

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 Ramgarh Pourashava waste management system.

6.5.2 Impact during Operation

306. The primary wastes generated from wastes from offices, residences, etc. and the long waiting of imported or exported materials at the port due to administrative problem or mismanagement. These may include perishable organic and inorganic materials, agricultural farm product and packaging waste.

307. Efficient and prompt services of port management will eliminate this problem with the joint management of Ramgarh Pourashava effectively.

6.6 Impact on Noise

6.6.1 Impact during Construction

308. 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. However, PPE will be provided to 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 within 1 km either from the Port area boundary or from the township boundary may feel disturbance created by the construction noise. Careful planning of the operation of the high-noise machines therefore is required during this period so that minimum disturbances are caused.

6.6.2 Impact during Operation

309. The main source of originating noise pollution in Ramgarh Land Port is from generator for producing electricity. Machineries 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. In addition, there will be no close by sensitive receptors such as labor camps or residential dwellings within the project site.

6.7 Impact on Terrestrial Ecology

6.7.1 Impact during Construction

310. The impact of the construction activities would be primarily confined to the project sites, as stated earlier, the site areas include agricultural land and a few homesteads. Thus, the site development works would not lead to any significant loss of important institutions.

311. Removal of top soil 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

312. 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

6.8.1 Impact during Construction

313. Aquatic species may be affected due to discharge into the river. Discharge of construction materials and other household waste generated from labour camp will degrade the river water quality. These will affect the aquatic ecology of Feni River.

6.8.2 Impact during Operation

314. 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 make an arrangement with the Ramgarh Pourashava 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**

315. 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. Due to gathering of people in construction and also 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**

316. 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**

317. Improvement of road network and transport facilities will increase the vehicles movement that will create traffic and also possibility of accident. But this situation will be controlled by good traffic management such as traffic scheduling, speed limit, foot over bridge and also creating awareness among the peoples and the drivers.

- **Women Empowerment**

318. 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.

- **Human Trafficking**

319. During consultations, the participants did not mention this issue. Besides there are no data or information regarding this issue for Ramgarh Upazila. This is a formal border crossing point. The port development will encourage local people to use formal channel of border movement.

6.10 Scoping of Impacts

320. The potential impacts due to implementation of the Ramgarh 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

321. Checklist is a comprehensive list of environmental effects and 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 in order 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.

Table 57: Checklist of Ramgarh Land Port

Project phase	Action affecting the environmental resources	SEIs without mitigation measures				Type		Comments
		None	Minor	Medium	Major	Adverse	Beneficial	
Construction Phase	Site Clearing and land filling			x			x	Ramgarh Land Port has prepared and committed to take appropriate measures to reduce all kind of adverse impacts and also 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			x		x		

Project phase	Action affecting the environmental resources	SEIs without mitigation measures				Type		Comments
		None	Minor	Medium	Major	Adverse	Beneficial	
	vehicles other transports							
	Odor hazard		x			x		
	Occupational health hazards			x		x		
	Traffic congestion		x					
	Noise hazard			x		x		
	Labor Influx	x						
	Employment				x		X	

6.10.2 Graded Matrix

322. 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.

323. 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 Ramgarh Land Port.

324. 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, waste water disposal, odor generation and solid waste disposal should be given due importance.

Table 58: Graded matrix for the Ramgarh Land Port

Proposed impacts on	Project location	Project construction	Project in operation	Solid waste disposal	Odor generation	Waste water 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 Feni 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
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	

6.11 Potential Impacts

Adverse impacts:

1. Air Pollution
2. Noise Pollution
3. Solid waste disposal

Beneficial impacts:

1. Employment opportunity
2. Socio-economic condition
3. New trade/ business

- | | |
|---|---|
| 4. Accident & Human health | 4. Family finance |
| 5. Water Pollution | 5. Social Amenities & Infrastructural
Facilities |
| 6. Labour Influx | |
| 7. Heat | |
| 8. Groundwater level depletion | |
| 9. Impacts on the biodiversity of river
and surrounding area | |

7 Environmental and Social Management Plan and Monitoring Plan

7.1 Introduction

325. 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 in order 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.

326. The present study clarifies the following proposed ESMP:

- The mitigation measures that needs 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 required to assess the effectiveness of the mitigation measures employed.

327. 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

328. 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 has to 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.

329. 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 compensatory actions especially in the form of compensatory forestation, 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.
330. The ESMP for Ramgarh Land Port has been prepared based upon optimum and reasonable costs that are needed for mitigation measures on a “least-cost” basis. Activities that needs to be carried out for the environmental management and monitoring by construction supervision consultant (CSC) of the proposed plan is divided into three phases: during pre-construction, construction and operation phases.
331. Environmental and Social Management Plans provide recommendations for environmental and social management measures based on the available information at this stage of the project.

Table 59: Environmental and Social Management Plan for Ramgarh Land port

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
Pre-Construction Phase	Air Pollution	<ul style="list-style-type: none"> Involve site clearance, leveling & filling activities for development of port which generate air pollution Clearance of site will involve removal of wild vegetation, land leveling & filling activities. These activities will lead to dust generation 	<ul style="list-style-type: none"> To minimize the dust generation, water should be sprinkled regularly at the site; Low Sulphur diesel should be used in land leveling equipment to control the SO₂ emissions; Energy efficient diesel engine should be used in land leveling, land development & road construction machineries. 	Appointed Contactor	CSC, BLPA, DoE, WB
	Noise & Vibration	<ul style="list-style-type: none"> Operation of different machineries Running of heavy load traffic for sand transportation Regular traffic movement 	<ul style="list-style-type: none"> 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, WB
	Water	<ul style="list-style-type: none"> Impact on water 	<ul style="list-style-type: none"> At the beginning of the land development work the 	Appointed	CSC, BLPA,

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
	Pollution	<p>quality from muddy water flowing to the river due to expected land filling work</p> <ul style="list-style-type: none"> Loose earth material may contaminate the nearby river by runoff water during rain 	<p>riverbank protection embankment/wall will be constructed</p> <ul style="list-style-type: none"> No wastes either solid or liquid would be thrown or released into the river; 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 be taken in the land filling period by contractor. 	Contractor	DoE, WB
	Soil Pollution	<ul style="list-style-type: none"> Development of the structures and construction of the access road Land filling activities Land will be filled and compacted 	<ul style="list-style-type: none"> Raw materials will be stored under covered sheds and paved surface; Fuel storage area should be of proper containment; 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; 	Appointed Contractor	CSC, BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
			<ul style="list-style-type: none"> Waste from labour 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. 		
	Sediment Quality	<ul style="list-style-type: none"> During the land development, earth filling material may be washed into river and increase the sediment concentration. 	<ul style="list-style-type: none"> Earth filling material should be tested, which should be free from contaminant substance; Adequate monitoring should be taken at land development. 	Appointed Contactor	CSC, BLPA, DoE, WB
	Ecosystems	<ul style="list-style-type: none"> High presence of Anthropological activity Extensive use of vehicle horns Disrupting feeding or nesting behavior 142 nos. trees will 	<ul style="list-style-type: none"> No solid or liquid waste shall be discharged into water bodies; Septic tanks/soak pit should be provided to treat sewage to be generated from labour camps and prevent its disposal in water body directly; Toilets should be provided at site to prevent contamination of water due to open defecation in nearby areas; 	Appointed Contactor	CSC, BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		be affected by the project.	<ul style="list-style-type: none"> • Vehicle washing/equipment cleaning should not be allowed near canal/drains 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; • Diesel, paints, cements etc. should not be stored near the water bodies; • 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 DoE. 		
	Hydrology	<ul style="list-style-type: none"> • Impact on drainage pattern & hydrology is temporarily affected by land modification 	<ul style="list-style-type: none"> • It was confirmed that the natural slope drainage systems of the adjoining areas i.e. the existing canals & Feni River would be kept intact during all phases of the project works; • In general, the difference in elevation between 	Appointed Contactor	CSC, BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		<ul style="list-style-type: none"> The adjacent land may inundate by high precipitation and over flow of canal/river water may pollute water bodies 	<ul style="list-style-type: none"> adjacent points might change but their order would be almost kept unchanged; Surface water flow would not change significantly and would keep its current water flow as usual. 		
	Local Economy such as employment, livelihood	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Income loss can be mitigated by providing alternative job opportunities for PAPs; All direct income loss must be adequately compensated within the RAP; A major segment of the population on 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, WB
	Land use and utilization of local resources	<ul style="list-style-type: none"> The temporary storage and stockyard are built up on the agricultural lands, and then the crop 	<ul style="list-style-type: none"> Port area and its adjoining area which will be tentatively occupied during preconstruction will be restored to original state and returned to the land owner after construction. 	Appointed Contactor	CSC, BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		<p>production will be obstructed in those areas.</p> <ul style="list-style-type: none"> Crops will also be damaged when the equipment and heavy vehicles will pass through agricultural fields of the proposed project areas. 			
	Air Pollution	<ul style="list-style-type: none"> Health impact of workers and neighbors due to air quality deterioration 	<ul style="list-style-type: none"> 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 source. 	Contractor	CSC, BLPA, DoE, WB
	Noise & Vibration	<ul style="list-style-type: none"> Health impact of workers. Disturbance of workers and surrounding residence, 	<ul style="list-style-type: none"> The machineries should have silencing devices; Civil works will not be carried out during undue hours and night time; Noise will be within prescribed limits for neighborhood noise exposure limits; Scheduling of vehicles to minimize disturbance to 	Contractor,	CSC, BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
Construction Phase			<p>the community;</p> <ul style="list-style-type: none"> • Use ear muffs when work 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. 		
	Solid Waste Production	<ul style="list-style-type: none"> • Spreading of disease due to contamination of environment 	<ul style="list-style-type: none"> • Waste will be segregated for recycling and composting; • Toxic wastes will be transported by a licensed carrier for recycling. • Wastes will be disposed to separate space with consultation and contract with Pourashava. • Local landfill/dumping site need to develop by municipality for proper dumping of the increased waste from construction work of land port. 	Contractor	CSC, BLPA, DoE, WB
	Ecosystem and Biodiversity	Impact on terrestrial and aquatic ecosystem due to odour, dispersion of air pollutants and untreated liquid.	<ul style="list-style-type: none"> • Take caution to reduce accidental spillage; • Minimize machinery operation and vehicle movements, particularly during the night hours; • Recommended measures to avoid inappropriate waste disposal, • Use improved technology to reduce air emission 	BLPA	BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
			and noise pollution; <ul style="list-style-type: none"> • Development of green belt throughout the periphery of the area; • Regular monitoring should be carried out for terrestrial and aquatic ecological and any unexpected effect should be investigated. • If any species with concern will found during construction or operation phase then action will be taken to conserve that species. 		
	Land Use and Local Natural Resources Usage	<ul style="list-style-type: none"> • Soil erosion, vegetation loss, disruption of land cover 	<ul style="list-style-type: none"> • Restrict to using nearby top soil and contract to using soil from river bed or other source considering sustainable development; • Port area planting trees and soil compaction. 	Contractor	CSC, BLPA, DoE, WB
	Geology and Soil	<ul style="list-style-type: none"> • Loss of top soil, damage to local existing roads during transportation of construction material and equipment, erosion of stockpiles during rain and re-suspension of 	<ul style="list-style-type: none"> • Not to use fertile top soil as for land filling; • Use cover during transport soil; • Planting trees and grass in port area; • Taking proper measures to protect spillage. 	Contractor	CSC, BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		dust during the dry weather, Spillage of hazardous waste from industries.			
	Local Economy, Employment and Livelihood	<ul style="list-style-type: none"> Increase employment and business opportunities 	<ul style="list-style-type: none"> Employment for local residents as much as possible; Consideration for local residents' emotions. 	BLPA	CSC, BLPA, DoE, WB
	Women Empowerment	<ul style="list-style-type: none"> Increased job opportunities and other facilities for women 	<ul style="list-style-type: none"> Employ local women as many as possible; Ensure facilities and ensure friendly working environment for women; 	BLPA	CSC, BLPA, DoE, WB
	Accident	<ul style="list-style-type: none"> Loss of life and property 	<ul style="list-style-type: none"> Raising awareness among workers; Mandatory for using PPEs; Traffic control and traffic scheduling. 	BLPA	CSC, BLPA, DoE, WB
	Air Quality	<ul style="list-style-type: none"> Air polluted with SO_x, NO_x, CO can cause health hazards Greenhouse gases effect Movement of 	<ul style="list-style-type: none"> Sufficient exhaust fans are being provided to take away the dust particle/heat outside the office/warehouse; Use indoor of covered stockpiles of when open air stockpiles are unavoidable; Design a simple, linear layout for material handling operations to reduce the need for multiple transfer 	BLPA	BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
Operation Phase		vehicle. Loading and unloading of construction materials my affecting air quality	points; <ul style="list-style-type: none"> Ensure stack air emission test regularly. 		
	Noise Pollution	<ul style="list-style-type: none"> Disturbance of workers and surrounding residence, health impact of workers. 	<ul style="list-style-type: none"> 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; Extensive greenbelt shall be developed for further attenuating the noise levels; Regular monitoring. 	BLPA	BLPA, DoE, WB
	Ecosystem and Biodiversity	Impact on terrestrial and aquatic ecosystem due to odour, dispersion of air pollutants and untreated	<ul style="list-style-type: none"> Take caution to reduce accidental spillage; Minimize machinery operation and vehicle movements, particularly during the night hours; 	BLPA	BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		liquid.	<ul style="list-style-type: none"> Recommended measures to avoid inappropriate waste disposal, Use improved technology to reduce air emission and noise pollution; Development of green belt throughout the periphery of the area; Regular monitoring should be carried out for terrestrial and aquatic ecological and any unexpected effect should be investigated. If any species with concern will found during construction or operation phase then action will be taken to conserve that species. 		
	Sewage/ Water pollution	Causes water borne diseases	<ul style="list-style-type: none"> Maintenance of septic tanks, soak wells, pipes, etc. as and when required; In request of the Port Authority concern section of Pourashava will collect liquid waste from septic tank and soak well and finally dispose to their selected place for treatment; and Regular monitoring of water quality 	BLPA	BLPA, DoE, WB
	Solid waste	<ul style="list-style-type: none"> Like water, air and land pollution solid waste may cause 	<ul style="list-style-type: none"> Setting up of separate waste collectors at different points; 	BLPA	BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
		<p>diseases to man and other lives</p> <ul style="list-style-type: none"> Disease vector proliferation, sanitary problems 	<ul style="list-style-type: none"> Regular cleaning and replacing of waste collectors; Waste disposal at a safe place; Pourashava should 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; 		
	Energy Consumption	<ul style="list-style-type: none"> Greenhouse gas emissions are from the carbon dioxide emissions 	<ul style="list-style-type: none"> Adopting renewable energy techniques, significant energy saving can be realized. Use day light and sky radiation as much as possible 	BLPA	BLPA, DoE, WB
	Job Creations	<ul style="list-style-type: none"> Increase in employment opportunities & Business facility 	<ul style="list-style-type: none"> Employ local people as much as possible. 	BLPA	BLPA, DoE, WB
	Risk of storage of harmful substances	<ul style="list-style-type: none"> Increase in air, water, noise and soil pollution Impact on the health of locals, Land Port workers 	<ul style="list-style-type: none"> The storage shall be done under covered shed; Careful planning and monitoring of handling hazardous and perishable materials; Periodic health examinations of workers with treatment. 	BLPA	BLPA, DoE, WB

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
	Poverty Group	<ul style="list-style-type: none"> Increased job opportunities, Changes in living standard 	<ul style="list-style-type: none"> Employ local residents as much as possible. 	BLPA	BLPA, DoE, WB
	Gender issues	<ul style="list-style-type: none"> Increased job opportunities, Gender inequality and violence 	<ul style="list-style-type: none"> 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. 	BLPA	BLPA, DoE, WB
	Road safety and Traffic	<ul style="list-style-type: none"> Increase vehicular movement and possibility of accidents 	<ul style="list-style-type: none"> Provide a dedicated parking area for private vehicles of project personnel Provide training to drivers on safe driving training; Periodic servicing of vehicles will be carried out in accordance with the manufacturer's instructions; Avoid vehicle movements during rush hours; Adequate planning of activities to ensure and avoid unnecessary transportation trips. This may include ensuring full loading of trucks for the transport where possible; Provision of traffic signs, road mark, zebra mark, guard rail and pole, bump, etc. 		

Activity	Aspect	Impact	Mitigation Measures	Responsible Organization	
				Implementing	Supervising/ Monitoring
			<ul style="list-style-type: none"> • A traffic management plan has to be prepared; • Vehicle speed restrictions should be applied; • Minimize night time vehicle movement. 		
	Local Economy, Employment and Livelihood	<ul style="list-style-type: none"> • Increase in employment and business opportunities 	<ul style="list-style-type: none"> • Employment for local residents as much as possible; • Consideration for local residents' emotions. 	BLPA	BLPA, DoE, WB
	Safety and Health Hazards	<ul style="list-style-type: none"> • Possibility of accident, health hazards of the workers also consider the present COVID-19 pandemic • Loss of life and property 	<ul style="list-style-type: none"> • 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 risk of accidents; • Provide adequate training of 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 present COVID-19 pandemic during construction and operation; • Ensure environmental compliance within the working environment for the workers. 	BLPA	BLPA, DoE, WB

7.3 Monitoring Indicators

332. 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:

- a) Drinking water
- b) Air quality
- c) Noise level
- d) Water quality (groundwater and surface water)
- e) Health & safety issues of staff and workers
- f) Stack air emissions concentrations
- g) Solid wastes left to soil
- h) Workers health and safety
- i) Traffic safety
- j) Safety measures during any outbreak of pandemic such as COVID-19

7.4 Environmental and Social Monitoring Plan

333. 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. An Environmental and Social Monitoring Plan (ESMP) with a list of parameters to be tested, sample number and sampling frequency are given below.

Table 60: Environmental and Social Monitoring Plan

Environmental component	Parameters	Location	Frequency	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 BLPA	Quarterly	EHS staff of BLPA/ 3 rd Party	DoE, BLPA, WB, 3 rd Party
Ambient air	SPM, PM, SO ₂ , NO _x , CO	In and around the Port area	Quarterly	EHS staff of BLPA / by 3 rd Party	DoE, BLPA, WB, 3 rd Party
Ambient noise	Noise level decibels (dB)	In and around the Port area	Half yearly	EHS staff of BLPA/ by 3 rd Party	DoE, BLPA, WB, 3 rd Party
Air emissions	NO _x , SO _x , CO, SPM	Stack of generators	Half yearly	EHS staff of BLPA/ by 3 rd	DoE, BLPA, WB, 3 rd

Environmental component	Parameters	Location	Frequency	Implemented by	Monitored by
				Party	Party
Solid wastes left to soil	Dusts, scrap and etc. Only 1% solid waste will be found as byproduct	In dumping yard and mainly when taken to be used as land fill by municipality	During delivery to municipality	EHS staff of BLPA/ by 3 rd Party	DoE, BLPA, WB, 3 rd Party
Monitoring of waste disposal	Odour, dusts, scrap, etc	Waste disposal areas	Daily	EHS staff of BLPA/ by 3 rd Party	DoE, BLPA, WB, 3 rd Party
Workers 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 / by 3 rd Party	DoE, BLPA, WB, 3 rd Party
COVID-19 Pandemic & other infectious diseases	No of persons infected & persons dead	Project activities areas	Daily	EHS staff of BLPA / by 3 rd Party	DoE, BLPA, WB, 3 rd Party

334. 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 wash room for women;
- Is there any GRM for protecting from sexual harassment of woman and unequal wages.

7.5 Environment Management Cell

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

environment management system & operations.

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

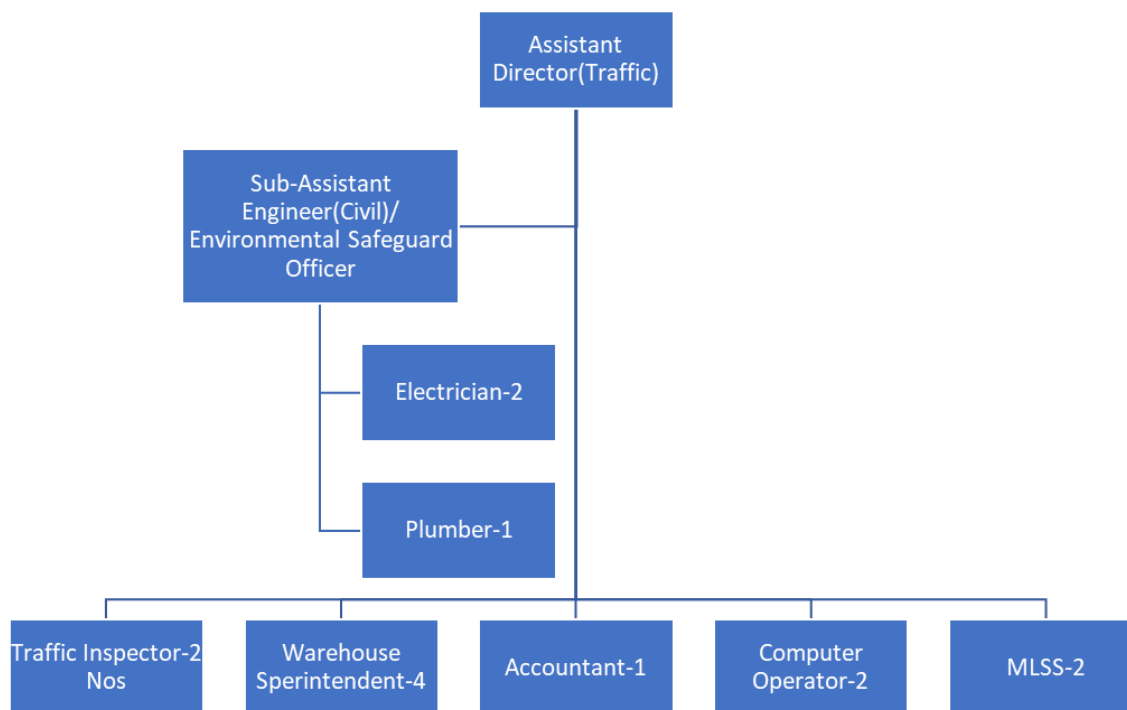


Figure 38: Environment Management Cell

337. As indicated in Organogram, Sub-Assistant Engineer will be responsible for environmental problems, health and safety problems arising 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. Besides this, he/she will arrange training for workers for emergency situations and assign some employees as an emergency response team.

7.5.1 Role of Environment Cell

338. The role of the environment cell is of different nature during (1) construction and (2) operational phases.

339. Role during construction phase:

- Responsible for monitoring the contractor's activities and to ensure adequate implementation of the ESMP by the contractor.
- Providing guidance to the PIU and CSC regarding any environmental and social issues which may arise during pre-construction and construction phases.
- 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 site
- Submit monthly performance report on the level of compliance & non-compliance by the contractor.

340. Role during Operation phase:

341. 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.

7.6 Capacity Building

342. 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 61 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.

343. 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 61: Environmental and Social Trainings

Contents	Participants	Responsibility	Schedule
<ul style="list-style-type: none"> • General environmental and socioeconomic awareness; • Environmental and social sensitivity of the project influence area; • Mitigation measures; • Community issues and workers' Code of conduct; • Grievance Mechanism; • ESMP; Awareness of transmissible diseases; Social and cultural values. 	<ul style="list-style-type: none"> • PIU • CSC • Selected contractor's crew 	CSC	<p>Prior to the start of the field activities.</p> <p>(To be repeated as needed.)</p>
<ul style="list-style-type: none"> • ESMP; • Waste disposal; • OHS 	<ul style="list-style-type: none"> • Construction crew 	Contractors	<p>Prior to the start of the construction activities.</p> <p>(To be repeated as needed.)</p>
<ul style="list-style-type: none"> • Road /waterway safety; • Defensive driving/ • Waste disposal; • Cultural values and social sensitivity. 	<ul style="list-style-type: none"> • Drivers; • boat/launch crew 	Contractors	<p>Before and during the field operations.</p> <p>(To be repeated as needed.)</p>
<ul style="list-style-type: none"> • Camp operation; • Waste disposal; • OHS; • Natural resource conservation; • Housekeeping. 	<ul style="list-style-type: none"> • Camp staff 	Contractors	<p>Before and during the field operations.</p> <p>(To be repeated as needed.)</p>
<ul style="list-style-type: none"> • Restoration requirements; • Waste disposal. 	<ul style="list-style-type: none"> • Restoration teams 	Contractors	<p>Before the start of the restoration activities.</p>

7.7 Documentation and Reporting

344. Project Management Consultants will collect all data and information related to the implementation of ESMP on behalf of PIU and submit 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.

345. **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.

346. **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.

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

8 Cost Estimation for Environmental Mitigation Measures and Monitoring

348. 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 EIA study. The costs are approximate and need calibration at the time of detailed design and estimation stage. Only for 1st Phase total cost for environmental management and monitoring will be BDT 12,040,000.00.

8.1 Budget Plan for Environmental Management

349. 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 62: Environmental impact mitigation cost during 1st Phase 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 Boropit 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	Nos.	2	2,000,000.00	4,000,000.00

Sl No	Description of Item	Unit	Quantity	Unit Rate (BDT)	Item Total Cost (BDT)
	management & transport				
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	Setup Disinfection Tunnel/ Chamber with Disinfection fog machine, etc to protect from present COVID-19 pandemic in the entry point.	LS	2	50,000.00	100,000.00
10	Infrared thermometer.	no	10	10,000.00	100,000.00
11	Tree plantation and green area development plan.	LS	Package		200,000.00
12	For excess noise protection, periodical maintenance of construction vehicles and installation of sound insulation cover.	LS	Package		50,000.00
13	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
14	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
15	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 Tk. Eighty Three lac Seventy thousand only					8,370,000.00

**Table 63: Environmental impact mitigation cost during 1st Phase for
Operation period**

Sl. No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	Item Total (BDT/Year)
1.	Maintenance of dust management system	LS			100,000.00
2.	O&M cost of Duckweed grown in pond and Boropit for protection of surface water pollution	LS	-	-	30,000.00
3.	Maintenance of Waste Management System inside the Port activity	LS	-	-	50,000.00
4.	First aid box with necessary medicine and equipment	LS	-	-	40,000.00
5.	Personal Protective Equipment also considering present COVID-19 Pandemic	LS	-	-	80,000.00
6.	Spray of Disinfections materials to protect from present COVID-19 Pandemic	LS	-	-	80,000.00
7.	Maintenance of Disinfection Tunnel/ Chamber with Disinfection fog machine, etc to protect from present COVID-19 pandemic in the entry point	LS	-	-	80,000.00
8.	Tree plantation and green area development plan	LS	-	-	200,000.00
Total in Tk. Six lac sixty thousand only					660,000.00

**Table 64: Estimated annual costs for Environmental Training during 1st
phase**

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	LS	LS	200,000.00
2	Environmental Training	During Operation	Orientation Workshop and follow	LS	LS	200,000.00

SL	Component	Stage	Item	Unit Cost	Quantity	Cost (in BDT)
			up training program for capacity building/ institutional development program			
3	COVID-19 pandemic	During Construction	COVID-19 pandemic awareness campaign to ensure that contractor's personnel and local community understand COVID-19 pandemic	LS	LS	100,000.00
4	COVID-19 pandemic	During Operation	COVID-19 pandemic awareness campaign	LS	LS	100,000.00
Total: Tk. Six lac only						600,000.00

8.2 Budget Plan for Environmental Monitoring

350. 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 65: Environmental monitoring cost for 1st phase (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 , 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	LS	LS	30,000.00

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
		reporting			
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 66: Environmental monitoring cost for 1st phase (During Operation)

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
Air Pollution (Ambient Air Quality)	During Operation	Measurement of SPM, PM ₁₀ , NO _x , SO ₂ , CO, CO ₂	75,000.00	4	300,000.00
Water Pollution (Surface Water)	During Operation	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 Operation	Measurement of pH, FC, BOD, Nitrite, Chloride, Fe, Pb, Cd, Hg, As	60,000.00	4	240,000.00
Solid and liquid Waste Management	During Operation	Site inspection at waste sensitive locations and reporting; waste water parameters	50000.00	4	200,000.00

Component	Stage	Item	Unit Cost	Quantity	Total Costs
			(BDT)	(Yearly)	(BDT)
		(pH, Turbidity, BOD, COD, CF) test from outlet of septic tank			
Noise (Ambient)	During Operation	Measurement of Sound level (dB) at day and night; Periodical maintenance of construction vehicles and installation of sound insulation cover	10,00000	4	40,000.00
COVID-19 monitoring	During Operation	Daily thermal checkup through Temperature Scanner	LS	LS	50,000.00
COVID-19 awareness campaign	During Operation	Yearly	LS	LS	100,000.00
Reporting on Environmental Monitoring	During Operation	Quarterly Monitoring Report	30,000	4	120,000.00
Total in Tk. Twelve lac ninety thousand only					1,290,000.00

Table 67: Estimated total costs for environmental impact management, training and monitoring during 1st Phase

Items	Cost (in BDT)
Environmental impact mitigation and management during construction period	8,370,000.00
Environmental impact mitigation and management during operation period	660,000.00
Estimated annual costs for Environmental Training	600,000.00
Environmental monitoring cost during construction period	1,120,000.00
Environmental monitoring cost during operation period	1,290,000.00
Total	12,040,000.00

351. Mitigation Training and Monitoring cost for 2nd and 3rd phase is attached in Annex-16. Total ESMP implementation cost for 2nd and 3rd phase for Ramgarh Land Port will be BDT 12,270,000.00. Total ESMP cost for all three phases will be BDT 24,310,000.00.

9 Disaster Management Plan

9.1 General Consideration

352. The BLPA Authority's role is to facilitate the safe and efficient movement of trade at the land port of Ramgarh. 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 tsunami inundation. The risk maps can assist decision makers in understanding the vulnerability and adopting appropriate strategies to minimize disaster risks.
353. Disruptions to transportation systems affect the resilience for sustaining daily operations. Among the various types of transportation systems, ports provide substantial employment and industrial 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 industrial clusters.
354. According to the geographical location of the Ramgarh port it may be said that it is free from tidal flood, tidal surge or storm tide, salinity but none can ensure it. 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 this diseases have been incorporated in this report.
355. As the earthquake and many other disasters like tidal surge, 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.
356. In order to address all possible hazards, a short but useful DMP/ESMP have been discussed below and also in Annexure 9.
357. **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 have an effect on essential services like power and instrumentation which can cause an escalation of the incident
358. **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.

359. **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.

9.1.1 How to reduce risks

360. Though the above-mentioned risks are less in land port activities, still then precautionary measures are to be taken. Design and Pre-modification review are to be done periodically. This involves proper layout, facilities and material handling process.
361. **Chemical Risk Assessment:** Chemicals to be handled are assessed based on compatibility, flammability, toxicity, explosion hazards and storage.
362. **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
363. **Training:** Proper training of staff and workers and protective services should be done.
364. **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.
365. **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 stand out on dangerous household and car care products.
366. **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 in a watertight container.
367. 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:

368. **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. In order to take care of any hazards the following controls should be adopted:

369. 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

9.2 Objective of Disaster Management Plan

370. In order 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.

9.3 Basic Contents of DMP

371. 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.

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

9.4 On -Site Emergency Plan

9.4.1 Objective and contents

373. 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 signal; actions to be taken by non- key personal during emergency.

9.4.2 Appointment of key persons and their Role

Site controller (SC)

374. The General Manager (however called) or his nominated deputy will assume overall responsibility for the port area and its personnel.

Incident Controller (IC)

375. Assistant Manager 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)

376. 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)

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

9.4.3 Emergency Control Centers (ECC)

378. 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.

9.4.4 Alarms

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

9.4.5 Mutual Aid

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

9.4.6 Training and Mock Drills

381. 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.

9.5 Off -Site Emergency Plan

9.5.1 Objective

382. 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.

9.5.2 Key Personnel

383. The ultimate responsibility for the management of off-site emergencies rests 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
- Pourashava commissioner, if municipalities are involved
- Upazila Level Officer of Health
- Pollution control Board Representative

384. 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
- Pourashava
- Animal Husbandry
- Agriculture
- Irrigation and Water management
- Civil Defense
- RHD
- UNO

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

9.5.3 Education of Public

386. 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.

9.5.4 Steps in Emergency Response

387. **Step- 1:** Determine the potential hazards associated with the incident, substance or circumstance and take appropriate action to identify the type and qualities of dangerous goods involved and any known associated hazards.

388. 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.

389. **Step-2:** Determine the source/cause of the event resulting to the emergency and prevent further losses.
390. **Step-3:** Conduct and assessment of the incident site for any further information on hazards or remedies.
391. **Step- 4:** Initiate redress procedures.
392. **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 land owner.
393. **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.

9.5.5 Reporting Incidents and Accidents

394. 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.

9.5.6 Approaches to Emergency Response

395. 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' emergency. In case of an emergency incident occur, immediate action must be taken to mitigate the impacts.
396. In order 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.
397. 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

398. The facilities operation and monitoring are carried out under the management and help from both the employees and relevant government lead agencies. In order 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.

9.6 Environmental, Health Safety & Security Management

9.6.1 Green Environment

399. Environment has become a matter of great concern for the world at present due to pollution caused by a number of 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 trees along the road side and within the port area and also establish water sprinkler system to make dust free environment.

9.6.2 Security Management

400. The security personnel at the port are made up of regular security guards and Ansars. Ansars will be employed by BLPA and they will be under the Code of Conduct of BLPA. Armed Police Battalion (APB) will take over the responsibility of security of the land port for both life and properties. Armed Police Battalion (APB) will be under Bangladesh Police which is controlled by Bangladesh Government. They will maintain the law and order situation of the port area. Any activities of security personnel which will create conflict with local community or against the human rights that will be investigated by BLPA and Government of Bangladesh and proper action will be taken. Besides the Border Guard of Bangladesh (BGB) will ensure border security, and will be responsible for anti-smuggling operation, investigating cross border crime.

9.6.3 Health and Safety

401. Ramgarh Land Port Authority 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's are 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.

9.6.4 Health and Safety Plan

402. 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 programme, including emergency response procedures, emergency equipment, training, review and updates.
- In annual budget under the head “Workers health & Safety” sufficient money is be allotted.

403. 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 minimized in person meetings and encourage remote meeting for taking decision on construction and site management.
- Tracking mechanism of worker’s status on-site and off-site will be set up (e.g. fit to work, list of all quarantined workers, sick, etc.).
- Guideline on effective ‘site operation plan’ will be set up to minimized workforce
- How supervisor/contractors to conduct periodic audits to verify that the appropriate measures have been implemented and are maintained.
- Effective Screening mechanism at entry of construction site based on the boundaries of construction sites.
- Regularly and thoroughly clean hands with an alcohol-based hand rub or wash them with soap and water. Because washing hands with soap and water or using alcohol-based hand rub kills viruses that may be on the hands.

- Maintain at least 1 meter (3 feet) distance between two persons. Because when someone coughs, sneezes, or speaks they spray small liquid droplets from their nose or mouth which may contain virus. If someone is too close, he can breathe in the droplets, including the COVID-19 virus if the person has the disease.
- Avoid going to crowded places. Because, where people come together in crowds, people are more likely to come in close contact with someone that has COVID-19 and it is more difficult to maintain physical distance of 1 meter (3 feet).
- Avoid touching eyes, nose and mouth. Because, hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to people's eyes, nose or mouth. From there, the virus can enter into the body and infect the person.
- Make sure every person will follow good respiratory hygiene. This means covering the mouth and nose with bent elbow or tissue during cough or sneeze. Then dispose of the used tissue immediately and wash hands. Because Droplets spread virus. By following good respiratory hygiene, everybody can protect the people around themselves from viruses such as cold, flu and COVID-19.
- Stay home and self-isolate even with minor symptoms such as cough, headache, mild fever, until the person recover. Have someone bring the supplies. If these people need to leave his house, wear a mask to avoid infecting others. Because avoiding contact with others will protect them from possible COVID-19 and other viruses.
- If anybody have a fever, cough and difficulty breathing, seek medical attention, but call by telephone in advance if possible and follow the directions of their local health authority. Because national and local authorities will have the most up to date information on the situation in their area. Calling in advance will allow their health care provider to quickly direct them to the right health facility. This will also protect people and help prevent spread of viruses and other infections.
- Keep up to date on the latest information from trusted sources, such as WHO or the local and national health authorities. Because local and national authorities are best placed to advise on what people in everybody's area should be doing to protect themselves.

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

- To protect everybody against COVID-19, clean hands frequently and thoroughly. Use alcohol-based hand sanitizer or wash hands with soap and water. If someone uses an alcohol-based hand sanitizer, make sure to use and store it carefully.
- Keep alcohol-based hand sanitizers out of children's reach. Teach them how to apply the sanitizer and monitor its use.
- Apply a coin-sized amount on the hands. There is no need to use a large amount of the product.
- Avoid touching eyes, mouth and nose immediately after using an alcohol-based hand sanitizer, as it can cause irritation.
- Hand sanitizers recommended to protect against COVID-19 are alcohol-based and therefore can be flammable. Do not use before handling fire or cooking.
- Under no circumstance, drink or let children swallow an alcohol-based hand sanitizer. It can be poisonous.

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

9.7 Grievance Redress Mechanism (GRM)

405. 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 tribal people 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/Courier services or in person or dropping in the grievance box.
406. 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 to 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. If the victim/complainers are not satisfied with the action taken by authority, he may go for legal action/ Labour court.
407. The project will assess if there is any gender based violence, sexual abuse, drug trafficking, eve teasing etc. The project will widen its scope now to take care of all sorts of sexual exploitation and abuse and Sexual harassment which is beyond GBV as per the WB new guideline of February, 2020. The project will also ensure that there is no discrimination and harassment in getting compensation. The project's GRM will take them into consideration very carefully and effectively during the design, redesign, implementation, physical works and O&M.
408. The project will have a GRM having two windows, one to handle cases other than SEA/SH while and the other window will deal with cases involving SEA/SH. The second window will have a specialized entity having experienced and knowledgeable staff who deals such SEA/SH issues professionally. The GRM will have two tiers GRC as-GRC at Community Level and GRC at Headquarter Level.
409. The second window of the local level GRC will have an additional member who will be either Upazila Women Affairs Officer (UWAO) or in his/her absence a representative of District Women Affairs Officer (DWAO) not below class II govt. officer. The UWAO or representative of DWAO will be advisor to the committee and their advice must be taken into consideration while resolving the SEA/SH.
410. The headquarter level GRC also will have two windows one dealing with grievances noted above and the other with grievances involving SEA/SH. The second window will have additional expertise specialized in SEA/SH in addition to the social consultant of BLPA. Details of Grievance Redress Mechanism (GRM) is provided in SIA Report of Ramgarh Land Port.

10 Conclusion

10.1 Conclusion

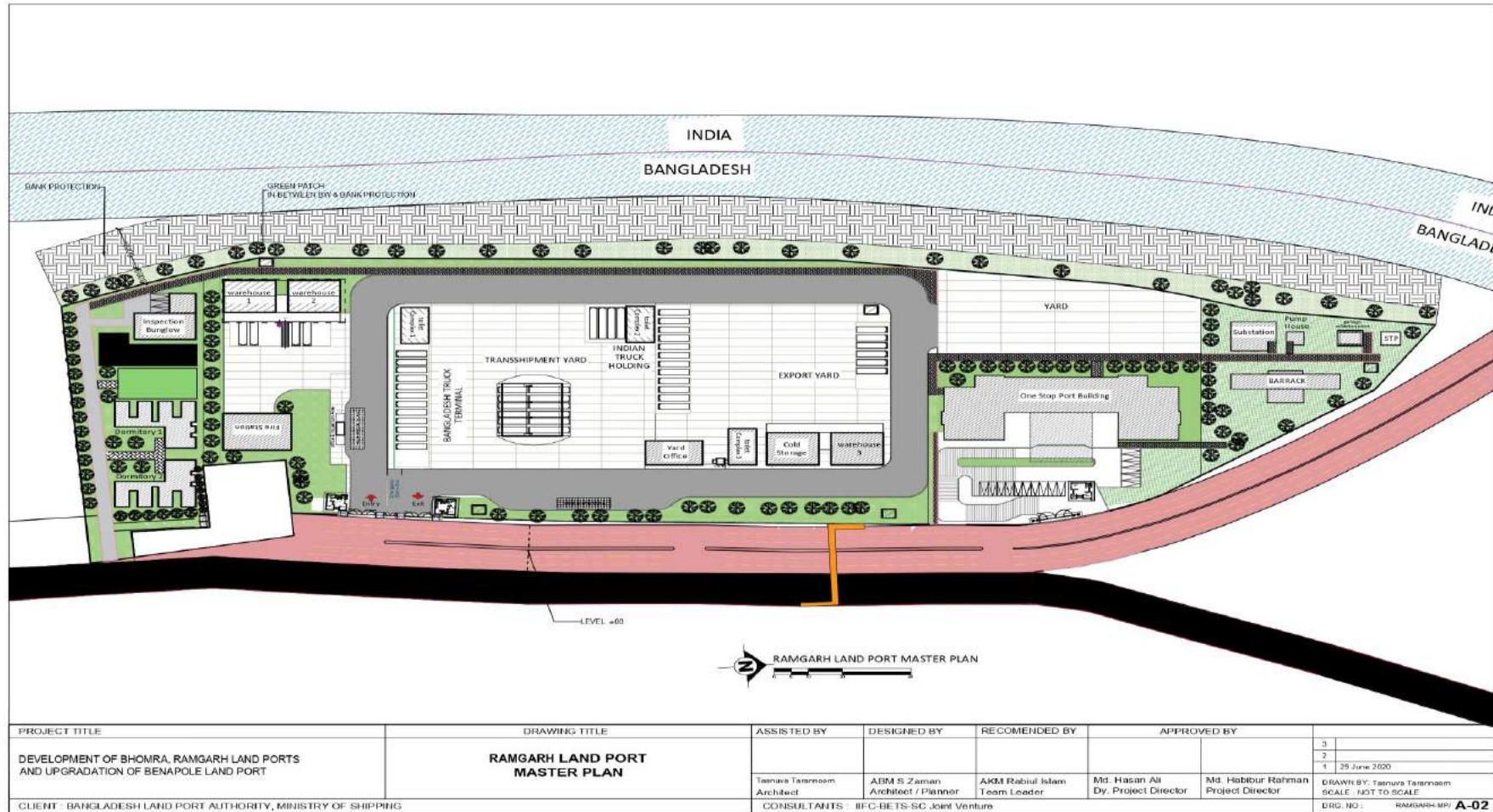
411. Ramgarh Land Port is located at the Southeast border of Bangladesh in Ramgarh Upazila of Khagrachari Hill District. The project falls under Orange B category as per ECR, 1997 (amended 2017) and requires prior environmental clearance from DoE, Bangladesh.
412. An EIA study has been conducted for the project according to the requirements of DoE and World Bank. The EIA report has been prepared through a detailed field study under the supervision of an Environmental Engineer having long experiences in Govt. organizations and NGOs. 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 WB. The reports included identifications of potential impacts, their assessment, recommending possible mitigation measures for adverse impacts, and enhancing measures for positive impacts.
413. Identified area which has E & S risk for this project are Air Pollution, Noise Pollution, Solid waste disposal, Accident & Human health, Water Pollution, Labour Influx, Heat, Groundwater level depletion and Impacts on the biodiversity of river and surrounding area.
414. 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.
415. 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.

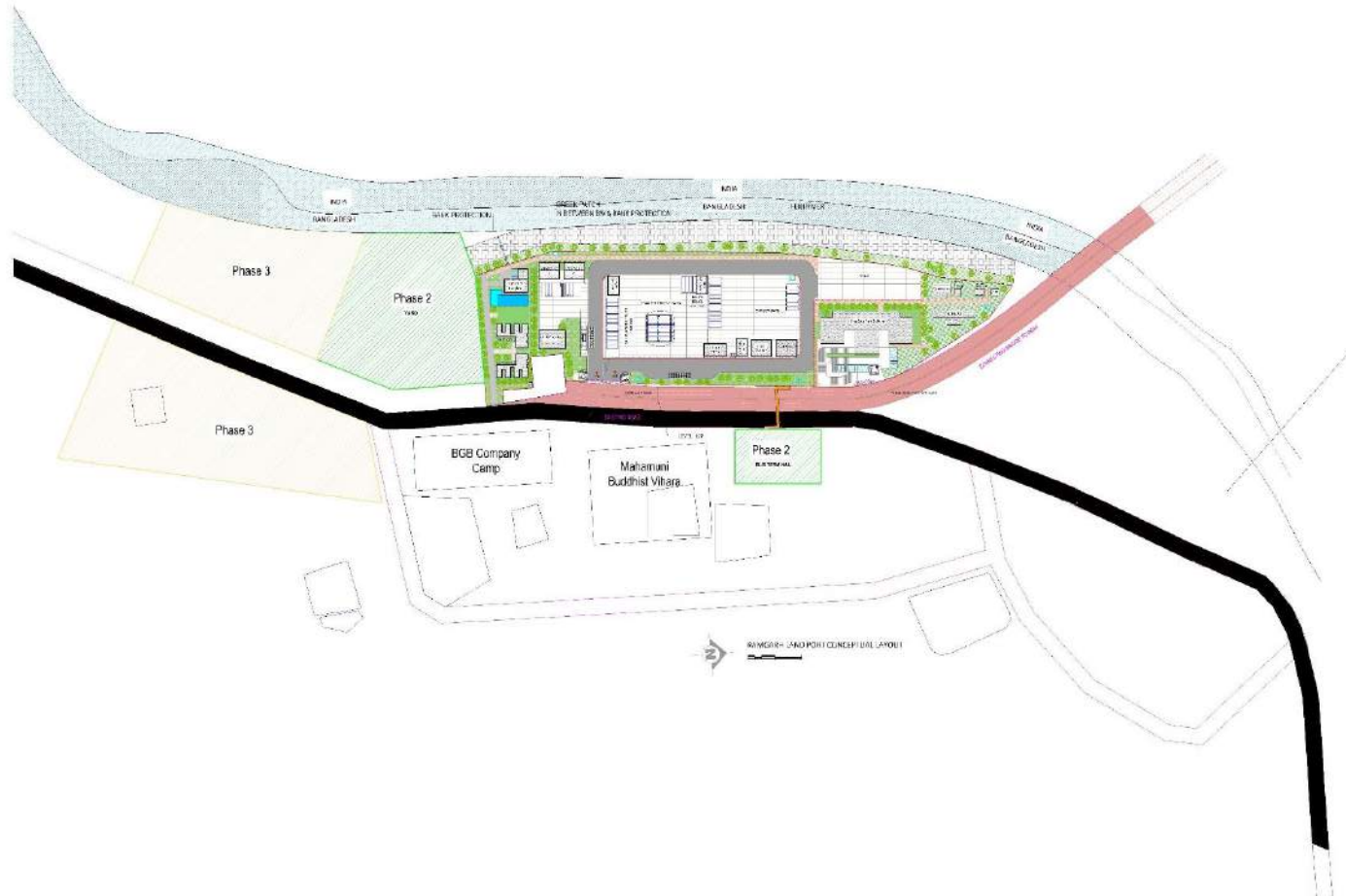
10.2 Recommendations

416. 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 Govt., Department of Environment and others should be provided to the port authority;
 - 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.

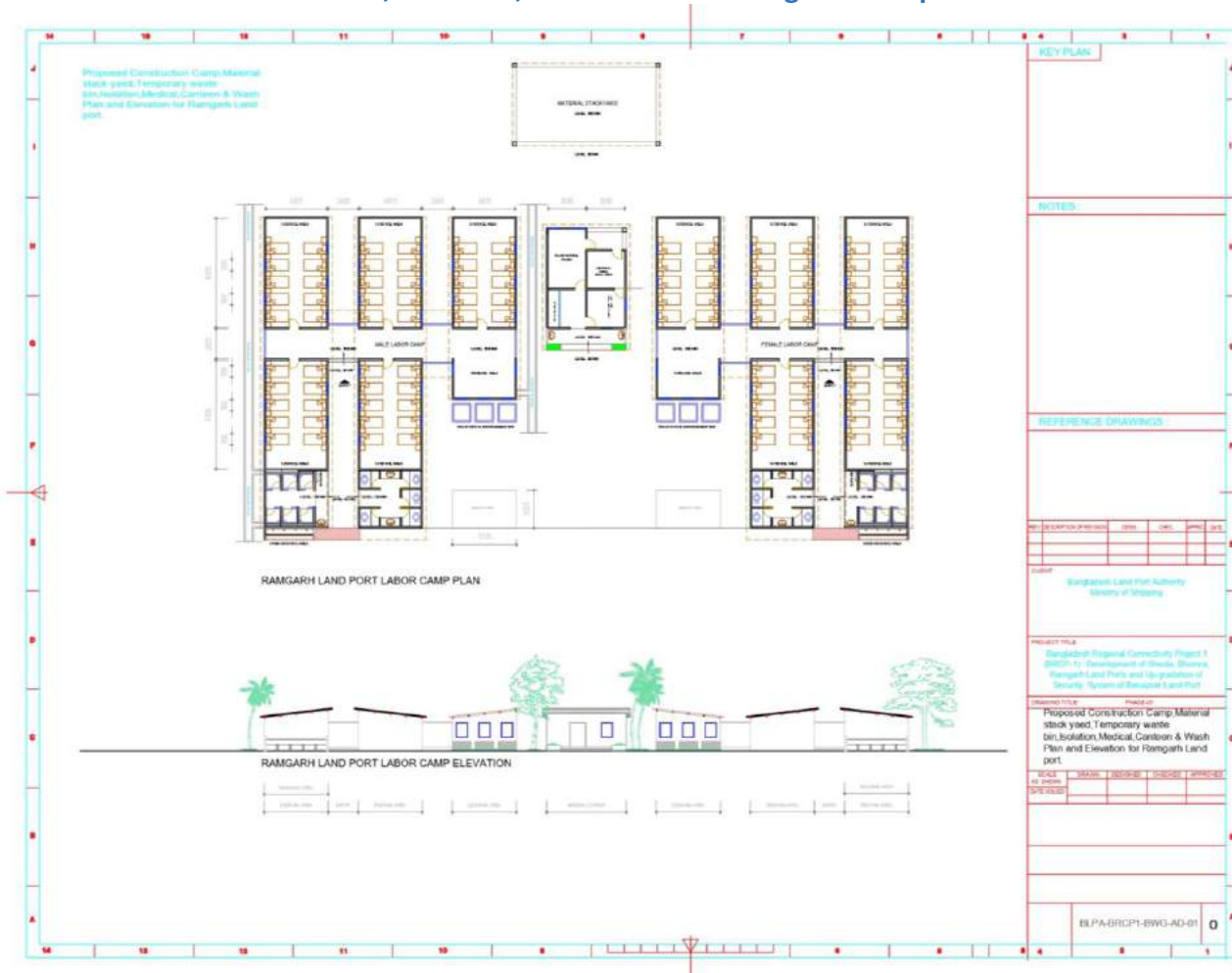
Annex 1: Conceptual layout plan of Ramgarh Land Port





Conceptual Layout Plan Phasewise

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



Camp, Material waste
inteen & Wash
Ramgarh Land



Isolation
Area

Medical
Facilities



RAMGARH LAND PORT LABOR CAMP ELEVATION



Annex 3: Structure Questionnaire Survey for EIA for Bangladesh Regional Connectivity Project at Ramgarh Land Port

Location: Ramgarh Upazila, Khagrachari Hill District

Date:

1. Name of Respondent :
2. Profession :
3. Address :
4. What do you think about following benefits of a land port construction at Ramgarh border:
 - i. It will be Helpful for you? (Y/N)
 - ii. Local people will get any advantages? (Y/N)
 - iii. Social life of local people will improved? (Y/N)
 - iv. Income of local people will increase or they get any economic benefits? (Y/N)
 - v. Communication with other places will be easy? (Y/N)
 - vi. Land value of surrounding areas will increase? (Y/N)
 - vii. Job facility will increase for local people? (Y/N)
 - viii. Scope of business will increase? (Y/N)
 - ix. Cultural communication will improve? (Y/N)
5. What are the negative impacts (if any)?
 - i. Increase of traffic volume?
 - ii. Accident frequency will increase? (Y/N)
 - iii. Increase of air and noise pollution? (Y/N)
 - iv. Any impact on local culture and religious activities?(Y/N)
6. 7. During construction is there any problem?
 - a. Traffic congestion?
 - b. Air pollution
 - c. Noise pollution
7. Do you think this project will change surrounding bio diversity?
8. Do you think present road facility will be adequate after the port development?
9. If your house/shop needs to displace then how will you survive with your family?
10. If your land will acquire by Government, what will you do with the compensation money?

Name & Signature of Respondent

Name & Signature of Surveyor

Date

Date

Annex 4: Chance Find Procedures

(Ref: The World Bank Operational Manual, 1999 OP 4.11)

Works could impact sites of social, sacred, religious, or heritage value. "Chance find" 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 of 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 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 be in charge of 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.

Annex 5: Environmental Screening Checklist of Proposed Ramgarh Land Port

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	Yes. Construction and operation works generate noise levels from machinery and	No, adequate buffer zone will be established around the port facilities to

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
radiation?	traffic	control the noise 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 waters 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 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 from 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 life style 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 industries.
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	No	No

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
impacts with other existing or planned 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?	Yes. Feni River is adjacent to the proposed site.	No. Because any direct discharge (liquid or solid) into the river will be prohibited.
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?	Yes, the nearby rainwater drain and shallow groundwater could be affected by the Project	Yes, the water quality of the river and groundwater could be affected by the discharges from the proposed port facilities
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 cemetery within the project area.	No. Road facility to access to the cemetery will be provided.

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
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 cemetery within the port area. Beside this a Christian Church and Mahamuni Buddha Bihar nearby the project area.	No. Proper respect will show by project authority to their activities and any disturbance to their activities due to project work will be prohibited.
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	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 few houses located closed to the proposed port	No, because land acquisition and resettlement action plan will be implemented properly.
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
24. Are there any areas on or around the locations which are	Yes. There is a cemetery within the port area.	No. Project authority will keep the cemetery

Screening Questions	Yes / No /Briefly describe	Is this likely to result in a significant effect Yes/No/ – Why
occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities, which could be affected by the project?	Beside this a Christian Church and Mahamuni Buddha Bihar nearby the project area.	undisturbed and separated with a boundary wall. Proper respect will show by project authority to their activities and any disturbance to their activities due to project work will be prohibited.
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 earth quake is a concern in the Project area.	No, the design of port facilities will consider adequate building standards.

Annex 6: Terms of Reference (TOR)

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

Environmental Impact Assessment (EIA) is a report which identifies and analyzes the potential impacts on environment by the particular 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 taken into account 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 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 Govt. /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 Safeguard Specialist (Environmental and Social) in GO, NGO or in Donor financed GoB project should be given preference.

Annex 7: Ambient Air Quality Assessment Report

GREEN TECH

Ambient Air Quality Assessment Report

RAMGARH LAND PORT

Conducted By
GREENTECH TESTING COMPANY LTD.

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GREEN TECH

Date of Assessment: February 16, 2020
Date of Report Submission: February 18, 2020



GREENTECH TESTING COMPANY

Environmental Testing, Inspection, Assessment, Calibration
& Consultancy Organisation.



Report Number: GT ET/VER/2020/336

Ambient Air Quality Assessment Report

Issued By	Greentech Testing Company Ltd. (GTCL) House No: 4 Sobhanbag, 123 Mohammadia Super Market (2 nd Floor), Mirpur Road, Dhaka-1207. Contact Number: 01795-333332 E-mail: ceo@gteclbangladesh.com
Date of Issue	February 18, 2020
Report Number	Report Number: GT ET/VER/2020/336

Customer	RAMGARH LAND PORT Darogapara, Ramgarh, Khagrachari, Bangladesh.
Location (GPS) Coordinate	22°59'39.8"N 91°43'28.7"E
Description	Ambient Air Quality Monitoring Report of RAMGARH LAND PORT
Date of Assessment	February 16, 2020



Md. Arif Ullah
Environmental Specialist
Greentech Testing Company Ltd. (GTCL)



Md. Atiqur Rahman
Environmental Specialist
Head of- Quality Assurance
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Report Number: GT ET/VER/2020/336

Ambient Air Quality Assessment Report

Environmental Condition:

Ambient Temperature	: 27.2 °C
Relative Humidity	: 85% RH
Weather Condition	: Spring Season

Methodology:

Ambient air(outdoor) quality of the Land Port was monitored for the parameters of CO, CO₂, NO₂, H₂O, SO₂, NO, H₂S, VOC, hydrocarbon & O₂ following continuous emission monitoring system (CEMS) by using an air analyzer. The analyzers are designed to meet BS 8494/ EN 50270:2006 standard. CO, NO₂, SO₂, H₂S & CH₂O were monitored using electrochemical method and CO₂ was monitored by following Non-Dispersive Infra-red (NDIR) method. Hydrocarbon & VOC were monitored using plus-in catalytic bead and O₂ was measured by capillary controlled concentration sensor and monitored by using automatic span upon activation. The suspended particulate matter (SPM) of different sizes as PM_{2.5} & PM₁₀, were monitored by handheld particle counter at different sections of the Land Port. The particle counter utilizes the laser technology for single particle detection. The scattering of light from the particle in the sampling air stream was converted into electrical pulses then measured and calculated as a particle size. The concentration of particulate matter was measured in microgram per cubic meter. Greentech assessor Mr. Arif Ullah collected the monitoring data. The entire monitoring process conducted following Greentech work instruction WI 06 and Greentech standard operating procedure GTCL SOP 05.

Instrument Specification:

Brand Name	: IGERESS
Model No.	: WP6930S
Size Range	: 0.3µm~10 µm
Flow range	: 2.83 Liter/min (0.1 cfm)
Counting Efficiency	: 50±20%@0.3µm; 100±10%@0.5

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Ambient Air Quality Assessment Report

Portable Ambient Air Quality Monitor Specification:

Parameter	Resolution	Specified Range
Carbon-Monoxide	0.1 ppm	0-200 ppm
Carbon di-oxide	1 ppm	0-5000 ppm
SO ₂	0.1 ppm	0-20 ppm
NO ₂	0.1 ppm	0-20 ppm
Formaldehyde	1 ppb	0-10,000 ppb
H ₂ S	1 ppm	0-200 ppm
NO	0.5 ppm	0-250 ppm
VOC	1 ppm	1-1000 ppm
Hydrocarbon	1% LEL	0-100% LEL
O ₂	0.1	0-30% Vol.

Running Condition of Resort Surrounding Area Air Quality Monitoring Data:

Time & Duration: Assessment was done between 09.30 AM to 04.15 PM:

Assessment Results:

Standard Permissible Limit	Agency	Parameters									
		CO ppm	CO ₂ ppm	NO ₂ ppm	SO ₂ ppm	CH ₂ O ppm	NO ppm	H ₂ S ppm	VOC ppm	Hydro Carbon %	O ₂ %
	ECR 97, Schedule-2, Amendment 2005	35 (1 hr.) 9 (8 hr.)	NYS	0.053 (annual)	0.03 (annual) 0.14 (24 hr.)	NYS	NYS	NYS	NYS	NYS	NYS
	US EPA	35 (1 hr.) 9 (8 hr.)	NYS	100 ppb (1 hr.) 53 ppb (annual)	75 ppb (1 hr.)	NYS	NYS	NYS	NYS	NYS	
	OSHA	50	5000	NYS	NYS	NYS	NYS	NYS	NYS	NYS	
Land Port Surrounding Location		CO ppm	CO ₂ ppm	NO ₂ ppm	SO ₂ ppm	CH ₂ O ppm	NO ppm	H ₂ S ppm	VOC ppm	Hydro carbon %	O ₂ %
North (22°59'41.7"N 91°43'29.8"E)		0.0	1344	0.0	0.0	0	0.0	0.0	0	0	20.9
South (22°59'32.1"N 91°43'28.1"E)		0.0	1147	0.0	0.0	0	0.0	0.0	0	0	20.9
East (22°59'39.4"N 91°43'29.5"E)		0.0	1379	0.0	0.0	0	0.0	0.0	0	0	20.9
West (22°59'32.6"N 91°43'26.2"E)		0.0	989	0.0	0.0	0	0.0	0.0	0	0	20.9
Middle Point (22°59'39.8"N 91°43'28.7"E)		0.0	1456	0.0	0.0	0	0.0	0.0	0	0	20.9

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GREENTECH TESTING COMPANY

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Report Number: GT ET/VER/2020/336

Ambient Air Quality Assessment Report

Suspended Particular Matter (SPM):

Standard Permissible Limit	Agency	Suspended Particulate Matter ($\mu\text{g}/\text{m}^3$)		
	According to ECR 97 (Amendment 2005), Schedule-2	SPM: $200 \mu\text{g}/\text{m}^3$ (8hr Average) PM _{2.5} : $15 \mu\text{g}/\text{m}^3$ (Annual Average) 65 $\mu\text{g}/\text{m}^3$ (24-hour Average) PM ₁₀ : $50 \mu\text{g}/\text{m}^3$ (Annual Average) 150 $\mu\text{g}/\text{m}^3$ (24-hour Average)		
	US EPA	PM _{2.5-35} $\mu\text{g}/\text{m}^3$ (24-hr) PM ₁₀₋₁₅₀ $\mu\text{g}/\text{m}^3$ (24-hr)		
Land Port Surrounding Location	PM _{2.5}	PM ₁₀	Total Suspended Particles, TSP($\leq 10\mu\text{M}$)	
North (22°59'41.7"N 91°43'29.8"E)	83	96	179	
South (22°59'32.1"N 91°43'28.1"E)	82	95	177	
East (22°59'39.4"N 91°43'29.5"E)	83	96	179	
West (22°59'32.6"N 91°43'26.2"E)	90	103	193	
Middle Point (22°59'39.8"N 91°43'28.7"E)	80	93	173	

Agency	Pollutants Concentration										
	NO	H ₂ S	VOC	Hydrocarbon	O ₂						
ECR97, Schedule 2, Amendment 2005	NYS	NYS	NYS	NYS	NYS						
US EPA	NYS	<table border="1"> <thead> <tr> <th>AEGL 1</th> <th>AEGL 2</th> <th>AEGL 3</th> </tr> </thead> <tbody> <tr> <td>0.33</td> <td>17</td> <td>31</td> </tr> </tbody> </table> For 8 Hour Monitoring *AEGL- Acute Exposure Guidelines Levels. (AEGLs), which is indicate the concentrations of the chemical in air above which different types of health effects could begin to occur in an environment. AEGL 1< there may be some discomfort, odor, irritation, but effects, if any, are not impairing and only temporary. AEGL 2< effects become more significant and may impair ability to escape, be long lasting, or permanent. AEGL 3< increasingly severe effects and possible death without treatment.	AEGL 1	AEGL 2	AEGL 3	0.33	17	31	NYS	5% (Assuming a Methane environment)	NYS
		AEGL 1	AEGL 2	AEGL 3							
0.33	17	31									
OSHA	25 ppm	20 ppm (50 ppm for 10 min once if no other measurable exposure occurs.)	NYS	NYS	19.5 – 22 % (for employee) 19.5 – 23.5 % (Atmospheric)						

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GREENTECH TESTING COMPANY

Environmental Testing, Inspection, Assessment, Calibration
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Report Number: GT ET/VER/2020/336

Ambient Air Quality Assessment Report

Discussion and Recommendation:

Ambient air quality at the surrounding of Land Port has been analyzed for the concentration of parameters CO, CO₂, NO₂, CH₂O, SO₂, NO, H₂S, and VOC, Hydrocarbon & O₂. The concentration of Suspended Particulate Matter (SPM) of different sizes within the range of 1.0 µg/m³-10µg/m³ has also measured. From the analysis it has been observed that the value of CO, CO₂, NO₂, CH₂O, SO₂, NO, H₂S, VOC, Hydrocarbon & O₂ are within the maximum permissible limit of ECR 97 Schedule 2 (amendment 2005), US EPA and OSHA guidelines. As well as the particulate matter concentration at the Surrounding of the Land Port are within optimum SPM limit according to ECR 97.



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Report Number: GT ET/VER/2020/336

Photograph of the Sampling:



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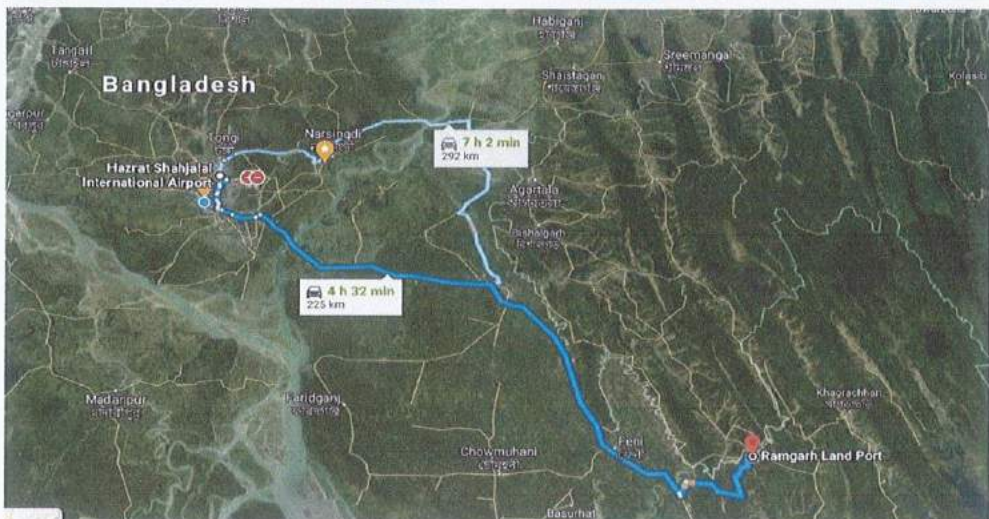
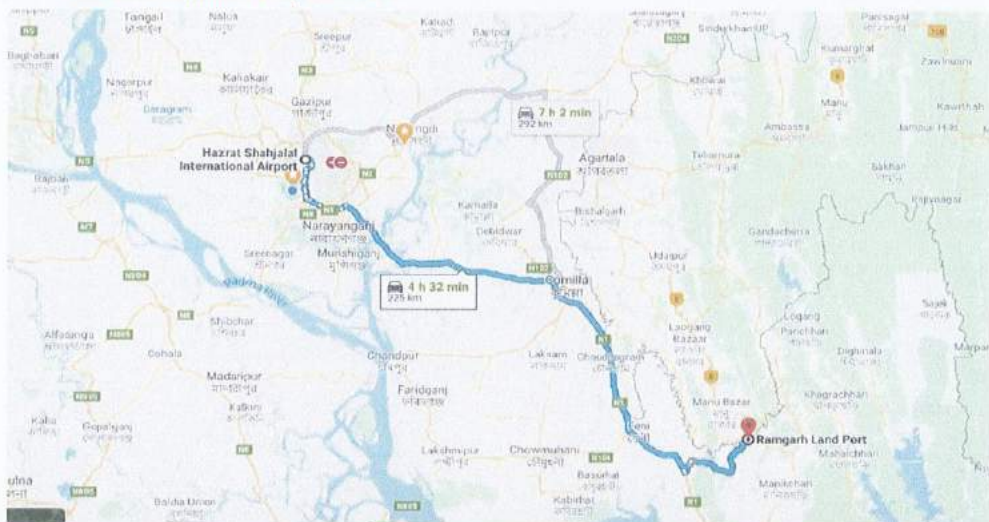
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Report Number: GT ET/VER/2020/336

Location Map of the Proposed Site:



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Annex 8: Ambient Noise Level Assessment Report

GREEN TECH

Ambient Noise Level Assessment Report

RAMGARH LAND PORT

Conducted By
GREENTECH TESTING COMPANY LTD.

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GREEN TECH

Date of Assessment: February 16, 2020
Date of Report Submission: February 18, 2020



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Environmental Testing, Inspection, Assessment, Calibration
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Report Number: GTCL/VER/2020/337

Ambient Noise Level Assessment Report

Issued By	Greentech Testing Company Ltd. House No: 4 Sobhanbag, 123 Mohammadia Super Market (2 nd Floor), Mirpur Road, Dhaka-1207. Contact Number: 01795-333332 E-mail: ceo@gtclbangladesh.com
Date of Issue	February 18, 2020
Report Number	Report Number: GTCL/VER/2020/337

Customer	RAMGARH LAND PORT Darogapara, Ramgarh, Khagrachari, Bangladesh.
Location (GPS) Coordinate	22°59'39.8"N 91°43'28.7"E
Description	Ambient Noise Level Assessment Report Of RAMGARH LAND PORT
Date of Assessment	February 16, 2020



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& Consultancy Organisation.



Report Number: GTCL/VER/2020/337

Ambient Noise Level Assessment Report

Environmental Condition:

Ambient Temperature	: 27.2 °C
Relative Humidity	: 85% RH
Weather Condition	: Spring Season

Description of Sampling:

Assessment was done to measure the sound level for every section of the facility. Greentech Testing Company Ltd. (GTCL) assessor Mr. Arif Ullah conducted the workplace noise level inspection. During the sampling procedure, all instruction stated in the Greentech Testing Company Ltd. (GTCL) work instruction WI-02 followed.

Assessment Method:

Sound Pressure was measured in decibel (dB) based on electric condenser microphone. The instrument is based on IEC 651, type 2 economical type.

Instrument's Specifications:

Instrument Name	: Digital Sound Level Meter
Measuring Range	: 35 to 130 dB.
Resolution	: 0.1 dB
Accuracy	: ± 3.5 dB

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Report Number: GTCL/VER/2020/337

Ambient Noise Level Assessment Report

Assessment Results:

Time & Duration: The assessment was done between 9.45 AM to 1.00 PM & 2.30 PM to 4.30 PM

S.N	Sample Section	Site Condition	Concentration present (LA _{eq}) dBA
			Day Time
01	North (22°59'41.7"N 91°43'29.8"E)	Running Condition	63.8
02	South (22°59'32.1"N 91°43'28.1"E)	Running Condition	68.5
03	East (22°59'39.4"N 91°43'29.5"E)	Running Condition	61.2
04	West (22°59'32.6"N 91°43'26.2"E)	Running Condition	47.8
05	Middle Point (22°59'39.8"N 91°43'28.7"E)	Running Condition	68.3
Bangladesh (DoE) standard for Industrial area			-
Industrial Area			75
Commercial Area			70
Mixed Area			60
Residential Area			55
World Bank / IFC Standard			-
Industrial			70
Residential; Institutional; Educational			55

All units are in (LA_{eq}) dBA, note: This noise data was usually accomplished by - Lutron Sound Level Meter (Model - 4012)

Comment: The standard level of ambient noise at the Mixed area is 60 dB according to DoE and but the standard of IFC/ World Bank, the ambient noise level at the Mixed area is essential to keep at 60 decibels during day time. According to the Environment conservation Rules (ECR) "SRO no 212-law/2006, the level of noise will have to keep within the above-mentioned standard limit set by DoE, Govt., of Bangladesh. The average level of noise was 58.2±7.55 dBA.

However, the level of noise was not very satisfactory and within the limit of sound Mixed zone for DoE and IFC/World Bank.

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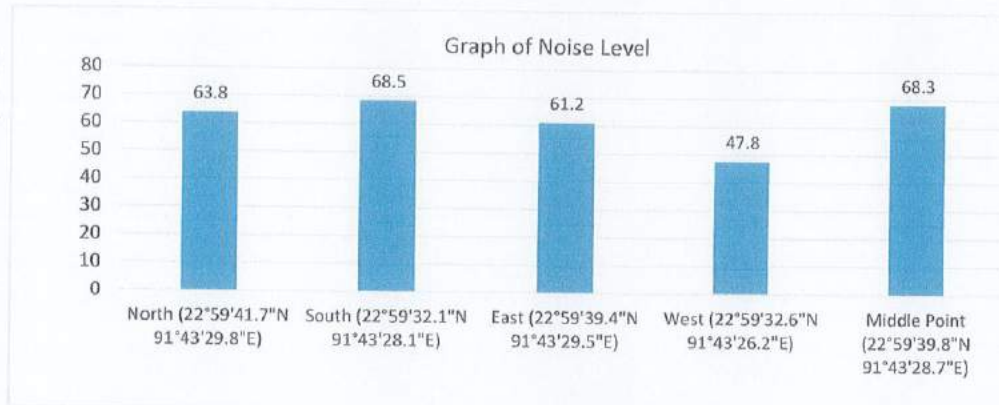
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Ambient Noise Level Assessment Report



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Report Number: GTCL/VER/2020/337

Photograph of the Sampling:



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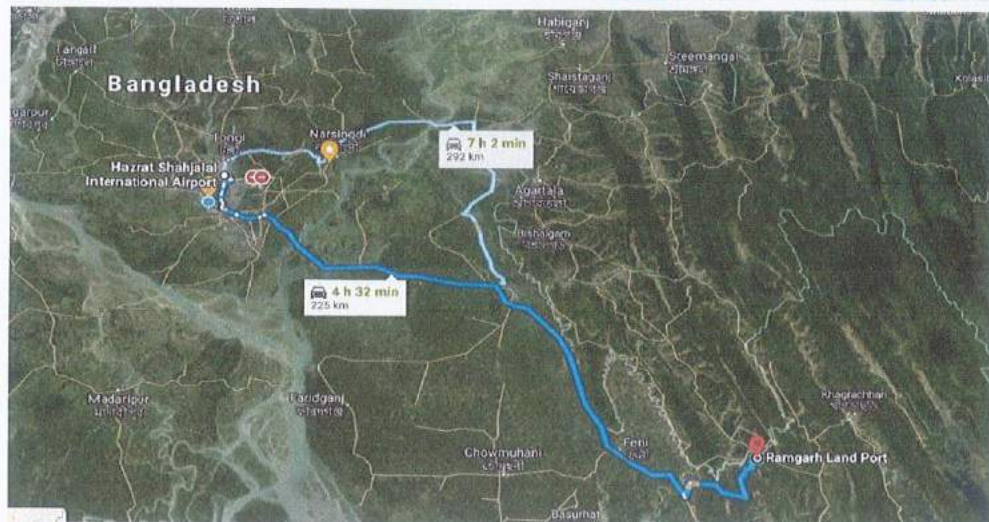
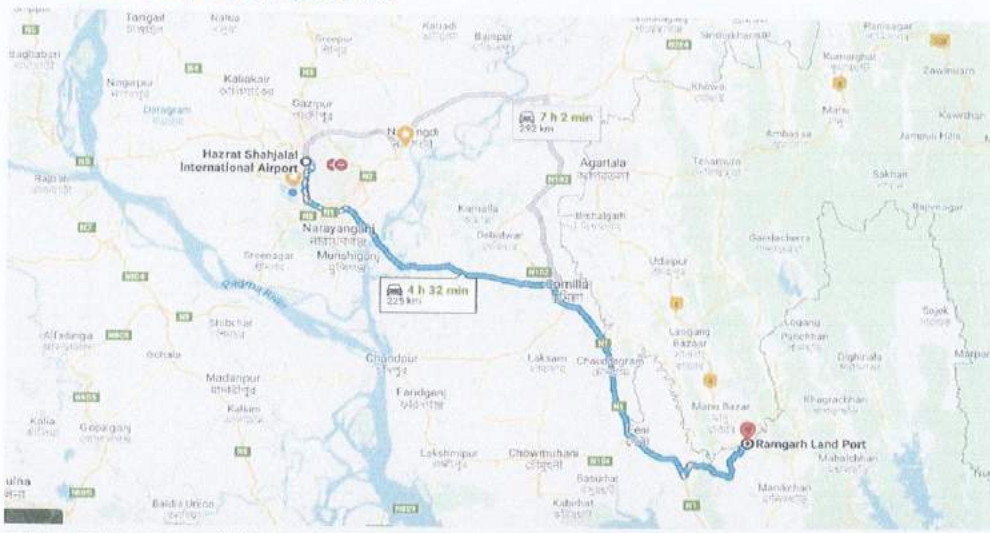
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Location Map of the Proposed Site:



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Annex 9: Water Quality Test Result



Bangladesh Agricultural Development Corporation

Digitalization of Survey & Monitoring for Development of Minor Irrigation (Phase IV)

DHAKA (MI/LAB) ZONE, DHAKA DIVISIONAL LABORATORY

Water Quality Test Results by Field Kits, UV-VIS Spectrophotometer, Benchtop pH meter and Bench top EC meter

SL	District	Upazila	Village	Name of Farmer/River/Khal	Source of Water	Analysis Date	Water Quality Parameters														
							pH (Acceptable Limit for Irrigation: 6.5-8.5, and for Drinking: 6.5-8.5)	Electric Conductivity, EC (µs/cm) (Acceptable Limit for Irrigation: 2250µs/cm, and for Drinking: 1000µs/cm)	Total Dissolved Solids, TDS (mg/L) (Acceptable Limit for Irrigation: 2000mg/L, and for Drinking: 1000mg/L)	Arsenic, As(ppb) (Acceptable Limit for Irrigation: 10ppb, and for Drinking: 50ppb)	Iron, Fe(mg/L) (Acceptable Limit for Irrigation: 5.0mg/L, and for Drinking: 1.0mg/L)	Chlorides, Cl(mg/L) (Acceptable Limit for Irrigation: 600mg/L, and for Drinking: 600mg/L)	Calcium + Magnesium, Ca+Mg(meq/L)	Sodium Estimation, Na (meq/L) (Acceptable Limit for Irrigation: 100mg/L, and for Drinking: 40mg/L)	Sodium Absorption Ratio (Acceptable Limit for Irrigation: 2.0)	Total Alkalinity (mg/L) (Acceptable Limit for Drinking: 120mg/L)	Total Hardness (mg/L) (Acceptable Limit for Drinking: 150mg/L)	Nitrate-Nitrogen, NO ₃ -N (mg/L) (Acceptable Limit for Drinking: 10mg/L)	Phosphate, PO ₄ -(mg/L) (Acceptable Limit for Irrigation: 10mg/L, and for Drinking: 60mg/L)	Potassium, K (mg/L) (Acceptable Limit for Drinking: 12mg/L)	Sulfate, SO ₄ (mg/L) (Acceptable Limit for Irrigation: 1000mg/L, and for Drinking: 400mg/L)
1	Khagrachari	Ramgarh	-	-	DTW	23-Mar-20	6.5	134	67	0	0	9	-	-	-	100	45	0	0.4	0	0
2	Khagrachari	Ramgarh	-	-	DTW	23-Mar-20	6.2	135	67	0	0	10	-	-	-	110	40	0	0.2	0	0
3	Khagrachari	Ramgarh	Mohamuni	-	Semi River	23-Mar-20	7.3	170	85	0	0	17	-	-	-	110	72	0	0.2	0	0
4	Khagrachari	Ramgarh	Mohamuni	-	Pond	23-Mar-20	7	180	90	0	0	15	-	-	-	120	67	0	0.2	0	0

Analysed by:

Sultan Md. Nowsher
23.03.20
(Sultan Md. Nowsher)

Chemist (In charge)

BADC, Chemical Laboratory, Dhaka

Approved By:

Tamal Das
23/03/2020
(Tamal Das)

Assistant Engineer (MI/Lab)

BADC, Dhaka Zone, Dhaka

Annex 10: List of participants for Public Consultation

As a part of the assessment, to assess the public perception, their choice and voice, the following persons were consulted and their opinions are tabulated below:

Venue: Mahamuni, Ramgarh Poursava, Khagrachari

Date: 16.02.2020

Sl. no	Name and Address	Profession & Mobile Number	Comments	Way of mitigation
1.	Md. Khayaggya Marma Mahamuni, Ramgarh, Khagrachari	Farmer & carpenter -	Good news for area peoples it will ventilate multi-sectarian development. Job and trade scope will be increased. It will contribute major role in poverty eradication.	-
2.	Nurul Alam Mahamuni para, Ramgarh, Khagrachari	Farmer 01852204995	He cultivates land as share cropper and leads better life. If crop lands are acquired for land port, they will be jobless and their family will be waste sufferer.	Sufficient compensation for damage of standing crops and alternative employment facility for farmers is essential.
3	Monir Ahmed Mahamuni para, Ramgarh, Khagrachari	Farmer (Share cropper) 01887926110	He is a share cropper. Cultivates 45 decimal land and leads happy life with family member. Land port will provide better livelihood to the people of the area but the farmer and share cropper will be looser.	Do
4.	Md. Abdullah al Mamoon Mahamuni para, Ramgarh, Khagrachari	Farmer (share cropper) 01820704063	He is a share cropper for 30 decimal lands. If farmland is converted to land port they will be jobless resulting waste suffering.	Farmers having no job should have priority in various job of port authority
5.	Abul Kalam Mahamuni para, Ramgarh, Khagrachari	Farmer (share cropper) 01712775010	He cultivates his own land and in addition as share cropper. His family is almost dependent on this farming and there is apprehension that if lands are lost for land port his livelihood would be uncertain. No Environmental hazard is expected.	Due compensation for crop and land might be ensured, in addition alternative works for affected people should

Sl. no	Name and Address	Profession & Mobile Number	Comments	Way of mitigation
				be arranged.
6.	Bahar Uddin Mahamuni para, Ramgarh, Khagrachari	Farmer (share cropper) 0185148935	He is a share cropper for 1 acre lands. If farmland is converted to land port they will be jobless resulting waste suffering.	Farmers having no job should have priority in various job of port authority
7.	Omar Ali Mahamuni para, Ramgarh, Khagrachari	Farmer (share cropper) 01820075752	He is a farmer having one acre double cropped land. The lands are fertile resulting bumper crop all the season. If land is lost for land port his financial backbone will be broken.	Due compensation for crop and land might be ensured, in addition alternative works for affected people should be arranged.
8.	Md. Hanif Mahamuni para, Ramgarh, Khagrachari	Farmer (share cropper) 01884207407	He is a share cropper for 70 decimal lands. If farmland is converted to land port, they will be jobless resulting waste suffering.	Compensation for standing crops in addition job scope for affected farmers is essential.
9.	Abu Bakar Siddique Mahamuni para, Ramgarh, Khagrachari	Farmer 01815447156	He is a farmer having seventy decimal double cropped lands. The lands are fertile resulting bumper crop all the season. If land is lost for land port farmers of the area will become jobless.	In addition to compensation arrangement for alternative job should be provided.-
10	Mahammad Sohel Mahamuni para, Ramgarh, Khagrachari	Farmer 01863036573	He is a share cropper for 70 decimal lands. If farmland is converted to land port they will be jobless resulting waste suffering.	Compensation for standing crops in addition job scope for affected farmers is essential.
11.	Parveen Akter	Farmer,	She is a farmer having one tin shaded house at the area. She	She desires resettlement in

Sl. no	Name and Address	Profession & Mobile Number	Comments	Way of mitigation
	Mahamuni para, Ramgarh, Khagrachari	House owner 01863036573	cultivates 50 decimal lands as a share cropper. The lands are fertile resulting bumper crop all the season. If lands are lost for land port farmers of the area will become jobless.	addition to due compensation.
12.	Md. Chuttu mia Mahamuni para, Ramgarh, Khagrachari	Farmer 01814815542	He is a farmer having one & half acre double cropped land. The lands are fertile resulting bumper crop all the season. If land is lost for land port his financial backbone will be broken.	In addition to compensation for land and standing crop arrangement for job of affected children should be ensured.
13.	Abdul Baker Mahamuni para, Ramgarh Khagrachari	Farmer House owner 01822166599	He cultivates his own 70 decimal lands and in addition 40 decimal as share cropper. His family is almost dependant on this farming and there is apprehension that if lands are lost for land port his livelihood would be uncertain. No Environmental hazard is expected.	Due compensation for crop and land might be ensured, in addition alternative works for affected people should be arranged.
14.	Ayesha Khatun Mahamuni para, Ramgarh, Khagrachari	Farmer -	She leads life as a share cropper. If land is lost she will be workless as well as foodless.	Due compensation and alternative job is utmost essential.
15.	Nurul Haque Mahamuni para, Ramgarh, Khagrachari	Farmer 01840586420	He is a farmer having 71 decimal double cropped lands. The lands are fertile resulting bumper crop all the season. If land is lost for land port the share cropper as well as farmer will be in problem. Land port will ventilate scope for trade, business, employment and other facility. No environmental hazard is expected.	Alternate scope of job for affected farmers is expected in addition to compensation.

Sl. no	Name and Address	Profession & Mobile Number	Comments	Way of mitigation
16.	Nur Mohammad Mahamuni para, Ramgarh, Khagrachari	Software Engineer 01816253255	As a second generation he expects employment scopes for affected family. Establishment of land port will ventilate multi sectarian development in the area. Urban facility, Trade and commerce, tourism and cultural development in global aspect will be enhanced.	-
17.	Abul Basher Mahamuni para, Ramgarh, Khagrachari	Farmer 01837674959	He is a farmer having 120 decimal double cropped lands. The lands are fertile resulting bumper crop all the season. If land is lost for land port the share cropper as well as farmer will be in problem. Land port will ventilate scope for trade, business, employment and other facility. No environmental hazard is expected.	Due compensation for crop and land might be ensured, in addition alternative works for affected people should be arranged.
18.	Mohammad Mosharaf Hossain Daroga para Ramgarh, Khagrachari	Share Cropper 01854423903	He leads life as a 40 decimal share cropper. If land is lost he will be workless as well as foodless. Land port will provide scope of new work. They should have priority in new employment policy.	Alternative working scope may resolve the problem.
19.	MD. Kala uddin Mahamuni para, Ramgarh, Khagrachari	Share cropper 01838420005	Do	Do
20.	Ching Mra Sang Mahamuni Ramgarh, Khagrachari	Land and house owner 01845781208	They are the permanent settler of the area belonging to indigenous group. There settlement will be lost. Due compensation and resettlement is essential. Funeral spot might be protected with protection.	Compensation with resettlement can resolve the problem.

Sl. no	Name and Address	Profession & Mobile Number	Comments	Way of mitigation
21.	Usha ching Choudhury Mahamuni para, Ramgarh, Khagrachari	Land Owner -	About 30 decimal land of their residence is under proposed land port area. They demand compensation as well as protection of Funeral spot.	Due compensation for land and its standing trees may solve the problem.
22.	Neu Marma Mahamuni para, Ramgarh Khagrachari	Owner of land and house 01721595726	They are the permanent settler of the area belonging to indigenous group. There settlement will be lost. Due compensation and resettlement is essential. Funeral spot might be protected with protection.	Compensation with resettlement can resolve the problem.
23.	Hosne ara Mahamuni para, Ramgarh Khagrachari	Share cropper 01854845571	She leads life as a 50 decimal land share cropper. If land is lost she will be workless as well as foodless.	Due compensation and alternative job is utmost essential.
24.	Md. Moslem Uddin Daroga para (Mahamuni) Ramgarh, Khagrachari	Share cropper 01883612080	He cultivates 40 decimal lands as share cropper. His livelihood is dependent on his farming. If land is lost his life will uncertain.	Due compensation may resolve the problem.
25.	Zahangir Alam Mahamuni para, Ramgarh, Khagrachari	Share cropper 01826041232	He cultivates 40 decimal lands as share cropper. His livelihood is dependent on his farming. If land is lost his life will uncertain.	Due compensation may resolve the problem.
26.	Raj Narayan Tripra Mahamuni Ramgarh, Khagrachari	Teacher 01557107469	He is a School teacher and expressed both advantages and disadvantage as below; Trade & commerce facility, urban facility, Employment scope, Transportation facility and education and cultural developments are advantage. Reduction of crop land, Farmers and share croppers will lose their job, sound	By strict compliance of rule and regulations with subsequent monitoring disadvantages may be overcome. Affected farmers and

Sl. no	Name and Address	Profession & Mobile Number	Comments	Way of mitigation
			pollution, air pollution , smugglers activity are disadvantages. Overall impact is positive since Lost Ramgarh sub-division will regain its vanity by land port.	settlers might be addressed with due compensation.
27.	Pramod Ranjan TRipra Mahamuni Ramgarh, Khagrachari	Land owner and Farmer 01557107469	Do	Do
28	Anowar Mahamuni Ramgarh, Khagrachari	Share cropper/ CNG driver 01882754922	Share cropper. Drives CNG. Leading better life. Land port will accelerate his driving profession.	-
29	Rejia Mahamuni Ramgarh, Khagrachari	House owner 01845641639	Tin shaded house owner and share cropper. Leads life with crop production.	Due compensation is demanded.
30	Alauddin Mahamuni Ramgarh, Khagrachari	Share cropper/ CNG driver 01879697771	Drives CNG. Leading better life. Land port will accelerate his driving profession.	-
31	Nurun Nabi Mahamuni Ramgarh, Khagrachari	Share cropper 01824948863	He cultivates 71 decimal crop lands as share cropper. Leads better life with family member. If crop land is lost survival of family will be tough.	Alternative work facility may solve the problem.
32	Bibi Fatima Mahamuni Ramgarh, Khagrachari	House owner and share cropper 01822166544	She resides in a small tin shaded house and leads life as a share cropper.	Due compensation is demanded.
33	Babul Chakraborti Pourasava, Ramgarh, Khagrachari	Local elite and Social Worker 01556581608	He expressed joy & enthusiasm for the step of erecting Land Port at Ramgarh. Recalling the past he mentioned that Ramgarh was subdivision of British Bengal and Bangladesh having its pride and glory. But it	-

Sl. no	Name and Address	Profession & Mobile Number	Comments	Way of mitigation
			is converted to upazila since 1984. Its dignity, economic activity, sports and cultural vanity everything is reducing day by day. If Land port is established at Ramgarh its lost dignity will be flourished with increasing economic development and its position will be highlighted in global aspect.	

Government Officials consulted regarding environment and social impact of Ramgarh Upazila

Venue: Ramgarh Poursava, Khagrachari

Date: 17.02.2020

Sl. no	Name & Designation	Problems/ comments	Suggestions
1.	Kbd. Nasir uddin choudhury Upazila Agriculture Officer 01718062566	Upazila Agriculture Officer welcoming the team expressed that Land Port at Ramgarh will create new era of development and opined as below: 1. To attain the vision '21 expansion of Trade & commerce, Import & Export, Industrialization and global connectivity is utmost essential but not in lieu of agriculture or environment. 2. Proposed Ramgarh Land Port will be erected in 10 acres of land which covers mostly double cropped area and a few home stead areas. Cropped land is flash flood area. Mostly vegetable and maize are produced. Most of the farmers are share cropper who leads life hand to mouth. Homestead areas have thin population of trees. 3. Ramgarh is part of hill tract mostly vale area. Expansion of road and creation of new	1. Ramgarh land port area will reduce net crop land of Ramgarh but it will ventilate multi-sectarian scope of development in Trade & commerce, Import & Export, Industrialization. It will facilitate marketing and mobility of agricultural products nationally and internationally. 2. Compensation for land and crops and alternative works scope may compensate loss and damage of affected farmers.

Sl. no	Name & Designation	Problems/ comments	Suggestions
		<p>connectivity may cause reduction of trees.</p> <p>4. Pre-construction, construction and post-construction may cause air pollution, sound pollution and constructional hazard might be kept within tolerable limit.</p>	<p>3. Trees cutting from road sides and forest should have to be compensated by double replacement so that environmental balance remains sustainable.</p> <p>4. Establishment of Ramgarh Land Port Authority should take necessary protection to keep the pollution within tolerable limit.</p>
2.	<p>Dr. Tushar kanti Chakma</p> <p>Upazila Livestock Officer</p> <p>0i553324616</p>	<p>Mr. Chakma was in office tour at Khagrachari and talked over cell phone and expressed that it is a historical step to highlight Ramgarh's position as before. International Connectivity will enrich Ramgarh as well as nation.</p>	<p>Authority should take necessary steps to compensate affected people with due compensation and resettlement.</p>
3.	<p>Md. Azizur Rahman Anjum</p> <p>Upazila Samaj Seba Officer</p> <p>01515214951</p> <p>Md. Hanif</p> <p>Field Supervisor</p> <p>01867307448</p>	<p>Md. Rahman was in field tour, while talked over cell phone referred Md. Hanif to be talked.</p> <p>Mr. Hanif opined that erection of Ramgarh Land Port will contribute abrupt change in socio-economic condition of Ramgarh. Ramgarh will regain its lost image. Urbanization may encourage criminal to promote addiction.</p>	<p>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 and smuggling etc.</p>
4.	<p>Md. Anowar Hossain</p> <p>Social Service Officer</p> <p>01686463610</p>	<p>Mr. Hossain expressed that erection of Land port at Ramgarh Pourasava will ventilate abrupt change in socio-economic condition of Ramgarh. Global connectivity will enrich its trade and commerce, social structure, sports and cultural position. Ramgarh was Sub-division in British Bengal but now it is degraded as upazila. With degradation of its administrative position its economy, education, sports and cultural heritage is</p>	<p>If Ramgarh Land Port is established to create connectivity with Tripura (India) it will be extended up to Nepal, Bhutan. The lost dignity of Ramgarh will be regained by its remarkable development.</p>

Sl. no	Name & Designation	Problems/ comments	Suggestions
		degrading day by day.	
5.	Md. Sarwar Uddin Asst. Commissioner (UNO In-charge) 01550604525	Mr. Sarwar Uddin is Asst. Commissioner as well as Upazila Nirbahi Officer In-charge welcoming the team expressed that Ramgarh Upazila is a place where Bangale, Tripura, Marma and Chakma people lives in harmony. Erection of Land Port at Ramgarh will enrich the area irrespective caste & religion. It will offer both social impact and environmental impact. Hill cutting may be increased and landscape of the area may be changed. Land port activity might enrich socio-economic development of the area eradicating poverty. Land port authority might compensate affected settlers, farmers and share croppers.	Upazila administration and land department is ready to extend full support so that people of the area gets due compensation and development works are done peacefully. Non registered land owner's claim might get justified decision in presence of all parties so that none is derived from legal claim.
6.	Kbd. Bijoy Kumar Das, Upazila Fishery Officer 01717592388	UFO was in Training program at Savar, Dhaka. Talker over cell phone and expressed good hope about the Land port at Ramgarh. No impact over fishery.	

Annex 11: Signature sheet of Public Consultation



বাংলাদেশ স্থলবন্দর কর্তৃপক্ষ
প্রস্তাবিত রামগড় স্থলবন্দর
রামগড়, খাগড়াছড়ি
www.bsbk.gov.bd

তারিখঃ ২৭-০২-২০২০ খ্রিঃ
স্থানঃ সভাকক্ষ, উপজেলা পরিষদ, রামগড়
সময়ঃ সকাল ১১.৩০ ঘটিকা

বিষয়ঃ বাংলাদেশ রিজিওনাল কানেক্টিভিটি প্রজেক্ট-১ এর আওতায় রামগড় স্থলবন্দর উন্নয়ন
এবং পরিবেশ ও সামাজিক বিষয়ে স্থানীয় অংশগ্রহণকারীদের সাথে মতবিনিময়
সভার উপস্থিতির তালিকাঃ

ক্রঃ নং	নাম	পদবী ও দপ্তর/সংস্থার নাম	মোবাইল নম্বর	স্বাক্ষর
১.	Md. Habibur Rahman	member (SS) PPD BRCP BIPA	০১৪২৬৬৬৫ ৭৯৩৪	[Signature]
২.	শ্রীমতী সৌম্য কুমার বর্মা	সে.ব.স.স. উপজেলা পরিষদ	০১৭৪৪৫১৭ ৪৪৫	[Signature]
৩.	ডা. ন. ম. বর্মা	UNO, সংসদ, রামগড়	০১৭১০৩৭৬৫০	[Signature]
৪.	শ্রীঃ আব্দুল হান্নান	সে.ব.স.স. সামাজিক সেবায়ন	০১৭২২২১৪৫৪	[Signature]
৫.	আব্দুল হান্নান	ওসি, রামগড় ম.স.স.	০১৭৫৫৫৫৫৫৫	[Signature]
৬.	শ্রীমতী সৌম্য কুমার বর্মা	সংসদ, রামগড় সামাজিক সেবায়ন	০১৫১৭১৪৫৫ ৭৩	[Signature]
৭.	শ্রীমতী সৌম্য কুমার বর্মা	IIFC (Intl. Adv.)	০১৪১৭২৩৪৪৪৪	[Signature]
৮.	Rabiu, Islam	Team leader, Consultant	০১৪১৭২৬৫৫৫	[Signature]
৯.	Md. Hasan Ali	Opp. & rep. BIPA	০১৭০৬১৩০৫	[Signature]
১০.				
১১.				
১২.	Gianuddin Khan	Head teacher Ramgarh Model	০১৪২৬৬৬৬৬	[Signature]
১৩.	Md. Abdul Quadir	Head teacher Ramgarh Govt. H.S.	০১৪১৭৬২২৫ ৭৫	[Signature]



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তারিখঃ ২৭-০২-২০২০ খ্রিঃ

স্থানঃ সভাকক্ষ, উপজেলা পরিষদ, রামগড়

সময়ঃ সকাল ১১.৩০ ঘটিকা

বিষয়ঃ বাংলাদেশ রিজিওনাল কানেকটিভিটি প্রজেক্ট-১ এর আওতায় রামগড় স্থলবন্দর উন্নয়ন
এবং পরিবেশ ও সামাজিক বিষয়ে স্থানীয় অংশগ্রহণকারীদের সাথে মতবিনিময়
সভার উপস্থিতির তালিকাঃ

ক্রঃ নং	নাম	পদবী ও দপ্তর/সংস্থার নাম	মোবাইল নম্বর	স্বাক্ষর
১.	শ্রীম: মো: মফিজুল হক	চাটোপাড়া ইউপি চেয়ারম্যান	০১৭১৪৪৫১৭৪	
২.	মহোদয় সত্যজিৎ সায়ম	সহকারী প্রোগ্রামার/সিস্টেম এনালিস্ট	০১৭৫৩২২২০৭৭	
৩.	শ্রীমতি উদ্দিনা চৌঃ	উপজেলা পরিষদ	০১৭১৪০৬২৫৬৬	
৪.	শ্রীঃ মোঃ উদ্দীন	সহকারী প্রোগ্রামার/সিস্টেম এনালিস্ট	০১৭১৩৬০৫৭ ৫৬	
৫.	শ্রীঃ মিজানুর রহমান	ইউজার এক্সপার্ট	০১৫৫০৬০৬০৬২	
৬.	শ্রীঃ মাসুদ দাশ	সিস্টেম এনালিস্ট	০১৭১৩৬২৫০৭৭	
৭.	শ্রীঃ দেব রাম	প্রোগ্রামার/সিস্টেম এনালিস্ট	০১৭২০০১২২৩৬	
৮.	শ্রীঃ মোঃ মফিজুল হক	ইউজার এক্সপার্ট	০১৭১৩৬২৫০৭৭	
৯.	শ্রীঃ নজরুল ইসলাম	সিস্টেম এনালিস্ট	০১৭১৩৬২৫০৭৭	
১০.	শ্রীঃ নিজাম উদ্দিন	সিস্টেম এনালিস্ট	০১৭১৩৩৩০২৪	
১১.	শ্রীঃ ইকবাল হোসেন	সিস্টেম এনালিস্ট	০১৮১৫৬৫৫৭২৪	
১২.	শ্রীঃ আব্দুল মান্নান	সিস্টেম এনালিস্ট	০১৮২০৭০৭০১০	
১৩.	শ্রীঃ মোঃ মফিজুল হক	ইউজার এক্সপার্ট	০১৮৫০৫৭৫৫৫৭	

ক্রঃ নং	নাম	পদবী ও দপ্তর/সংস্থার নাম	মোবাইল নম্বর	স্বাক্ষর
১৪.	মোক্ষারঞ্জন হোসেন	সংসদ কমিটি আমরা দেওপাড়া	০১৭৪০৪০২ ৫০৫	
১৫.	মং সোমু (মুন্সে)	হেডম্যান, কামা	০১৪১৭৪৪৬৬৬	
১৬.	সুজিত কুমার		০১৫৫৪০৭৭ ৯৭৫	
১৭.	স্বাক্ষরকারী	স্বাক্ষরকারী, NSLE	০১৭৭২২৭৫৩ ০২	
১৮.	সুজনীয়া মলিক	জেলা প্রতিনিধি চক্রেম ২৪	০১৭৬৭৬৭ ১৪৬৪	
১৯.	সম্মানিত	বাংলাদেশে	০১৭৬৩৩০৬৭ ৫১	
২০.	সুজনীয়া	বাংলাদেশে	০১৫৫৩৩০০	
২১.	সুজনীয়া	সুজনীয়া	০১৪২০৭০৪৬৩২	
২২.	সুজনীয়া	সুজনীয়া	০১৫৫৫৫৭৪ ২৭৩	
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ক্রঃ নং	নাম	পদবী ও দপ্তর/সংস্থার নাম	মোবাইল নম্বর	স্বাক্ষর
৩৬.	Sharmal Kanki Nath	Head Teacher New Ramgarh GPS	015506059 ৬৭	
৩৭.	শ্রী: আব্দুল হাই নিজামী	জমিদার (ও. প্রাপ্ত) কাম সংস্কৃত সচিব	01813697445	
৩৮.	ডঃ বহিষ্কার মদন পুত্রমদন	অধ্যক্ষ (অধ্যক্ষ/সি.এম.পি.এ)	01874625249	
৩৯.	বইন আমিন	প্রকৌশলী বি.আর.সি.পি.-১	01818302521	
৪০.	সাইফুল হামদার	AD - IIFC	01723731307	
৪১.	Tasnuva Tanannoum	Project Architect IIFC	01727903721	Tasnuva
৪২.	শ্রী: আবুল কালাম	জমিদার মানিক + কৃষক	01878765557	
৪৩.	আবুল্লাহ আল মাসুদ	কৃষক	0182070 4063	
৪৪.	Engr. Noor Mohammad	Engineer	01840586420	
৪৫.	শ্রী: আব্দুল হাই নিজামী	কৃষক	0181544-7156	
৪৬.	আবুল কালাম	কৃষক	0182216 6594	
৪৭.	আব্দুল হাই নিজামী	কৃষক	0183262 4959	
৪৮.	শ্রী হোসেন	কৃষক	0183100 389	
৪৯.	বিবি ফুল ফুয়	স্বাধীন		
৫০.	শ্রী: ইঞ্জিনিয়ার	সেবার	0188275 6607	
৫১.	বিবি ফাতেমা	স্বাধীন		
৫২.	শ্রী: মোস্তাফিজ বেগম	"		
৫৩.	আমর বেগম	"		
৫৪.	আমর বেগম	কৃষিকাজ		
৫৫.	নেট মাসুম		017215952 26	
৫৬.	উম্মানুমা	ছাত্রী	01841018128	
৫৭.	শ্রী: মোস্তাফিজ বেগম		01367657384	

ক্রঃ নং	নাম	পদবী ও দপ্তর/সংস্থার নাম	মোবাইল নম্বর	স্বাক্ষর
৫৮.	M. Mofazzal Hossain	Water Supply & Sanitary Engg. BETS	01764343009	[Signature] 27/20
৫৯.	আবু দাকা	ব্যক্তিগত কারখানা রামগড় সেন্টেনা পঃ জেলা কার্যালয়	01635030663	[Signature] 26/2/20
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Attendance sheet of Stakeholders Consultation for Ramgarh Land Port

Venue *Mohamoni, Ramgarh*

Date *16-02-2020*

Sl. No.	Name & address	Profession	Cell No.	Signature
	<i>শ্রী: সুনন্দা সুনন্দা-কোচাওড়ন, উদয়গিরি, উদয়গিরি, বর্ধমান, পশ্চিম বঙ্গ</i>	<i>কৃষিকাছ ৩ কোচাওড়ন</i>		<i>(স্বাক্ষর)</i>
	<i>নূরুল হোসেন গ্রাম- উদয়গিরি পাড়া, উদয়গিরি- বর্ধমান, উদয়গিরি</i>	<i>কৃষক</i>	<i>01785220995</i>	<i>(স্বাক্ষর)</i>
	<i>শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: গ্রাম- উদয়গিরি পাড়া উদয়গিরি- বর্ধমান, উদয়গিরি</i>		<i>01887926110</i>	<i>(স্বাক্ষর)</i>
	<i>শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: গ্রাম- উদয়গিরি পাড়া উদয়গিরি- বর্ধমান, উদয়গিরি</i>	<i>কৃষক</i>	<i>01820904063</i>	<i>(স্বাক্ষর)</i>
	<i>শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: গ্রাম- উদয়গিরি পাড়া উদয়গিরি- বর্ধমান, উদয়গিরি</i>	<i>কৃষক</i>	<i>01878763759</i>	<i>(স্বাক্ষর)</i>
	<i>শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: গ্রাম- উদয়গিরি পাড়া উদয়গিরি- বর্ধমান, উদয়গিরি</i>	<i>কৃষক</i>	<i>01851489835</i>	<i>(স্বাক্ষর)</i>
	<i>শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: গ্রাম- উদয়গিরি পাড়া উদয়গিরি- বর্ধমান, উদয়গিরি</i>	<i>কৃষক</i>	<i>01820075752</i>	<i>(স্বাক্ষর)</i>
	<i>শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: গ্রাম- উদয়গিরি পাড়া উদয়গিরি- বর্ধমান, উদয়গিরি</i>	<i>কৃষক</i>	<i>01884207407</i>	<i>(স্বাক্ষর)</i>
	<i>শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: গ্রাম- উদয়গিরি পাড়া উদয়গিরি- বর্ধমান, উদয়গিরি</i>	<i>কৃষক</i>	<i>01815447156</i>	<i>(স্বাক্ষর)</i>
	<i>শ্রী: শ্রী: শ্রী: শ্রী: শ্রী: গ্রাম- উদয়গিরি পাড়া উদয়গিরি- বর্ধমান, উদয়গিরি</i>	<i>কৃষক</i>	<i>01813032573</i>	<i>(স্বাক্ষর)</i>

Attendance sheet of Stakeholders Consultation for Ramgarh Land Port

Venue ^{Mohamoni} Ramgarh

Date 16.02.2020

Sl. No.	Name & address	Profession	Cell No.	Signature
	ପ୍ରମୋଦ କୁମାର ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ (ପୁର) ଠିକଣା - ରାମଗରହ	କର୍ମଚାରୀ ପ୍ରାଥମିକ ଶିକ୍ଷକ	01863036573	ପ୍ରମୋଦ କୁମାର
	ଡା. ବି. କୁମାର ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ, (ପୁର) ରାମଗରହ	ଡାକ୍ତର	01814819542	ଡା. ବି. କୁମାର
	ପ୍ରମୋଦ କୁମାର ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ (ପୁର) ରାମଗରହ	କର୍ମଚାରୀ ପ୍ରାଥମିକ ଶିକ୍ଷକ	01822166599	ପ୍ରମୋଦ କୁମାର
	ପ୍ରମୋଦ କୁମାର ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ (ପୁର) ରାମଗରହ	କର୍ମଚାରୀ	0188	ପ୍ରମୋଦ କୁମାର
	ପ୍ରମୋଦ କୁମାର ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ	କର୍ମଚାରୀ	01840386420	ପ୍ରମୋଦ କୁମାର
	ଡା. (ପ୍ରମୋଦ କୁମାର) ଠିକଣା - ରାମଗରହ	ଡାକ୍ତର	01816253255	ଡା. (ପ୍ରମୋଦ କୁମାର)
	ପ୍ରମୋଦ କୁମାର ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ (ପୁର) ରାମଗରହ	କର୍ମଚାରୀ	01837674959	ପ୍ରମୋଦ କୁମାର
	ପ୍ରମୋଦ କୁମାର (ପ୍ରମୋଦ କୁମାର) ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ (ପୁର) ରାମଗରହ	କର୍ମଚାରୀ	01851423903	ପ୍ରମୋଦ କୁମାର
	ଡା. ପ୍ରମୋଦ କୁମାର ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ (ପୁର) ରାମଗରହ	କର୍ମଚାରୀ	01838420005	ପ୍ରମୋଦ କୁମାର
	ପ୍ରମୋଦ କୁମାର ଘର - ରାମଗରହ ଠିକଣା - ରାମଗରହ (ପୁର) ରାମଗରହ	କର୍ମଚାରୀ	01845781208	ପ୍ରମୋଦ କୁମାର

Attendance sheet of Stakeholders Consultation for Ramgarh Land Port

Venue ^{Mishra} Ramgarh

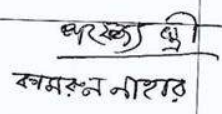
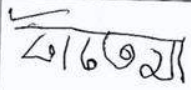
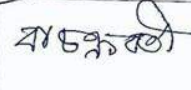
Date 16-02-2020

Sl. No.	Name & address	Profession	Cell No.	Signature
	... উন্নয়ন (৬/৪০০) গ্রাম - মাইদামান (৪৫)	ভূমি মালিক		উন্নয়ন
	নেট মার্কা গ্রাম - মাইদামান পাড়া উন্নয়ন - মাইদামান	স্বত্বাধিকারিক	01721595726	নেট মার্কা
	(২) মাইদামান গ্রাম - মাইদামান পাড়া উন্নয়ন - মাইদামান	স্বত্বাধিকারিক	01854845571	
	মো: (২) মাইদামান গ্রাম - মাইদামান পাড়া (মাইদামান) উন্নয়ন - মাইদামান	স্বত্বাধিকারিক	01883612080	
	উন্নয়ন মাইদামান গ্রাম - মাইদামান	স্বত্বাধিকারিক	01826041232	
	স্বত্বাধিকারিক গ্রাম - মাইদামান	ফার্মার	01557107469	
	উন্নয়ন উন্নয়ন উন্নয়ন গ্রাম - মাইদামান	ভূমি মালিক স্বত্বাধিকারিক	01557107469	
	উন্নয়ন গ্রাম - মাইদামান উন্নয়ন - মাইদামান উন্নয়ন	স্বত্বাধিকারিক	01882754922	Anwar
	উন্নয়ন	স্বত্বাধিকারিক	01845641000	উন্নয়ন
	উন্নয়ন	স্বত্বাধিকারিক	01879697771	উন্নয়ন

Attendance sheet of Stakeholders Consultation for Ramgarh Land Port

Venue ^{Mohammod} Ramgarh

Date 16-02-2020

Sl. No.	Name & address	Profession	Cell No.	Signature
	মুহম্মদ নবী	স্বতন্ত্র	০১৪২৭৩৫৪৬৩	
	শ্রী শ্রী কান্ত কান্ত গ্রাম- মনসিংগ জেলার- চাঁদপুর	জুনিয়র এম.এ. ইন্সপেক্টর	০১৪২২১৬৬৫৪৪	
	সহকারী ইন্সপেক্টর (সি.এ.সি.সি.)	সহকারী ইন্সপেক্টর (সি.এ.সি.সি.)	০১৫৫৫৫৪১৬০৪	

Annex 12: Resolution of Public Consultation meeting

Resolution of Public Consultation Meeting of the Bangladesh Regional Connectivity Project, Phase 1, Component 1: BLPA Development of Ramgarh Land Port

Organized by: IIFC, Shahidul Consultant, BETS for the BLPA

Date: 27th February, 2020 Time 11.30 am- 2 pm

Venue: Conference Room, Upazila Parishad, Ramgarh Upazila, Khagrachari.

Chair of the session: A. N. M Bodruddoza ,UNO, Ramgarh Upazila)

Participants: Representatives of World Bank, BLPA, Local Government Authority, Police, BGB, Tribal Community, Journalist, Workers, farmers and PAPs attended the meeting (list attached)

The meeting was moderated by Md. Hasan Ali ,Deputy Project Director of BRCP-1, BLPA. The UNO as Chair of the session delivered welcome speech and informed the meeting that the project is at the land acquisition stage. It was followed by a Power Point presentation initiated by the DPD and continued by Arc. Shakawat Hossain (Director) and Dr. Maniruzzaman (Social Development Specialist) of Shahidul Consultant.

After the presentation, an open discussion was held in which representatives of farmers and inhabitants without mutation but holding 'Ancholik doli' demanded that they should get notice of land acquisition and be entitled to receive compensation directly rather than through the holders of mutation. It was also demanded that the PAPs should get job on priority basis rather than employing non-locals.

The General Secretary of the Buddhist Community who hold a total of 4.01 acres land of which 66 decimals in the affected area (40 decimals funeral ground and 26 decimals for growing bamboo and cane). Of the 66 decimals, 26 decimals bamboo/ cane growing area is totally lost and of the 40 decimals funeral ground only about 17 decimals is now available for use. Further, due to barbed wire fencing constructed for the approach road by India, the funeral ground cannot be accessed.

BGB representative informed the meeting that the BGB is planning to acquire 2.00 acres land for BGB check post and this will be in addition to BLPA proposed area of 10 acres. Location of the BGB area needs to be identified.

Among other participants the representative of the Press Club, a senior journalist of Daily Ittefaq and police spoke on this occasion. Finally, the PD responded to the comments and suggestions together with the Headman, Upazila Chairman and Mayor.

About the end of the meeting the World Bank representatives from Washington DC and from Dhaka expressed their commitment to the project subject to addressing social and environmental concerns and proper mitigation measures.

After the presentation, The Chair invited all participants to the open discussion. The participants may also speak of likely impacts, if any and of relevant problems.

The open discussion was briefly the following:

Discussion

One of the participants named Abdullah Al Mamun (Farmer) raised some issues. According to him as the project will acquire agricultural land this will lead the farmers to become unemployed. Therefore, they are asking for preferential treatment to get job. They are hoping to get the compensation within short time with in proper amount. They are also concern about resettlement as some of them hold 'Ancholik dolil, without registration and mutation. There should be special consideration for poorer class.

In response to it Md. Habibur Rahman, Project Director appreciated him for pointing such important issues into the discussion. He is optimistic that the port will create employment opportunity in business, transport, clearing and forwarding agencies etc. About the compensation, it will be based on Government and World Bank policies and proper documentation is the key component to comply it and DC office is responsible for land acquisition. People having problems with documentation will be considered as well and they need to fix the documentation issues first to proceed further. He also requested to solve land ownership related conflict by local consultation. He said that there will be a grievance redness mechanism comprising GRC at Upazila level which will include UNO , Headman, Assistant Engineer and Social Consultant of BLPA. He said that, Project proponent will try to compensate both title holder and non-title holder PAPs. He suggested to make available valid documents for land. But it is the PAPs and local actors including headman to play the lead role to get proper documentation.

Mr. Sathoyai Ong Mog (General Secretary of Mohamuni Buddhist Monastery Committee) mentioned that the Land Port will acquire some part of the funeral Ground/ Crematory. According to them the whole place is of 66 decimals and they use 26 decimals for planting bamboo and cane for cremation. The entire plantation area and most part of the Crematory is lost leaving only about 17 decimals as Crematory. Further to this, the approach road blocked way to access the funeral ground from the town side. The Buddhist community reportedly own 4.01 acres of which 3.35 acres is Temples and 0.66 is funeral area including plantation area. Now the Buddhist community is concerned how they will manage after acquisition of the remaining area and how connectivity will be provided between temple and the cremation site.

PD stated that the land for acquisition was selected with the assistance of LA section of Khagrachari DC office. During the selection of land, it was found 17 decimal land for cremation and the this land was left from acquisition. The PD suggested that if they have any ownership document for more than 17 decimal land for cremation, it should be submitted to DC office in proper manner and stage. In response of approach road blocked, the DPD informed that the fencing between approach road and funeral is temporarily done only for construction period of the bridge. It will be removed after construction of the bridge. After the construction work and the port will be walled in three sides and the side faced towards the road will be open. The project authority opined that , the authority may provide any kind of lawful assistance. The project authority also mentioned that they have no intension to hamper the normal activity of the cremation and will provide better assistance from the authority in future

Mohammad Hridoy (Representative of agricultural workers) said about title holder land owner and non-title holder land owner (registered document and local document of land which is addressed as

Environmental Specialist of World Bank, Mr. Iqbal Ahmed said to arrange more consultation meeting to solve all problems. He also said that mitigation for environmental impacts will be given after discussion with local people.

Mr. Kent, Senior Social Specialist of World Bank, said that WB will finance for four land ports and Ramgarh Land Port is one of them. Consultant team will complete all types of survey and report. He gives importance to the response of local people. Finally, he thanked everybody.

Mr. Bishwa Pradeep Kumar Karbari (Chairman of Upazila Parishad) focused on the verification of feasibility and need of the project. They have big hopes from the project and massive development from the project. About the documentation issued he also strongly recommended the PAPs to look for legal solutions immediately and work accordingly. As nobody has officially asked for their assistance or have not taken any steps to approach to them.

A.N.M. Bodruddoza (UNO of Ramgarh, Khagrachari) presented his short speech mainly focusing on the land acquisition issue and compensation. He ensured his utmost support and helps for the PAPs and shared his valuable opinion about the development aspects of the project.

Finally, Md. Habibur Rahman, Joint Secretary and PD of BRCP-1, thanked everyone for participating into that session. He added that the massive employment market will accelerate the economic growth of that area as well as the country. They will not need to depend on jobs, they can do their individual business there. This land port will introduce the Upazila to the whole country as well as the

On the whole, the participants were supportive of implementing the project and the concerns expressed were mainly related to land acquisition and it was agreed to resolve the land issues locally with the support of the UNO and headman together with other involved parties.

Annex 13: Photographs of Public Consultation



Public consultation Meeting for Ramgarh Land Port at Ramgarh Upazila Parishad Office held on 27th February, 2020



Project Director at Public consultation Meeting of Ramgarh Land Port held on 27th February, 2020



Representative of PAPs at consultation Meeting held on 27th February, 2020



Representative of tribal affected people at Public consultation Meeting held on 27th February, 2020





Representative of local police held on 27th February, 2020



Specialists from World Bank held on 27th February, 2020

	
<p>Consultation with UNO Ramgarh, Khagrachari</p>	<p>Consultation with Municipal Somaj Seba Officer, Ramgarh</p>
	
<p>Consultation with Asst. Commissioner land, Ramgarh</p>	<p>Consultation with Somaj Seba Officer, Rramgarh</p>
	
<p>Discussion with a staff of Somaj Seba Office, Ramgarh</p>	<p>Discussion with Upazila Agriculture Officer, Ramgarh</p>

	
<p>Consultation with staff of Upazila Fishery Officer, Ramgarh</p>	<p>Group Consultation with Project Affected People at Mahamuni</p>
	
<p>Group Consultation with Project Affected People at Mahamuni</p>	<p>Consultation with a PAP at Mahamuni</p>
	
<p>Consultation with local people at Mahamuni Ramgarh</p>	<p>Consultation with local elite at Mahamuni Ramgarh</p>

	
<p>Consultation with a Tea Stall Owner & PAP, at Mahamuni, Ramgarh</p>	<p>Consultation with a local elite, at Mahamuni Ramgarh</p>
	
<p>Consultation with PAP, at Mahamuni, Ramgarh</p>	<p>Consultation with local women at Mahamuni Ramgarh</p>
	
<p>Consultation with local people, at Mahamuni, Ramgarh</p>	<p>Consultation with a local senior citizen, at Mahamuni, Ramgarh</p>

	
Consultation with local people, at Mahamuni, Ramgarh	Consultation with local people, at Mahamuni, Ramgarh
	
Consultation with local people, at Mahamuni, Ramgarh	Consultation with local people, at Mahamuni, Ramgarh
	
Consultation with local people, at Mahamuni, Ramgarh	Consultation with local Elite, at Mahamuni, Ramgarh

	
<p>Consultation with local people, at Mahamuni, Ramgarh</p>	<p>Consultation with local people, at Mahamuni, Ramgarh</p>
	
<p>Consultation with local people, at Mahamuni, Ramgarh</p>	<p>Consultation with local people, at Mahamuni, Ramgarh</p>
	
<p>Image of development work of Indo - Bangla Friendship Bridge</p>	<p>Image of development work of approach road of Indo- Bangla Friendship Bridge</p>

Annex 14: Guidelines for Contingency Planning in Ports

In order to facilitate the safe and efficient movement of trade at the land port of Ramgarh 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 fire 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 and
- 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 arising 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 a number of 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 area of 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 number of 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 have to have a preliminary ideas about the properties and danger of the materials they are handling. Dangerous substances are classified on the basis of 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 asphyxiate – 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 by the use of 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 coming into contact with 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 amount 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 taken into account in transport.

Organic peroxides comprise of organic substances which contain the bivalent –O–O– structure and may be considered derivatives of hydrogen peroxide, where one or both of the 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, is capable of causing 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 more or less 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 pretensions).
- 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.

Annex 15: Poster for Covid-19 awareness

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



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



নতুন করোনা ভাইরাস (সিওভিআইডি-১৯)-সহ অন্যান্য সংক্রমণ থেকে নিজেকে এবং অপরকে রক্ষা করুন

■ **ঘন ঘন হাত পরিষ্কার করুন** উভয় হাত কর্তি পর্যন্ত হাতের উভয় পাশ হাতের নখসমূহ

সাবান ও পানি দিয়ে ভালো করে হাত পরিষ্কার করুন (৪০-৬০ সেকেন্ড)

অথবা

অ্যালকোহলযুক্ত স্যানিটাইজার দিয়ে হাত পরিষ্কার করুন (২০-৩০ সেকেন্ড)

পানি দিয়ে হাত ভেজান

পুরো হাতে সাবান মেখে ভালো করে হাত ধুয়ে দিন

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 ক্রান্ত 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**

■ **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

■ **পরিচিত বা অপরিচিত ব্যক্তির সাথে হাত মেলানো বা আলিঙ্গন করা থেকে বিরত থাকুন**

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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



■ POLITELY AVOID SHAKING HANDS OR HUGGING PEOPLE



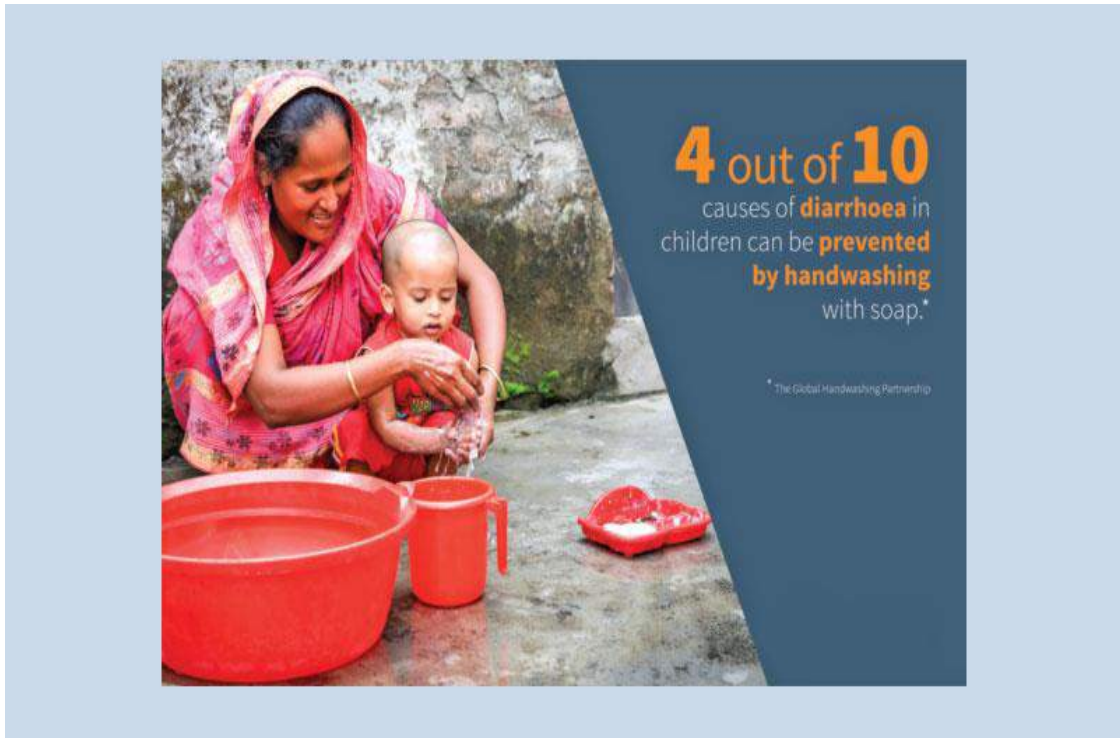
■ MAINTAIN SOCIAL DISTANCING



1 metre or 3 feet distance



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Annex 16: EMP Implementation Cost for 2nd and 3rd Phase

Table I: Environmental impact mitigation cost during 2nd Phase for Construction period

Sl. No.	Description of Item	Unit	Quantity	Unite Rate	Item Total
				(BDT)	(BDT)
1.	Dust management by water sprayer during soil carrying for land filling and during construction period.	LS	-	-	200,000.00
2.	Protection of traffic and accident including warning signs, labels and signals.	LS	-	-	50,000.00
3.	Duckweed grown in pond and Boropit for protection of surface water pollution.	LS	-	-	40,000.00
4.	Making/ construction and maintenance temporary construction/ labor campsite with facilities including drinking water supply and sanitation facilities.	LS	1	500,000.00	500,000.00
5.	Solid Waste Management including waste collection, transportation and dumping at authorized dumping sites; Minimization of volume and recycling.	Nos.	1	80,000.00	80,000.00
6.	First aid box with necessary medicine and equipment.	LS	-	-	100,000.00
7.	Personal Protective Equipment's also considering COVID-19 Pandemic.	LS	-	-	500,000.00
8.	Disinfection materials required to prevent COVID-19.	LS	-	-	500,000.00
9.	Tree plantation and green area development plan.	LS	-	-	100,000.00
10.	Water quality protection measures: soil erosion and sedimentation control at the construction site, and prevention of spillages, leakages of polluting materials, etc. to be satisfaction of the engineer.	LS	-	-	50,000.00
11.	For excess noise protection, periodical maintenance of construction vehicles and installation of sound insulation cover.	LS	-	-	50,000.00
12.	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	-	-	30,000.00

Sl. No.	Description of Item	Unit	Quantity	Unite Rate	Item Total
				(BDT)	(BDT)
13.	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.	Sq. m	1000	100	100,000.00
Total in Tk. Twenty-three lac only					2,300,000.00

Table II: Environmental impact mitigation cost during 2nd Phase for Operation period

Sl. No.	Description of Item	Unit	Quantity	Unite Rate	Item Total
				(BDT)	(BDT/Year)
1.	Maintenance of dust management system.	LS			150,000.00
2.	O&M cost of Duckweed grown in pond and Boropit for protection of surface water pollution.	LS	-	-	50,000.00
3.	Solid Waste Management including waste collection, transportation and dumping at authorized dumping sites; Minimization of volume and recycling.	Ls	-	-	50,000.00
4.	First aid box with necessary medicine and equipment.	LS	-	-	50,000.00
5.	Personal Protective Equipment also considering present COVID-19 Pandemic.	LS	-	-	80,000.00
6.	Spray of Disinfections materials to protect from present COVID-19 Pandemic.	LS	-	-	80,000.00
7.	Maintenance of Disinfection Tunnel/ Chamber with Disinfection fog machine, etc to protect from present COVID-19 pandemic in the entry point.	LS	-	-	80,000.00
8.	Tree plantation and green area development plan.	LS	-	-	250,000.00
Total in Tk. Seven lac Ninety thousand only					790,000.00

Table III Estimated annual costs for Environmental Training during 2nd phase

SL	Component	Stage	Item	Unit Cost	Quantity	Cost (in BDT)
9.	Environmental Training	During Construction	Orientation Workshop and follow up training program for capacity building/	LS	LS	200,000.00

SL	Component	Stage	Item	Unit Cost	Quantity	Cost (in BDT)
			institutional development program			
10.	Environmental Training	During Operation	Orientation Workshop and follow up training program for capacity building/ institutional development program	LS	LS	200,000.00
11.	COVID-19 pandemic	During Construction	COVID-19 pandemic awareness campaign to ensure that contractor's personnel and local community understand COVID-19 pandemic	LS	LS	100,000.00
12.	COVID-19 pandemic	During Operation	COVID-19 pandemic awareness campaign	LS	LS	100,000.00
Total: Tk. Six lac only						600,000.00

Table IV: Environmental impact mitigation cost during 3rd Phase for Construction period

Sl. No	Description of Item	Unit	Quantity	Unite Rate	Item Total
				(BDT)	(BDT)
1.	Dust management by water sprayer during soil carrying for land filling and during construction period.	LS	-	-	200,000.00
2.	Protection of traffic and accident including warning signs, labels and signals	LS	-	-	50,000.00
3.	Duckweed grown in pond and Boropit for protection of surface water pollution	LS			40,000.00
4.	Making/ construction and maintenance temporary construction/ labor campsite with facilities including drinking water supply and sanitation facilities.	LS	1	500,000.00	500,000.00
5.	Solid Waste Management including waste collection, transportation and dumping at authorized dumping sites; Minimization of volume and recycling.	Nos.	1	80,000.00	80,000.00
6.	First aid box with necessary medicine and equipment	LS	-	-	100,000.00

Sl. No	Description of Item	Unit	Quantity	Unite Rate	Item Total
				(BDT)	(BDT)
7.	Personal Protective Equipment also considering COVID-19 Pandemic	LS	-	-	500,000.00
8.	Disinfection materials required to prevent COVID-19 Pandemic	LS	-	-	500,000.00
9.	Tree plantation and green area development plan	LS	-	-	100,000.00
10.	Water quality protection measures: soil erosion and sedimentation control at the construction site, and prevention of spillages, leakages of polluting materials, etc. to be satisfaction of the engineer.	LS	-	-	50,000.00
11.	For excess noise protection, periodical maintenance of construction vehicles and installation of sound insulation cover	LS	-	-	50,000.00
12.	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	-	-	30,000.00
13.	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.	Sq. m	1000	100	100,000.00
Total in Tk. Twenty-three lac only					2,300,000.00

Table V: Environmental impact mitigation cost during 3rd Phase for Operation period

Sl. No.	Description of Item	Unit	Quantity	Unite Rate	Item Total
				(BDT)	(BDT/Year)
1.	Maintenance of dust management system	LS	12		200,000.00
2.	O&M cost of Duckweed grown in pond and Boropit for protection of surface water pollution	LS	-	-	50,000.00
3.	Solid Waste Management including waste collection, transportation and dumping at authorized dumping sites; Minimization of volume and recycling.	Ls	-	-	60,000.00
4.	First aid box with necessary medicine and equipment	LS	-	-	50,000.00
5.	Personal Protective Equipment	LS	-	-	100,000.00

Sl. No.	Description of Item	Unit	Quantity	Unite Rate	Item Total
				(BDT)	(BDT/Year)
	also considering present COVID-19 Pandemic				
6.	Spray of Disinfections materials to protect from present COVID-19 Pandemic	LS	-	-	100,000.00
7.	Maintenance of Disinfection Tunnel/ Chamber with Disinfection fog machine, etc to protect from present COVID-19 pandemic in the entry point	LS	-	-	100,000.00
8.	Tree plantation and green area development plan	LS	-	-	200,000.00
Total in Tk. Eight lac Sixty thousand only					860,000.00

Table VI: Estimated annual costs for Environmental Training during 3rd phase

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	LS	LS	200,000.00
2.	Environmental Training	During Operation	Orientation Workshop and follow up training program for capacity building/ institutional development program	LS	LS	200,000.00
3.	COVID-19 pandemic	During Construction	COVID-19 pandemic awareness campaign to ensure that contractor's personnel and local community understand COVID-19 pandemic	LS	LS	100,000.00
4.	COVID-19 pandemic	During Operation	COVID-19 pandemic awareness campaign	LS	LS	100,000.00
Total: Tk. Six lac only						600,000.00

Table VII: Environmental monitoring cost 2nd Phase (During construction)

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
Air Pollution (Ambient Air	During Construction	Measurement of SPM, PM ₁₀ , NOX,	75,000.00	4	300,000.00

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
Quality)		SO ₂ , CO, CO ₂			
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)	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 VIII: Environmental monitoring cost 3rd Phase (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 , NOX, 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	During	Measurement of	60,000.00	4	240,000.00

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
Pollution (Ground Water)	Construction	pH, FC, BOD, Nitrite, Chloride, Fe, Pb, Cd, Hg, As			
Waste Management	During Construction	Site inspection at waste sensitive locations and reporting	LS	LS	30,000.00
Noise (Ambient)	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 IX: Environmental monitoring cost for 2nd phase (During Operation)

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
Air Pollution (Ambient Air Quality)	During Operation	Measurement of SPM, PM ₁₀ , NO _x , SO ₂ , CO, CO ₂	75,000.00	4	300,000.00
Water Pollution (Surface Water)	During Operation	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 Operation	Measurement of pH, FC, BOD, Nitrite, Chloride, Fe, Pb, Cd, Hg, As	60,000.00	4	240,000.00
Solid and liquid Waste Management	During Operation	Site inspection at waste sensitive locations and reporting; waste	50,000.00	4	200,000.00

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
		water parameters (pH, Turbidity, BOD, COD, TSS, CF) test from outlet of port			
Noise (Ambient)	During Operation	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 Operation	Daily thermal checkup through Temperature Scanner	LS	LS	50,000.00
COVID-19 awareness campaign	During Operation	Yearly	LS	LS	100,000.00
Reporting on Environmental Monitoring	During Operation	Quarterly Monitoring Report	30,000.00	4	120,000.00
Total in Tk. Twelve lac ninety thousand only					1,290,000.00

Table X: Environmental monitoring cost for 3rd Phase (During Operation)

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
Air Pollution (Ambient Air Quality)	During Operation	Measurement of SPM, PM ₁₀ , NO _x , SO ₂ , CO, CO ₂	75,000.00	4	300,000.00
Water Pollution (Surface Water)	During Operation	Measurement of pH, EC, DO, Turbidity, BOD, COD NO ₃ , PO ₄ , Oil and Grease	60,000.00	4	240,000.00
Water Pollution (Ground Water)	During Operation	Measurement of pH, FC, BOD, Nitrite, Chloride, Fe, Pb, Cd, Hg, As	60,000.00	4	240,000.00
Solid and liquid Waste Management	During Operation	Site inspection at waste sensitive locations and reporting; waste water parameters (pH, Turbidity, BOD, COD, CF) test from	50,000.00	4	200,000.00

Component	Stage	Item	Unit Cost (BDT)	Quantity (Yearly)	Total Costs (BDT)
		outlet of port			
Noise (Ambient)	During Operation	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 Operation	Daily thermal checkup through Temperature Scanner	LS	LS	50,000.00
COVID-19 awareness campaign	During Operation	Yearly	LS	LS	100,000.00
Reporting on Environmental Monitoring	During Operation	Quarterly Monitoring Report	30,000.00	4	120,000.00
Total in Tk. Twelve lac ninety thousand only					1,290,000.00