

Environmental Assessment and Review Framework

Project Number: 52174-001
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The People's Republic of Bangladesh: Emergency Assistance Project

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Department of Public Health Engineering
Local Government Engineering Department
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CURRENCY EQUIVALENTS

(as of 27 June 2018)

Currency unit	–	Taka (Tk)
Tk1.00	–	\$0.012
\$1.00	=	Tk84.612

ABBREVIATIONS

ADB	–	Asian Development Bank
BECA	–	Bangladesh Environmental Conservation Act
DOE	–	Department of Energy
DSC	–	design and supervision consultants
EARF	–	environmental assessment and review framework
ECoP	–	Environmental Code of Practice
ECR	–	Environmental Conservation Rules
EIA	–	environmental impact assessment
EMP	–	environmental management plan
GRC	–	grievance redress committee
GRM	–	grievance redress mechanism
IEE	–	initial environmental examination
PIU	–	project implementation unit
PMC	–	project management consultants
RRRC	–	Refugee Relief and Repatriation Commission
SPS	–	Safeguards Policy Statement

WEIGHTS AND MEASURES

kilometer	–	km
kilovolts	–	kV

NOTE

In this report, "\$" refers to US dollars unless otherwise stated.

I. INTRODUCTION

1. The Emergency Assistance Project will restore and strengthen the resiliency of critical public and social infrastructure and services and has the following outputs:

- (i) **Output 1: Water supply and sanitation improved.** This consists of providing to the camp areas (a) mobile water carriers for distribution of treated water; (b) construction of bathing facility for women; (c) mini piped-water supply system with production tube-wells, distribution pipe network, and stand pipe water distribution points; (d) construction of integrated waste management facility with collection system; and (e) small surface water treatment plants.
- (ii) **Output 2: Disaster risk management strengthened.** This includes constructing in and around the camp areas (a) multipurpose cyclone shelters with emergency access roads; (b) food distribution centers; (c) hill slope protection/toe walls to resist land-slides; (d) storm water drainage network. The project will also provide lightning arresters and support preparation of gender-responsive disaster risk reduction and management (DRRM) plan and other risk management measures.
- (iii) **Output 3: Energy sources provided.** Includes providing (a) retained heat cookers; (b) standalone solar powered street lights with solar PV panels, battery boxes and mini grid connected street lights in the camp areas; and (c) access to electricity in the camp areas through augmentation of substations, distribution lines, and transformers.
- (iv) **Output 4: Access roads improved.** This consists of rehabilitating (a) rural roads to connect to food storage centers, food distribution centers, field hospitals, primary health care centers, and primary education centers; (b) emergency access roads to the camp areas; (c) existing access roads to and within the camps and drainage systems. The project also supports resurfacing the road from Coxsbazar to Teknaf including improvement of critical sections such as market areas and culverts.

2. This environmental assessment and review framework (EARF) will guide the preparation of environmental assessments and environmental management plans (EMPs) developed for water supply and sanitation (output 1), disaster risk mitigation (output 2), energy (output 3) and access roads (output 4) subprojects during project implementation.

3. This EARF was endorsed by the government, disclosed in the Asian Development Bank's (ADB) website, and will be translated and disclosed in the websites of the implementing agencies.

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. Applicable National and Local Laws, Regulations, and Standards

4. The project's components and its subprojects shall comply with the government's environmental laws, standards, rules, and requirements which impose restrictions on activities to avoid, minimize, or mitigate likely impact on the environment. It is the responsibility of the project executing and implementing agencies to ensure that all activities under the project are in accordance with the legal framework, whether national or local. Compliance is required in all

stages of the subprojects' implementation, including design, construction, and operation and maintenance.

5. The government has a set of laws, policies, rules, and regulations that targets to address environmental and social issues. The most important ones are the Bangladesh Environmental Conservation Act, 1995 (BECA, 1995)¹ and the Environmental Conservation Rules (ECR, 1997).²

6. The BECA is a set of laws enacted by the Government of Bangladesh in 1995 to conserve the environment. Its main goals are to provide for conservation of the environment, improvement of the environmental standards, and control and mitigation of environmental pollution.

7. The ECR classifies industrial units or projects into four categories according to their location and impact on the environment. Each category (red, orange-B, orange-A, and green) requires different levels of environmental assessment as a prerequisite for the government's issuance of the environmental compliance certificate (ECC). For any red (most sensitive) or orange-B category project, an initial environmental examination (IEE) must be submitted to the Department of Environment (DOE) to obtain clearance to proceed to construction. If orange-B category is upgraded to red upon DOE's review, a full environmental impact assessment (EIA) is required. All red category projects require DOE-approved IEE before proceeding to EIA preparation.

8. Rule 7 of ECR indicates the procedure and requirements for the issuance of an ECC. The corresponding requirements per category are described below:

Green category projects:

- (i) completed application for ECC, and the appropriate fee (shown in Schedule 13);
- (ii) general information about the project;
- (iii) exact description of the raw materials to be used, and the product to be manufactured (where relevant); and
- (iv) no-objection certificate from the local authority.

Orange-A category projects:

Same requirements as green category projects, plus the following:

- (i) process flow diagram;
- (ii) layout plan (showing location of effluent treatment plant or ETP);
- (iii) effluent discharge arrangement; and
- (iv) outlines of the plan for relocation and rehabilitation (if applicable).

Orange-B category projects:

- (i) completed Application for ECC, and the appropriate fee;
- (ii) report on the feasibility of the project;
- (iii) report on the IEE for the project, plus process flow diagram, and in the case of an industrial project, layout plan (showing ETP) and ETP design;
- (iv) report on the EMP;
- (v) no objection certificate from the local authority;
- (vi) emergency plan relating to adverse environmental impact and plan for mitigation of the effect of pollution; and
- (vii) outline of the relocation and rehabilitation plan (where applicable).

¹ The Act was amended by Act Nos 12 of 2000, 9 of 2002, and 50 of 2010.

² The ECR was amended in 2002, 2005, 2010 and 2017.

Red category projects:

Same requirements as orange category B, except that Item 3 (IEE) is amended to read as follows:

- (i) report on the IEE for the project, and terms of reference for the EIA; or EIA report prepared based on terms of reference previously approved by DOE; and
- (ii) in the case of an industrial project, layout plan showing location of ETP, process flow diagram, design, and time schedule of the ETP.

9. The possible subproject components that are likely to be classified as green, orange, or red categories are reflected in Table 1.

Table 1. Likely Government of Bangladesh Categorization of Subproject Components

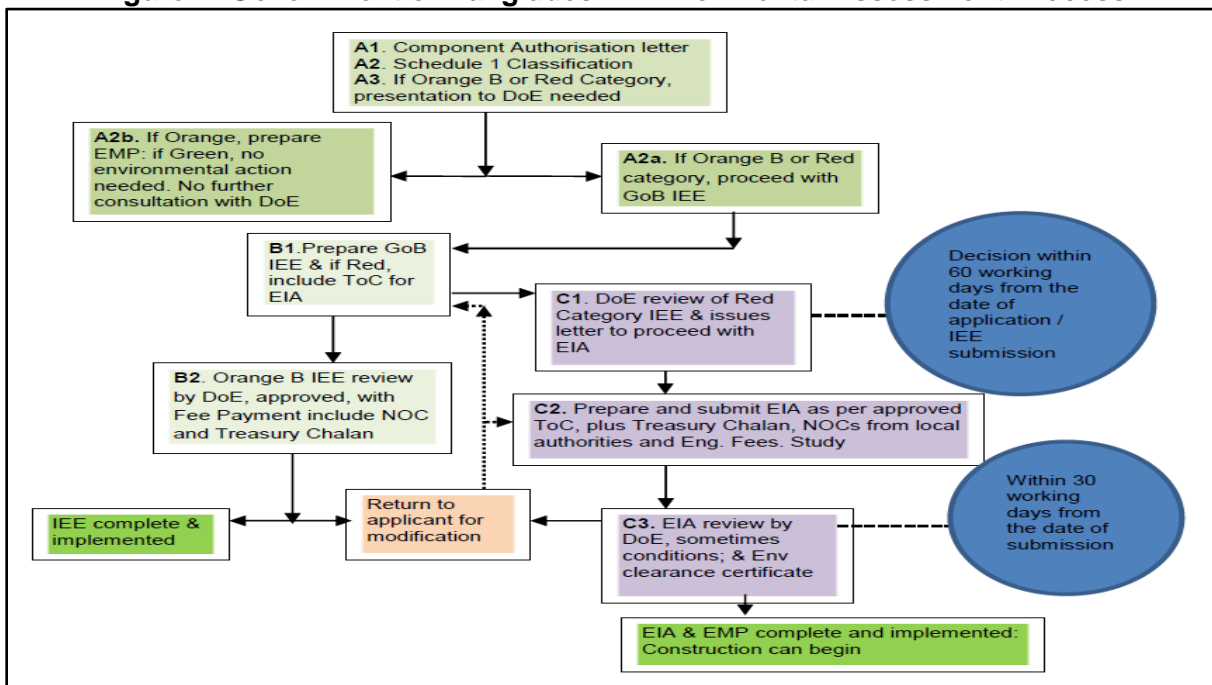
	Subproject	Component	Equivalent in Schedule I of ECR	Department of Environment Classification
1.	Water supply and sanitation improvement	Construction of bathing facility for females	Engineering works (up to 10 hundred thousand takas capital)	Orange B
		Supply of mobile water carrier for distribution of treated water to the camps	No similar facility	Not categorized in ECR
		Construction of mini piped-water supply system with production tube-wells, distribution pipe network, and stand pipe water distribution points	Water, power, and gas distribution line laying/relaying/extension	Red
		Construction of integrated waste management facility with collection system	Engineering works (above 10 hundred thousand takas capital)	Red
		Construction of surface water treatment plant	Water, power, and gas distribution line laying/relaying/extension	Red
2.	Disaster risk management infrastructure	Construction of multipurpose cyclone shelters with emergency shelters	No similar facility	Orange B (because impacts similar to hotel, multi-storied commercial and apartment building which is Orange B per ECR 1997)
		Construction of food distribution centers	No similar facility	Orange B (because impacts similar to hotel, multi-storied commercial and apartment building which is Orange B per ECR 1997)
		Construction of storm water drainage network	Engineering works (above 10 hundred thousand takas capital)	Red
		Installation of lightning arresters	No similar facility	Not categorized in ECR
3.	Energy	Distribution of retained heat cookers	No similar facility	Not categorized in ECR
		Installation of solar powered street lights and mini grid connected street lights	No similar facility	Not categorized in ECR
		Construction of 33/11kV substation	Water, power, and gas distribution line laying/relaying/extension	Red
		Construction of 11kV & below line & transformers	Water, power, and gas distribution line laying/relaying/extension	Red
4.	Road improvement (Roads, bridges, and culverts)	Road provisions (include new road, road resurfacing, roadside footpath, roadside drains, road signs, road/pavement markings, intersection improvement, or high mast lighting)	Construction, re-construction and extension of road (feeder road (feeder road, local road)	Orange B

Subproject	Component	Equivalent in Schedule I of ECR	Department of Environment Classification
	Bridges	Construction, re-construction and extension of bridge (length below 100 meters)	Orange B
		Construction, re-construction and extension of bridge (length above 100 meters)	Orange B
	Culverts	No similar facility	Orange B (because likely to be similar to roads and bridges less than 100 m)

Note: The list of subprojects is tentative and will be finalized during inception stage.

10. A project may only proceed after issuance of an ECC. DOE's timeline for processing of ECC applications is 60 days upon receipt of application for a red category project and 30 days upon receipt of application for an orange-B category project. The steps for processing the ECC is provided in Figure 1.

Figure 1: Government of Bangladesh Environmental Assessment Process



11. The project proponent is responsible for: (i) preparing the scoping for the EIA and terms of reference (TOR) to prepare the IEE/EIA and seeking government approval; (ii) conducting the appropriate environmental assessment following the approved schedule of work and TOR; (iii) conducting the required public consultations; (iv) preparing the corresponding report the outline in the approved TOR; (v) submitting or applying to the appropriate government body for approval; and (vi) implementing the IEE/EIA along with the terms and conditions of the approval.

12. The concerned sector agencies are responsible for the: (i) review of applications for EIA scoping and approval of IEE schedules of work and TORs; (ii) review of submitted IEE/EIA

reports; (iii) approval of IEE Reports; (iv) forwarding of reviewed EIA reports with amendments to the DOE; and (v) monitoring and evaluation of project implementation impacts.

13. The DOE is responsible for the: (i) approval of EIA scoping and TORs; and (ii) approval of EIA reports; and (iii) conduct of environmental monitoring during project implementation and an environmental audit of completed project after two years of operation.

14. Aside from DOE which oversees environmental control and management for all sector agencies, project implementing agencies have the overall responsibility for final approval of IEEs for subprojects and environmental monitoring during implementation.

15. Aside from the ECR and BECA, other policies and requirements relevant to the proposed project are summarized in Table 2.

Table 2: Summary of Environmental Legislations Applicable to the Proposed Project

No.	Environmental Legislation/Act	Objective	Relevance to the Project	Responsible Institution
1	National Environmental Policy, 1992	Ensure that development components do not pollute the environment or degrade resources. It sets out the basic framework for environmental action together with a set of broad sectoral action guidelines.	Restriction on operations which cannot be initiated in ecological critical areas. Regulation on vehicles emitting smoke which is harmful to the environment. Follow standards on quality of air, water, noise and soil. Sets limits for discharging and emitting waste.	Ministry of Environment and Forests, and Climate Change
2	National Environmental Management Action Plan (NEMAP), 1995	An action plan to identify key environmental issues affecting Bangladesh, identifies actions for reducing the rate of environmental degradation and improve quality of life.	Sectoral agencies to coordinate with MoEFF in preparing environmental guidelines.	Ministry of Environment and Forests, and Climate Change
3	Environment Court Act, 2000 and subsequent amendments in 2003	Establishment of Environment Court for trial of an offence or for compensation under environmental law, such as environment pollution.	Option to affected persons for grievances related to environment safeguards.	Ministry of Environment and Forests, and Climate Change
4	The Forest Act (1927) and Forest (Amendment) Act (2000)	An act to control trespassing, illegal resource extraction and provide a framework for the forestry revenue collection system.	Requires clearances for any project within forest areas and clearances for any felling, extraction, and transport of forest produce.	Department of Forests
5	National Forest Policy (1994)	To conserve existing forests and bring about 20% of the country's land area under the Forestation Programme and increase reserved forests by 10% per year until 2015.	Incorporate tree planting in the subproject. Clearance for any felling, extraction, and transport of forest produce.	Department of Forests
6	The Bangladesh Wildlife (Conservation & Security) Act, 2012	To conserve and protect wildlife in Bangladesh including designation of protected areas. Protection of wildlife is provided with lists of species with four schedules: first, second, third and fourth schedule.	Consultation and necessary permits required if the project will pass through the wildlife sanctuaries and other protected areas.	Department of Forests

No.	Environmental Legislation/Act	Objective	Relevance to the Project	Responsible Institution
		The fourth schedule species have the highest level of protection.		
7	National Safe Drinking Water Supply and Sanitation Policy of 1998	Ensures access to safe water and sanitation services at an affordable cost.	<p>Pourashavas and water sanitation authorities will take actions to prevent wastage of water. They will take necessary steps to increase public awareness to prevent misuse of water.</p> <p>Pourashavas shall be responsible for solid waste collection, disposal and their management.</p>	Ministry of Local Government, Rural Development, and Cooperatives
8	National Water Act 2013	Ensures Bangladesh water sources are free from any type of pollution. Pollution from water in urban outfalls and reservoirs, e.g. lakes, canals, ponds and ditches may result in amenity losses, fisheries depletion, health problems and fish and aquatic species contamination.	Secure clearance certificate on water resource development subprojects.	Ministry of Water Resources
9	Wetland Protection Act 2000	Advocates protection against degradation and resuscitation of natural water-bodies such as lakes, ponds, beels, khals, tanks, etc. affected by man-made interventions or other causes. Prevents the filling of publicly-owned water bodies and depressions in urban areas for preservation of the natural aquifers and environment. Prevents unplanned construction on riverbanks and indiscriminate clearance of vegetation on newly accreted land.	In case of diversion of water from Naf river, detailed assessment will be done.	Ministry of Water Resources
10	Bangladesh Labor Law, 2006	<p>It is a comprehensive law covering labour issues such as: conditions of service and employment, youth employment, benefits including maternal benefits, compensation for injuries, trade unions and industrial relations, disputes, participation of workers in company's profits, regulation of safety of dock workers, penalty procedures, administration and inspection.</p> <p>This Act pertains to the occupational rights and safety of factory workers and the provision of a comfortable environment for working. It also includes rules on registration of labourers, misconduct rules, income and benefits, health and fire safety, factory plan.</p>	<p>Compliance to provisions on employment standards, occupational health and safety, welfare and social protection, labor relations and social dialogue, and enforcement.</p> <p>Prohibition of employment of children and adolescents.</p>	Ministry of Labor and Employment

No.	Environmental Legislation/Act	Objective	Relevance to the Project	Responsible Institution
11	Bangladesh Labor Rules, 2015	Includes rules on registration of laborers, misconduct rules, income and benefits, health and fire safety, factory plan.	Contractors to implement occupational health and safety measures. Contractor will be liable for compensation for work-related injuries.	Department of Labor
12	The Pourashava Act 2009 / Ordinance issued for the amendment of local government (municipality) ordinance, 2009 and 2010; The Pourashava Ordinance, 1977; Municipal Administration Ordinance, 1960	Provides guidance for subproject integrated community and workers health and hygiene at the construction and operation and maintenance stages of the project.	Coordinate with pourashava committees on disaster management measures, water and sanitation and waste management.	Local Authorities
13	Bangladesh Climate Change Strategy and Action Plan of 2009	Enhances the capacity of government ministries, civil society and private sector to meet the challenges of climate change.	Integrate adaptation measures for buildings in consideration of extreme climatic events.	Ministry of Environment, Forests and Climate Change
14	Building Construction (Amendment) Act and Building Construction Rules, Bangladesh National Building Code	Regulates technical details of building construction and to maintain standards of building construction.	Follow specifications to ensure structural integrity of buildings.	Ministry of Housing and Public Works
15	Electricity Act, 1910 and Electricity Rules 1937	Requires compensation for any damage, detriment or inconvenience caused by the project; Requires precautionary measures in laying down electricity supply lines near or where any metallic substance or line crosses to avoid electrocution.	Secure permission to supply energy and lay down or place electricity supply lines for the conveyance and transmission of electricity from respective authorities prior to any works. Give full compensation for any damage, detriment or inconvenience caused by him or by anyone employed by him. Take precautions in laying down electricity supply lines near or where any metallic substance or line crosses to avoid electrocution.	Ministry of Power, Energy and Mineral Resources
16	The National Energy Policy (1996 and Updated 2004)	Ensures environmentally sound sustainable energy development programs causing minimum damage to the environment, to encourage public and private sector participation in the	Public and private sector participation in the development and management of the energy subprojects.	Ministry of Power, Energy and Mineral Resources

No.	Environmental Legislation/Act	Objective	Relevance to the Project	Responsible Institution
		development and management of the energy sector and to bring the entire country under electrification.	Provides guidelines for renewable energy subprojects.	
17	Standing Order on Disaster, 1999 (Updated 2010)	Enhances capacity at all tiers of government administrative and social structures for coping with and recovering from disasters.	Geographical information system (GIS) technology will be applied at the planning stage to select location of cyclone shelter considering habitation, communication facilities, distance from the nearest cyclone Centre, etc. Advice from the concerned District Committee should be obtained prior to final decision.	Ministry of Disaster Management and Relief
18	National Disaster Management Act of 2012	Establishes a framework for managing disasters in a comprehensive way.	Setting-up emergency response procedures.	Ministry of Disaster and Relief

B. Applicable International Environmental Agreements

16. Aside from the legal framework on environment, Bangladesh is also a party to several international conventions, treaties and protocols related to environmental protection. The applicable international conventions, treaties and protocols are described in Table 3.

Table 3: Applicable International Conventions, Treaties and Protocols

	Conventions	Signed	Ratified/ Accessed(AC)/ Accepted(AT)	Relevance
1	International Plant Protection Convention (Rome, 1951) and Plant Protection Agreement for SE Asia and Pacific (1999 Revision)		01.09.1978 04.12.1974 (AC)	Ensures that component work or construction materials do not introduce plant pests.
2	Convention on Wetlands of International Importance, 1971 (Ramsar Convention)		20.04.1992 (ratified)	Protection of significant wetland and prevention of draining or filling during construction.
3	Convention Concerning the Protection of World Cultural and Natural Heritage (Paris, 1972)		03.11.1983 (ratified)	Prevention of damage or destruction of culturally and/or historically significant sites, monuments, etc.
4	Convention on Biological Diversity, 1992 (Rio de Janeiro)	05.06.1992	03.05.1994	Protection of biodiversity during construction and operation.
5	Convention on Persistent Organic Pollutants, 2001	23.05.2001	In process	Restriction of use of pesticides and herbicides.
6	United Nations Framework Convention on Climate Change, 1997	11.12.1997	22.10.2001 13.11.2003 (amended)	Reduce greenhouse gas concentrations in the atmosphere to a level that would prevent dangerous anthropogenic interference with the climate system.

C. ADB Environmental Safeguards

17. ADB environmental safeguards objectives are: (i) to ensure the environmental soundness and sustainability of projects and (ii) to support the integration of environmental considerations into the project decision-making process. ADB environmental safeguards are triggered if a project

is likely to have potential environmental risks and impacts. ADB's Policy Principles are in Appendix 1.

D. Institutional Capacity

18. The project has been categorized as B for environment under the ADB's Safeguards Policy Statement 2009 (SPS). Individual subprojects will be screened and classified, and based on the classification, and where required, environmental assessments will be undertaken and EMPs developed. Based on Schedule 1 of the ECR, subprojects are likely to require IEEs and EIAs.

19. The Refugee Relief and Repatriation Commission (RRRC) is proposed to act as the coordinator on behalf the government to execute all interventions. RRRC and ADB will conduct regular coordination meetings involving all implementing agencies, relevant stakeholders including deputy commissioner of Coxsbazar, other development partners and agencies. ADB plans to establish extended mission office in Coxsbazar for close coordination, facilitation of sub-projects development and implementation. A steering committee comprising higher officials from relevant ministries coordinated by ERD will be formed to provide necessary guidance to expedite the sub-project development and implementation. The steering committee will have a safeguards focal person.

20. The Local Government Engineering Department (LGED), the Department of Public Health Engineering (DPHE), the Roads and Highways Department (RHD), and the Bangladesh Rural Electrification Board (BREB) will be the executing and implementing agencies responsible for project oversight and coordination. There will be a safeguards focal person in the executing and implementing agencies. The executing and implementing agencies will be assisted by project management consultants (PMCs). The executing and implementing agencies will form project implementation units (PIU). The PIUs will identify a focal person for environmental safeguards. The focal person will be assisted in the conduct of the environmental assessment, the development and implementation of EMPs, and compliance monitoring by project consultants. All the implementing agencies are currently implementing ADB projects under this institutional arrangement (further defined in Section VI). ADB also conducts safeguards training for project executing and implementing agencies. Thus, the government has sufficient capacity in implementing ADB requirements and strengthening of capacity, other than through the course of the consultant's work with local counterparts, is not required. ADB will continue to conduct capacity building programs during implementation.

III. ANTICIPATED ENVIRONMENTAL IMPACTS

A. Water Supply and Sanitation

1. Construction Phase

21. **Air Quality.** The potential sources of air pollution during the construction stage include: dust, debris, and particulate materials from construction that may blow to surrounding structures and cause nuisance to surrounding families and businesses, especially vulnerable persons (children, elderly, etc.).

22. **Noise and Vibration.** Noise from construction machinery and equipment may disturb others especially in areas with hospitals, homes for the elderly, and schools.

23. **Land and Soil.** Land and soil may be contaminated through inappropriate construction methods and improper management of spoils.
24. **Borrow Pits and Quarry.** Extraction of materials can disrupt natural land contours and vegetation, resulting in accelerated erosion, disturbance in natural drainage patterns, ponding, waterlogging and water pollution. Borrow pits and quarry sites will be selected avoiding protected and sensitive areas, nearby settlements, water sources, and in forest areas and fertile agricultural lands.
25. **Loss of Vegetation.** Proposed areas may entail cutting of trees and shrubs. Loss of vegetation may affect ecological balance. For subprojects which will involve cutting of trees, necessary permits will have to be secured from the Forest Department and bare hills will be identified for reforestation. No works will be implemented within protected areas, including its regulated zones or any proposed protected areas. Workers camps will not be allowed within protected areas, its regulated zones, or proposed protected areas.
26. **Hydrology and Drainage.** Obstruction of natural drainage basin by community infrastructure or extraction of water may modify the natural flow of surface runoff by concentrating flow at certain points. As a result, velocity of flow may increase or decrease. In turn, diversion or disruption of natural surface water and drainage patterns is inevitable.
27. **Surface Water and Groundwater Contamination.** Use of toxic materials such as solvents and vehicle maintenance fluid (oil, coolant) and diesel fuel may contaminate surface and groundwater if these are disposed of directly into the ground or washed into the streams. Human waste from construction workers may also contaminate surface water and groundwater if there are no adequate sanitary facilities.
28. **Loss of Natural Habitats and Wildlife Disturbance.** Clearing of existing vegetation may result in loss of associated ecological habitats and their fauna. Noise, vibrations, and intrusive activities related to construction works may scare away animals remaining onsite after vegetation clearance. Elephant-human conflicts may arise if elephant movement pathways are disrupted.
29. **Stockpiling of Materials.** Improper selection of storage areas and stockpiling of material may cause siltation, water pollution, and air pollution due to dust generation, loss of topsoil and productivity, and disturbance to private property.
30. **Explosive, Combustible, and Toxic Materials.** Storage and use of explosives, petrol, diesel, oil and lubricants, bitumen, and solvents may cause fire and explosion hazards, soil and water pollution through leaks and accidental spillage.
31. **Construction Waste.** Debris generated through excavation of existing roads includes bitumen and other pavement materials with various chemicals, oils, and grease that pose hazards to human health.
32. **Traffic.** Traffic flow will be disrupted if routes for delivery of construction materials and temporary blockages during construction activities are not planned or coordinated.
33. **Impacts on Existing Utility Infrastructure.** Telephone lines, electric poles and wires, and existing water pipes may require shifting. Service delivery of existing infrastructure may be disrupted during construction.
34. **Accessibility.** Trenching may disturb roads, people, economic and social activities.

35. **Construction Camp.** Poor siting and improper management of construction camps may lead to several adverse impacts on environment: (i) loss of vegetation due to use of wood as fuel source for cooking; (ii) deterioration of nearby surface water quality; (iii) compaction and contamination of soil due to uncontrolled disposal of solid waste; (iv) increase in generation of domestic solid waste; (v) temporary air and noise pollution from machine operation; and (vi) poor sanitation resulting to transmission of communicable diseases.

36. **Occupational Health and Safety.** Insufficient supply and improper use of safety gear may cause injuries or fatal accidents. Close contact with persons afflicted with diseases and lack of sanitation in workers camps may also pose health risks. Outbreaks of diseases like diphtheria and measles can be avoided by observing proper sanitation facilities and observing good personal hygiene habits.

37. **Community Health and Safety Hazards.** Community hazards may arise during construction (dust, air quality, noise, risk of fall, etc.). Traffic accidents and vehicle collision with pedestrians during material and waste transportation may occur if no proper signages are placed.

38. **Social and Cultural Resources.** Ground disturbance can uncover and damage archaeological and historical remains.

2. Operation Phase

39. **Air Emissions and Odor.** There could be air emissions from water treatment plant operations including hydrogen sulfide, methane, ozone, volatile organic compounds, gaseous or volatile chemicals for disinfection processes (e.g. chlorine and ammonia), and bioaerosols. If not properly maintained, sanitation facilities odor may cause nuisance to the surrounding community.

40. **Hazardous Chemicals.** Water treatment involves the use of chemicals for coagulation, disinfection, and water conditioning. Use of hazardous chemicals can pose potential environmental, health and safety risks if not properly managed.

41. **Groundwater Depletion.** Increase in water demand may lead to groundwater depletion if not properly managed.

42. **Solid Waste.** Water treatment process involves generation process residuals from the use of chemicals added in the treatment process. Sludge may require special disposal if the source water contains elevated levels of toxic materials such as arsenic.

43. **Community Health and Safety Hazards.** If left without proper restoration and clearing of wastes, construction sites can be accident prone areas.

B. Disaster Risk Management Subprojects

1. Construction Phase

44. **Air Quality.** The potential sources of air pollution during the construction stage include: dust, debris, and particulate materials from construction that may blow to surrounding structures

and cause nuisance to surrounding families and businesses, especially vulnerable persons (children, elderly, etc.).

45. **Noise and Vibration.** Noise from construction machinery and equipment may disturb others especially in areas with hospitals, homes for the elderly, and schools.

46. **Land and Soil.** Land and soil may be contaminated through inappropriate construction methods and improper management of spoils. Hill shaping may be required which may alter the natural landscape. Proper mitigation measures should be adopted to minimize any losses or damages to the assets and natural landscape.

47. **Borrow Pits and Quarry.** Extraction of materials can disrupt natural land contours and vegetation, resulting in accelerated erosion, disturbance in natural drainage patterns, ponding, waterlogging and water pollution. Borrow pits and quarry sites will be selected avoiding protected and sensitive areas, nearby settlements, water sources, and in forest areas and fertile agricultural lands.

48. **Loss of Vegetation.** Proposed areas may entail cutting of trees and shrubs. Loss of vegetation may affect ecological balance. For subprojects which will involve cutting of trees, necessary permits will have to be secured from the Forest Department and bare hills will be identified for reforestation. No works will be implemented within protected areas, including its regulated zones or any proposed protected areas. Workers camps will not be allowed within protected areas, its regulated zones, or proposed protected areas.

49. **Loss of Natural Habitats and Wildlife Disturbance.** Clearing of existing vegetation may result in loss of associated ecological habitats and their fauna. Noise, vibrations, and intrusive activities related to construction works may scare away animals remaining onsite after vegetation clearance. Elephant-human conflicts may arise if elephant movement pathways are disrupted.

50. **Hydrology and Drainage.** Obstruction of natural drainage basin by community infrastructure or extraction of water may modify the natural flow of surface runoff by concentrating flow at certain points. As a result, velocity of flow may increase or decrease. In turn, diversion or disruption of natural surface water and drainage patterns is inevitable.

51. **Surface Water and Groundwater Contamination.** Use of toxic materials such as solvents and vehicle maintenance fluid (oil, coolant) and diesel fuel may contaminate surface and groundwater if these are disposed of directly into the ground or washed into the streams. Human waste from construction workers may also contaminate surface water and groundwater if there are no adequate sanitary facilities.

52. **Loss of Natural Habitats and Wildlife Disturbance.** Clearing of existing vegetation may result in loss of associated ecological habitats and their fauna. Noise, vibrations, and intrusive activities related to construction works may scare away animals remaining onsite after vegetation clearance. Elephant-human conflicts may arise if elephant movement pathways are disrupted.

53. **Stockpiling of Materials.** Improper selection of storage areas and stockpiling of material may cause siltation, water pollution, and air pollution due to dust generation, loss of topsoil and productivity, and disturbance to private property.

54. **Explosive, Combustible, and Toxic Materials.** Storage and use of explosives, petrol, diesel, oil and lubricants, bitumen, and solvents may cause fire and explosion hazards, soil and water pollution through leaks and accidental spillage.

55. **Construction Waste.** Debris generated through excavation of existing roads includes bitumen and other pavement materials with various chemicals, oils, and grease that pose hazards to human health.

56. **Traffic.** Traffic flow will be disrupted if routes for delivery of construction materials and temporary blockages during construction activities are not planned or coordinated.

57. **Impacts on Existing Utility Infrastructure.** Telephone lines, electric poles and wires, and existing water pipes may require shifting. Service delivery of existing infrastructure may be disrupted during construction.

58. **Construction Camp.** Poor siting and improper management of construction camps may lead to several adverse impacts on environment: (i) loss of vegetation due to use of wood as fuel source for cooking; (ii) deterioration of nearby surface water quality; (iii) compaction and contamination of soil due to uncontrolled disposal of solid waste; (iv) increase in generation of domestic solid waste; (v) temporary air and noise pollution from machine operation; and (vi) poor sanitation resulting to transmission of communicable diseases.

59. **Occupational Health and Safety.** Insufficient supply and improper use of safety gear may cause injuries or fatal accidents. Close contact with persons afflicted with diseases and lack of sanitation in workers camps may also pose health risks. Outbreaks of diseases like diphtheria and measles can be avoided by observing proper sanitation facilities and observing good personal hygiene habits.

60. **Community Health and Safety Hazards.** Community hazards may arise during construction (dust, air quality, noise, risk of fall, etc.). Traffic accidents and vehicle collision with pedestrians during material and waste transportation may occur if no proper signages are placed.

61. **Social and Cultural Resources.** Ground disturbance can uncover and damage archaeological and historical remains.

2. Operation Phase

62. **Solid Waste Generation.** Use of multipurpose cyclone centers and construction of food distribution centers may generate domestic waste.

63. **Community Health and Safety Hazards.** If left without proper restoration and clearing of wastes, construction sites can be accident prone areas. Drainage canals, if not properly maintained, may create stagnant water conditions. This might create public health problem due to increase in number of vector species like mosquito, snails, and others.

C. Energy Infrastructure Subprojects

1. Construction Phase

64. **Noise, Dust, and Vibration.** Noise, dust, and vibration will be generated during excavation for pole foundations, pole erection, and movement of construction and maintenance vehicles at sites where distribution lines are upgraded and extended.

65. **Borrow Pits and Quarry Sites.** Extraction of materials can disrupt natural land contours and vegetation, resulting in accelerated erosion, disturbance in natural drainage patterns, ponding, waterlogging and water pollution. Borrow pits and quarry sites will be selected avoiding

protected and sensitive areas, nearby settlements, water sources, and in forest areas and fertile agricultural lands.

66. **Loss of Vegetation.** Existing vegetation may need to be removed or lopped. This will be limited and will be done in consultation with local people and officials. No works will be implemented within protected areas, including its regulated zones or any proposed protected areas. Workers camps will not be allowed within protected areas, its regulated zones, or proposed protected areas.

67. **Surface Water and Groundwater Contamination.** Oil used in pole mounted transformers and oil spillage at new transformer locations may cause water contamination especially if there are nearby water bodies. Human waste from construction workers may also contaminate surface water and groundwater if there are no adequate sanitary facilities.

68. **Soil Quality.** Land may be disturbed during excavation for foundation works for poles. Soil quality as well as soil characteristics may deteriorate due to mishandling and disposing of solid wastes and oil during implementation. Proper waste handling procedures need to be in place to minimize impact to soil.

69. **Wildlife Disturbance.** Clearing of existing vegetation may result in loss of associated ecological habitats and their fauna. Noise, vibrations, and intrusive activities related to construction works may scare away animals remaining onsite after vegetation clearance. Elephant-human conflicts may arise if elephant movement pathways are disrupted. Wildlife may be impacted by vegetation clearance and the temporary loss of small habitat locations at pole sites.

70. **Hazardous Materials and Waste.** Oil used in pole mounted transformers and oil spillage at new pole line sites may result in soil and waterways being contaminated and aquatic animals being affected. Oil from transformers should be recycled but eventually must be disposed of, and, prior to disposal, must be stored properly in drums inside contained areas at depots or there can be contamination to ground water and soils.

71. **Construction Waste.** Incorrectly managed construction waste may have impacts to the surrounding land. Proper disposal of solid waste should be implemented.

72. **Construction Camp.** Poor siting and improper management of construction camps may lead to several adverse impacts on environment: (i) loss of vegetation due to use of wood as fuel source for cooking; (ii) deterioration of nearby surface water quality; (iii) compaction and contamination of soil due to uncontrolled disposal of solid waste; (iv) increase in generation of domestic solid waste; (v) temporary air and noise pollution from machine operation; and (vi) poor sanitation resulting to transmission of communicable diseases.

73. **Traffic.** Traffic flow will be disrupted if routes for delivery of construction materials and temporary blockages during construction activities are not planned or coordinated. Road crossings may be temporarily affected during the process of erecting new poles and during stringing of conductors during construction phase.

74. **Impacts on Existing Utility Infrastructure.** Existing utility infrastructure may need to be repositioned. Service delivery of existing infrastructure may be disrupted during construction.

75. **Occupational and Health and Safety Risks.** Occupational hazards may arise if not properly managed (risk of fall and electrocution, etc). Increase in dust may cause health problems to workers. Insufficient supply and improper use of personal protective equipment (PPE) and lack

of safety procedures may cause injuries or fatal accidents. For safety there will be a need to interrupt electricity supply to existing businesses while new poles, conductors and other installations are put in place. This needs to be done in a phased manner allowing small sections of lines to be reconnected to the network, keeping down time to a minimum for existing users. Close contact with persons afflicted with diseases and lack of sanitation in workers camps may also pose health risks. Outbreaks of diseases like diphtheria and measles can be avoided by observing proper sanitation facilities and observing good personal hygiene habits.

76. **Community Health and Safety Hazards.** Community hazards may arise during construction (dust, air quality, noise, electrocution etc.). Traffic accidents and vehicle collision with pedestrians during material and waste transportation may occur if no proper signages are placed.

77. **Social and Cultural Resources.** Ground disturbance can uncover and damage archaeological and historical remains.

2. Operation Phase

78. **Soil and Water Quality.** Soil, surface water, and ground water may be contaminated from used oil and replacement of materials.

79. **Community Health and Safety Hazards, and Disturbance.** Hazards such as electrocution, lightning strikes and other natural hazards may occur. There should be appropriate grounding and deactivation of live distribution lines during maintenance work. In the event of natural calamities and fire, emergency safety measures such as temporary shut-down of power will be implemented to avoid electrocution.

D. Access Roads

1. Construction Phase

80. **Air Quality.** The potential sources of air pollution during the construction stage include: dust from earth works, emissions from the operation of construction equipment, machines, and crusher plants, fugitive emissions from vehicles plying the road, fugitive emissions during the transport of construction materials, air pollution other than dust from combustion of hydrocarbons particularly from hot mix plants, and localized increased traffic congestion in construction areas.

81. **Noise and Vibration.** Ambient noise may increase temporarily in close vicinities of maintenance workshops and operated vehicles, earthmoving equipment, and crusher plants. Noise is expected to be intermittent and temporary. Noise levels will attenuate with increase in distance from the noise source. There can be vibration due to operation of heavy machinery and equipment which may damage (crack formation) infrastructure.

82. **Land and Soil.** Soil may be contaminated through inappropriate construction methods and improper management of spoils. There can also be loss of topsoil. Pollution risks may originate from transportation of hazardous materials during road construction and subsequent traffic operation. There will be temporary changes in land use because of access road, construction camp, and storage of construction materials. This may also result in loss of soil productivity. There are risks of slope failure and soil erosion which require mitigation. Disturbance to fragile hills during slope cutting and poor management of drainage water may cause

accelerated erosion and slope instability, landslides, destruction of vegetation and property, siltation of surface water, and water pollution.

83. **Borrow Pits and Quarry Sites.** Extraction of materials can disrupt natural land contours and vegetation, resulting in accelerated erosion, disturbance in natural drainage patterns, ponding, waterlogging and water pollution. Borrow pits and quarry sites will be selected avoiding protected and sensitive areas, nearby settlements, water sources, and in forest areas and fertile agricultural lands.

84. **Loss of Vegetation.** Road widening and setting-up of construction camps may entail cutting of trees and shrubs. Loss of vegetation may affect ecological balance. For subprojects which will involve cutting of trees, necessary permits will have to be secured from the Forest Department and bare hills will be identified for reforestation. No widening works will be implemented in existing roads that are passing through protected areas, including its regulated zones or any proposed protected areas. Workers camps will not be allowed within protected areas, its regulated zones, or proposed protected areas.

85. **Hydrology and Drainage.** Obstruction of natural drainage basin by roads may modify the natural flow of surface runoff by concentrating flow at certain points. As a result, velocity of flow may increase. In turn, diversion or disruption of natural surface water and drainage patterns is inevitable.

86. **Surface Water and Groundwater Contamination.** Use of toxic materials such as solvents and vehicle maintenance fluid (oil, coolant) and diesel fuel may contaminate surface and groundwater if these are disposed of directly into the ground or washed into the streams. Human waste from construction workers may also contaminate surface water and groundwater if there are no adequate sanitary facilities.

87. **Loss of Natural Habitats and Wildlife Disturbance.** Clearing of existing vegetation may result in loss of associated ecological habitats and their fauna. Noise, vibrations, and intrusive activities related to construction works may scare away animals remaining onsite after vegetation clearance. Elephant-human conflicts may arise if elephant movement pathways are disrupted.

88. **Stockpiling of Materials.** Improper selection of storage areas and stockpiling of material may cause siltation, water pollution, and air pollution due to dust generation, loss of topsoil and productivity, and disturbance to private property.

89. **Explosive, Combustible, and Toxic Materials.** Storage and use of explosives, petrol, diesel, oil and lubricants, bitumen, and solvents may cause fire and explosion hazards, soil and water pollution through leaks and accidental spillage.

90. **Construction Waste.** Debris generated through excavation of existing roads includes bitumen and other pavement materials with various chemicals, oils, and grease that pose hazards to human health.

91. **Construction Camp.** Poor siting and improper management of construction camps may lead to several adverse impacts on environment: (i) loss of vegetation due to use of wood as fuel source for cooking; (ii) deterioration of nearby surface water quality; (iii) compaction and contamination of soil due to uncontrolled disposal of solid waste; (iv) increase in generation of

domestic solid waste; (v) temporary air and noise pollution from machine operation; and (vi) poor sanitation resulting to transmission of communicable diseases.

92. **Traffic.** Traffic flow will be disrupted if routes for delivery of construction materials and temporary blockages during construction activities are not planned or coordinated.

93. **Impacts on Existing Utility Infrastructure.** Existing utility infrastructure may need to be repositioned. Service delivery of existing infrastructure may be disrupted during construction.

94. **Occupational and Health and Safety Risks.** Occupational hazards may arise if not properly managed (deep excavations, falling objects, noise, etc.). Increase in dust may cause health problems to workers. Insufficient supply and improper use of personal protective equipment (PPE) and lack of safety procedures may cause injuries or fatal accidents. Close contact with persons afflicted with diseases and lack of sanitation in workers camps may also pose health risks. Outbreaks of diseases like diphtheria and measles can be avoided by observing proper sanitation facilities and observing good personal hygiene habits.

95. **Community Health and Safety Hazards.** Community hazards may arise during construction (dust, air quality, noise, risk of fall, etc.). Traffic accidents and vehicle collision with pedestrians during material and waste transportation may occur if no proper signages are placed. Lack of sanitation may pose health risks to the community if they are exposed to workers who are currently affected by communicable diseases. Outbreaks of diseases like diphtheria and measles can be avoided by observing proper sanitation facilities and observing good personal hygiene habits.

96. **Social and Cultural Resources.** Ground disturbance can uncover and damage archaeological and historical remains.

2. Operation Phase

97. **Air Quality.** Vehicular emission will be the main source of air pollution during the operation phase.

98. **Noise and Vibration.** Noise generated by traffic movement will be the main source of noise. There can be vibration due to heavy vehicles.

99. **Land and Soil.** Slope failure and soil erosion can occur due to natural and induced causes. This requires continuous monitoring especially during and after the rainy season.

100. **Hydrology and Drainage.** Road sides are prone to landslides and soil erosion from flooding, and wind storms. Consequently, drain blockage will be a perpetual problem and more severe during the rainy season. Loss of trees and agricultural land, and impact on private properties may result during landslides.

101. **Community Health and Safety Hazards, and Disturbance.** Traffic accidents and vehicle collision with pedestrians during may occur if no proper signages are placed. Maintenance activities may cause disturbance to sensitive receptors (i.e. increase in dust generation and increase in noise level).

102. **Traffic.** Increase in vehicles plying the road may increase the risk of road accidents.

IV. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS AND/OR COMPONENTS

A. Screening

103. During project preparation, the project was classified by ADB as Category B with impacts that are expected to be site-specific, few if any of them are irreversible and in most cases mitigation measures can be designed readily. The general subproject selection criteria have two criteria for environment:

- (i) the subproject will conform to ADB SPS with respect to social and environment considerations. Subproject with significant (category A) environmental and resettlement impacts, or with impacts on tribes, minor races, ethnic sects and communities (category A and B), will be excluded;³ and
- (ii) The proposed subproject will not be undertaken in critical habitats and protected areas⁴ including those either legally protected or officially proposed for protection.

104. The subproject selection criteria exclude Category A subprojects or subprojects likely to have significant impacts that are irreversible, diverse, or unprecedented. Subprojects with activities described in ADB's Prohibited Investment Activities List (Appendix 2) will also be excluded from the project.

105. Subprojects selected will not have significant environmental impacts. Environmental guidelines for subproject selection in Table 4 provide further guidance to avoid or minimize adverse impacts during the identification and finalization of subprojects.

Table 4: Environmental Guidelines

Component	Environmental Guidelines for Subproject Selection
Overall (Applicable to all Subprojects)	Comply with all applicable national and local laws, regulations, and standards.
	Comply with ADB SPS.
	Avoid land acquisition and involuntary resettlement and have no impacts on tribes, minor races, ethnic sects and communities (footnote 3).
	Avoid protected areas and areas of historical/cultural value.
	Avoid building or setting-up construction camp sites along elephant migration routes
Transport Infrastructure	Do not build new roads and avoid widening existing roads, as much as possible.
	Avoid hill cutting.
	Do not build new bridges.
	Avoid cutting trees on the roadside and if any trees have to be removed, plant two new trees for every tree lost.
	Consult the relevant archaeological agency regarding archaeological potential subproject areas to ensure that these are located in areas where there is a low risk of chance finds.

³ Groups or population identified as Indigenous Peoples within the context of ADB's Safeguard Policy Statement will be referred to in this document as *tribes, minor races, ethnic sects and communities* (following the request of the Government of Bangladesh).

⁴ Including national parks, wildlife reserves, conservation area, wetlands, ancient/cultural and archeological areas (ECR, 1997).

B. Classification

106. Following screening through the subproject selection criteria and environmental guidelines for subproject selection, the implementing agency will classify subprojects at the earliest stage of preparation when sufficient information is available for this purpose. Classification will (i) reflect the significance of potential impacts or risks that a subproject might present; (ii) identify the level of assessment and institutional resources required for the safeguard measures; and (iii) determine disclosure requirements.

107. The project will adopt ADB's classification system to reflect the significance of a subproject's potential environmental impacts. A subproject's category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the subproject's area of influence. Each proposed subproject will be scrutinized as to its type, location, scale, and sensitivity and the magnitude of its potential environmental impacts. Projects are assigned to one of the following three categories:

- (i) **Category A.** A proposed subproject is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works.
- (ii) **Category B.** A proposed subproject is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects.
- (iii) **Category C.** A proposed subproject is classified as category C if it is likely to have minimal or no adverse environmental impacts.

108. Classification will be aided through checklists in Appendices 3 to 6. The IA will submit the classification of each subproject to ADB Bangladesh Resident Mission (BRM) for review and approval. Category A subprojects will be excluded from the project. To comply with ADB SPS—Category B subprojects require the preparation of an IEE, while Category C subprojects will require a desk review of environmental implications.

C. Preparation of Environmental Assessments and Environmental Management Plans

109. Environmental assessment documents prepared for subprojects could meet both ADB and government requirements to streamline environmental procedures.

110. Adherence to the subproject selection criteria and environmental guidelines for subproject selection ensures that no subproject will have potential significant adverse environmental impacts. Subprojects with minimal or no adverse environmental impacts (Category C) will not require an environmental assessment or the preparation of an EMP. Subprojects with adverse environmental impacts which are not considered significant (Category B) require an IEE and an EMP. Appendix 7 provides an outline of an IEE which contains the EMP. A sample EMP table for small-scale infrastructure works is also in Appendix 8.

111. In preparing IEEs, secondary data will be collected for subproject-influence sites. An assessment of subproject impacts and risks on biodiversity and natural resources will also be undertaken. Issues regarding natural and critical habitats will be covered in the IEE report. In case of subprojects located within buffer zone of protected areas, a review of management plans and consultation with concerned management staff of the protected area, local communities, and key stakeholders will be undertaken and reflected in the IEE report. Pollution prevention for

conservation of resources particularly technology for management of process wastes will be addressed in the IEE report. Occupational health safety and community health and safety will be properly addressed in the EMP section of the IEE report. In case subprojects are likely to have adverse impacts on physical cultural resources, appropriate mitigation measures will to be planned and reflected in the IEE. The IEE will also reflect how meaningful consultation will be undertaken and disclosure procedures with a provision of grievance redress mechanism.

112. An EMP for each subproject will be developed as part of the IEE. EMPs describe the environmental management measures that will be carried out to mitigate negative impacts or enhance the environment during implementation of a subproject, and the environmental monitoring to be conducted to ensure that mitigation is provided and is effective in reducing impacts, or to determine the long-term impacts of a subproject. EMPs will outline specific mitigation measures, environmental monitoring requirements, and related institutional arrangements, including budget requirements for implementation. Where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the subproject is designed, constructed, and operated in compliance with applicable laws and regulations and meets the requirements specified in this document. The Environmental Code of Practice (ECoP) will be integrated into the EMP, as applicable. Bidding documents will include ECoP. Appendix 9 shows an ECoP applicable to all subprojects. The level of detail and complexity of the environmental planning documents and the priority of the identified measures and actions will be commensurate with the subproject's impacts and risks. Key considerations include mitigation of potential adverse impacts to the level of "no significant harm to third parties," the polluter pays principle, the precautionary approach, and adaptive management.

113. All IEEs and EMPs will be prepared prior to the award of construction contracts. The bid documents will include the requirement to incorporate necessary resources to implement the EMP. The EMP will form part of the contract document, and if required, will need to be further updated during the construction phase of a subproject.

114. Any changes or updates on the IEE will be subject to ADB's review and disclosure.

B. Review of Environmental Assessment Reports and EMPs

115. IEEs and EMPs will be reviewed initially by the PIU and if satisfactory, forwarded to the executing and/or implementing agencies for review and approval. Once approved, they will then forward the IEEs and EMPs to ADB and if required the relevant government authority.

V. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

A. Consultation and Information Disclosure

116. Meaningful stakeholder consultation and participation is part of the project preparation and implementation strategy. Consultation, participation and will ensure information is provided and feedback is obtained and considered on the implementation of subprojects. Affected persons will be consulted at various stages of subproject preparation to ensure: (i) incorporation of views/concerns of affected persons, particularly the vulnerable, on environmental impacts and mitigation measures; (ii) identification of any help required by affected persons during rehabilitation; and (iii) avoidance of potential conflicts for smooth project implementation.

117. It will also provide adequate opportunities for consultation/participation of all stakeholders and inclusion of the vulnerable in subproject process. Relevant information on any major changes

to the project or subproject scope will be shared with beneficiaries, affected persons, vulnerable groups, and other stakeholders.

118. At minimum, stakeholders will be consulted regarding the scope of an impact assessment before work is commenced and they will be informed of the likely impacts of the subproject and proposed mitigation once the draft IEE and EMP documents are prepared. The safeguards documents will record views of stakeholders and indicate how these have been considered in subproject development. Consultations will be held with a special focus on vulnerable groups.

119. The key stakeholders to be consulted during subproject preparation, EMP implementation and subproject implementation include:

- (i) Beneficiaries;
- (ii) Elected representatives, community leaders, religious leaders, and representatives of community-based organizations;
- (iii) Local non-government organizations (NGOs);
- (iv) Local government and relevant government agency representatives, including local authorities responsible for land acquisition, protection and conservation of forests and environment, archaeological sites, religious sites, and other relevant government departments;
- (v) Residents, shopkeepers, business persons, and farmers who live and work alongside transport and education/district infrastructure which will be rehabilitated;
- (vi) Executing agency, implementing agency, PIU, staff, and consultants; and
- (vii) ADB and Government.

120. Information is disclosed through public consultation and making available relevant documents in public locations. The following documents will be submitted to ADB for disclosure on its website:

- (i) IEEs (including subproject EMP);
- (ii) Updated IEEs (including EMP) and corrective action plan prepared during project implementation, if any; and
- (iii) Environmental monitoring reports.

121. The executing and/or implementing agencies will send a written endorsement to ADB for disclosing these documents on the ADB website. The PIUs will provide relevant safeguards information in a timely manner, in an accessible place and in a form and language understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used. Disclosure will follow ADB's Public Communication Policy, 2011.⁵

B. Grievance Redress Mechanism

122. The objective the grievance redress mechanism (GRM) is to resolve complaints as quickly as possible and at the local level through a process of conciliation; and, if that is not possible, to provide clear and transparent procedures for appeal. A well-defined grievance redress and resolution mechanism will be established to resolve grievances and complaints in a timely and satisfactory manner. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedures will be publicized through an effective public information campaign. The grievance redress process includes three levels.

⁵ <http://beta.adb.org/documents/pcp-2011?ref=site/disclosure/publications>.

123. **First level of GRM.** The first level and most accessible and immediate contact for the fastest resolve of grievances are the contractors, with assistance from design and supervision consultants (DSC) on site. Prior to construction of any works, the PIU will ensure local community meetings are held to notify residents and businesses of any temporary disturbances, and to inform them of the project and the GRM. If any complaints arise, the contractors, with assistance from DSC can immediately resolve the complaint on site. The contractor's and DSC's office phone number will be posted in public areas within the subproject areas and construction sites. Any person with a grievance related to the project works can contact the project to file a complaint. The contractor may seek the assistance of the DSC safeguards specialists (the environmental specialist or social safeguards specialist) to resolve the issue. The DSC safeguards (environment and resettlement) focal person will immediately address and resolve the issue with the contractor within 1-2 days, if the complaint remains unresolved at the field level. The DIU safeguards focal person will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location, and (v) how the complaint was resolved.

124. **Second level of GRM.** Should the grievance remain unresolved; the contractor with assistance from DSC will forward the complaint to the PIU safeguards focal person. The person filing the grievance will be notified by DSC safeguards focal person that the grievance was forwarded to the PIU safeguards focal person. The PIU will address the grievance. Grievances will be resolved through continuous interactions with affected persons, and the PIU will answer queries and resolve grievances regarding various issues including environmental or social impacts. Corrective measures will be undertaken at the field level by the PIU safeguards focal person within 7 days. He/she will fully document the following information: (i) name of the person; (ii) date complaint was received; (iii) nature of complaint; (iv) location and (v) how the complaint was resolved.

125. **Third level of GRM.** Should the grievance remain unresolved, the PIU's project director will activate the third level of the GRM by referring the issue (with written documentation) to a grievance redress committee (GRC), which will, based on review of the grievances, address them in consultation with the PIU, contractor, DSC, and affected persons. The GRC will consist of RRRC, as chairperson, EA/IA representative, camp-in-charge, and other relevant stakeholders. A meeting will be called with the GRC, if necessary, where the affected person can present his/her concern and issues. The process will promote conflict resolution through mediation. The GRC will meet as necessary when there are grievances to be addressed. The GRC will suggest corrective measures at the field level and assign clear responsibilities for implementing its decision within 15 days. The functions of the GRC are as follows: (i) to provide support to affected persons on problems arising from environmental or social disruption, asset acquisition (where required), and eligibility for entitlements, compensation, and assistance; (ii) to record grievances of affected persons, categorize and prioritize them, and provide solutions within 15 days; and (iii) to report to the aggrieved parties' developments regarding their grievances and decisions of the GRC. The EA/IA safeguards focal person will be responsible for processing and placing all papers before the GRC, recording decisions, issuing minutes of the meetings, and taking follow-up action to see that formal orders are issued, and the decisions carried out.

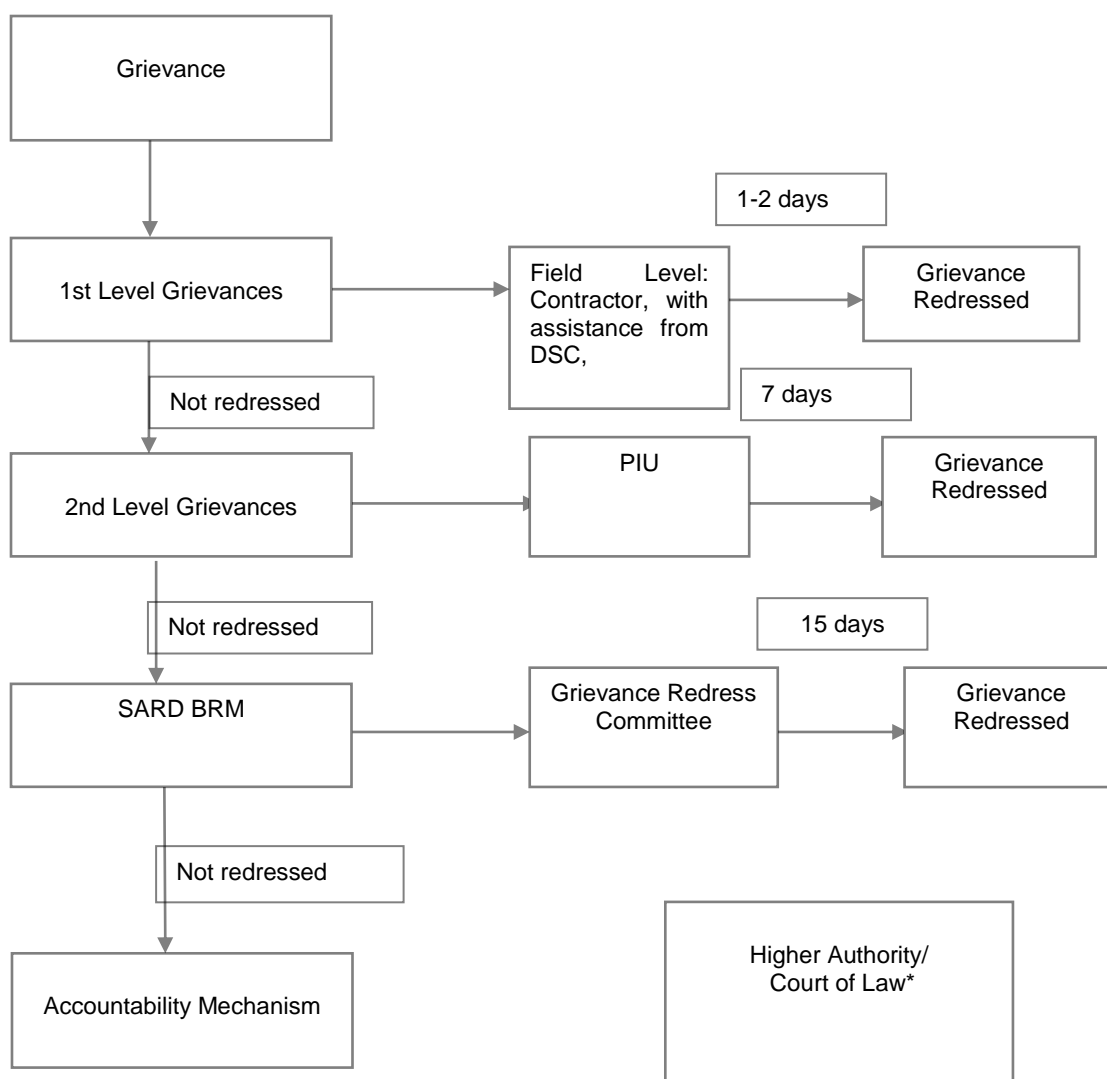
126. Safeguard monitoring reports will include the following aspects pertaining to progress on grievances: (i) number of cases registered with the GRC, level of jurisdiction (first, second, and third levels), number of hearings held, decisions made, and the status of pending cases; and (ii) lists of cases in process and already decided upon may be prepared with details such as affected person, date of notice, date of application, date of hearing, decisions, remarks, actions taken to resolve issues, and status of grievance (i.e. open, closed, pending).

127. All costs involved in resolving the complaints (meetings, consultations, communication, reporting and/or information dissemination) will be borne by the executing and implementing agencies.

128. Where an affected person is not satisfied with the outcomes of the 3 levels of the project GRM, the affected person should make good faith efforts to resolve issues working with the South Asia Regional Department through ADB's Bangladesh Resident Mission. As a last resort, the affected person can access ADB's Accountability Mechanism (ADB's Office of Special Project Facility or Office of Compliance Review).⁶ ADB's Accountability Mechanism, including information on how to file a complaint, will also be explained to affected households.

129. The grievance redress mechanism and procedure are depicted in

Figure 2: Grievance Redress Mechanism



ADB = Asian Development Bank; BRM = Bangladesh Resident Mission; DSC = Design and Supervision Consultant; PIU = Project Implementing Unit; SARD = South Asia Regional Department

⁶ Contact information on ADB's Bangladesh Mission is in <https://www.adb.org/countries/bangladesh/main>. Information on ADB's Accountability Mechanism is in www.adb.org/site/accountability-mechanism/main.

VI. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

A. Oversight Body

130. The RRRC is proposed to act as the coordinator on behalf the government to execute all interventions. RRRC and ADB will conduct regular coordination meetings involving all executing and implementing agencies, relevant stakeholders including deputy commissioner of Coxsbazar, other development partners and agencies. ADB plans to establish extended mission office in Coxsbazar for close coordination, facilitation of sub-projects development and implementation.

131. A steering committee comprising higher officials from relevant ministries coordinated by ERD will be formed to provide necessary guidance to expedite the sub-project development and implementation.

B. Executing and Implementing Agency

132. The Local Government Engineering Department (LGED), the Department of Public Health Engineering (DPHE), the Roads and Highways Department (RHD), and the Bangladesh Rural Electrification Board (BREB) will be the executing and implementing agencies for the project. The executing and implementing agencies will coordinate environment safeguards planning and implementation and ensure that the EARF is followed during subproject implementation. There will be a safeguards focal person in the executing and implementing agencies. The executing and implementing agencies will be assisted by PMCs. Consultants will include an Environment Specialist engaged during project implementation.

C. Project Implementing Unit

133. Project Implementation Units (PIUs) will be formed in each of the IAs, with a dedicated safeguards focal person. PIUs will be assisted by DSC. Consultants will include Environment Specialists engaged during project implementation.

D. Design and Supervision Consultants

134. The Design and Supervision Consultant (DSC) together with the PIU, will assist in developing and updating IEEs through the conduct of the DMS in a participatory and transparent way and consistent with the ADB's environment principles and the EARF. Once approved by the PMU and reviewed and concurred by ADB, the DSC will provide technical advice in the implementation of the approved IEE and EMP. The DSC will likewise provide capacity-building orientation and skills training, as needed, to concerned personnel of the PMU and PIU.

135. Together with the executing and implementing agencies and PIU, the DSC will supervise civil works activities to ensure that the contractors adhere with the terms of their contract relative to avoiding and/or minimizing environmental impacts, in addition to ensuring that contractors provide the necessary compensation and/or assistance to the affected households prior to and/or during construction activities. The DSC will assist the PIU in regular monitoring of EMP implementation.

VII. MONITORING AND REPORTING

136. The PIUs, will monitor and measure the progress of EMP implementation. The monitoring activities will be corresponding with the project's risks and impacts and will be identified in the IEEs. Appendix 10 provides a content outline for monitoring reports. In addition to recording information of the work, deviation of work components from original scope, the PIUs will undertake

site inspections and document review to verify compliance with the EMP and progress toward the final outcome.

137. DSCs will submit monthly monitoring and implementation reports to the PIUs, who will take follow-up actions, if necessary. PIUs will submit the quarterly monitoring and implementation reports to the executing and implementing agencies. The executing and implementing agencies will submit semi-annual monitoring reports to ADB. Project budgets will reflect the costs of monitoring and reporting requirements. Monitoring reports will be posted in a location accessible to the public.

138. The executing and implementing agencies will document monitoring results, identify the necessary corrective actions, and reflect them in a corrective action plan. The executing and implementing agencies, in each quarter, will study the compliance with the action plan developed in the previous quarter. Compliance with grant covenants will be screened by the executing agency.

139. ADB will review project performance against the executing agency's commitments as agreed in the legal documents. The extent of ADB's monitoring and supervision activities will be commensurate with the project's risks and impacts. Monitoring and supervising of environmental safeguards will be integrated into the project performance management system. ADB will monitor projects on an ongoing basis until a project completion report is issued. ADB will carry out the following monitoring actions to supervise project implementation:

- (i) conduct periodic site visits for projects with adverse environmental impacts;
- (ii) review the periodic monitoring reports submitted by the executing agency to ensure that adverse impacts and risks are mitigated as planned and as agreed with ADB;
- (iii) work with executing agency to rectify to the extent possible any failures to comply with their safeguard commitments, as covenanted in the legal agreements, and exercise remedies to re-establish compliance as appropriate; and
- (iv) prepare a project completion report that assesses whether the objective and desired outcomes of the safeguard plans have been achieved, considering the baseline conditions and the results of monitoring.

Appendix 1: ADB Environmental Safeguards Policy Principles

1. Use a screening process for each proposed project, as early as possible, to determine the appropriate extent and type of environmental assessment so that appropriate studies are undertaken commensurate with the significance of potential impacts and risks.
2. Conduct an environmental assessment for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the project's area of influence. Assess potential transboundary and global impacts, including climate change. Use strategic environmental assessment where appropriate.
3. Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts and document the rationale for selecting the particular alternative proposed. Also consider the no project alternative.
4. Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare an environmental management plan (EMP) that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Key considerations for EMP preparation include mitigation of potential adverse impacts to the level of no significant harm to third parties, and the polluter pays principle.
5. Carry out meaningful consultation with affected people and facilitate their informed participation. Ensure women's participation in consultation. Involve stakeholders, including affected people and concerned nongovernment organizations, early in the project preparation process and ensure that their views and concerns are made known to and understood by decision makers and considered. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental assessment. Establish a grievance redress mechanism to receive and facilitate resolution of the affected people's concerns and grievances regarding the project's environmental performance.
6. Disclose a draft environmental assessment (including the EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates if any, to affected people and other stakeholders.
7. Implement the EMP and monitor its effectiveness. Document monitoring results, including the development and implementation of corrective actions, and disclose monitoring reports.
8. Do not implement project activities in areas of critical habitats, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function; (ii) there is no reduction in the population of any recognized endangered or critically endangered species; and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available; (ii) the overall benefits from the project substantially outweigh the environmental costs; and (iii) any conversion or degradation is appropriately mitigated. Use a

precautionary approach to the use, development, and management of renewable natural resources.

9. Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gases emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials subject to international bans or phaseouts. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.

10. Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities.

11. Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ qualified and experienced experts during environmental assessment. Provide for the use of "chance find" procedures that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.

Appendix 2: ADB Prohibited Investment Activities List

The following do not qualify for Asian Development Bank financing:

- (i) production or activities involving harmful or exploitative forms of forced labor¹ or child labor;²
- (ii) production of or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements or subject to international phaseouts or bans, such as (a) pharmaceuticals,³ pesticides, and herbicides,⁴ (b) ozone-depleting substances,⁵ (c) polychlorinated biphenyls⁶ and other hazardous chemicals,⁷ (d) wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora,⁸ and (e) transboundary trade in waste or waste products;⁹
- (iii) production of or trade in weapons and munitions, including paramilitary materials;
- (iv) production of or trade in alcoholic beverages, excluding beer and wine;¹⁰
- (v) production of or trade in tobacco;¹⁰
- (vi) gambling, casinos, and equivalent enterprises;¹⁰
- (vii) production of or trade in radioactive materials,¹¹ including nuclear reactors and components thereof;
- (viii) production of, trade in, or use of unbonded asbestos fibers;¹²
- (ix) commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests; and
- (x) marine and coastal fishing practices, such as large-scale pelagic drift net fishing and fine mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats.

¹ Forced labor means all work or services not voluntarily performed, that is, extracted from individuals under threat of force or penalty.

² Child labor means the employment of children whose age is below the host country's statutory minimum age of employment or employment of children in contravention of International Labor Organization Convention No. 138 "Minimum Age Convention" (www.ilo.org).

³ A list of pharmaceutical products subject to phaseouts or bans is available at <http://www.who.int>.

⁴ A list of pesticides and herbicides subject to phaseouts or bans is available at <http://www.pic.int>.

⁵ A list of the chemical compounds that react with and deplete stratospheric ozone resulting in the widely publicized ozone holes is listed in the Montreal Protocol, together with target reduction and phaseout dates. Information is available at <http://www.unep.org/ozone/montreal.shtml>.

⁶ A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitors, and switchgear dating from 1950 to 1985.

⁷ A list of hazardous chemicals is available at <http://www.pic.int>.

⁸ A list is available at <http://www.cites.org>.

⁹ As defined by the Basel Convention; see <http://www.basel.int>.

¹⁰ This does not apply to project sponsors who are not substantially involved in these activities. Not substantially involved means that the activity concerned is ancillary to a project sponsor's primary operations.

¹¹ This does not apply to the purchase of medical equipment, quality control (measurement) equipment, and any equipment for which ADB considers the radioactive source to be trivial and adequately shielded.

¹² This does not apply to the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.

Appendix 3: Rapid Environmental Assessment (REA) Checklist (Water Supply and Sanitation)

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (SDES) for endorsement by the Director, SDES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and on tribes, minor races, ethnic sects and communities;¹ (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

Screening Questions	Yes	No	Remarks
A. PROJECT SITING IS THE PROJECT AREA...			
▪ DENSELY POPULATED?			
▪ HEAVY WITH DEVELOPMENT ACTIVITIES?			
▪ ADJACENT TO OR WITHIN ANY ENVIRONMENTALLY SENSITIVE AREAS?			
• CULTURAL HERITAGE SITE			
• PROTECTED AREA			
• WETLAND			
• MANGROVE			
• ESTUARINE			
• BUFFER ZONE OF PROTECTED AREA			

¹ Groups or population identified as Indigenous Peoples within the context of ADB's Safeguard Policy Statement will be referred to in this document as *tribes, minor races, ethnic sects and communities* (following the request of the Government of Bangladesh).

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> SPECIAL AREA FOR PROTECTING BIODIVERSITY 			
<ul style="list-style-type: none"> BAY 			
<p>B. POTENTIAL ENVIRONMENTAL IMPACTS</p> <p>Will the project cause...</p>			
<ul style="list-style-type: none"> pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff? 			
<ul style="list-style-type: none"> impairment of historical/cultural monuments/areas and loss/damage to these sites? 			
<ul style="list-style-type: none"> hazard of land subsidence caused by excessive ground water pumping? 			
<ul style="list-style-type: none"> social conflicts arising from displacement of communities? 			
<ul style="list-style-type: none"> conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters? 			
<ul style="list-style-type: none"> unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)? 			
<ul style="list-style-type: none"> delivery of unsafe water to distribution system? 			
<ul style="list-style-type: none"> inadequate protection of intake works or wells, leading to pollution of water supply? 			
<ul style="list-style-type: none"> over pumping of ground water, leading to salinization and ground subsidence? 			
<ul style="list-style-type: none"> excessive algal growth in storage reservoir? 			
<ul style="list-style-type: none"> increase in production of sewage beyond capabilities of community facilities? 			
<ul style="list-style-type: none"> inadequate disposal of sludge from water treatment plants? 			
<ul style="list-style-type: none"> inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities? 			
<ul style="list-style-type: none"> impairments associated with transmission lines and access roads? 			
<ul style="list-style-type: none"> health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals. 			
<ul style="list-style-type: none"> health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards during project construction and operation? 			
<ul style="list-style-type: none"> dislocation or involuntary resettlement of people? 			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ disproportionate impacts on the poor, women and children, tribes, minor races, ethnic sects and communities or other vulnerable groups? 			
<ul style="list-style-type: none"> ▪ noise and dust from construction activities? 			
<ul style="list-style-type: none"> ▪ increased road traffic due to interference of construction activities? 			
<ul style="list-style-type: none"> ▪ continuing soil erosion/silt runoff from construction operations? 			
<ul style="list-style-type: none"> ▪ delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems? 			
<ul style="list-style-type: none"> ▪ delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals? 			
<ul style="list-style-type: none"> ▪ accidental leakage of chlorine gas? 			
<ul style="list-style-type: none"> ▪ excessive abstraction of water affecting downstream water users? 			
<ul style="list-style-type: none"> ▪ competing uses of water? 			
<ul style="list-style-type: none"> ▪ increased sewage flow due to increased water supply 			
<ul style="list-style-type: none"> ▪ increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant 			
<ul style="list-style-type: none"> ▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)? 			
<ul style="list-style-type: none"> ▪ social conflicts if workers from other regions or countries are hired? 			
<ul style="list-style-type: none"> ▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction? 			
<ul style="list-style-type: none"> ▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning? 			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector:

Subsector:

Division/Department:

Screening Questions		Score	Remarks ²
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): _____

Other Comments: _____

Prepared by: _____

² If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Appendix 4: Rapid Environmental Assessment (REA) Checklist (Buildings)

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (SDES) for endorsement by Director, SDES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and tribes, minor races, ethnic sects and communities;¹ (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

Screening Questions	Yes	No	Remarks
A. PROJECT SITING IS THE PROJECT AREA ADJACENT TO OR WITHIN ANY OF THE FOLLOWING AREAS:			
▪ UNDERGROUND UTILITIES			
▪ CULTURAL HERITAGE SITE			
▪ PROTECTED AREA			
▪ WETLAND			
▪ MANGROVE			
▪ ESTUARINE			
▪ BUFFER ZONE OF PROTECTED AREA			
▪ SPECIAL AREA FOR PROTECTING BIODIVERSITY			
▪ BAY			
B. POTENTIAL ENVIRONMENTAL IMPACTS WILL THE PROJECT CAUSE...			

¹ Groups or population identified as Indigenous Peoples within the context of ADB's Safeguard Policy Statement will be referred to in this document as *tribes, minor races, ethnic sects and communities* (following the request of the Government of Bangladesh).

Screening Questions	Yes	No	Remarks
▪ Encroachment on historical/cultural areas?			
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?			
▪ Impacts on the sustainability of associated sanitation and solid waste disposal systems?			
▪ Dislocation or involuntary resettlement of people?			
▪ Disproportionate impacts on the poor, women and children, tribes, minor races, ethnic sects and communities, or other vulnerable groups?			
▪ Accident risks associated with increased vehicular traffic, leading to loss of life?			
▪ Increased noise and air pollution resulting from increased traffic volume?			
▪ Occupational and community health and safety risks?			
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?			
▪ Generation of dust in sensitive areas during construction?			
▪ Requirements for disposal of fill, excavation, and/or spoil materials?			
▪ Noise and vibration due to blasting and other civil works?			
▪ Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction?			
▪ Long-term impacts on local hydrology as a result of building hard surfaces in or near the building?			
▪ Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
▪ Social conflicts if workers from other regions or countries are hired?			
▪ Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?			
▪ Risks to community health and safety caused by management and disposal of waste?			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none">Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks ²
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): _____

Other Comments: _____

Prepared by: _____

² If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Appendix 5: Rapid Environmental Assessment (REA) Checklist (Energy Infrastructure)

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (SDES) for endorsement by Director, SDES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and tribes, minor races, ethnic sects and communities;¹ (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

Screening Questions	Yes	No	Remarks
A. PROJECT SITING IS THE PROJECT AREA ADJACENT TO OR WITHIN ANY OF THE FOLLOWING ENVIRONMENTALLY SENSITIVE AREAS?			
▪ CULTURAL HERITAGE SITE			
▪ PROTECTED AREA			
▪ WETLAND			
▪ MANGROVE			
▪ ESTUARINE			
▪ BUFFER ZONE OF PROTECTED AREA			
▪ SPECIAL AREA FOR PROTECTING BIODIVERSITY			
B. POTENTIAL ENVIRONMENTAL IMPACTS WILL THE PROJECT CAUSE...			
▪ encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?			
▪ encroachment on precious ecosystem (e.g. sensitive or protected areas)?			

¹ Groups or population identified as Indigenous Peoples within the context of ADB's Safeguard Policy Statement will be referred to in this document as *tribes, minor races, ethnic sects and communities* (following the request of the Government of Bangladesh).

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site? 			
<ul style="list-style-type: none"> ▪ damage to sensitive coastal/marine habitats by construction of submarine cables? 			
<ul style="list-style-type: none"> ▪ deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction? 			
<ul style="list-style-type: none"> ▪ increased local air pollution due to rock crushing, cutting and filling? 			
<ul style="list-style-type: none"> ▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation? 			
<ul style="list-style-type: none"> ▪ chemical pollution resulting from chemical clearing of vegetation for construction site? 			
<ul style="list-style-type: none"> ▪ noise and vibration due to blasting and other civil works? 			
<ul style="list-style-type: none"> ▪ dislocation or involuntary resettlement of people? 			
<ul style="list-style-type: none"> ▪ disproportionate impacts on the poor, women and children, tribes, minor races, ethnic sects and communities or other vulnerable groups? 			
<ul style="list-style-type: none"> ▪ social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads? 			
<ul style="list-style-type: none"> ▪ hazardous driving conditions where construction interferes with pre-existing roads? 			
<ul style="list-style-type: none"> ▪ creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents? 			
<ul style="list-style-type: none"> ▪ dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines? 			
<ul style="list-style-type: none"> ▪ environmental disturbances associated with the maintenance of lines (e.g. routine control of vegetative height under the lines)? 			
<ul style="list-style-type: none"> ▪ facilitation of access to protected areas in case corridors traverse protected areas? 			
<ul style="list-style-type: none"> ▪ disturbances (e.g. noise and chemical pollutants) if herbicides are used to control vegetative height? 			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)? 			
<ul style="list-style-type: none"> ▪ social conflicts if workers from other regions or countries are hired? 			
<ul style="list-style-type: none"> ▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations? 			
<ul style="list-style-type: none"> ▪ risks to community safety associated with maintenance of lines and related facilities? 			
<ul style="list-style-type: none"> ▪ community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization? 			
<ul style="list-style-type: none"> ▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation? 			
<ul style="list-style-type: none"> ▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning? 			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks ²
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): _____

Other Comments: _____

Prepared by: _____

² If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Appendix 6: Rapid Environmental Assessment (REA) Checklist (Access Roads)

Instructions:

- (i) The PIU completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to ADB.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and tribes, minor races, ethnic sects and communities;¹ (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Subproject Title:

IA:

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site			
▪ Protected Area			
▪ Wetland			
▪ Mangrove			
▪ Estuarine			
▪ Buffer zone of protected area			
▪ Special area for protecting biodiversity			
B. Potential Environmental Impacts Will the project cause...			
▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?			

¹ Groups or population identified as Indigenous Peoples within the context of ADB's Safeguard Policy Statement will be referred to in this document as *tribes, minor races, ethnic sects and communities* (following the request of the Government of Bangladesh).

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ encroachment on precious ecology (e.g. sensitive or protected areas)? 			
<ul style="list-style-type: none"> ▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site? 			
<ul style="list-style-type: none"> ▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction? 			
<ul style="list-style-type: none"> ▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing? 			
<ul style="list-style-type: none"> ▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation during project construction and operation? 			
<ul style="list-style-type: none"> ▪ noise and vibration due to blasting and other civil works? 			
<ul style="list-style-type: none"> ▪ dislocation or involuntary resettlement of people? 			
<ul style="list-style-type: none"> ▪ dislocation and compulsory resettlement of people living in right-of-way? 			
<ul style="list-style-type: none"> ▪ disproportionate impacts on the poor, women and children, tribes, minor races, ethnic sects and communities or other vulnerable groups? 			
<ul style="list-style-type: none"> ▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress? 			
<ul style="list-style-type: none"> ▪ hazardous driving conditions where construction interferes with pre-existing roads? 			
<ul style="list-style-type: none"> ▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations? 			
<ul style="list-style-type: none"> ▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents? 			
<ul style="list-style-type: none"> ▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials? 			
<ul style="list-style-type: none"> ▪ increased noise and air pollution resulting from traffic volume? 			
<ul style="list-style-type: none"> ▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road? 			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ social conflicts if workers from other regions or countries are hired? 			
<ul style="list-style-type: none"> ▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)? 			
<ul style="list-style-type: none"> ▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation? 			
<ul style="list-style-type: none"> ▪ community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning. 			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector:

Subsector:

Division/Department:

Screening Questions		Score	Remarks ²
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): _____

Other Comments: _____

Prepared by: _____

² If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Appendix 7: Outline of an Environmental Assessment Report

1. This outline is part of the Safeguard Requirements 1. The substantive aspects of this outline will guide the preparation of an environmental assessment,¹ although not necessarily in the order shown.

A. Executive Summary

2. This section describes concisely the critical facts, significant findings, and recommended actions.

B. Policy, Legal, and Administrative Framework

3. This section discusses the national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the Project

4. This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data)

5. This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

E. Anticipated Environmental Impacts and Mitigation Measures

6. This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media [Appendix 1, para. 6]), and physical cultural resources in the project's area of influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, transboundary, and cumulative impacts as appropriate.

¹ An environmental assessment report is required for all environment category A and B projects. Its level of detail and comprehensiveness is commensurate with the significance of potential environmental impacts and risks. A typical environment impact assessment (EIA) report contains the following major elements, and an initial environment examination (IEE) may have a narrower scope depending on the nature of the project.

F. Analysis of Alternatives

7. This section examines alternatives to the proposed project site, technology, design, and operation—including the no project alternative—in terms of their potential environmental suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed and, justifies recommended emission levels and approaches to pollution prevention and abatement.

G. Information Disclosure, Consultation, and Participation

8. This section:

- (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders;
- (ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and tribes, minor races, ethnic sects and communities; and
- (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

H. Grievance Redress Mechanism

9. This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

I. Environmental Management Plan

10. This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

- (i) Mitigation:
 - (a) identifies and summarizes anticipated significant adverse environmental impacts and risks;
 - (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and
 - (c) provides links to any other mitigation plans (for example, for involuntary resettlement, tribes, minor races, ethnic sects and communities, or emergency response) required for the project.

- (ii) Monitoring:
 - (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and
 - (b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.
- (iii) Implementation arrangements:
 - (a) specifies the implementation schedule showing phasing and coordination with overall project implementation;
 - (b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and
 - (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.
- (iv) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

J. Conclusion and Recommendation

11. This section provides the conclusions drawn from the assessment and provides recommendations

Appendix 8: Sample EMP Table for Small-Scale Construction

1. A sample EMP table is provided that should be adjusted based on specific subproject context and should be treated as environmental specifications for construction.
2. Small-scale construction activities may cause impacts and nuisance to nearby surroundings, and these need to be avoided or mitigated through application of good engineering practices and strict environmental safeguards measures including use of environment-friendly construction materials and equipment, waste management techniques especially for construction dust and debris, noise control, site management, safety controls, and provision of clean water and sanitation facilities.
3. This sample EMP table covers potential adverse environmental impacts and corresponding mitigation measures. It is expected that all Contractors working on small-scale construction works under Component 1 and 3 will adhere to this as part of the bidding specifications and the Contractor's Work Plan. This EMP should include the environmental safeguards issues that may occur during construction and solutions or what the Contractor must do to solve these problems.

Table 1: Sample Format for Environmental Management Plan for Small Civil Works

Phase	Impact/Issue	Measure
Site Screening	<u>Adequate space and access</u> —possible interruption within vicinity.	The selection should avoid sensitive environment and land issues which may be caused by construction and/or renovation.
Design	<u>Drawing and planning</u> the construction of buildings by adapting to adjoining physical landscape and minimizing possible environmental issues.	Minimization measures for adverse environmental impacts should be introduced in the construction design.
	<u>Barrier-free</u> will be integrated in the design to the extent possible.	Care will be taken in the design to provide free access to handicapped persons in all public areas of the building.
	<u>Safe disposal of sewer water</u> from toilets	To the extent possible sewer will be treated in appropriate septic tank for anaerobic treatment with retention of at least 48 hours and be disposed of in town sewer if existing. Where town sewer is not available, an aerobic treatment will be provided in the form of a soak away pit. The pit will be located at least 40 meters away from any water wells.
Construction	<u>Dust</u> : Dust, debris, and particulate materials from construction will blow to surrounding structures and cause nuisance to surrounding families and businesses, especially vulnerable persons (children, elders, etc.).	The contractor will spray water to reduce dust when the weather is dry and periodically clean stagnant debris.
	<u>Noise</u> : Noise from construction machinery and equipment will disturb others especially in areas with hospitals, homes for the elderly, and schools.	The contractor will use environment-friendly construction materials and equipment and limit construction hours to minimize possible disturbance to local livelihood. The contractors will fence off construction site to reduce any possible annoyance to surrounding communities.
	<u>Construction wastes</u> : waste materials and hazardous materials should be adequately and safely disposed.	The contractor will reduce waste generation whenever feasible. The contractor should separate hazardous wastes from other wastes and handle them according to established environmental guidelines. The contractor should

Phase	Impact/Issue	Measure
		separate recyclable wastes from non-recyclable ones. All wastes should be properly handled. Any illegal waste dumping or burning will be prohibited.
	<u>Disturbance</u> : Nearby offices and residents will be disturbed by prolonged construction.	The contractor will perform construction activities within appropriate timeframes which does not disturb work of offices or nearby residents.
	<u>Sanitation</u> : Sanitation for the workers at the construction site is inadequate leading to unclean working environment.	The contractor will provide sanitation facilities for workers.
	<u>Contamination</u> : Contamination of water supply or source within the vicinity of the site is caused by the construction activities.	The contractor will implement necessary measures to prevent possible contamination to water supply or source in the surrounding area.
	<u>Pedestrian security and traffic congestion</u> : Construction site may cause safety concern for pedestrians, especially for school children, during construction. Similarly, traffic congestion during construction may be caused due to the increase of heavy traffic (of the construction itself and from traffic detours) in high traffic avenues and exit ramps.	The contractor will fence of the site for general safety measures; traffic re-routing (if required) should be appropriately managed and planned for.
	<u>Interruption of services</u> : Water, electricity, telephone, transport routes may be interrupted during construction.	The contractor will implement necessary measures to prevent any interruption to access to public services.
	<u>Informing the public</u> : People would need to know about construction and work schedules, interruption of services, or traffic.	The contractor will put signboard summarizing the construction activities and schedule for completion of tasks.
Post-Construction	<u>Site Clearing</u> : Cleaning the site after construction and disposing wastes properly so that they are not dangerous to the environment.	The contractor will clean the site carefully and remove all waste materials as spelled out during construction bidding.
Others	<u>Other identified environmental safeguard issues.</u>	

4. All measures should be included in bidding document for inclusion in the contractor's workplan as part of the specifications for construction that will be followed to address any potential environmental safeguard concerns.

Appendix 9: Environmental Code of Practice

1. The Environmental Code of Practice (ECoP) will provide guidelines for environmental management of subprojects under the Emergency Assistance Project in Bangladesh. The ECoP provides operating practices and environmental management measures to be followed by the contractor for sustainable management of all project related environmental issues and potential impacts. It promotes awareness and use of best practices in environmental management. The recommended ECoP developed for the project are:

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
ECoP 1: Waste Management		
General Waste	Soil, water and air pollution from the improper management of wastes and excess materials from the construction sites.	<p>The Contractor should:</p> <p>Ensure proper collection and disposal of solid wastes within the construction camps.</p> <p>Insist waste separation by source means organic wastes in one bin/pot and inorganic wastes in another bin and pot at household level.</p> <p>Store inorganic wastes in one chamber and inorganic waste in other chamber of the covered three chambered small concrete pit in the suitable location of the construction camp. When fill the chamber, inorganic wastes can be sold to the vender and organic wastes can be covered with earth for converting fertilizer. The local farmers can use fertilizer for their agricultural lands free of cost.</p> <p>Do not burn and throw in to the waterbodies any general wastes.</p>
Construction Wastes	Construction waste and environmental impacts due to improper waste management practices.	<p>The Contractor shall:</p> <p>Collect construction wastes (such as piece of rod, wood, bamboo, tin sheet, brick etc.) separately from the sources and store in a designated area in the construction camp for re use and avoiding potential environmental pollution.</p> <p>Collect and store all hazardous wastes appropriately in container/bunded area and make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. Do not dispose hazardous liquid waste on soils.</p> <p>Do not burn and throw in to the waterbodies any construction wastes.</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
ECoP 2: Surface/Ground/Drinking Water Management		
Drinking/Ground Water	<p>Ground/Drinking water at shallow depths is contaminated with arsenic and other parameters and hence not suitable for drinking purposes.</p> <p>Pollution of ground/drinking water resources.</p>	<p>The Contractor shall:</p> <p>Select aquifers for drinking water free from arsenic and other contaminants.</p> <p>Tube wells will be installed with due regard for the surface environment, protection of groundwater from surface contaminants, and protection of aquifer cross contamination.</p> <p>According to BNBC, toilets should be min. 10m distance from the tube wells.</p>
Discharge from construction sites	<p>During construction both surface and ground water quality may be deteriorated due to construction activities, disposal of wastes into the nearby waterbodies (if any), connection of toilets with the water bodies and accidental spillage of liquid waste.</p>	<p>The Contractor shall:</p> <p>Install temporary drainage works (drains) in areas required for around storage areas for construction materials.</p> <p>Divert runoff from undisturbed areas around the construction site.</p> <p>Stockpile materials away from drainage lines.</p> <p>Prevent disposal of all solid and liquid wastes into the nearby waterbodies and on the areas other than designated waste dumping sites.</p>
ECoP 3: Drainage Management		
Excavation and earth works, and construction yards	<p>Lack of proper drainage for rainwater/liquid waste or wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.</p>	<p>The Contractor shall:</p> <p>Prepare a program for prevent/avoid standing waters, which LGED/DPHE will verify in advance and confirm during implementation.</p> <p>Rehabilitate internal road side drains immediately if damaged by any construction activities.</p> <p>Construct wide drains instead of deep drains to avoid earth deposition in the drains that require frequent cleaning.</p> <p>Protect natural slopes of drainage channels to ensure adequate storm water drains.</p> <p>Regularly inspect and maintain all drains to assess and alleviate any drainage congestion problem.</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Ponding of water	Health hazards due to mosquito breeding.	<p>Do not allow ponding of water especially in the drains and in the construction camps.</p> <p>Discard all the storage containers that are capable of storing of water, after use or store them in inverted position.</p>
ECoP 4: Topsoil Management		
Land clearing and earth works	Loss of topsoil from excavation activities.	<p>The Contractor shall:</p> <p>Strip the top soil to a depth of min 0.50m and stock piles of height not exceeding 2m.</p> <p>Remove unwanted materials from top soil like grass, roots of trees and similar others.</p> <p>Locate topsoil stockpiles in areas outside drainage lines and protect from erosion.</p> <p>Construct silt fences around the topsoil stockpiles to prevent loss of topsoil.</p> <p>Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the proposed plantation sites.</p> <p>Prior to the re-spreading of topsoil over the subproject filling areas, the ground surface will be ripped to assist the bonding of the soil layers, water penetration and re-vegetation.</p>
ECoP 5: Dust/Air Quality Management		
Construction vehicles	Air quality can be affected by dust, generated due to movement of vehicles and combustion of fuels.	<p>The Contractor shall:</p> <p>Fit vehicles with appropriate exhaust systems and emission control devices.</p> <p>Operate the vehicles in a fuel-efficient manner.</p> <p>Cover haul vehicles carrying dusty materials moving outside the construction site.</p> <p>Impose speed limits on all vehicle movement at the worksite to reduce dust emissions.</p> <p>Control the movement of construction traffic.</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>Service all vehicles regularly to minimize emissions.</p> <p>Watering filling sandy earth surface and cover asap by top soils.</p>
Construction equipment	Air quality can be affected by emissions from equipment and combustion of fuels.	<p>The Contractor shall:</p> <p>Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the equipment suppliers and contractors/subcontractors.</p> <p>Machinery causing excess pollution (e.g. visible smoke) will be banned immediately from construction sites.</p> <p>Service all equipment regularly to minimize emissions.</p>
Construction activities	Dust generation from construction sites, material stockpiles specially dredged material stockpiles and access roads is a nuisance in the environment and can be a health hazard.	<p>Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g. dry period and high winds). Stored materials such as sand shall be covered by vegetation/grass-turfing.</p> <p>Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations.</p>
ECoP 6: Noise Management		
Construction vehicles	Noise quality will be deteriorated due to vehicular traffic.	<p>The Contractor shall:</p> <p>Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures.</p> <p>Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, use of cell phone during driving etc.</p> <p>Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site.</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction equipment	Noise may have an impact on workers, local residents, wildlife, livestock etc.	<p>The Contractor shall:</p> <p>Appropriately site all noise generating activities to avoid noise pollution to local residents.</p> <p>Use the quietest available plant and equipment.</p> <p>Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment.</p> <p>Install temporary noise barriers by screen, tin, wood around generators to reduce noise levels.</p> <p>Avoid the unnecessary use of alarms, horns and sirens.</p> <p>Use ear plugs in noisy areas of the construction activities.</p>
Construction activities	Noise and vibration may have an impact on workers, local residents, wildlife, and livestock.	<p>The Contractor shall:</p> <p>Train the operators of construction equipment on potential noise problems.</p> <p>Employ best available work practices on-site to minimize occupational noise levels.</p> <p>Install temporary noise control barriers by tin sheets, screen etc. where appropriate.</p> <p>Avoid undertaking the noisiest activities, where possible, when working at night near the residential areas.</p>
ECoP 7: Topography		
Earthworks	Change in topography and local landscape and disturbance to the natural rainwater/flood water drainage.	<p>The Contractor shall:</p> <p>Ensure the topography of the final surface of the all raised subproject land areas are conducive to enhance natural draining of rainwater/flood water.</p> <p>Keep the finished surface of all the raised lands free from any kind of depression that insists water logging.</p> <p>Undertake mitigation measures for prevention by grass-turfing and tree</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>plantation, where there is a possibility of rain-cut that will change the shape of topography.</p> <p>Cover immediately the uncovered open surface that has no use of construction activities with grass—cover and tree plantation to prevent soil erosion and bring improved landscaping.</p>
ECoP 8: Protection of Flora		
Vegetation clearance	Increase in deforestation caused by land clearing for the construction of new subprojects.	<p>The Contractor shall:</p> <p>Reduce disturbance to vegetation.</p> <p>Use appropriate and minimum size of machine to avoid disturbance to adjacent vegetation's.</p> <p>Clear only the vegetation that needs to be cleared in accordance with the plans. These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles, disposal of fill etc.</p> <p>Do not burn off cleared vegetation — where feasible, chip or mulch and reuse it for the rehabilitation of affected areas, temporary access tracks or landscaping.</p> <p>Return topsoil and mulched vegetation (in areas of native vegetation) to approximately the same area of the roadside it came from.</p> <p>Ensure excavation works occur progressively and re—vegetation done at the earliest.</p> <p>Provide adequate knowledge to the workers regarding nature protection and the need of avoid felling trees during construction.</p>
ECoP 9: Construction Camp Management		
Siting and Location of construction camps	Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.	<p>The Contractor shall:</p> <p>Locate the construction camp at areas which are acceptable from environmental, cultural or social point of view.</p> <p>Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>adverse impacts of the construction camps on the surrounding communities.</p> <p>Local authorities responsible for health, religious and security shall be duly informed on the set up of camp facilities so as to maintain effective surveillance over public health, social and security matters.</p>
Construction Camp Facilities	Lack of proper infrastructure facilities such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	<p>Contractor shall provide the following facilities in the camp sites.</p> <p>Adequate accommodation for all workers.</p> <p>Safe and reliable water supply. Water supply from tube wells that meets the national standards.</p> <p>Hygienic sanitary facilities for all labors. According to BNBC, the minimum number of toilet facilities required is one toilet for every ten persons.</p>
Disposal of wastes	Management of wastes is crucial to minimize impacts on the environment.	<p>The Contractor should:</p> <p>Ensure proper collection and disposal of solid wastes within the construction camps</p> <p>Insist waste separation by source; organic wastes in one bin/pot and inorganic wastes in another bin/pot at household level.</p> <p>Store inorganic wastes in one chamber and inorganic waste in other chamber of the covered three chambered small concrete pit in the suitable location of the construction camp. When fill the chamber inorganic wastes can be sold to the vender and organic wastes can be covered with earth for converting fertilizer. The local can use fertilizer for their agricultural lands free of cost.</p>
Health and safety	There will be a potential for diseases to be transmitted including measles, diphtheria, exacerbated by inadequate health and safety practices.	<p>The Contractor shall:</p> <p>Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint designated first aider or nurse.</p> <p>Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies. Regular mosquito repellent sprays during monsoon.</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers.
ECoP 10: Sensitive/Cultural Issues		
Construction activities near sensitive/cultural sites (such as mosque, mandir, pagoda, madrasha, permanent water body, eidgah, garden etc.)	Disturbance from construction works to the sensitive/cultural sites, and contractors lack of knowledge on cultural issues cause social disturbances.	<p>The Contractor shall:</p> <p>Communicate to the public through community consultation and announcement regarding the scope and schedule of construction, as well as certain construction activities causing disruptions.</p> <p>Do not block access to sensitive/cultural sites, wherever possible.</p> <p>Stop construction works that produce noise (particularly during prayer time) should there be any mosque/religious institute close to the construction sites and users make objections.</p> <p>Take special care when working next to a sensitive/cultural institution.</p> <p>Show appropriate behavior with all construction workers especially women and elderly people.</p> <p>Resolve cultural issues in consultation with local leaders and DPE/LGED/DPHE.</p> <p>Establish a mechanism that allows local people to raise grievances arising from the construction process.</p>
ECoP 11: Occupational Health and Safety		
Best practices	Construction works may pose health and safety risks to the construction workers to severe injuries and deaths. The population in the proximity of the construction site and the construction workers will be exposed to several (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, vector transmitted diseases etc.), (ii) risk factors resulting from human behaviour and (iii) road accidents from construction traffic.	<p>The Contractor shall:</p> <p>Implement suitable safety standards for all workers and site visitors which should not be less than those laid down on the international standards (e.g. International Labour Office guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guideline's) and contractor's own national standards or statutory regulations, in addition to complying with the national standards of the GOB (e.g. 'The Bangladesh Labor Code, 2006').</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>Provide the workers with a safe and healthy work environment, considering inherent risks in its particular construction activity and specific classes of hazards in the work areas.</p> <p>Provide personal protection equipment (PPE) for workers, such as safety shoes, safety helmets, face masks, hand gloves, protective clothing, goggles, full—face eye shields, and ear plugs. Maintain the PPE properly by cleaning dirty ones and replacing them with the damaged ones.</p> <p>Safety procedures include provision of information, training on use of hazardous materials etc.</p> <p>Appoint a health and safety manager from LGED/DPHE to look after the health and safety of the workers.</p> <p>Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works and establishment of construction camps to maintain effective surveillance over public health, social and security matters.</p>
	Child and pregnant women	<p>The Contractor shall:</p> <p>Not hire children of less than 14 years old and pregnant women in accordance with the Bangladesh Labour Code, 2006.</p>
Accidents	Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of the victims.	<p>Provide health care facilities and first aid facilities are readily available.</p> <p>Document and report occupational accidents, diseases, and incidents.</p> <p>Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, so far as reasonably practicable, the causes of hazards.</p> <p>Provide awareness to the construction drivers to strictly follow the driving rules.</p> <p>Provide adequate lighting in the construction areas.</p>

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction Camps	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	<p>The Contractor shall provide the following facilities in the campsites to improve health and hygienic conditions as mentioned in ECoP-9: Construction Camp Management.</p> <p>Adequate ventilation facilities.</p> <p>Safe and reliable water supply. Water supply from tube wells that meets the national standards.</p> <p>Hygienic sanitary facilities and sewerage system.</p> <p>Storm water drainage facilities.</p> <p>Safe storage facilities for chemicals.</p> <p>Solid waste collection and disposal system in accordance with ECOP1.</p> <p>Arrangement for trainings.</p> <p>Security fence at least 2 m height.</p> <p>Sick bay and first aid facilities.</p>
Water and sanitation facilities at the construction sites	Lack of water sanitation facilities at construction sites cause inconvenience to the construction workers and affect their personal hygiene.	The contractor will follow ECOP-2 and 9.
Trainings	Lack of awareness and basic knowledge in health care among the construction workforce, make them susceptible to potential diseases.	<p>The Contractor shall:</p> <p>Train all construction workers in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of sexually transmitted infections (STI)).</p> <p>Train all construction workers in general health and safety matters, and on the specific hazards of their work. Training should consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate.</p>

Appendix 10: Environmental and Social Monitoring Report Outline

The level of detail and comprehensiveness of a monitoring report is commensurate with the complexity and significance of social and environmental impacts. A safeguard monitoring report may include the following elements:

- (a) Background/context of the monitoring report (adequate information on the project, including physical progress of project activities, scope of monitoring report, reporting period, and the monitoring requirements including frequency of submission as agreed upon);
- (b) Changes in project scope and adjusted safeguard measures, if applicable;
- (c) Qualitative and quantitative monitoring data;
- (d) Monitoring parameters/indicators and methods based on the monitoring plan/program previously agreed upon with ADB;
- (e) Monitoring results compared against previously established benchmarks and compliance status (e.g., national environmental emission and ambient standards and/or standards set out in the World Bank Group's Environmental, Health and Safety Guidelines; timeliness and adequacy of environmental mitigation measures; involuntary resettlement compensation rates and timeliness of payments, adequacy and timeliness of involuntary resettlement rehabilitation measures including serviced housing sites, house reconstruction, livelihood support measures, and training; budget for implementing environment management plan (EMP), resettlement plan, timeliness and adequacy of capacity building, etc.);
- (f) Monitoring results compared against the objectives of safeguards or desired outcomes documented (e.g. involuntary resettlement impacts avoided or minimized; livelihood restored or enhanced; environmental impacts avoided or minimized, etc.);
- (g) If noncompliance or any major gaps identified, include a corrective action plan;
- (h) Records on disclosure of monitoring information to affected communities;
- (i) Identification of key issues, or complaints from affected people, or recommendations for improvement;
- (j) Monitoring adjustment measures recommended based on monitoring experience/trends and stakeholders response;
- (k) Information about actual institutional arrangement for implementing the monitoring program/plan provided or adjusted, as may be required; and
- (l) Proposed items of focus for the next report and due date.