2023
GPS Location	: 25°8'57.15"N; 91°44'46.07"E

LABORATORY TEST RESULTS:

Parameters	Unit	Method	Concentration Present	ECR'97 Standard*
			GW 02	
pH	--	pH Meter	7.5	6.5-8.5
Total Hardness (as CaCO3)	mg/l	Titrimetric	346	200-500
Arsenic (As)	mg/l	AAS	0.008	0.05
Iron (Fe)	mg/l	AAS	2.66	0.3-1
Fecal Coliform (FC)	N/100mL	MFM	0	0
Total Coliform (TC)	N/100mL	MFM	0	0

*The Environment Conservation Rules (ECR) 1997, Schedule 3(B)
N.B: AAS- Atomic Absorption Spectrophotometer, MFM-Membrane Filtration Method

Lab Test Performed by	Reviewed and checked by	Approved By
Mahadi Hasan Executive (Environmental Lab), BEETLSL	**Md. Nasim Reza** Environmental Monitoring Officer (Executive), BEETLSL.	**Dr. Fatima Akter** Director, BEETLSL
16.04.2023	16.04.2023	17.04.2023

GLOBAL ACCEPTANCE
BAB
BANGLADESH ACCREDITATION BOARD

ACCREDITATION CERTIFICATE

Issued under the authority of Bangladesh Accreditation Act, 2006
by Bangladesh Accreditation Board (BAB), Ministry of Industries to

Bangladesh Environmental Engineering Training & Lab Services Limited

Nobarun Plaza, (2nd Floor), 33, Shahid Nazrul Islam Sharak

Hatkhola, Tikatuli, Dhaka - 1203, Bangladesh.

This is to certify that this
Testing Laboratory
is accredited in accordance with the international standard
ISO/IEC 17025:2017
in respect of the associated scope, subject to the terms and conditions governing the relevant conformity assessment body (CAB) accreditation.

CERT. NO. 01.073.22
BAB
BANGLADESH ACCREDITATION BOARD
Accredited for ISO/IEC 17025:2017

Certificate Number	:	**01.073.22**
Accreditation Date	:	**29 November 2022**
Date of Issuance	:	**29 November 2022**
Date of Expiration	:	**28 November 2025**

GLOBAL
BAB ACCREDITED
ACCEPTANCE

Md. Monwarul Islam
Director General

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TCCPL

TRANS CONTINENTAL CERTIFICATIONS PVT. LTD.

Certificate of Registration

This is to certify that

Quality Management Systems

of

ENVIROCARE INTERNATIONAL LTD.

3RD FLOOR, HOUSE 09, ROAD 06, SECTOR 12,
UTTARA, DHAKA, BANGLADESH

has been assessed and registered by TCCPL as conforming to the requirements of

ISO 9001:2015

The Quality Management Systems is applicable to:

TESTING, INSPECTION, ASSESSMENT , CALIBRATION, RESEARCH AND DEVELOPMENT

Certificate No: Q-8801033286

Certificate issue date : 01-03-2022 **Next Audit before : 28-02-2023**

2nd Surveillance due date: 28-02-2024 **Re-Certification due date : 28-02-2025**

Managing Director

TRANS CONTINENTAL CERTIFICATIONS PVT. LTD. TCCPL

UNITED ACCREDITATION FOUNDATION UAF

C5-M5-0702

TCCPL TRANS CONTINENTAL CERTIFICATIONS PVT. LTD.

TRANS CONTINENTAL CERTIFICATIONS PVT. LTD.
Website: www.tccplcertifications.com Email: info@tccplcertifications.com

Accredited by **United Accreditation Foundation Inc. (UAF)** Member of IAF

Lack of fulfilment of conditions set out for the issuance of this certificate and timely completion of periodic surveillance audit may render this certificate invalid

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CERTIFICATE - CERTIFICAT - ZERTIFIKAT - CERTIFICATO

GLOBAL ACCEPTANCE

BAB

BANGLADESH ACCREDITATION BOARD

ACCREDITATION CERTIFICATE

Issued under the authority of Bangladesh Accreditation Act, 2006
by Bangladesh Accreditation Board (BAB), Ministry of Industries to

Envirocare International Ltd.

House # 02, Road # 05, Dhour, Neshat Nagar

Turag, Dhaka, Bangladesh.

This is to certify that this

Inspection Body (Type-A)
is accredited in accordance with the international standard

ISO/IEC 17020:2012
in respect of the associated scope, subject to the terms and conditions governing the relevant conformity assessment body (CAB) accreditation.

CERT. NO. 05.010.21
BAB
BANGLADESH ACCREDITATION BOARD
Accredited for ISO/IEC 17020:2012

Certificate Number	:	**05.010.21**
Accreditation Date	:	**16 June 2021**
Date of Issuance	:	**16 June 2021**
Date of Expiration	:	**15 June 2024**

GLOBAL BAB ACCREDITED ACCEPTANCE

Md. Monwarul Islam
Director General

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BANGLADESH ACCREDITATION BOARD (BAB)

91, Motijheel C/A, Dhaka-1000
Tel: +880-2-9513221
Fax: +880-2-9513222
Email:info@bab.org.bd
Web: www.bab.org.bd

SCOPE OF ACCREDITATION

(For Inspection Bodies)

CAB Name & Address: Envirocare International Ltd., House # 02, Road # 05, Dhour, Nishat Nagar, Turag, Dhaka, Bangladesh

Accreditation Standard: ISO/IEC 17020:2012
Accreditation Date: 16 June 2021
Certificate Number: 05.010.21
Issued on: 16 June 2021
Last Amended on: NA
Valid until: 15 June 2024
Amendment no: NA
Types : A

Head Office or primary location			Additional Locations (If different from Head Office)		
House # 02, Road # 05, Dhour, Nishat Nagar, Turag, Dhaka, Bangladesh			1	House 09, Road 06, Sector 12, Uttara, Dhaka.	
			2		
			3		
Type (A,B,C)	**Inspection Category (Product, Process, Services or Installation)**	**Inspection Field (and sub-fields)**	**Range of inspections**	**Stage of inspection**	**Inspection requirements or criteria**
A	Services	Noise Level Inspection	30 to 130 dB	On Site Inspection	In House (EIL SOP 01)
		Light Level Assessment	0 to 20,000 Lux		In House (EIL SOP 02)
		Temperature Level Inspection	0 °C to 50 °C		In House (EIL SOP 04)
		Humidity Level Inspection	10% to 95% RH		In House (EIL SOP 04)
		Air Velocity level Inspection	0.4 to 30.0 m/s		In House (EIL SOP 04)
		Vibration Level Assessment	0.1 to 199.9 m/s^2		In House (EIL SOP 03)
		Stack Air Emission	O_2 : 0 to 25 Vol. % NO: 0 -4000 mg/Nm3 NOx: 0 to 25 Vol. % CO : 0 to 10000 ppm CO2: 0 to CO2 max. SO_2 : 0 to 5,000 ppm Flue Temperature: -40 to +1,200 °C		In House (EIL SOP 05)
		Ambient Air Quality Assessment	PM2.5: 0~2000ug/m3 PM10: 0~2000ug/m3 CO2: 0-9999ppm HCHO: 0.00 to 5.00 ppm (or mg/m^3) TVOC: 0.00 to 9.99		In House (EIL SOP 06)

Quality Manager

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			ppm (or mg/m³) O3: 0-20 ppm (or mg/m³) NO: 0-250 ppm(or mg/m³) NO2: 0-20 ppm (or mg/m³) SO2: 0-20 ppm (or mg/m³)		
		Industrial Hygiene and Indoor Air Quality Assessment	PM2.5: 0~2000ug/m3 PM10: 0~2000ug/m3 CO2: 0-9999ppm HCHO: 0.00 to 5.00 ppm (or mg/m³) TVOC: 0.00 to 9.99 ppm (or mg/m³) O3: 0-20 ppm (or mg/m³) NO: 0-250 ppm(or mg/m³) NO2: 0-20 ppm (or mg/m³) SO2: 0-20 ppm (or mg/m³)		In House (EIL SOP 06)

END

Quality Manager

Government of the People's Republic of Bangladesh
Ministry of Agriculture
Soil Resource Development Institute
Divisional Laboratory, Dhaka
Krishi Khamar Sarak, Dhaka-1215

Memo No. 12.03.3026.071.57.011.23- 224 Date: 08/05/2023

To
Envirocare International Ltd.
House # 09, Road # 06
Sector # 12, Uttara-1230.

Subject: Analytical results of supplied 1 (One) soil sample.

Regarding the above mentioned subject the analytical results of your supplied soil sample 1 (One) is enclosed herewith (The total analytical fees Tk. 1,280.00 was paid on 29/03/2023 through Book no. 134 and Voucher no. 13317).

Enclosure:
2. Result sheet- 01 (one) page.

08.05.23
Chief Scientific Officer
Phone: 02-41025049.

Copy:
4. Director General, Soil Resource Development Institute, Krishi Khamar Sarak, Dhaka-1215.
5. Director, Analytical Services Wing, Soil Resource Development Institute, Krishi Khamar Sarak, Dhaka-1215.
6. Office copy.

Government of the People's Republic of Bangladesh
Ministry of Agriculture
Soil Resource Development Institute
Divisional Laboratory, Dhaka
Krishi Khamar Sarak, Dhaka-1215

To
Envirocare International Ltd.
House # 09, Road # 06
Sector # 12, Uttara-1230.

Analytical Result of Supplied Soil Sample

Sl. No.	Lab. No.	pH	Name of the Element								
			Organic Matter (OM)	Total Nitrogen (TN)	Phosphorus (P)	Potassium (K)	Calcium (Ca)	Magnesium (Mg)	Sulphur (S)	Boron (B)	Zinc (Zn)
			(%)		Available	Exchangeable			Available		
					(ppm)	(meq/100g soil)			(ppm)		
1.	7103	7.5	1.20	0.07	5.87	0.15	35.25	0.58	326.33	0.20	0.98

M.Begum
08/05/2023
(Dr. Masuda Begum)
Senior Scientific Officer
Phone: 02-41025066.

Attendance Sheet of Stakeholders Consultation for Bholaganj Land Port

Venue: Date: 19-03-2023

Sl. No.	Name & Address	Profession	Cell No.	Signature
01	[illegible]	স্থানীয়সম্পর্ক কর্মকর্তা, [illegible]		
02	প্রতিনিধি: মো: কবুল আমীন	উপ-সহকারী প্রকৌশলী		
03	মো: আবুল কালাম আজাদ	Accountant সার্ভেয়িং কিপার অফিসার		
04.	সঞ্জয় কুমার দাস	উপ-সহকারী ভূমি অফিসার		
05.	মোঃ মিলন	গাড়ি চালক		
06.	অজিত চন্দ্র	ব্যবসায়ী		অজিত
07.	মোঃ ইমরুল ইসলাম	ব্যবসায়ী		ইমরুল
08.	শফিকুল ইসলাম	ব্যবসায়ী		শফিকুল
09.	মোঃ হাফিজউদ্দিন	ব্যবসায়ী		
10.	মোঃ ওলিদ	ব্যবসায়ী (মুদি)		
11.	অরুন দাস	ব্যবসায়ী, মুদি		
12.	মোঃ কামাল শাহি	ব্যবসায়ী		
13.	আফজল আলী	ব্যবসায়ী		

Attendance Sheet of Stakeholders Consultation for Bholaganj Land Port

Venue: Date:

Sl. No.	Name & Address	Profession	Cell No.	Signature
14.	মোঃ মালেক	ব্যবসায়ী		
15.	মোঃ হুমায়ুন কবির	ব্যবসায়ী		
16.	মোঃ কাওছার সরকার	ব্যবসায়ী		
17.	মোঃ ফয়সাল মিয়া	ব্যবসায়ী		
18.	মোঃ শরিফুল ইসলাম	ব্যবসায়ী		
19.	মোঃ আবুল মালেক	ব্যবসায়ী		
20.	মোঃ বাবলু মিয়া	ব্যবসায়ী		
21.	মোঃ আরিফ বিল্লাহ	সেবিন অপারেটর		
22.	মোঃ হোসেন মিয়া	সেবিন অপারেটর		
23.	মোঃ নুরুল মিয়া	কৃষক		
24.	মোঃ শাকিল আলম	ব্যবসায়ী		
25.	বাসুদেব রায়	ব্যবসায়ী		
26.	মোঃ বাবু মিয়া	সেবিন অপারেটর		

Consultation with UNO Companiganj Upazila Office on 4th March, 2023

Consultation with Chairman 1 no. West Islampur Union Parishad Office on 4th March, 2023

Consultation with AD, DoE, Sylhet District Office Sylhet on 19th March, 2023

Consultation with Upzial Livestock Extention Officer at his Office on 19th Match 2023

Consultation with SAE, DPHE, Companiganj on 19th March 2023

	
Consultation at Secondary Education Office Companiganj on 19th March, 2023	Consultation at Agricultural Development Office Companiganj on 19th March, 2023
	
Consultation at Livestock Development office at Companiganj Upazila on 19th March, 2023	Consultation with Shop Owner, Bholaganj Land Area on 20th March, 2023
	
Consultation with Shop Owner, Bholaganj Land Area on 20th March, 2023	Consultation with Shop Keeper, Bholaganj Land Area on 20th March, 2023

	
Consultation with Worker at Hair Cutting Saloon at Bholaganj Land Port area	Consultation with worker in a Hotel at Bholaganj land port area
	
Consultation with worker of Workshop at Bholaganj land port area	Consultation with worker in temporary hotel at Bholaganj land port area
	
Consultation with Stone Crusher Operator at Bholaganj land port area	Consultation with Stone Crusher Operator at Bholaganj land port area

	
Consultation with Stone Importer at Bholaganj land port area	Consultation with C & F Agent at Bholaganj land port area
	
Consultation at Stone Crusher Operator Office at Bholaganj land port area	Consultation with Stone Crusher Operator at Bholaganj land port area
	
Consultation with worker at food stall at Bholaganj land port area	Consultation with C & F Agent at Bholaganj land port area

	
Consultation with Stone Crusher operator at Bholaganj land port area	Consultation with worker at Crushing Machine, Bholaganj land port
	
Consultation with worker from Stone Crusher machine at Bholaganj land port area	Consultation with worker from Stone Crusher machine at Bholaganj land port area
	
Consultation with Crushing Operator at Bholaganj land port area	Consultation with Shop Keeper at Bholaganj land port area

To facilitate the safe and efficient movement of trade at the land port of Bholaganj the BLPA may consider all possible potential risks which require the implementation of a contingency/Emergency plan. Emergency may arise from different factors some of which (not limited to) are described below.

Emergency arising from accident to any personnel within port area.

This involves medical care for anyone who is in the port area (on vehicles, in passenger terminals, freight terminals, etc.) and who has suffered an occupational accident, traffic accident, a fall, sudden illness, etc. Usually, an ambulance with medical personnel will be needed to care for the person and take them to hospital if need be. It consists of the usual medical care that may be provided in the port. The Port Emergency Plan should set out the procedures and measures to be implemented in these cases, which may include the following:

- Notifying the port's Emergency Control Centre about the need for medical care with an ambulance.
- Deployment by the ECC of ambulance(s) and if need be, arranging a meeting point in the port with the port police or other port authority staff to guide and escort the ambulance to the precise place where it is needed, followed by guiding and escorting it out of the port.
- Deployment of the port police or other port authority staff for the above actions.
- Receiving the port police report about the incident and the details of the person attended to, etc.

Emergency arising from personnel entrapped in a confined area/space.

This involves the rescue of people trapped or confined in places in the port for a variety of reasons: fault or breakage of the item (crane, etc.); sudden illness of the person with loss of consciousness (in cranes, inside liquid cargo tanks while cleaning them, etc.); or any other cause. Usually, the fire services are required and, in some cases, also an ambulance with medical personnel to care for the person and take them to hospital if need be. The fire service should have the right equipment (either its own or belonging to the port authority) for each case rescue stretchers; harnesses for removing people from confined spaces; etc. The Port Emergency Plan should set out the procedures and measures to be implemented in these cases, which may include the following:

- Notifying the port's Emergency Control Centre about the need for the fire service and medical care with an ambulance to rescue the person concerned.
- Deployment by the ECC of the fires service and ambulance, and if need be, arranging a meeting point in the port with the port police or other Port Authority staff to guide.
- Deployment of the port police or other port authority staff for the above actions.
- Receiving the port police report about the incident and the details of the person attended

Emergency from fire in port buildings, offices, warehouses, passenger terminals, etc.

These are possible fires in a wide variety of scenarios in the port like yards and outdoor areas for temporary cargo storage, closed, open or roofed warehouses for temporary cargo storage. Storage tanks for flammable materials (vegetable oils, vegetable fats or esters, if there are several tank lorries in the same bund, the accident might spread to other nearby tanks and set them on fire. Grain storage silos and facilities where there may be a prior dust

explosion inside them. Fires can also affect port equipment and vehicles. Similarly, fires can also occur in other port buildings and facilities, offices, port equipment, maintenance workshops, electrical stations and substations, port passenger terminals, temporary waste storage areas, etc. The consequences of the accident would probably be confined to the concession itself, although they might affect adjoining concessions depending on their size. As mitigation measures the following steps may be considered.

- All buildings and cargo warehouses in the port must be fitted with at least the manual and automatic fire-fighting equipment required by national legislation.
- Quays and open-air cargo storage areas must also have water for putting out fires which may be supplied in several ways:
- Fire-fighting networks consisting of hydrants (post or in the ground), pipes, shutoff valves and water pumping stations.
- If there are separate hydrant networks, it is recommended that they should be interconnected so that each network can have a redundant water supply.
- Manual or remote-control valves to interconnect fire hydrant networks.
- Mobile systems for collecting and distributing fire-fighting water.
- The Port Emergency Plan should set out the measures and procedures to be implemented in all the fire scenarios described in this section.

Emergency arising from vehicular collision on port roads, yards, etc.

These are accidents of vehicles or machinery on quays, in terminal yards and concourses and on port roads. Their consequences may lead to injuries and/or fatalities; fuel spills on the roadway; shedding loads; crushing people or other vehicles; etc. Some of the vehicles involved in the accident may be carrying dangerous goods. The most frequent causes of such accidents are speeding and/or driver distraction.
The Port Emergency Plan should set out the procedures and measures to be implemented in these cases, which may include the following:

- Medical care for people involved in the accident.
- Controlling traffic in the accident.
- Cleaning up oil and/or fuel spills on the roadway and picking up broken pieces of the vehicle.
- Cranes or special equipment to remove the vehicles involved if they cannot move by themselves.
- Equipment to remove the load from the roadway.

Emergency arising from accidental falling of cargo.

This involves accidental falling of cargo into the water or onto land while being loaded on or unloaded from vessels. It also includes accidental falling of cargo stacked in temporary storage areas. There may be a few reasons for these falls: human error in handling machinery; excess weight of the cargo; equipment failure; speeding by equipment; strong gusts of wind, etc.
The consequences of these accidents may cause injuries or fatalities. Some of the goods involved may be dangerous. If the cargo falls into the water, underwater work companies will be needed to find where the sunken goods are, mark them and lift them out to land.

Emergency arising from dangerous goods

These are emergencies or accidents which take place with dangerous and/or polluting goods or substances (not stored in SEVESO facilities) while in the port area, both on board vehicles and in port facilities.

Classification of dangerous polluting goods

For efficient and fruitful handling and management of land port, the authority has to have a preliminary idea about the properties and danger of the materials they are handling. Dangerous substances are classified based on their dangerous properties that may materialize in the event of an accident as shown below:

Class 1: Explosives : Explosive again are of 3 types; (1) Comprises substances which is not itself an explosive but which can form an explosive atmosphere of gas, vapour or dust (2) Explosive articles, except devices containing explosive substances in such quantity or of such a character that their inadvertent or accidental ignition or initiation during transport shall not cause any effect external to the device either by projection, fire, smoke, heat or loud noise; and (3) substances and articles not mentioned under 1 and 2 which are manufactured with a view to producing a practical, explosive or pyrotechnic effect.

Class 2: Gases Comprises of compressed gases, liquefied gases, dissolved gases, refrigerated liquefied gases, mixtures of one or more gases with one or more vapours of substances of other classes, articles charged with a gas and aerosols. Gases are again of 3 classes.

Flammable gases which at 20°C and a standard pressure of 101.3 kPa are ignitable when in a mixture of 13% or less by volume with air; or have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.

Non-flammable Gases which: 1) are asphyxiant – gases which dilute or replace the oxygen normally in the atmosphere; or are oxidizing – gases which may, generally by providing oxygen, cause or contribute to the combustion, of other material more than air does; or .3) do not come under the other classes.

(2) Toxic gases which are known to be so toxic or corrosive to humans as to pose a hazard to health; or are presumed to be toxic or corrosive to humans because they have a LC50 value equal to or less than 5,000 mℓ/m3 (ppm).

Class 3: Flammable liquid of dangerous properties which comprise: liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (such as paints, varnishes, lacquers, etc., but not including substances which, on account of their other dangerous characteristics, have been included in other classes) which give off a flammable vapour at or below 60°C closed-cup test (corresponding to 65.6°C open-cup test), normally referred to as the "flashpoint". This also includes: 1) liquids offered for transport at temperatures at or above their flashpoint; and 2) substances transported or offered for transport at elevated temperatures in a liquid state, which give off a flammable vapour at temperatures equal to or below the maximum transport temperature. This class also comprises liquid desensitized explosives which are explosive substances that are dissolved or suspended in water or other liquid substances, to form a homogeneous liquid mixture to suppress their explosive properties.

Class 4: Flammable solids (Substances liable to spontaneous combustion); flammable solids comprise readily combustible solids (fibres, powdered, granular, or pasty substances) which are dangerous if they can be easily ignited by brief contact with an ignition source such as a burning match, and if the flame spreads rapidly. The danger may come not only from the fire but also from toxic combustion products. Metal powders are especially dangerous because of the difficulty of extinguishing a fire since normal extinguishing agents such as carbon dioxide or water can increase the hazard.

Self-reactive substances comprise of thermally unstable substances liable to undergo a strongly exothermic decomposition even without participation of oxygen (air). Self-reactive substances are classified into seven types according to the degree of danger they present. The decomposition of self-reactive substances can be initiated by heat, contact with catalytic impurities (such as acids, heavy-metal compounds, and bases), friction or impact. The rate of decomposition increases with temperature and varies with the substance. Decomposition,

particularly if no ignition occurs, may result in the evolution of toxic gases or vapours. For certain self-reactive substances, the temperature shall be controlled. Some self-reactive substances may decompose explosively, particularly if confined. This characteristic may be modified by the addition of diluents or using appropriate packaging. Some self-reactive substances burn vigorously.

Solid desensitized explosives comprise of explosive substances which are wetted with water or alcohols or are diluted with other substances to form a homogeneous solid mixture to suppress their explosive properties. The desensitizing agent shall be distributed uniformly throughout the substance in the state in which it is to be transported. Where transport under conditions of low temperature is anticipated for substances containing or wetted with water, a suitable and compatible solvent, such as alcohol, may have to be added to lower the freezing point of the liquid. Some of these substances, when in a dry state, are classified as explosives. Where reference is made to a substance which is wetted with water, or some other liquid, it shall be permitted for transport as a class 4.1

Substances liable to spontaneous combustion comprise of 1) Pyrophoric substances, which are substances, including mixtures and solutions (liquid or solid), which, even in small quantities, ignite within 5 minutes of meeting air. These substances are the most liable to spontaneous combustion; and 2) Self-heating substances, which are substances, other than pyrophoric substances, which, in contact with air without energy supply, are liable to self-heating. These substances will ignite only when in large amounts (kilograms) and after long periods of time (hours or days).

Substances which, in contact with water, emit flammable gases comprise of either liquids or solids which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities. Certain substances, in contact with water, may emit flammable gases that can form explosive mixtures with air. Such mixtures are easily ignited by all ordinary sources of ignition, for example naked lights, sparking hand tools or unprotected light bulbs. The resulting blast wave and flames may endanger people and the environment. A test method is used to determine whether the reaction of a substance with water leads to the development of a dangerous number of gases which may be flammable.

Class 5: Oxidizing substances and organic peroxides: Comprise: Substances which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material. Such substances may be contained in an article.

- Substances of class 5.1 in certain circumstances directly or indirectly evolve oxygen. For this reason, oxidizing substances increase the risk and intensity of fire in combustible material with which they come into contact.
- Mixtures of oxidizing substances with combustible material and even with material such as sugar, flour, edible oils, mineral oils, etc., are dangerous. These mixtures are readily ignited, in some cases by friction or impact. They may burn violently and may lead to explosion.
- There will be a violent reaction between most oxidizing substances and liquid acids, evolving toxic gases.
- Toxic gases may also be evolved when certain oxidizing substances are involved in a fire.
- Additionally, some substances possess specific properties, which shall be considered in transport.

Organic peroxides comprise of organic substances which contain the bivalent structure and may be considered derivatives of hydrogen peroxide, where one or both hydrogen atoms have been replaced by organic radicals. Organic peroxides are thermally unstable substances which may undergo exothermic self accelerating decomposition.

In addition, they may have one or more of the following properties:

- Be liable to explosive decomposition.
- Burn rapidly.
- Be sensitive to impact or friction.
- React dangerously with other substances.
- Cause damage to the eyes.

Class 6: Toxic and infectious substances toxic substances comprise substances liable either to cause death or serious injury or to harm human health if swallowed or inhaled, or by skin contact.

- The dangers of poisoning which are inherent in these substances depend upon contact with the human body that is by inhalation of vapours by unsuspecting persons at some distance from the cargo or the immediate dangers of physical contact with the substance. These have been considered in the context of the probability of accident occurring during transport by sea.
- Nearly all toxic substances evolve toxic gases when involved in a fire or when heated to decomposition.

Infectious substances comprise of substances which are known or are reasonably expected to contain pathogens. Pathogens are defined as micro-organisms (including bacteria, viruses, rickettsia, parasites, and fungi) and other agents such as prions, which can cause disease in humans or animals.

- Category A: An infectious substance which is transported in a form that, when exposure to it occurs, can cause permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals.
- Category B: An infectious substance which does not meet the criteria for inclusion in Category A.

Class 7: Radioactive materials comprises any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed specified values. Radioactive material shall be assigned to one of the specified UN Numbers depending on the activity level of the radionuclides contained in a package, the fissile or non-fissile properties of these radionuclides, and the type of package to be presented for transport, and the nature or form of the contents of the package, or special arrangements governing the transport operation.
Class 8: Corrosive substances (Dangerous properties placards or labels) comprise of substances which, by chemical action, will cause severe damage when in contact with living tissue or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport.

- Some of them can cause (severe) burns to skin, eyes, and mucous membranes.
- Many substances are sufficiently volatile to evolve vapour irritating to the nose and eyes.
- A few substances may produce toxic gases when decomposed by very high temperatures. When involved in a fire, they evolve toxic gases.
- Poisoning may result if they are swallowed, or if their vapour is inhaled; some of them even may penetrate the skin.
- All substances in this class have a destructive effect on materials such as metals and textiles.
- Any metal likely to be present in a ship, or in its cargo, may be attacked by the substance or its vapour.
- A few substances in this class can corrode glass, earthenware, and other siliceous materials.
- Many substances in this class only become corrosive after having reacted with water, or with moisture in the air. The reaction of water with many substances is accompanied by

the liberation of irritating and corrosive gases. Such gases usually become visible as fumes in the air.

- A few substances in this class generate heat in reaction with water or organic materials, including wood, paper, fibres, some cushioning materials and certain fats and oils.

Class 9: Miscellaneous dangerous substances and articles and environmentally hazardous substances comprise of substances and articles which, during transport, present a danger not covered by other classes.

- Substances which, on inhalation as fine dust, may endanger health (asbestos, etc.).
- Substances evolving flammable vapour (polymeric beads, plastic moulding compound, etc.).
- Lithium batteries.
- Electric double layer capacitors
- Life-saving appliances (air bags inflators, seat belt pretensioners).
- Substances and articles which, in the event of fire, may form dioxins.
- Substances transported or offered for transport at elevated temperatures.
- Environmentally hazardous substances.
- Genetically modified microorganisms (GMMOs) and genetically modified organisms

The above-mentioned properties of different dangerous substances will help plan to solve the suddenly created problems.

Earthquake Management in Project Area

Earthquakes are unpredictable natural disasters which are of short duration, but the consequences can be severe. Based on the information available in the public domain and research publications indicates that the project area comes under the seismic zone – IV with seismic coefficient 0.36 (Z= 0.36) having seismic intensity high.

During an Earthquake event:

- Stay calm and await instructions from the Emergency Coordinator or the designated official.
- Keep away from overhead fixtures, windows, filing cabinets, and electrical power.
- Assist people with disabilities in finding a safe place.
- Protect your head.
- Evacuate as instructed by the Emergency Coordinator and/or the designated official.

After the Earthquake Event

- Visually inspect the structures such as buildings and storage tanks for any visible cracks. Identify critical and weak areas of the building and organize to support them adequately to prevent collapse.
- Isolate electrical supply if required.
- Isolate all pipelines of steam, natural gas etc. in case of any leakage.
- Empty such tanks, which are found in relatively unstable conditions.
- Take a review of material storage and ensure that stored materials are kept in a safe manner.
- Ensure that LPG cylinders are removed from manufacturing areas and stored in the designated shed in safest manner. Also identify leaked cylinders if any
- Immediate ready to use all Emergency equipment like stretchers, breathing equipment, PPEs, Dewatering, portable welding gas cutting equipment, Spill kits, emergency lights,

Battery-operated public-address equipment, ropes, lifting tackles, trolleys, emergency medical equipment, etc.

- Inspect hazardous chemicals storage area to comply with normal storage safety requirements. Also, inspect secondary containments and restore their integrity wherever necessary.
- Inspect the firefighting equipment provided at site.
- Inspect the electrical panel and other sources of ignition for any fault and damage.
- Ensure that flammable liquids i.e. Petrol, Diesel and other petroleum products are stored in secondary containment with due precautions.

After such inspection notify the top management about the damage that has been identified. Measures are different for different locations in case of earthquake.

If in Outdoors

- Response Procedures for workers at site
- Move into the open, away from buildings, streetlights, and utility wires. Once in the open, stay there until the earthquake stops.

If in a moving vehicle:

Stop quickly and stay in the vehicle. Move to a clear area away from buildings, trees, overpasses, or utility wires. Once the shaking has stopped, proceed with caution. Avoid bridges or ramps that might have been damaged by the quake.

After the quake

- After the quake, be prepared for aftershocks.
- Although smaller than the main shock, aftershocks cause additional damage and may bring weakened structures down. Aftershocks can occur in the first hours, days, weeks, or even months after the quake.
- Help injured or trapped persons.
- Give first aid where appropriate. Do not move seriously injured persons unless they are in immediate danger of further injury. Call for help.
- Remember to help those who may require special assistance--infants, the elderly, and people with disabilities.
- Stay out of damaged buildings.
- Use the telephone only for emergency calls.

Response Procedure

- Inform the necessary authorities for aid.
- Ensure no one is stuck beneath any debris, in case of a structural failure.
- Ensure that all the people standing outside or near the buildings are taken to open areas.
- Ensure that the first aid ambulance and fire tender vehicles are summoned if necessary.
- Inform the nearby hospitals if there are any injuries.
- Check the utilities and storage tanks for any damage.
- At the time of the emergency, the site coordinator, and other workers along with the security personnel within the group housing shall take position to perform their duties. The following resources should be available from the site coordinator.
- Copies of the DMP (Disaster Management Plan)
- Layout Plan of the site and fire evacuation plan
- Location of emergency assembly area
- Information regarding Safety Equipment, Fire Fighting material

- List of emergency contact numbers like emergency contact person, fire brigade, nearby hospitals
- Copies of the local Telephone Directories.
- Personal Protective Equipment (PPE).
- First–aid Kit.
- Communication systems like alarm systems for fire, cyclone, flood, and earthquake. The communication equipment's should be checked periodically to ensure that it is functional.

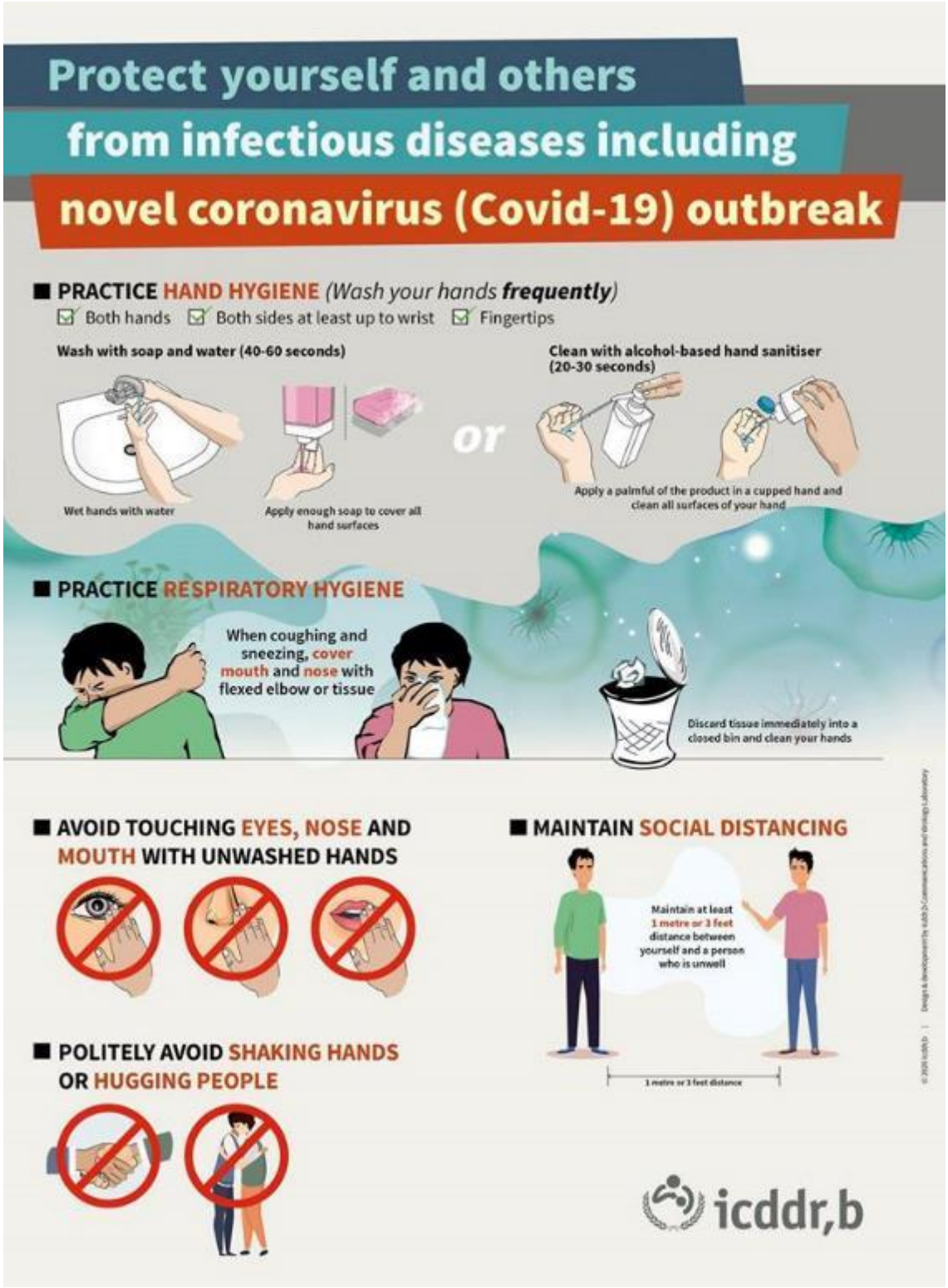

Wash your hands
Wash your hands with soap and running water when hands are visibly dirty
If your hands are not visibly dirty, frequently clean them by using alcohol-based hand rub or soap and water
World Health Organization


Protect yourself and others from getting sick
Wash your hands
• after coughing or sneezing
• when caring for the sick
• before, during and after you prepare food
• before eating
• after toilet use
• when hands are visibly dirty
• after handling animals or animal waste
World Health Organization


Protect others from getting sick
When coughing and sneezing cover mouth and nose with flexed elbow or tissue
Throw tissue into closed bin immediately after use
Clean hands with alcohol-based hand rub or soap and water after coughing or sneezing and when caring for the sick
World Health Organization


Protect others from getting sick
Avoid close contact when you are experiencing cough and fever
Avoid spitting in public
If you have fever, cough and difficulty breathing seek medical care early and share previous travel history with your health care provider
World Health Organization


নতুন করোনা ভাইরাস (সিওভিআইডি-১৯)-সহ
অন্যান্য সংক্রমণ থেকে নিজেকে এবং
অপরকে রক্ষা করুন
ঘন ঘন হাত পরিষ্কার করুন
উভয় হাত
কব্জি পর্যন্ত হাতের উভয় পাশ
হাতের নখসমূহ
সাবান ও পানি দিয়ে ভালো করে হাত পরিষ্কার করুন
(৪০-৬০ সেকেন্ড)
পানি দিয়ে হাত ভেজান
পুরো হাতে সাবান মেখে
ভালো করে হাত ধুয়ে নিন
অথবা
অ্যালকোহলযুক্ত স্যানিটাইজার দিয়ে হাত পরিষ্কার করুন
(২০-৩০ সেকেন্ড)
হাতের তালুতে স্যানিটাইজার নিয়ে ভালো করে হাত পরিষ্কার করুন
হাঁচি-কাশি শিষ্টাচার মেনে চলুন
হাঁচি বা কাশি
দেওয়ার সময় হাতের
কনুই এর ভাঁজে, বা
টিস্যু দিয়ে মুখ ও
নাক ঢাকুন
ব্যবহৃত টিস্যুটি দ্রুত বন্ধ বিনে ফেলুন
এবং স্যানিটাইজার বা সাবান ও পানি
দিয়ে ভালো করে হাত পরিষ্কার করুন
অপরিষ্কার হাত দিয়ে চোখ, নাক ও মুখ স্পর্শ
করা থেকে বিরত থাকুন
পরিচিত বা অপরিচিত ব্যক্তির সাথে হাত মেলানো
বা আলিঙ্গন করা থেকে বিরত থাকুন
আক্রান্ত ব্যক্তি থেকে নিরাপদ দূরত্বে থাকুন
হাঁচি, কাশি বা জ্বরে
আক্রান্ত ব্যক্তি
থেকে কমপক্ষে
১ মিটার বা ৩ ফুট
দূরত্ব বজায় রাখুন
১ মিটার বা ৩ ফুট
icddr,b


Protect yourself and others
from infectious diseases including
novel coronavirus (Covid-19) outbreak
PRACTICE HAND HYGIENE (Wash your hands frequently)
Both hands
Both sides at least up to wrist
Fingertips
Wash with soap and water (40-60 seconds)
Wet hands with water
Apply enough soap to cover all hand surfaces
or
Clean with alcohol-based hand sanitiser (20-30 seconds)
Apply a palmful of the product in a cupped hand and clean all surfaces of your hand
PRACTICE RESPIRATORY HYGIENE
When coughing and sneezing, cover mouth and nose with flexed elbow or tissue
Discard tissue immediately into a closed bin and clean your hands
AVOID TOUCHING EYES, NOSE AND MOUTH WITH UNWASHED HANDS
MAINTAIN SOCIAL DISTANCING
Maintain at least 1 metre or 3 feet distance between yourself and a person who is unwell
1 metre or 3 feet distance
POLITELY AVOID SHAKING HANDS OR HUGGING PEOPLE
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