

# Environmental Assessment and Review Framework

October 2013

## BAN: Coastal Towns Infrastructure Improvement Project

Prepared by Local Government Engineering Department, Government of Bangladesh, for the Asian Development Bank.

## CURRENCY EQUIVALENTS

(as of 10 October 2013)

Currency unit	–	Taka (Tk)
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\$1.00	=	Tk 77.69

## ABBREVIATIONS

ADB	–	Asian Development Bank
AP	–	affected person
DoE	–	Department of Environment
DPHE	–	Department of Public Health Engineering
EARF	–	environmental assessment and review framework
ECA	–	Environmental Conservation Act
ECC	–	environmental clearance certificate
ECR	–	Environmental Conservation Rules
EIA	–	environmental impact assessment
EMP	–	environmental management plan
ETP	–	effluent treatment plant
GRC	–	grievance redressal committee
GRM	–	grievance redress Mechanism
IEE	–	initial environmental examination
LCC	–	location clearance certificate
LGED	–	Local Government Engineering Department
MLGRDC	–	Ministry of Local Government, Rural Development, and Cooperatives
O&M	–	operations and maintenance
PMU	–	project management unit
PPTA	–	project preparatory technical assistance
REA	–	rapid environmental assessment
RP	–	resettlement plan
SPS	–	Safeguard Policy Statement
ToR	–	terms of reference

## NOTE

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

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## I. INTRODUCTION

### A. Overview

1. The Coastal Towns Infrastructure Improvement Project is a key infrastructure initiative of the Government of Bangladesh. The project consists of four components (i) improved climate-resilient municipal infrastructure, (ii) strengthened governance and institutional capacity, (iii) enhanced public awareness, behavior change, and community-based climate adaptation, and (iv) project management support. The impact of the project will be improved climate change resilience and natural disaster preparedness in coastal towns. The outcome of the project will be improved access to climate-disaster resilient municipal services, including (i) municipal infrastructure such as drainage, cyclone shelters, urban roads, bridges, culverts, solid waste management, bus terminals, slum improvements, boat landings, and markets, (ii) water supply, and (iii) sanitation. The project is to be implemented in 6 years from 2014 to 2020.

2. The project is a project lending modality using a sector approach for selection of subprojects, and in accordance with ADB's Safeguard Policy Statement (SPS, 2009), requires the preparation of an environmental assessment and review framework (EARF).

### B. Purpose of EARF

3. The environmental assessment and review framework (EARF) aims to provide guidance on safeguard screening, assessment, institutional arrangements, and processes to be followed for components of the project, where design takes place after Board approval. The subproject selection will be in accordance with the environmental project selection criteria as outlined in this EARF. The borrower will agree with ADB on screening and categorization, environmental assessment, preparation and implementation, monitoring, and updating existing safeguard plans for the subprojects to facilitate compliance with the requirements specified in ADB Safeguard Policy Statement (SPS, 2009) and government rules and laws. The IEEs prepared as part of the Project Preparation Study outlined mitigation measures for some minor potential negative environmental impacts, and monitoring plans for both construction and post-project maintenance phases, and it is expected that the EARF will support the integration of these measures and practices in the project design.

4. This EARF (i) describes the project and its components; (ii) explains the general anticipated environmental impacts and mitigation measures for the subprojects which will be financed under the project after ADB Board approval; (iii) specifies the requirements that will be followed in relation to screening and categorization, assessment, and planning, including arrangements for meaningful consultation with affected people and other stakeholders and information disclosure requirements; (iv) assesses the capability of the project proponents to implement national laws and ADB's requirements, and identifies needs for capacity building; (v) specifies implementation procedures, institutional arrangements, and capacity development requirements; and (vi) specifies monitoring and reporting requirements.

5. The EARF ensures that all subprojects, in the entirety of their project cycle, will not deteriorate or interfere with the environmental sensitivity of a project area, but rather improve environmental quality.

### C. Environmental Categorization

6. The scope of the project includes nine infrastructure categories: (i) roads, bridges and culverts, (ii) solid waste management, (iii) cyclone shelters, (iv) boat landing stations, (v)

markets, and (vi) bus terminals, (vii) drainage and flood control, (viii) water supply, and (ix) sanitation.

7. As part of the project preparatory technical assistance (PPTA 8128-BAN), environmental assessment for 4 towns<sup>1</sup> was conducted and six sample initial environmental examination reports (IEEs) with environmental management plans (EMPs)<sup>2</sup> were prepared in accordance with requirements of SPS. The IEEs concluded that the project will have only small-scale, localized impacts on the environment which are readily mitigated. The potential adverse environmental impacts are mainly related to the construction period, which can be minimized by the mitigating measures and environmentally sound engineering and construction practices. Therefore, the project has been classified into environmental category B. It is likely that future subprojects will seek to replicate the sample subprojects in other town areas thus are expected to be category B due to the low-impact nature of such works. No category A type of works (with significant impacts) will be considered.

## II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

### A. Environmental Legislation

8. Implementation of all subprojects will be governed by the environmental acts, rules, policies, and regulations of the Government of Bangladesh. These regulations impose restrictions on the activities to minimize/mitigate likely impacts on the environment. Many of these are cross-sectoral and several of them are directly related to environmental issues. The most important of these are the Environment Conservation Act, 1995 (ECA, 1995), and the Environment Conservation Rules (ECR, 1997).

9. In addition to the Environmental Conservation Act and Rules, there are a number of other policies, plans and strategies which deal with the water sector, coastal areas, and climate change. These are the Forest Act 1927 (last modified 30th April 2000); National Water Policy, 1999; Coastal Zone Policy, 2005; Coastal Development Strategy, 2006; Bangladesh Climate Change Strategy and Action Plan, 2009; and National Safe Drinking Water Supply and Sanitation Policy of 1998. Appendix 1 provides salient features and applicability of the legislations and Table 1 presents specific requirements for the project. Appendix 2 provides the environmental standards for air, surface water, groundwater, drinking water, emissions, noise and vehicular exhaust.

**Table 1: Applicable Government of Bangladesh Environmental Legislations**

	Legislation	Requirements for the Project
1.	Environmental Conservation Act of 1995 and amendments in 2000, 2002 and 2010 <sup>3</sup>	- Restriction on operation and process, which can be continued or cannot be initiated in the ecologically critical areas - Regulation on vehicles emitting smoke harmful to the environment

<sup>1</sup> The 4 towns include Amtali, Galachipa, Mathbaria, and Pirojpur.

<sup>2</sup> Six draft initial environmental examinations (IEEs) with environmental management plans (EMPs) were prepared for the following sample subprojects in Stage 1 of Batch I towns in accordance with ADB's Safeguard Policy Statement (SPS), 2009, and government laws: (i) Amtali water supply, (ii) Galachipa cyclone shelters; (iii) Mathbaria water supply; (iv) Mathbaria sanitation; (v) Pirojpur drainage; (vi) Pirojpur roads and bridges. The criteria for selection of sample subprojects included scope in terms of preliminary cost estimates, location of proposed components, and potential for significant environmental impacts. The sample IEEs prepared will provide a good sample which can be followed for preparation of environmental assessments in subsequent subprojects.

<sup>3</sup> *ECA Amendment 2000* focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures both for fines and imprisonment and the authority to take cognizance of offences. *ECA Amendment 2002* elaborates restrictions on polluting automobiles; restrictions on the sale, production of environmentally harmful items like polythene bags; assistance from law enforcement agencies for environmental actions; break up of punitive measures; and authority to try environmental cases. In *ECA Amendment 2010*, no individual or institution (government or semi-government/non-government/self-governing can

	Legislation	Requirements for the Project
		<ul style="list-style-type: none"> <li>- Remedial measures for injuries to ecosystems</li> <li>- Standards for quality of air, water, noise and soil for different areas for various purposes and limits for discharging and emitting waste</li> <li>- Environmental guidelines</li> </ul>
2.	Environmental Conservation Rules of 1997 and amendments in 2002 and 2003	<ul style="list-style-type: none"> <li>- Environmental clearances</li> <li>- Compliance to environmental quality standards</li> </ul>
3.	Forest Act of 1927 and amendments (2000)	<ul style="list-style-type: none"> <li>- Clearance for any felling, extraction, and transport of forest produce</li> </ul>
4.	Bangladesh Climate Change Strategy and Action Plan of 2009	<ul style="list-style-type: none"> <li>- Ensure existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructures (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change.</li> <li>- enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change</li> </ul>
5.	National Water Policy of 1999	<ul style="list-style-type: none"> <li>- EIA for water development projects and increase surface water flow</li> <li>- Pre-screening of IEEs/EIAs for water sector projects by WARPO, in advance of submission to DOE for final clearance.</li> <li>- Augmentation for dry season water flow</li> <li>- Awareness-raising in consumptive use of surface and groundwater for irrigation</li> <li>- Structural and non-structural mitigation (early warning and flood proofing)</li> </ul>
6.	National Safe Drinking Water Supply and Sanitation Policy of 1998	<ul style="list-style-type: none"> <li>- Poursavhas and WASAs will take actions to prevent wastage of water. In addition they will take necessary steps to increase public awareness to prevent misuse of water.</li> <li>- Sanitation systems shall be self- sufficient and self- sustaining.</li> <li>- Poursavhas shall be responsible for solid waste collection, disposal and their management. DOE shall be consulted on solid waste management.</li> <li>- Where WASAs exists, they shall be responsible for sewerage and storm water drainage systems.</li> </ul>
7.	Bangladesh Labor Law of 2006	<ul style="list-style-type: none"> <li>- Compliance to the provisions on employment standards, occupational safety and health, welfare and social protection, labor relations and social dialogue, and enforcement</li> <li>- Prohibition of employment of children and adolescent</li> </ul>

## B. Government of Bangladesh Environmental Assessment Procedures

10. Under the ECR 1997 industrial units and projects are classified into four categories according to “their site and impact on the environment”, and each category (green, orange-A, orange-B and red) requires a different level of environmental assessment as a prerequisite for granting the ECC that allows the project to proceed. The ECA indicates that all industrial units or projects must obtain a Location Clearance Certificate (LCC) and Environmental Clearance Certificate (ECC) from the Department of Environment (DoE).

11. Schedule 1 of the law provides a classification for industrial projects and types of development that are common in Bangladesh. Table 2 indicates that subproject components that are likely to be classified in green, orange or red categories. The likely categorization of the other components not mentioned is deduced from similar developments that are mentioned and from their likely impacts.

**Table 2: Likely Government of Bangladesh Classification of Subproject Components**

	Subproject	Component	Equivalent in Schedule I of ECR	DoE Classification
1.	Roads, bridges and	Road provisions (include new road, road resurfacing,	Construction, re-construction and extension of road (feeder	Orange – B

cut any hill or hillock; fill-up or changed any remarked water body however in case of national interest; the mentioned activities can be done after getting clearance from respective the departments.

	Subproject	Component	Equivalent in Schedule I of ECR	DoE Classification
	culverts	roadside footpath, roadside drains, road signs, road/pavement markings, intersection improvement, or high mast lighting)	road, local road)	
		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)	Red
		Culverts	No similar facility	Orange – B (because impacts likely to be similar to roads and bridges less than 100 m)
2.	Solid waste management	Community storage bins Secondary transfer station	No similar facility	Green (because bins and STS are small and unlikely to have major impacts)
		Waste disposal (includes sanitary landfill, composting site, or access road)	Land-filling by industrial, household and commercial wastes	Red
3.	Cyclone shelters	New or refurbishment of cyclone shelters	Hotel, multi-storied commercial and apartment building	Orange – B
4.	Boat landing stations	New or refurbishment of boat landing stations	Engineering works (up to 10 hundred thousand Taka capital	Orange – B
5.	Markets	New or refurbishment of markets		
6.	Bus terminals	New or refurbishment of bus terminals		
7.	Drainage and flood control	Primary network (includes domestic connections or primary drains)	Engineering works (up to 10 hundred thousand Taka capital	Red
		Secondary network (includes secondary drains)		
		Tertiary network (includes main drains and drainage outfalls)		
8.	Water supply	Source augmentation (includes tube wells, surface water intake, overhead or ground reservoir, pumps and pump house, water treatment plant [WTP] or chlorination facility)	Engineering works (up to 10 hundred thousand Taka capital	Red
		Water transmission (includes pumping main, overhead reservoir, or pumps and pump houses)	Water, power and gas distribution line laying/relaying/extension.	Red
		Network improvements (include ring main, distribution/ carrier mains, bulk valves and flow meter, household connections or household meters)		
9.	Sanitation	Toilet facilities and latrines	Public toilet	Orange – B
		Septage and wastewater treatment plants	Sewage treatment plant	Red

12. Rule 7 of the ECR indicates that the application for ECC must be made to the relevant DoE Divisional Officer, and the application will include the following:

13. 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.
14. Orange A category projects:
- (i) Same requirements as Green Category projects, plus the following:
  - (ii) Process flow diagram;
  - (iii) Layout plan (showing location of effluent treatment plant [ETP]);
  - (iv) Effluent discharge arrangement; and
  - (v) Outlines of the plan for relocation and rehabilitation (if applicable).
15. 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 environmental management plan (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).
16. Red category projects:
- (i) Same requirements as Orange Category B, except that Item 3 (IEE) is amended to read as follows:
  - (ii) Report on the IEE for the project, and Terms of Reference for the EIA; or EIA report prepared on the basis of ToR previously approved by DoE, plus (in the case of an industrial project): layout plan showing location of ETP, process flow diagram, design and time schedule of the ETP.
17. Under the ECR DoE has 60 days to respond to receipt of the ECC application for a Red Category project and 30 days for an Orange-B Category Project.

### **C. Institutional Capacity**

18. Local Government Engineering Department (LGED) is responsible for preparation of EIAs/IEEs and monitoring of safeguards issues for (i) roads, bridges and culverts, (ii) solid waste management, (iii) cyclone shelters, (iv) boat landing stations, (v) markets, and (vi) bus terminals, and (vii) drainage and flood control components. The LGED will also be responsible for providing support and guidance to pourashavas concerning performance criteria and pourashava development planning. While the Department of Public Health Engineering (DPHE) will be responsible for preparation of EIAs/IEEs and monitoring of safeguards issues for (i) water supply; and (ii) sanitation.



19. LGED and DPHE have successfully ensured environmental management and monitoring under ongoing locally and foreign funded infrastructure improvement projects in Bangladesh. However, responsibility for environmental monitoring is generally fragmented and overlapping between different units within the two agencies, and there does not appear to be a unified database or consistent monitoring and reporting procedures. The pourashavas require assistance in implementing environmental management and monitoring.

20. Therefore the executing and implementing agencies of the project require capacity building measures for (i) a better understanding of the project-related environmental issues; and (ii) to strengthen their role in implementation of mitigation measures and subsequent monitoring. Trainings and awareness workshops are included in the project with the primary focus of enabling the LGED, DPHE and pourashava staff to conduct impact assessments and carry out environmental monitoring and implement the EMPs. After participating in such activities, the participants will be able to make environmental assessments for subsequent subprojects, conduct monitoring of EMPs, understand government and ADB requirements for environmental assessment, management, and monitoring (short- and long-term), and incorporate environmental features into future project designs, specifications, and tender/contract documents and carry out necessary checks and balances during project implementation.

### III. ANTICIPATED ENVIRONMENTAL IMPACTS

21. Preliminary lists of subprojects have been identified and environmental impacts during design, pre-construction, construction, and operation will be reviewed and assessed for each project. During project construction and implementation, impacts on the physical environment such as water, air, soil, and noise, and on the biological environment, like flora and fauna and socioeconomic environment, will be carefully assessed by the project environmental specialists.

22. As the subprojects will be of small scale and often involve improvement or rehabilitation of the existing system and facilities, it is anticipated that impacts will be temporary and of short duration. In such cases, mitigation measures i.e. control of air, dust pollution, checking of water and noise pollution, and protection of biological environment can address adverse impacts. Other measures, such as preparation and implementation of traffic management plans during pipe-laying, will also be done in coordination with the consultant teams, local police, contractors, and the public. Occupational and community health and safety measures and other health and hygienic conditions, including careful handling of public utilities along with social aspects, will be considered, and impacts and mitigation measures elaborated on in the EMPs.

23. Anticipated environmental impacts for the assessed subprojects are provided in the IEE reports. For subsequent subprojects to be funded by the project, anticipated impacts during design, construction, and operation are identified in Appendix 3.

### IV. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS AND/OR COMPONENTS

#### A. Environmental Guidelines for Project Selection

24. **Climate Change Resilient Infrastructure.** The project will mainstream climate risk reduction into policy formulation and infrastructure development. A key feature is climate proofing and disaster resilient designs to ensure that infrastructure are less vulnerable to floods, storm surge, landslides and impacts of other extreme weather events. Main activities include preparing a climate change resilient infrastructure management plan, a climate vulnerability mapping of the coastal town areas (with a focus on the project areas) as well as designing and introducing adaptation strategies to improve flood and drought management.

25. The following criteria will be used for excluding sites which might have significant negative environmental impacts:

- (i) Ecologically sensitive area such as reserved forests critical wetlands etc.;
- (ii) Potential for disrupting the life and property of the indigenous or tribal population;
- (iii) Need for significant amount of land acquisition and resultant compensation; and
- (iv) Encroachment on cultural features like places of worship, cultural heritage sites, graves/cemeteries, historical monuments etc.; (no such encroachments are envisaged)

26. Guidelines for project selection in Table 3 provide further guidance to avoid or minimize adverse impacts during the identification and finalization of subprojects.

**Table 3: Environmental Criteria for Subproject Selection**

	<b>Components</b>	<b>Environmental Selection Guidelines</b>	<b>Remarks</b>
1.	Overall selection guideline (applicable to all components)	(i) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(ii) Avoid land acquisition and involuntary resettlement including impacts on vulnerable persons.	See resettlement framework
		(iii) Avoid involuntary resettlement by prioritizing rehabilitation over new construction, using vacant government land where possible, and taking all possible measures in design and selection of site or alignment to avoid resettlement impacts.	See resettlement framework
		(iv) Avoid where possible, and minimize to extent feasible, facilities in locations with social conflicts.	See resettlement framework
		(v) Avoid where possible locations in protected areas, including notified reserved forests or biodiversity conservation hotspots (wetlands, national reserves, forest reserves, and sanctuaries).	Approval from concerned authority if unavoidable
		(vi) Avoid where possible locations that will result in destruction/disturbance to historical and cultural places/values.	Provide for the use of "chance find" procedures in the EMP that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.
		(vii) Avoid tree-cutting where possible. Retain mature roadside trees which are important/valuable or historically significant. If any trees have to be removed, plant two new trees for every one that is lost.	Approval from Department of Environment
		(viii) Ensure all planning and design interventions and decisions are made in consultation with local communities and include women. Reflect inputs from public consultation and disclosure for site selection.	All consultations should be documented and concerns expressed by public addressed in IEEs.
2.	Roads, bridges and culverts	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities	See resettlement framework

	Components	Environmental Selection Guidelines	Remarks
		only. Where new facilities are required, these shall be sited on vacant government land and ROWs where feasible.	
		(iv) Develop road improvement schemes (road widening, bridge construction, etc) only where the need is clearly demonstrated by appropriate traffic and hazard studies.	
		(v) Prioritize the widening of existing roads over construction of new roads and conduct widening within the existing ROW to avoid the need to acquire new land	
		(vi) New roads or widening of existing roads involving land acquisition and/or resettlement shall not be included in the program, except as otherwise accepted by ADB and subject to compliance requirements under ADB's SPS (2009)	See resettlement framework
		(vii) Include the provision of new or improved drainage to remove the increased runoff caused by increasing the road surface area	
		(viii) Include tree planting alongside roads to provide a natural barrier to noise and visual impacts, and include additional man-made barriers if necessary	
3.	Solid waste management	(i) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(ii) Ensure small (secondary) transfer stations are not located within 30m of residences, schools, places of worship (such as churches, temples or mosques), and historical and cultural places.	Special design measures to be adopted if this cannot be adhered to.
		(iii) Ensure all new landfills and secondary transfer stations are not constructed in areas where the groundwater table is less than 2 meters below ground level.	Special design measures to be adopted if this cannot be adhered to.
		(iv) Locate all new landfills at least 250 m from habitation, sensitive receptors, shops, or any other premises used by people, thus establishing a buffer zone to reduce the effects of noise and dust and the visual appearance of the site.	Distance restriction may be reviewed depending on site availability, buffer zone planning, and water treatment technology.
		(v) Locate all new facilities/buildings at sites where there is no risk of flooding or other hazards that might impair functioning of, or present a risk of damage to the facilities, or their environs.	Flood statistics data of the project area needs to be reviewed. Location restriction may be reviewed depending on site availability, and flood or other hazards control planning.
		(vi) Ensure no new landfills are constructed within or near water supply wells, and at least 500m of any down gradient wells.	Locational clearance from Department of Environment needed if landfill is to be site within this restricted area.
		(vii) Ensure a buffer zone is provided around the landfill with the distance agreed upon with the regulatory agencies	
		(viii) Ensure designs and operations of new landfills are done as per norms of modern sanitary facilities and to include all essential elements necessary to prevent environmental pollution and to ensure safe handling of waste during construction and operation.	Landfills to include the following: liner system to prevent leachate, leachate collection system and control facility, gas collection system, final cover system, surface water drainage system, environmental monitoring system for air, water, soil, odor, and gas. Operations and maintenance manual (O&M) shall include

	Components	Environmental Selection Guidelines	Remarks
			closure and post-closure plan.
		(ix) Ensure any new landfill includes waste sorting and composting facilities. Ensure O&M manuals include methods of recycling and composting.	
		(x) Ensure any contaminated excavate found during civil works is safely handled and disposed of at suitable sites engineered for handling contaminated soils, etc.	These sites are to be identified and agreed upon with the Department of Environment before commencement of civil works.
		(xi) Ensure appropriate training will be provided for pourashava staffs regarding the operations and maintenance of the facilities.	
4.	Cyclone shelters	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land, except as otherwise accepted by ADB and subject to compliance requirements under ADB's SPS (2009).	See resettlement framework
		(iv) Ensure cyclone shelters are provided with potable water supply and sanitation facilities combined with improvements in wastewater and drainage to deal with the increased discharge of domestic wastewater. Ensure that water and waste disposal in constructed cyclone shelters are designed to national and international standards.	
5.	Boat landing stations	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs, except as otherwise accepted by ADB and subject to compliance requirements under ADB's SPS (2009)	See resettlement framework
		(iv) Develop boat landing stations only where the need is clearly demonstrated by appropriate traffic and hazard studies.	
6.	Markets	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required,	See resettlement framework

	Components	Environmental Selection Guidelines	Remarks
		these shall be sited on vacant government land and ROWs, except as otherwise accepted by ADB and subject to compliance requirements under ADB's SPS (2009)	
		(iv) Ensure markets are provided with improvements in solid waste management, wastewater, and drainage to deal with increased generation of waste materials and discharge of wastewater. Ensure that waste and wastewater disposal in constructed markets are designed to national and international standards.	
7.	Bus terminals	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs, except as otherwise accepted by ADB and subject to compliance requirements under ADB's SPS (2009)	See resettlement framework
		(iv) Develop bus terminals only where the need is clearly demonstrated by appropriate demand, traffic and hazard studies.	
8.	Drainage and flood control	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs, except as otherwise accepted by ADB and subject to compliance requirements under ADB's SPS (2009)	See resettlement framework
		(iv) Include measures to ensure the safe disposal of canal dredge without causing an environmental hazard.	
9.	Water supply	(i) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(ii) Utilize water sources at sustainable levels of abstraction only (i.e. without significant reductions in the quantity or quality of the source overall).	
		(iii) Avoid using water sources that may be polluted by upstream users.	
		(iv) Avoid water-use conflicts by not abstracting water that is used for other purposes (e.g. irrigation).	Obtain No Objection Certificate (NOC) from Irrigation Department and/or Bangladesh Water Development Board
		(v) Locate all new facilities/buildings at sites where there is no risk of flooding or	Flood statistics data of the project area needs to be reviewed. Location restriction

	Components	Environmental Selection Guidelines	Remarks
		other hazards that might impair functioning of, or present a risk of damage to water treatment plants, tanks/reservoirs, or their environs.	may be reviewed depending on site availability, and flood or other hazards control planning.
		(vi) Locate all new facilities/buildings at least 100 m from houses, shops, or any other premises used by people, thus establishing a buffer zone to reduce the effects of noise and dust and the visual appearance of the site.	Distance restriction may be reviewed depending on site availability, buffer zone planning, and water treatment technology.
		(vii) Locate pipelines within road ROW as far as possible, to reduce the acquisition of new land. Ensure that pipeline routes do not require the acquisition of land from private owners in amounts that are a significant proportion of their total land holding (>10%).	See resettlement framework
		(viii) Ensure sufficient access to water treatment plant, pumping stations, and reservoirs/tanks for operations and maintenance activities.	
		(ix) Ensure that communities who relinquish land needed for pipelines or other facilities are provided with an improved water supply as part of the scheme.	
		(x) Avoid all usage of pipes that are manufactured from asbestos concrete.	
		(xi) Ensure water to be supplied to consumers will meet national drinking water standards at all times.	
		(xi) Ensure that improvements in the water supply system are combined with improvements in wastewater and drainage to deal with the increased discharge of domestic wastewater.	
		(xii) Ensure appropriate training will be provided to pourashava staffs on the operations and maintenance of the facilities.	
		(xiii) Ensure sludge management facilities are included in the water treatment plant.	Include design measures and follow guidelines to ensure the safe disposal of sludge without causing environmental hazards, and if possible to promote its safe and beneficial use as an agricultural fertilizer.
10.	Sanitation	(i) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(ii) Ensure sanitation facilities are provided with electric power and water supply. Ensure that water and waste disposal in constructed facilities are designed to national and international standards.	
		(iii) Ensure no immediate downstream drinking water intakes.	Include design measures and consider relocating existing deep tube wells.
		(iv) Locate sanitation facilities (public toilets and latrines) and septage treatment plants preferably (a) 20 m from any source of water supply; (b) 30 m from drainage lines and (c) 100 m to a designated waterway. A 300 m setback shall be applied for water reservoirs.	Distance restriction may be reviewed depending on the technology adopted for the sanitation facilities and treatment of septage, site plant availability, and buffer zone planning.

	Components	Environmental Selection Guidelines	Remarks
		(v) Locate septage treatment plants preferably 50 m from any inhabited areas, in locations where no urban expansion is expected in the next 20 years, so that people are not affected by odor or other nuisance from the STP.	Distance restriction may be reviewed depending on the technology adopted for the treatment of wastewater, site plant availability, and buffer zone planning.
		(vi) Locate at sites where there is a suitable means of disposal for the treated wastewater effluent and biosolids.	Include design measures and follow guidelines to ensure the safe disposal of biosolids without causing environmental hazards, and if possible to promote its safe and beneficial use as an agricultural fertilizer. Any wastewater and biosolids reuse shall be to improve soil properties and sustain soil fertility and avoid any contamination risks.
		(vi) Locate sanitation facilities (public toilets and latrines) and septage treatment plants where there is no risk of flooding or other hazards that might impair operations and present a risk of damage to the facilities or its environs.	Flood statistics data of the project area needs to be reviewed. Location restriction may be reviewed depending on site availability, and flood or other hazards control planning.
		(vii) Ensure sufficient access to STP and pumping stations for operations and maintenance activities.	
		(viii) Ensure appropriate training will be provided to pourashava staffs on the operations and maintenance of the facilities.	

## B. Environmental Assessment Procedures for Projects

### 1. Screening and Classification/Categorization

27. As soon as sufficient information on a subproject is available, the Project Management and Supervision Consultant (PMSC) environment safeguards specialist will conduct screening to determine the works' environmental category by completing ADB's rapid environmental assessment (REA) checklists in Appendix 3 and submitting this for review to the Project Management Unit (PMU), which will determine if the component would require environmental assessment and/or environmental clearance as per national requirements. If required, PMU will contact DoE for necessary endorsement and issuance of terms of reference for the environmental impact assessment study.

28. PMU will submit completed REA checklist to ADB for review. To ensure that the project meets ADB's environmental safeguard requirements, as stipulated in the SPS 2009, projects will be screened, and the level of environmental assessment required (EIA/IEE) will be determined. It is anticipated that most eligible projects will fall into either category B or C, as projects will be of small scale and often involve improvement or rehabilitation of the existing system/facilities. While category C projects will not require an environmental assessment, environmental implications will be reviewed.

### 2. Preparation of Environmental Assessment Report

29. Environmental assessment documents prepared under the project will, to the extent possible, meet both ADB and Government of Bangladesh requirements in order to streamline the environmental procedures required by both ADB and government.

30. For projects projected to have potentially significant adverse environmental impacts (categorized as A), an EIA will be prepared. For projects with some adverse environmental impacts, but which are expected to be less significant than those of category A projects, an IEE is required. Appendix 1 of ADB's SPS, 2009 provides the specific outlines and contents to be followed while preparing EIAs/IEEs. Appendix 4 provides the outline of an ADB EIA or IEE report. Also, the sample IEEs prepared during project preparation provide a good sample which can be followed for preparation of environmental assessments in subsequent subprojects.

31. Issues regarding natural and critical habitats will be covered in the EIA/IEE report. In case of subprojects located within these areas, a review of management plans and consultation with concerned management staff, local communities, and key stakeholders will be undertaken. Pollution prevention for conservation of resources, particularly technology for management of process wastes, occupational and community health and safety, will be addressed. The EIA/IEE will also reflect meaningful consultation and disclosure process with a provision for grievance redress mechanism.

32. ADB requires that an EMP must be developed as part of the EIA/IEE. The EMP 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 the EMP. The level of detail and complexity of the EMP 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. A template for environmental management process and monitoring plan is provided in Appendix 7 as a guide for preparing a robust EMP.

33. If some residual impacts are likely to remain significant after mitigation, the EMP will also include appropriate compensatory measures (offset) that aim to ensure that the project does not cause significant net degradation to the environment. Such measures may relate, for instance, to conservation of habitat and biodiversity, preservation of ambient conditions, and greenhouse gas emissions. Monetary compensation in lieu of offset is acceptable in exceptional circumstances, provided that the compensation is used to provide environmental benefits of the same nature and is commensurate with the project's residual impact.

34. All EIAs/IEEs will be conducted and EMPs 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.

### **3. Environmental Audit of Existing Facilities**

35. For subprojects involving facilities and/or business activities that already exist or are under construction, the executing and implementing agencies will undertake an environment audit, including on-site assessment, to identify past or present concerns related to impacts on the environment. The objective of the compliance audit is to determine whether actions were in accordance with ADB's safeguard principles and requirements for borrowers/clients, and to identify and plan appropriate measures to address outstanding compliance issues. Where noncompliance is identified, a corrective action plan agreed on by ADB and the implementing agencies will be prepared. The plan will define necessary remedial actions, the budget for such actions, and the time frame for resolution of noncompliance. The audit report (including



corrective action plan, if any) will be made available to the public in accordance with the information disclosure requirements of ADB SPS, 2009. For environment category A projects involving facilities and/or business activities that already exist or are under construction, the implementing agency will submit the audit report to ADB to disclose on ADB's website. If a project involves an upgrade or expansion of existing facilities that has potential impacts on the environment, the requirements for environmental assessments and planning specified in ADB SPS, 2009 will apply in addition to compliance audit.

### C. Review of Environmental Assessment Reports

36. EIAs/IEEs will be reviewed initially by PMU. In the case where an environmental clearance is required, the EIAs/IEEs are to be forwarded to the DoE for approval.

37. LGED will forward the EIAs/IEEs for ADB's review. ADB will review draft final reports of: (i) IEEs of any subprojects that have been updated due to changes in design; and (ii) EIAs or IEEs of any new subproject classified as Category A or B.

38. For subproject processing, the steps to be followed are shown in Table 4. It is the responsibility of the executing and implementing agencies to ensure subprojects are consistent with the legal framework, whether national or municipal/local. Compliance is required in all stages of the project including design, construction, and operation and maintenance. Stricter requirements apply in case the result of ADB's classification is different from that of the government's ECR 1997.

**Table 4: Environmental Procedures for Project Processing**

Project Stage	ADB Procedure	Government of Bangladesh Procedure
Subproject identification	REA checklist	Categorization according to schedule and general/specific conditions in the government's ECR 1997
	Categorization (A/B/C): PMU to review the REA checklists and reconfirm the categorization	ECC application involves the completion and submission of an application form available from the DoE website. This provides basic information on the project, such as the location, construction program, raw materials, water use, etc. The proponent is also required to submit an application fee prescribed in Schedule 13 of the Rules, plus various supporting documents.
Detailed design	Preparation of EIA/IEE	- DoE to issue scoping and terms of reference (TOR) for the EIA/IEE
	Updating of sample IEEs based on detailed design	- Preparation of draft EIA/IEE as per TOR
	For projects involving facilities and/or business activities that already exist or are under construction, the borrower/client will undertake an environment and/or social compliance audit, including on-site assessment, to identify past or present concerns related to impacts on the environment, and involuntary resettlement. Where non-compliance is identified, a corrective action plan agreed on by ADB and the borrower/client will be prepared. <sup>45</sup>	
	Public consultation will be carried out in a manner commensurate with the impacts of	There is no mention of public consultation and disclosure in the ECR, so the requirements for

<sup>4</sup>

<sup>5</sup> The plan will define necessary remedial actions, the budget for such actions, and the time frame for resolution of noncompliance. The audit report (including corrective action plan, if any) will be made available to the public in accordance with the information disclosure requirements of the Safeguard Requirements 1–3.

Project Stage	ADB Procedure	Government of Bangladesh Procedure
	affected communities. The consultation process and its results are to be documented and reflected in the EIA/IEE.	these activities will also be clarified with DoE. Given the importance attached to these issues by ADB, it is likely that activities conducted to comply with ADB policy may satisfy DoE requirements.
	<p>Disclosure: For category A: Disclosure on ADB's website of a draft full EIA (including the draft EMP) at least 120 days prior to the ADB Board consideration, and/or EARF before project appraisal where applicable; the final EIA; updated EIAs and corrective action plans; and environmental monitoring reports.</p> <p>For category B: Disclosure on ADB's website of the final IEE; updated IEEs and corrective action plans; and environmental monitoring reports.</p> <p>In addition, for all categories, environmental information will be in an accessible place and in a form or language understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.</p>	
	Mitigation measures specified in EIA/IEE study incorporated in project design	Mitigation measures specified in EIA/IEE study incorporated in project design
	Identify and incorporate environmental mitigation and monitoring measures (including the EMP) into bid/contract documents.	
Appraisal	EMP and other environmental covenants are incorporated into the facility framework agreement, loan/project agreement, and project administration memorandum (PAM)	
Approval	ADB to review and clear EIA/IEE prior to approval and issuance of tender documents during detailed design stage. Complete EIA/IEE disclosed to public	Determination of ECC Application. Within 15 days (green), 30 days (Orange) and 60 days (red) of receipt of the application and accompanying documents, DoE will issue the Location Clearance Certificate (LCC), or will reject the application giving reasons for its decision.
Contract award	Obtain necessary environmental clearances, consents, and no-objection certificates (NOCs) prior to contract award. Implementation of EMP including monitoring plans based on EIA/IEE findings to be incorporated into civil works contracts.	On receipt of the LCC the proponent is permitted to undertake land preparation and install machinery, but he/she must then submit the EIA report and apply for the ECC. Within a further 60 day period DoE will approve the EIA and issue the ECC or reject the application with reasons. Once the ECC is granted, construction work may begin.
Implementation	Submission of semi-annual monitoring report to ADB including corrective action plan where non-compliance is identified.	<p>Post Environmental Clearance Monitoring. There is no requirement for post ECC monitoring or reporting in the Environmental Conservation Rules, but this may be stipulated by DoE as a condition of ECC approval.</p> <p>Certificate Renewal. For orange and red category projects the ECC must be renewed every year, for which the fee is 25% of the original application.</p>

## **V. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM**

### **A. Public Consultation and Information Disclosure**

39. Meaningful stakeholder consultation and participation is part of the project preparation and implementation strategy. A consultation and participation program has been prepared for the project and will be implemented with the assistance of consultants. By addressing stakeholder needs, there is greater awareness of the benefits and “ownership” of the project among stakeholders, which in turn contribute to sustainability. The consultation process during the project preparation has solicited inputs from a wide range of stakeholders, including government officials, NGOs, residents of the 4 towns, marginalized/vulnerable beneficiary groups, and project-affected persons (APs).

40. Consultation, participation, and disclosure will ensure that information is provided and feedback on proposed project design is sought early, right from the project preparation phase, so that the views/preferences of stakeholders including potential beneficiaries and affected people can be adequately considered in project design, and continue at each stage of project preparation, processing, and implementation. Project-affected persons will be consulted at various stages in the project cycle to ensure: (i) incorporation of views/concerns of APs on compensation/resettlement assistance and environmental impacts and mitigation measures; (ii) inclusion of vulnerable groups in project benefits; (iii) identification of help required by APs during rehabilitation, if any; and (iv) avoidance of potential conflicts for smooth project implementation. It will also provide adequate opportunities for consultation and participation to all stakeholders and inclusion of the poor, vulnerable, marginalized, and project-affected persons in the project process. Relevant information about any major changes to project scope will be shared with beneficiaries, affected persons, vulnerable groups, and other stakeholders.

41. A variety of approaches can be adopted. At minimum, stakeholders will be consulted regarding the scope of the environmental and social impact study before work commences, and they will be informed of the likely impacts of the project and proposed mitigation once the draft EIA/IEE and resettlement plan reports are prepared. The reports will record the views of stakeholders and indicate how these have been taken into account in project development. Consultations will be held with a special focus on vulnerable groups.

42. The key stakeholders to be consulted during project preparation, EMP implementation, and project implementation include:

- (i) beneficiaries;
- (ii) elected representatives, community leaders, religious leaders, and representatives of community-based organizations;
- (iii) local 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, and business people who live and work alongside the roads where pipes will be laid and near sites where facilities will be built; custodians, and users of socially and culturally important buildings;
- (vi) PMU staff and consultants; and
- (v) ADB and the Government of Bangladesh.

## B. Information Disclosure

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

- (i) For category A projects:
  - (a) draft EIA (including the draft EMP) at least 120 days prior to management approval of the periodic financing request report;
  - (b) final EIA;
  - (c) a new or updated EIA and corrective action plan prepared during project implementation, if any;
  - (d) environmental monitoring reports; and
  - (e) for projects involving facilities and/or business activities that already exist or are under construction, environmental audit report.
- (ii) For category B projects:
  - (a) final IEE;
  - (b) a new or updated IEE and corrective action plan prepared during project implementation, if any; and
  - (c) environmental monitoring reports.

44. LGED will send written endorsement to ADB for disclosing these documents on ADB's website. LGED will also provide relevant safeguards information in a timely manner, in an accessible place and in a form and languages understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.

## C. Grievance Redress Mechanism

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

46. **Common GRM.** A common GRM will be in place for social, environmental, or any other grievances related to the project; the resettlement plans (RPs) and IEEs will follow the GRM described below, which is developed in consultation with key stakeholders. The GRM will provide an accessible and trusted platform for receiving and facilitating resolution of affected persons' grievances related to the project. The multi-tier GRM for the project is outlined below, each tier having time-bound schedules and with responsible persons identified to address grievances and seek appropriate persons' advice at each stage, as required.

47. Pourashava-wide public awareness campaigns will ensure that awareness on grievance redress procedures is generated through the campaign. The project implementation unit (PIU) safeguards assistant and institutional capacity and community development consultants (ICCDC) that will conduct pourashava-wide awareness campaigns to ensure that poor and vulnerable households are made aware of grievance redress procedures and entitlements, and will work with the PIU safeguards assistant to help ensure that their grievances are addressed.

48. Affected persons (APs) will have the flexibility of conveying grievances/suggestions by dropping grievance redress/suggestion forms in complaints/suggestion boxes that have already been installed by project pourashavas or through telephone hotlines at accessible locations, by e-mail, by post, or by writing in a complaints register in pourashava offices. Appendix 6 has the

sample grievance registration form. Careful documentation of the name of the complainant, date of receipt of the complaint, address/contact details of the person, location of the problem area, and how the problem was resolved will be undertaken. The project management unit (PMU) safeguards officer will have the overall responsibility for timely grievance redressal on environmental and social safeguards issues and for registration of grievances, related disclosure, and communication with the aggrieved party through the PIU safeguards assistant.

49. **Grievance redress process.** In case of grievances that are immediate and urgent in the perception of the complainant, the contractor and supervision personnel from the project management and supervision consultants (PMSC) on-site will provide the most easily accessible or first level of contact for quick resolution of grievances. Contact phone numbers and names of the concerned PIU safeguards assistant, contractors, PMU safeguards officer, PMSC environmental and social safeguards specialists will be posted at all construction sites at visible locations.

(i) **1<sup>st</sup> Level Grievance.** The contractors, PIU supervision personnel and PIU safeguards assistant can immediately resolve issues on-site in consultation with each other, and will be required to do so within 3 days of receipt of a complaint/grievance. Assistance of ward level coordination committees (WLCC) will be sought if required for resolution of the issue, by any one or all of them jointly.

(ii) **2<sup>nd</sup> Level Grievance.** All grievances that cannot be redressed within 3 days at field/ward level will be jointly reviewed by the grievance redress committee (GRC) at town-level and PIU safeguards assistant (the second level of grievance redress), who will attempt to resolve them within 7 days.<sup>6</sup> The PIU safeguards assistant will be responsible to see through the process of redressal of each grievance.

(iii) **3<sup>rd</sup> Level Grievance.** The PIU safeguards assistant will refer any unresolved or major issues to the PMU safeguards officer and PMSC (third level of grievance redress), who will resolve them within 15 days.

(iv) **4<sup>th</sup> Level Grievance.** Very major issues that are beyond the jurisdictional authority of the GRC or those that have the potential to cause social conflicts or environmental damage or those that remain unresolved at PMU level, will be referred to the project steering committee (PSC)<sup>7</sup>. All paperwork (details of grievances) needs to be completed by the PIU safeguards assistant and circulated to the respective WLCC, GRC and PSC members at least a week in advance of the scheduled meetings. All decisions taken by the GRC and PSC will be communicated to the APs by the PIU safeguards assistant.<sup>8</sup>

<sup>6</sup> Grievance redress committees (GRC) have already been formed at town-level. For example in Pirojpur pourashava, the GRC comprises: Panel Mayor as Chairperson, and 1 councilor, the pourashava Executive Engineer, Secretary pourashava and pourashava administrative officer, as members. All town-level GRCs have at least one woman member/chairperson. In addition, for project-related grievances, representatives of APs, community-based organizations (CBOs), and eminent citizens must be invited as observers in GRC meetings.

<sup>7</sup> The project steering committee (PSC) responsible for grievance redress will have the following as members: Secretary, Local Government Department, as chair; Chief Engineer, LGED; Chief Engineer, DPHE; Project Director, member secretary; General Economic Division, Planning Commission; Physical Planning, Water Supply and Housing (PPWS&H) Sector, Planning Commission; Representative of Implementation, Monitoring, and Evaluation Division of the Ministry of Planning; Representative of Economic Relations Division and Finance Division of the Ministry of Finance; Representative of Ministry of Environment and Forest (Climate Change Unit); Representative of Bangladesh Water Development Board (BWDB); Urban Development Directorate; Disaster Management Bureau; representatives of pourashavas (mayor, engineer, secretary/ chief executive officer, LGD engineer, DPHE engineer) and special invitees to advise the committee on technical issues.

<sup>8</sup> Despite the project GRM, an aggrieved person shall have access to the country's legal system at any stage, and accessing the country's legal system can run parallel to accessing the GRM, and is not dependent on the negative outcome of the GRM.

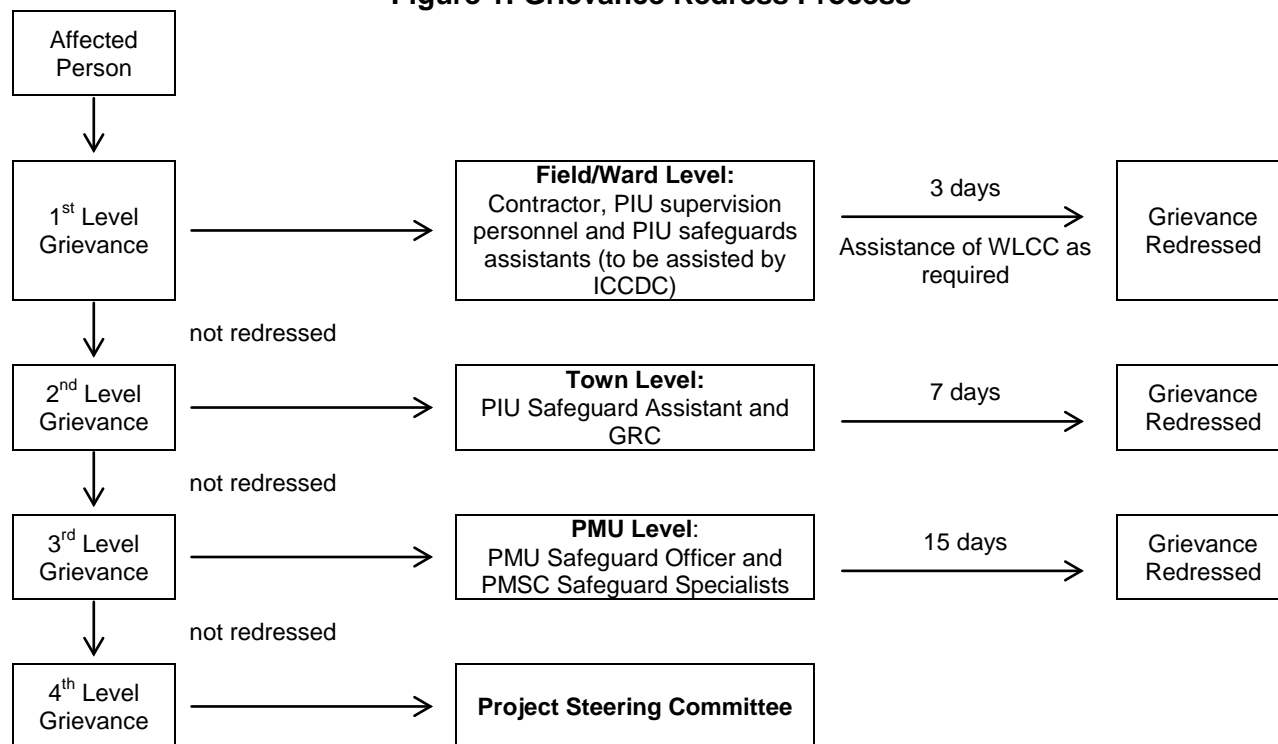
50. Despite the project GRM, an aggrieved person shall have access to the country's legal system at any stage, and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM.

51. In the event that the established GRM is not in a position to resolve the issue, the affected person also can use the ADB Accountability Mechanism (AM) through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB headquarters or the ADB Bangladesh Resident Mission (BRM). The complaint can be submitted in any of the official languages of ADB's DMCs. The ADB Accountability Mechanism information will be included in the PID to be distributed to the affected communities, as part of the project GRM.

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

53. **Periodic review and documentation of lessons learned.** The PMU safeguard officer will periodically review the functioning of the GRM in each town and record information on the effectiveness of the mechanism, especially on the project's ability to prevent and address grievances.

54. **Costs.** All costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) will be borne by the concerned PIU at town-level; while costs related to escalated grievances will be met by the PMU. Cost estimates for grievance redress are included in resettlement cost estimates.

**Figure 1: Grievance Redress Process**

Note: GRC = grievance redressal committee; ICCDC = Institutional Capacity and Community Development Consultants; PIU = project implementation unit; PMSC = project management and supervision consultants; PMU = project management unit; WLCC = ward level coordination committee

## VI. INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

55. **Project steering committee.** An inter-ministerial PSC at national level will provide overall policy guidance to the project. The committee will include key government stakeholders, including local government representatives from the participating pourashavas. The PSC will be the apex decision-making body for the project. The PSC will meet quarterly, review progress, provide policy guidance, resolve interagency issues that impede project progress, and advice on necessary action, particularly with respect to scope and cost, and the reform agenda of the investment program, and facilitate inter-agency coordination.

### A. Safeguard Implementation Arrangement

56. **Executing Agency.** LGED will be the lead EA for the project, and DPHE will be a co-executing agency (for water supply and sanitation). A PMU will be established in LGED.

57. **Project Management Unit.** The PMU will be staffed with a safeguards officer and will receive support from safeguards specialists (environment and resettlement) on the DDS and PMSC consultant team. Key tasks and responsibilities of the PMU safeguards officer are as follows:

- (i) confirm existing IEEs/EMPs are updated based on detailed designs and that new IEEs/EMPs are prepared in accordance with the EARF and subproject selection criteria related to safeguards;
- (ii) confirm whether IEEs/EMPs are included in bidding documents and civil works contracts;

- (iii) provide oversight on environmental management aspects of subprojects and ensure EMPs are implemented by project implementation unit (PIU) and contractors;
- (iv) establish a system to monitor environmental safeguards of the project including monitoring the indicators set out in the monitoring plan of the EMP;
- (v) facilitate and confirm overall compliance with all Government rules and regulations regarding site and environmental clearances as well as any other environmental requirements (e.g., Location Clearance Certificates, Environmental Clearance Certificates etc.), as relevant;
- (vi) supervise and provide guidance to the PIUs to properly carry out the environmental monitoring and assessments as per the EARF;
- (vii) review, monitor and evaluate the effectiveness with which the EMPs are implemented, and recommend necessary corrective actions to be taken as necessary;
- (viii) consolidate monthly environmental monitoring reports from PIUs and submit semi-annual monitoring reports to ADB;
- (ix) ensure timely disclosure of final IEEs/EMPs in locations and form accessible to the public; and
- (x) address any grievances brought about through the Grievance Redress Mechanism in a timely manner.

58. **Implementing Agencies.** The participating pourashavas will be the IAs, and will establish a PIU within the pourashava structure.

59. **Project Implementation Unit.** The PIU will be staffed with a safeguards officer and will receive support from the PMU safeguards officer and safeguards specialists (environment and resettlement) on the DDS and PMSC consultant team. Key tasks and responsibilities of the PMU safeguards officer are as follows:

- (i) include IEEs/EMPs in bidding documents and civil works contracts;
- (iv) oversee day-to-day implementation of EMPs by contractors including compliance with all government rules and regulations;
- (v) take necessary action for obtaining rights of way;
- (vi) oversee implementation of EMPs including environmental monitoring by contractors;
- (vii) take corrective actions when necessary to ensure no environmental impacts;
- (viii) submit monthly environmental monitoring reports to PMU,
- (ix) conduct continuous public consultation and awareness;
- (x) address any grievances brought about through the Grievance Redress Mechanism in a timely manner as per the IEEs; and
- (xi) organize an induction course for the training of contractors preparing them on EMP implementation, environmental monitoring requirements related to mitigation measures; and taking immediate actions to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of implementation.

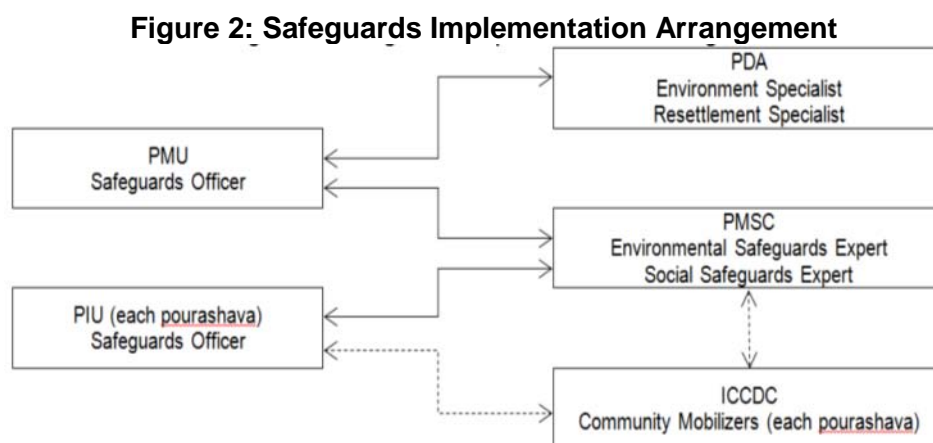
60. The community mobilizers in the Institutional Capacity and Community Development Consultants (ICCDC) will be responsible for formation of water and sanitation user groups



identify follow-up actions to ensure sustainability of user groups formed; and implement and follow-up on behavioral change, 3R and WASH programs;<sup>9</sup>

61. **Civil works contracts and contractors.** EMPs are to be included in bidding and contract documents and verified by the PIUs and PMU. The contractor will be required to designate an environment supervisor to ensure implementation of EMP during civil works. Contractors are to carry out all environmental mitigation and monitoring measures outlined in their contract.

62. The government will ensure that bidding and contract documents include specific provisions requiring contractors to comply with all: (i) applicable labor laws and core labor standards on (a) prohibition of child labor as defined in national legislation for construction and maintenance activities, on (b) equal pay for equal work of equal value regardless of gender, ethnicity or caste, and on (c) elimination of forced labor; and (ii) the requirement to disseminate information on sexually transmitted diseases including HIV/AIDS to employees and local communities surrounding the project sites.



## B. Institutional Capacity Development Program

63. The PMSC environmental safeguards expert will be responsible for training the PMU safeguards officer and the PIUs safeguard assistants on environmental awareness and management in accordance with both ADB and government requirements. Typical modules would be as follows: (i) sensitization; (ii) introduction to environment and environmental considerations in water supply and wastewater projects; (iii) review of IEEs and integration into the project detailed design; (iv) improved coordination within nodal departments; and (v) monitoring and reporting system. Specific modules customized for the available skill set will be devised after assessing the capabilities of the target participants and the requirements of the project. The contractors will be required to conduct environmental awareness and orientation of workers prior to deployment to work sites. The proposed training project along with the frequency of sessions is presented in Table 5.

**Table 5: Training Program for Environmental Management**

Description	Contents	Schedule	Participants
<b>Pre-construction stage</b>			
Orientation workshop	<b>Module 1 – Orientation</b>	1 day	LGED, DPHE, PMU,

<sup>9</sup> Reduce, reuse and recycle (3R) and water, sanitation, and hygiene program (WASH)

Description	Contents	Schedule	Participants
	- ADB Safeguards Policy Statement - Government of Bangladesh Environmental Laws and Regulations  <b>Module 2 – Environmental Assessment Process</b> - ADB environmental process, identification of impacts and mitigation measures, formulation of an environmental management plan (EMP), implementation, and monitoring requirements - Review of environmental assessment report to comply with ADB requirements - Incorporation of EMP into the project design and contracts		and PIUs officials involved in the project implementation
<b>Construction stage</b>			
Orientation program/workshop for contractors and supervisory staff	- Roles and responsibilities of officials/contractors/consultants towards protection of environment - Environmental issues during construction - Implementation of EMP - Monitoring of EMP implementation - Reporting requirements	1 day	PMU PIUs Contractors
Experiences and best practices sharing	- Experiences on EMP implementation – issues and challenges - Best practices followed	1 day on a regular period to be determined by PMU, PIUs, and PMSC	PMU PIUs Contractors

### C. Staffing Requirement and Budget

64. Costs required for implementing the EARF will cover the following activities:

- (i) Conducting environmental assessments of new subprojects, preparing and submitting reports and public consultation and disclosure;
- (ii) Application for Environmental Clearance; and
- (iii) Implementation of EMP and long-term surveys.

65. For budgeting purposes it is assumed that all new subprojects will be classified by ADB as Category B (requiring IEE), and that the report will also be deemed satisfactory by DoE. Some subprojects may require a simpler environmental review, but this is discounted for budgeting purposes. LGED and DPHE will aim to produce a single document that is acceptable to both ADB and DoE to avoid duplication of effort, and the documents produced by the PPTA will be used as a guide.

66. Each of the IEEs prepared to date involved approximately two weeks of effort by an experienced environmental specialist, conducting the following activities: (i) site visit to assess environmental conditions and potential impacts of the scheme; (ii) liaison with the city corporation and others to obtain any environmental/social data that might be available locally (e.g. population figures, designated sites, etc); (iii) consultation with the local community to inform them about the scheme and identify their views and concerns; (iv) assessment of impacts and development of mitigation; and (v) desk study and report preparation.

67. The infrastructure involved in each scheme is generally straightforward and will take between one to two years to build. Environmental monitoring during construction will also be straightforward and will involve periodic site observations and interviews with workers and others, plus checks of reports and other documents. This will be conducted by a national environmental management specialist of the management and supervision consultant as well as assisted by the PMU environment officer. The environmental management specialist of the management and supervision consultant will prepare EIAs, IEEs, or environmental reviews for new subprojects. The budget therefore includes the full cost of the Environmental Specialist.

68. The cost of mitigation measures and surveys during construction stage will be incorporated into the contractor's costs, which will be binding on him for implementation. The surveys will be conducted by the contractors.

69. The operation phase mitigation measures are again of good operating practices, which will be the responsibility of the PIUs. All monitoring during the operation and maintenance phase will be conducted by LGED and DPHE; therefore, there are no additional costs.

70. The indicative costs of EARF implementation are shown in Table 6.

**Table 6: Indicative Cost of EARF Implementation**

Component	Description	Number	Cost Per Unit (USD)	Cost (USD)	Source of Funds
<b>A. Consultants Costs</b>					
PDA Environmental Expert	Responsible for updating IEEs based on detailed design and preparation of new IEEs	18 person months	\$4,000	\$72,000	Remuneration and budget for travel covered in the PDA contract
PMSC Environmental Safeguards Specialist	Responsible for environmental safeguards of the project	36 person months (spread over entire project implementation period)	\$4,000	\$144,000	Remuneration and budget for travel covered in the PMSC contract
<b>B. Administrative Costs</b>					
Legislation, permits, and agreements	Permit for excavation, tree-cutting permits, etc	Lump sum	\$1,000	\$1,000	These consents are to be obtained by contractor at his own expense.
	Environmental assessment and environmental clearances as per ECA and ECR requirements	Lump sum	\$50,000	\$50,000	LGED DPD cost for municipal infrastructures
		Lump sum	\$50,000	\$50,000	DPHE cost for water supply and sanitation
Obtaining right of way clearances with related national agencies.					
<b>C. Environmental Monitoring Costs</b>					
Baseline monitoring prior to construction	During detailed design stage to establish existing environmental conditions	Lump sum	\$10,000	\$10,000	Included in the PDA contract
	Before start of construction works	1 sample each for noise, ambient air quality, receiving/adjacent	\$1,000 per subproject	\$20,000	Contractor's cost

Component	Description	Number	Cost Per Unit (USD)	Cost (USD)	Source of Funds
		body of water			
Monitoring during construction	Sampling sites near sensitive areas (schools, hospitals, places of worship, historical/cultural areas)	Portable noise meters	Contractor's liability	Not applicable	Contractor's cost
<b>D. Other Costs</b>					
Public consultations and information disclosure	Information disclosure and consultations during preconstruction and construction phase, including public awareness campaign through media	As per requirement	Lump sum	\$500,000	Covered under PMSC and ICCDC contracts
Capacity building	(i) Orientation workshop for officials involved in the project implementation on ADB Safeguards Policy Statement, Government of Bangladesh environmental laws and regulations, and environmental assessment process; (ii) induction course contractors, preparing them on EMP implementation and environmental monitoring requirements related to mitigation measures; and taking immediate action to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of implementation; and (iii) lessons learned information sharing	Module 1 – immediately upon engagement of the PMSC environmental safeguards specialist  Module 2 – prior to award of civil works contracts (twice a year for 4 years)  Module 3 – prior to start of Phase 2 and upon completion of the project	Module 1 - \$500  Module 2 - \$200  Module 3 - \$500	\$4,700	Covered under PMSC and ICCDC contracts
GRM implementation	Costs involved in resolving complaints (meetings, consultations, communication, and reporting/information dissemination)	Lump sum	Part of administration cost of PMUs	\$1,500 per year	PMU cost
Any unanticipated impact due to project implementation	Mitigation of any unanticipated impact arising during construction phase and defect liability period	Lump sum	Contractor's liability	As per insurance requirement	Contractor's insurance

## VII. MONITORING AND REPORTING

71. PMU will monitor and measure the progress of EMP implementation. The monitoring activities will correspond with the project's risks and impacts. In addition to recording information on the work and deviation of work components from original scope PMU, PIUs, and PMSC will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome.

72. PMSC will submit monthly monitoring and implementation reports to PMU, who will take follow-up actions, if necessary. PMU will submit semi-annual monitoring reports to ADB. The

suggested monitoring report format is in Appendix 7. Subproject budgets will reflect the costs of monitoring and reporting requirements. For projects likely to have significant adverse environmental impacts during operation, reporting will continue at the minimum on an annual basis. Monitoring reports will be posted in a location accessible to the public.

73. For projects likely to have significant adverse environmental impacts, LGED and DPHE will retain qualified and experienced external experts to verify its monitoring information. LGED and DPHE will document monitoring results, identify the necessary corrective actions, reflect them in a corrective action plan, and for each quarter, will study the compliance with the action plan developed in the previous quarter. Compliance with loan covenants will be screened by the Local Government Division (LGD) of the Ministry of Local Government, Rural Development, and Cooperatives (MLGRDC).

74. ADB will review project performance against the MLGRDC'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 social and 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 or social impacts;
- (ii) conduct supervision missions with detailed review by ADB's safeguard specialists/officers or consultants for projects with significant adverse social or environmental impacts;
- (iii) review the periodic monitoring reports submitted by EAs to ensure that adverse impacts and risks are mitigated, as planned and as agreed with ADB;
- (iv) work with EAs 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
- (v) prepare a project completion report that assesses whether the objective and desired outcomes of the safeguard plans have been achieved, taking into account the baseline conditions and the results of monitoring.

## APPENDIX 1: RELEVANT GOVERNMENT OF BANGLADESH ENVIRONMENTAL LEGISLATIONS

	Legislation	Description	Regulatory Body	Applicable Requirements for the Project
1	Environmental Conservation Act of 1995 and amendments in 2000, 2002 and 2010 <sup>1</sup>	- Provide, amongst others items, standards and guidelines for: (i) categorization of industries and development projects, (ii) requirement for undertaking IEE and EIA, as well as formulating an EMP according to categories of industries/development projects/activities, (iii) procedure for obtaining environmental clearance; and (iv) environmental quality standards for air, surface water, groundwater, drinking water, industrial effluents, emissions, noise and vehicular exhaust - Specify which activities are permissible and which restricted in ecologically critical areas <sup>2</sup>	Department of Environment (DOE) under the Ministry of Environment and Forest (MoEF)	- Restriction on operation and process, which can be continued or cannot be initiated in the ecologically critical areas - Regulation on vehicles emitting smoke harmful to the environment - Remedial measures for injuries to ecosystems - Standards for quality of air, water, noise and soil for different areas for various purposes - Standard limit for discharging and emitting waste - Environmental guidelines
2	Environmental Conservation Rules of 1997 and amendments in 2002 and 2003	- Environmental quality standards for air, surface water, groundwater, drinking water, industrial effluents, emissions, noise and vehicular exhaust - Specify which activities are permissible and which restricted in ecologically critical areas <sup>2</sup>		- Environmental clearances - Compliance to environmental quality standards
3	Forest Act of 1927 and amendments (2000)	- Emphasis is on the protection of reserved forest: (i) all rights or claims over forestlands have been settled at the time of the reservation and prohibits the grant of any new rights of any kind to individuals or communities; (ii) any activity within the forest reserves is prohibited, unless permitted by the Forest Department; (iii) most of the violations may result in court cases; and (iv) empowers the Forest Department to regulate the use of water-courses within Reserve Forests.	Forest Department	- Clearance for any felling, extraction, and transport of forest produce
4	Bangladesh Climate Change Strategy and	- A comprehensive strategy to address climate change challenges built around the	Climate Change Unit of MoEF	- Ensure existing assets (e.g., coastal and river embankments) are well maintained and fit for

<sup>1</sup> *ECA Amendment 2000* focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures both for fines and imprisonment and the authority to take cognizance of offences. *ECA Amendment 2002* elaborates restrictions on polluting automobiles; restrictions on the sale, production of environmentally harmful items like polythene bags; assistance from law enforcement agencies for environmental actions; break up of punitive measures; and authority to try environmental cases. In *ECA Amendment 2010*, no individual or institution (government or semi-government/non-government/self-governing can cut any hill or hillock; fill-up or changed any remarked water body however in case of national interest; the mentioned activities can be done after getting clearance from respective the departments.

<sup>2</sup> Sunderban, Cox's Bazar-Tekhnaf Sea Shore, Saint Martin Island, Sonadia Island, Hakaluki Haor, Yanguar Haor, Marzat Baor and Gulshan-Baridhara Lake

	Legislation	Description	Regulatory Body	Applicable Requirements for the Project
	Action Plan of 2009	following six themes: (i) food security, social protection and health; (ii) comprehensive disaster management; (iii) infrastructure; (iv) research and knowledge management; (v) mitigation and low carbon development; and (vi) Capacity building and Institutional strengthening		purpose and that urgently needed infrastructures (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change. - enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change
5	National Water Policy of 1999	- All agencies and departments entrusted with water resource management responsibilities (regulation, planning, construction, operation and maintenance) will have to enhance environmental amenities and ensure that environmental resources are protected and restored while executing their activities. The policy has several clauses related to the protection and conservation of the natural environment to ensure sustainable development.	Water Resources Planning Organization (WARPO) under the National Water Resources Council of the Ministry of Water Resources	- EIA for water development projects and increase surface water flow - Pre-screening of IEEs/EIAs for water sector projects by WARPO, in advance of submission to DOE for final clearance. - Augmentation for dry season water flow - Awareness-raising in consumptive use of surface and groundwater for irrigation - Structural and non-structural mitigation (early warning and flood proofing)
6	National Safe Drinking Water Supply and Sanitation Policy of 1998	- Basic framework for the improvement of public health quality and to ensure an improved environment, together with a set of broad sectoral action guidelines.	Department of Public Health Engineering (DPHE)	- Pourasabhas and WASAs will take actions to prevent wastage of water. In addition they will take necessary steps to increase public awareness to prevent misuse of water. - Sanitation systems shall be self-sufficient and self-sustaining. - Pourasabhas shall be responsible for solid waste collection, disposal and their management. DOE shall be consulted on solid waste management. - Where WASAs exists, they shall be responsible for sewerage and storm water drainage systems.

## APPENDIX 2: ENVIRONMENTAL STANDARDS AND APPLICATION FEES

The standards for air, water, sound, odor and other components of the environment applicable to the project shall be determined in accordance with the standards specified in Schedules 2, 3, 4, 5, 6, and 8 of ECR, 1997.

	Standards	ECR, 1997 (Rule 12) <a href="http://www.moef.gov.bd/html/laws/env_law/178-189.pdf">http://www.moef.gov.bd/html/laws/env_law/178-189.pdf</a>
1.	Air	Schedule 2
2.	Inland surface water Drinking water	Schedule 3
3.	Sound	Schedule 4
4.	Sound Originating from Motor Vehicles or Mechanized Vessels	Schedule 5
5.	Emission from Motor Vehicles	Schedule 6
7.	Odor	Schedule 8

The standard limits of discharge of liquid waste and gaseous emissions applicable to the project shall be determined in accordance with the standards specified in Schedule 9 and 10

	Environmental Component	ECR, 1997 (Rule 13) <a href="http://www.moef.gov.bd/html/laws/env_law/178-189.pdf">http://www.moef.gov.bd/html/laws/env_law/178-189.pdf</a>
1.	Sewage Discharge	Schedule 9
2.	Waste from Industrial Units or Projects Waste (see discharge to inland surface water and irrigated land)	Schedule 10

The fees for issuance of environmental clearance certificate and its renewal shall be payable in accordance with Schedule 13. The fees for analysis of samples of water, liquid waste, air and sound and also the information or data derived from such analysis are described in Schedule 14.

	Fees	ECR, 1997 (Rule 14 and 15) <a href="http://www.moef.gov.bd/html/laws/env_law/178-189.pdf">http://www.moef.gov.bd/html/laws/env_law/178-189.pdf</a>
1.	Environmental clearance certificate or renewal	Schedule 13
2.	Supplying various analytical information or data or test results of samples of water, effluent, air and sound	Schedule 14



<sup>1</sup>“SCHEDULE – 13

**Fees for Environmental Clearance Certificate or Renewal**  
[See Rules 7(5), 8(2) and 14]

**1. Industrial unit or project**

Investment (in Taka)	Fees for Environmental Clearance Certificate (in Taka)	Certificate Renewal Fee
(1)	(2)	(3)
(a) Between Tk. 100,000 and 5,00,000	Tk. 1,500	One-fourth of the fees in Column (2).
(b) Between Tk. 5,00,000 and 10,00,000	Tk. 3,000	-Do-
(c) Between Tk. 10,00,000 and 50,00,000	Tk. 5,000	-Do-
(d) Between Tk. 50,00,000 and 10,00,00,000	Tk. 10,000	-Do-

<sup>1</sup> Schedule-13 was substituted by Notification S.R.O. No. 234-Law/2002 dated 24/08/2002 and came into force on 26/08/2002 being the date of publication in Bangladesh Gazette extraordinary issue.

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(1)	(2)	(3)
(e) Between Tk. 10,000,000 and 2,00,000,000	Tk. 25,000	One-fourth of the fees in Column (2).
(f) Between Tk. 2,00,000,000 and 5,00,000,000	Tk. 50,000	-Do-
(g) Above Tk. 5,00,000,000	Tk. 1,00,000	-Do-

### APPENDIX 3: ANTICIPATED ENVIRONMENTAL IMPACTS DUE TO PROJECT IMPLEMENTATION

Impact Field	Anticipated Impact on the Environment
<b>Design phase</b>	
Environmental clearances	Environmental clearances, consents, and permits are required (Section II of the EARF) in order to implement the project. If not pursued on time, this can delay the project. Necessary environmental clearances and permits have to be obtained and must follow the guidelines issued by the authorities.
<b>Construction phase</b>	
Air quality	Emissions from construction vehicles, equipment, and machinery used for excavation and construction, resulting in dust and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons
Surface water quality	Mobilization of settled silt materials, runoff from stockpiled materials, and chemical contamination from fuels and lubricants during construction works can contaminate downstream surface water quality.
Noise levels	Increase in noise level due to earth-moving and excavation equipment and the transportation of equipment, materials, and people. Operation of heavy equipment and machines in the nighttime can cause nuisance to the surrounding environment/ people.
Ecological resources	Felling of the trees affects terrestrial ecological balance.
Sources of materials	Extraction of materials can disrupt natural land contours and vegetation, resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and waterlogging, and water pollution.
Existing infrastructure, facilities and utilities	Telephone lines, electric poles and wires, and water pipes (old) existing within right-of-way (ROW) require shifting without disruption to services. Health risk due to closure of existing water supply, such as community tanks, water stations, and privately-owned small water pipes
Construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Locations may cause encroachment/impact either directly or indirectly on adjacent environments. It may also include impacts on the people who might lose their homes or livelihoods due to the project activities. Temporary air and noise pollution from machine operation, and water pollution from storage and use of fuels, oils, solvents, and lubricants. This may cause conflict with residents and problem of waste disposal and disruptions to residents.
Construction waste	Excavation works, cleaning of drainages and trenching will produce additional amounts of waste soil. Accumulation of debris waste materials and stockpiling can cause environmental visual pollution.
Social and cultural resources	Sites of social/cultural importance (schools, hospitals, religious places, tourism sites) may be disturbed by noise, dust, vibration, and impeded access. Ground disturbance can uncover and damage archaeological and historical remains.
Landscape and aesthetics	Solid wastes as well as excess construction materials create unacceptable aesthetic conditions.
Traffic	Traffic flow will be disrupted if routes for delivery of construction materials and temporary blockages during construction activities are not planned and coordinated.
Accessibility	Traffic problems and conflicts in ROW. Roads, people, and businesses may be disturbed by repeated trenching.
Income	Impede the access of residents and customers to nearby shops. Shops may lose business temporarily.
Occupational health and safety	Occupational hazards which can arise during construction (e.g., trenching, falling objects, etc.).
Community health and safety	Community hazards can arise during construction (e.g., open trenches, air quality, noise, falling objects, etc.). Trenching on concrete roads using pneumatic drills will cause noise and air pollution. Traffic accidents and vehicle collision with pedestrians during material and waste transportation
<b>Post-construction phase</b>	
Clean-up operations, restoration and	Impacts on social or sensitive receptors when post-construction

Impact Field	Anticipated Impact on the Environment
rehabilitation	requirements are not undertaken, e.g. proper closure of camp, disposal of solid waste, and restoration of land after project construction.
<b>Operation and maintenance phase</b>	
Environmental Clearance Certificate renewal	For orange and red category projects the ECC must be renewed every year, for which the fee is 25% of the original application.
General maintenance	Maintenance activities may cause disturbance to sensitive receptors, dust, and increase in noise level.
Economic development	Impediments to residents and businesses during routine maintenance
Biodiversity fauna and flora	The proposed development is situated within an existing built-up area where the wastewater infrastructures already exist. No areas of ecological diversity occur within the project location. Due to the nature and locality of the project, there is unlikely to any significant impacts on biodiversity within the area during maintenance works. The use of fertilizers and herbicides in maintenance of newly planted trees, landscape and vegetation may, however, affect the environment.
Health and safety	<p>Danger of operations and maintenance-related injuries  Safety of workers and general public must be ensured.  Poor waste management practices and unhygienic conditions at the improved facilities can breed diseases.  Standing water due to inadequate storm water drainage systems and inadequate waste management practices pose a health hazard by providing breeding grounds for disease vectors such as mosquitoes, flies, and rats.</p>
Solid waste	Solid waste residuals which may be generated during operations and maintenance activities. Sludge will be generated from water treatment plants. Biosolids will be generated from septage treatment plants.
Hazardous chemicals	Water treatment involves the use of chemicals for coagulation, disinfection, and water conditioning.

## APPENDIX 4: RAPID ENVIRONMENTAL ASSESSMENT CHECKLISTS

### 1. Roads, bridges and culverts

Screening Questions	Yes	No	Remarks
<b>A. Project Siting</b>			
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>B. Potential Environmental Impacts</b>			
Will the Project cause...			
▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?			
▪ encroachment on precious ecology (e.g. sensitive or protected areas)?			
▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?			
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?			
▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing?			
▪ 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?			
▪ noise and vibration due to blasting and other civil works?			
▪ dislocation or involuntary resettlement of people?			
▪ dislocation and compulsory resettlement of people living in right-of-way?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?			
▪ hazardous driving conditions where construction interferes with pre-existing roads?			
▪ 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?			
▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?			
▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?			
▪ increased noise and air pollution resulting from traffic volume?			
▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?			
▪ social conflicts if workers from other regions or countries are hired?			
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>▪ 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?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>			
<p><b>Climate Change and Disaster Risk Questions</b> The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.</p>	Yes	No	Remarks
<ul style="list-style-type: none"> <li>▪ Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Could changes in temperature, precipitation, or extreme events patterns over the project lifespan affect technical or financial sustainability (e.g., increased erosion or landslides could increase maintenance costs, permafrost melting or increased soil moisture content could affect sub0-grade)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by encouraging settlement in areas that will be more affected by floods in the future, or encouraging settlement in earthquake zones)?</li> </ul>			

Note: Hazards are potentially damaging physical events.

## 2. Solid Waste Management

Screening Questions	Yes	No	Remarks
<p><b>A. Project Siting</b> Is the project area adjacent to or within any of the following environmentally sensitive areas?</p>			
<ul style="list-style-type: none"> <li>▪ Cultural heritage site</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Protected Area</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Wetland</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Mangrove</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Estuarine</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Buffer zone of protected area</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Special area for protecting biodiversity</li> </ul>			
<p><b>C. Potential Environmental Impacts</b> Will the Project cause...</p>			
<ul style="list-style-type: none"> <li>▪ impacts associated with transport of wastes to the disposal site or treatment facility</li> </ul>			
<ul style="list-style-type: none"> <li>▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ degradation of aesthetic and property value loss?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ nuisance to neighboring areas due to foul odor and influx of insects, rodents, etc.?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ dislocation or involuntary resettlement of people?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ risks and vulnerabilities related occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ public health hazards from odor, smoke from fire, and diseases transmitted by flies, insects, birds and rats?</li> </ul>			

<b>Screening Questions</b>	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
▪ deterioration of water quality as a result of contamination of receiving waters by leachate from land disposal system?			
▪ contamination of ground and/or surface water by leachate from land disposal system?			
▪ land use conflicts?			
▪ pollution of surface and ground water from leachate coming from sanitary landfill sites or methane gas produced from decomposition of solid wastes in the absence of air, which could enter the aquifer or escape through soil fissures at places far from the landfill site?			
▪ inadequate buffer zone around landfill site to alleviate nuisances?			
▪ road blocking and/or increased traffic during construction of facilities?			
▪ noise and dust from construction activities?			
▪ temporary silt runoff due to construction?			
▪ hazards to public health due to inadequate management of landfill site caused by inadequate institutional and financial capabilities for the management of the landfill operation?			
▪ emission of potentially toxic volatile organics from land disposal site?			
▪ surface and ground water pollution from leachate and methane gas migration?			
▪ loss of deep-rooted vegetation (e.g. trees) from landfill gas?			
▪ explosion or toxic response from accumulated landfill gas in buildings?			
▪ contamination of air quality from incineration?			
▪ public health hazards from odor, smoke from fire, and diseases transmitted by flies, rodents, insects and birds, etc.?			
▪ health and safety hazards to workers from toxic gases and hazardous materials in the site?			
▪ 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 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?			
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components (e.g., landfill or incinerator) 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?			
<b>Climate Change and Disaster Risk Questions</b> The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.			
▪ Is the project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes?			
▪ Could changes in temperature, precipitation, or extreme events patterns over the project lifespan affect technical or financial sustainability (e.g., increased erosion or landslides could increase maintenance costs, permafrost melting or increased soil moisture content could affect sub0-grade)?			
▪ Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements,			

Screening Questions	Yes	No	Remarks
ethnic minorities, women or children)?			
<ul style="list-style-type: none"> <li>▪ Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by encouraging settlement in areas that will be more affected by floods in the future, or encouraging settlement in earthquake zones)?</li> </ul>			

Note: Hazards are potentially damaging physical events.

### 3. Buildings (Cyclone Shelters, Boat Landings, Markets, and Bus Terminals)

Screening Questions	Yes	No	Remarks
<b>A. Project Siting</b>			
Is the project area adjacent to or within any of the following areas:			
<ul style="list-style-type: none"> <li>▪ Underground utilities</li> <li>▪ Cultural heritage site</li> <li>▪ Protected Area</li> <li>▪ Wetland</li> <li>▪ Mangrove</li> <li>▪ Estuarine</li> <li>▪ Buffer zone of protected area</li> <li>▪ Special area for protecting biodiversity</li> <li>▪ Bay</li> </ul>			
<b>B. Potential Environmental Impacts</b>			
Will the Project cause...			
<ul style="list-style-type: none"> <li>▪ Encroachment on historical/cultural areas?</li> <li>▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?</li> <li>▪ Impacts on the sustainability of associated sanitation and solid waste disposal systems?</li> <li>▪ Dislocation or involuntary resettlement of people?</li> <li>▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?</li> <li>▪ Accident risks associated with increased vehicular traffic, leading to loss of life?</li> <li>▪ Increased noise and air pollution resulting from increased traffic volume?</li> <li>▪ Occupational and community health and safety risks?</li> <li>▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?</li> <li>▪ Generation of dust in sensitive areas during construction?</li> <li>▪ Requirements for disposal of fill, excavation, and/or spoil materials?</li> <li>▪ Noise and vibration due to blasting and other civil works?</li> <li>▪ Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction?</li> <li>▪ Long-term impacts on local hydrology as a result of building hard surfaces in or near the building?</li> <li>▪ Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?</li> <li>▪ Social conflicts if workers from other regions or countries are hired?</li> </ul>			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>▪ Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Risks to community health and safety caused by management and disposal of waste?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 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?</li> </ul>			

Note: Hazards are potentially damaging physical events.

#### 4. Drainage and Flood Control

Screening questions	Yes	No	Remarks
<b>A. Project siting</b>			
Is the project area adjacent to or within any of the following environmentally sensitive areas?			
<ul style="list-style-type: none"> <li>▪ Cultural heritage site</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Protected area</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Wetland</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Mangrove</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Estuarine</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Buffer zone of protected area</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Special area for protecting biodiversity</li> </ul>			
<b>B. Potential environmental impacts</b>			
Will the project cause...			
<ul style="list-style-type: none"> <li>▪ impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services.</li> </ul>			
<ul style="list-style-type: none"> <li>▪ deterioration of surrounding environmental conditions due to rapid urban population growth, commercial and industrial activity, and increased waste generation to the point that both manmade and natural systems are overloaded and the capacities to manage these systems are overwhelmed?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ dislocation or involuntary resettlement of people?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable group?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ degradation of cultural property, and loss of cultural heritage and tourism revenues?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ occupation of low-lying lands, floodplains and steep hillsides by squatters and low-income groups, and their exposure to increased health hazards and risks due to pollutive industries?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality , and pollution of receiving waters)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ air pollution due to urban emissions?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical and biological hazards during project construction and operation?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ road blocking and temporary flooding due to land excavation during rainy season?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ noise and dust from construction activities?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ traffic disturbances due to construction material transport and wastes?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ temporary silt runoff due to construction?</li> </ul>			



Screening questions	Yes	No	Remarks
▪ hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?			
▪ water depletion and/or degradation?			
▪ overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?			
▪ contamination of surface and ground waters due to improper waste disposal?			
▪ pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?			
▪ 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 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?			
▪ 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?			
<b>Climate Change and Disaster Risk Questions</b> The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
▪ Is the project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes?			
▪ Could changes in temperature, precipitation, or extreme events patterns over the project lifespan affect technical or financial sustainability (e.g., increased erosion or landslides could increase maintenance costs, permafrost melting or increased soil moisture content could affect sub0-grade)?			
▪ Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?			
▪ Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by encouraging settlement in areas that will be more affected by floods in the future, or encouraging settlement in earthquake zones)?			

Note: Hazards are potentially damaging physical events.

## 5. Water Supply

Screening questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any environmentally sensitive areas?...			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Cultural heritage site			
▪ Protected area			
▪ Wetland			
▪ Mangrove			
▪ Estuarine			
▪ Buffer zone of protected area			
▪ Special area for protecting biodiversity			
▪ Bay			

Screening questions	Yes	No	Remarks
B. Potential environmental impacts Will the project cause...			
▪ Pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff?			
▪ Impairment of historical/cultural monuments/areas and loss/damage to these sites?			
▪ Hazard of land subsidence caused by excessive ground water pumping?			
▪ Social conflicts arising from displacement of communities?			
▪ Conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?			
▪ Unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)?			
▪ Delivery of unsafe water to distribution system?			
▪ Inadequate protection of intake works or wells, leading to pollution of water supply?			
▪ Over pumping of ground water, leading to salinization and ground subsidence?			
▪ Excessive algal growth in storage reservoir?			
▪ Increase in production of sewage beyond capabilities of community facilities?			
▪ Inadequate disposal of sludge from water treatment plants?			
▪ Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?			
▪ Impairments associated with transmission lines and access roads?			
▪ Health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals.			
▪ 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?			
▪ Dislocation or involuntary resettlement of people?			
▪ Disproportionate impacts on the poor, women and children, indigenous peoples or other vulnerable groups?			
▪ Noise and dust from construction activities?			
▪ Increased road traffic due to interference of construction activities?			
▪ Continuing soil erosion/silt runoff from construction operations?			
▪ 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?			
▪ Delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals?			
▪ Accidental leakage of chlorine gas?			
▪ Excessive abstraction of water affecting downstream water users?			
▪ Competing uses of water?			
▪ Increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant			
▪ 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?			

Screening questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>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?</li> </ul>			
<ul style="list-style-type: none"> <li>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?</li> </ul>			
<p><b>Climate Change and Disaster Risk Questions</b>                      The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.</p>	Yes	No	Remarks
<ul style="list-style-type: none"> <li>Is the project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunamis or volcanic eruptions and climate changes?</li> </ul>			
<ul style="list-style-type: none"> <li>Could changes in temperature, precipitation, or extreme events patterns over the project lifespan affect technical or financial sustainability (e.g., increased erosion or landslides could increase maintenance costs, permafrost melting or increased soil moisture content could affect sub0-grade)?</li> </ul>			
<ul style="list-style-type: none"> <li>Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?</li> </ul>			
<ul style="list-style-type: none"> <li>Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by encouraging settlement in areas that will be more affected by floods in the future, or encouraging settlement in earthquake zones)?</li> </ul>			

Note: Hazards are potentially damaging physical events.

## 6. Sanitation

Screening Questions	Yes	No	Remarks
<p>A. Project siting                      Is the project area adjacent to or within any environmentally sensitive areas?...</p>			
<ul style="list-style-type: none"> <li>Densely populated?</li> </ul>			
<ul style="list-style-type: none"> <li>Heavy with development activities?</li> </ul>			
<ul style="list-style-type: none"> <li>Cultural heritage site</li> </ul>			
<ul style="list-style-type: none"> <li>Protected area</li> </ul>			
<ul style="list-style-type: none"> <li>Wetland</li> </ul>			
<ul style="list-style-type: none"> <li>Mangrove</li> </ul>			
<ul style="list-style-type: none"> <li>Estuarine</li> </ul>			
<ul style="list-style-type: none"> <li>Buffer zone of protected area</li> </ul>			
<ul style="list-style-type: none"> <li>Special area for protecting biodiversity</li> </ul>			
<ul style="list-style-type: none"> <li>Bay</li> </ul>			
<p>B. Potential Environmental Impacts                      Will the Project cause...</p>			
<ul style="list-style-type: none"> <li>impairment of historical/cultural monuments/areas and loss/damage to these sites?</li> </ul>			
<ul style="list-style-type: none"> <li>interference with other utilities and blocking of access to buildings; nuisance to neighboring areas due to noise, smell, and influx of insects, rodents, etc.?</li> </ul>			
<ul style="list-style-type: none"> <li>dislocation or involuntary resettlement of people?</li> </ul>			
<ul style="list-style-type: none"> <li>disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?</li> </ul>			
<ul style="list-style-type: none"> <li>impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?</li> </ul>			
<ul style="list-style-type: none"> <li>overflows and flooding of neighboring properties with raw</li> </ul>			

Screening Questions	Yes	No	Remarks
sewage?			
▪ environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?			
▪ noise and vibration due to blasting and other civil works?			
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards during project construction and operation?			
▪ discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?			
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?			
▪ road blocking and temporary flooding due to land excavation during the rainy season?			
▪ noise and dust from construction activities?			
▪ traffic disturbances due to construction material transport and wastes?			
▪ temporary silt runoff due to construction?			
▪ hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?			
▪ deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?			
▪ contamination of surface and ground waters due to sludge disposal on land?			
▪ health and safety hazards to workers from toxic gases and hazardous materials which maybe contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unstabilized sludge?			
▪ large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system)?			
▪ social conflicts between construction workers from other areas and community workers?			
▪ 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?			
▪ 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?			
<b>Climate Change and Disaster Risk Questions</b> The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
▪ Is the project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes?			
▪ Could changes in temperature, precipitation, or extreme events patterns over the project lifespan affect technical or financial sustainability (e.g., increased erosion or landslides could increase maintenance costs, permafrost melting or increased soil moisture content could affect sub0-grade)?			
▪ Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?			
▪ Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by encouraging settlement in areas that will be more affected by floods in the future,			

<b>Screening Questions</b>	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
or encouraging settlement in earthquake zones)?			

Note: Hazards are potentially damaging physical events.

**APPENDIX 5: OUTLINE OF AN ADB EIA OR IEE**

## Executive Summary

1. Introduction
2. Policy and Legislative Framework
3. Analysis of Alternatives
4. Proposed Description
  - 4.1 The Study Area
  - 4.2 Description of Site and Surroundings
  - 4.3 The Proposal
5. Assessment of Environmental Impacts and Safeguards
  - 5.1 Existing Environment
    - 5.1.1 Landforms, Geology and Soils
    - 5.1.2 Climatic Condition
    - 5.1.3 Water Quality
    - 5.1.4 Air Quality
    - 5.1.5 Acoustic Environment
    - 5.1.6 Biodiversity
    - 5.1.7 Physical and Cultural Heritage
    - 5.1.8 Socio-economic Conditions
  - 5.2 Impacts and Mitigation Measures
    - 5.2.1 Erosion Hazards
      - 5.2.1.1 Mitigation Measures
    - 5.2.2 Impacts on Water Quality
      - 5.2.2.1 Mitigation Measures
    - 5.2.3 Impacts on Air Quality
      - 5.2.3.1 Mitigation Measures
    - 5.2.4 Noise and Vibration Impacts
      - 5.2.4.1 Mitigation Measures
    - 5.2.5 Impacts on Flora and Fauna
      - 5.2.5.1 Mitigation Measures
    - 5.2.6 Impacts on Physical Cultural Resources
      - 5.2.6.1 Mitigation Measures
    - 5.2.7 Impact due to Waste Generation
    - 5.2.8 Impacts on Occupational and Community Health and Safety
    - 5.2.9 Greenhouse Gas Emissions (GHG)
    - 5.2.10 Cumulative Impacts
6. Information Disclosure, Consultation and Participation
7. Grievance Redress Mechanism
8. Environmental Management
9. Conclusion and Recommendations

**APPENDIX 6: SAMPLE GRIEVANCE REGISTRATION FORM**

(To be available in Bangla and English)

The \_\_\_\_\_ Project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.

Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing **\*(CONFIDENTIAL)\*** above your name. Thank you.

<b>Date</b>		<b>Place of Registration</b>			
<b>Contact Information/Personal Details</b>					
<b>Name</b>		<b>Gender</b>	* Male * Female	<b>Age</b>	
<b>Home Address</b>					
<b>Place</b>					
<b>Phone no.</b>					
<b>E-mail</b>					
<b>Complaint/Suggestion/Comment/Question</b> Please provide the details (who, what, where, and how) of your grievance below:					
If included as attachment/note/letter, please tick here:					
<b>How do you want us to reach you for feedback or update on your comment/grievance?</b>					

**FOR OFFICIAL USE ONLY**

<b>Registered by:</b> (Name of Official Registering Grievance)	
<b>Mode of Communication:</b> Note/Letter E-mail Verbal/Telephonic	
<b>Reviewed by:</b> (Names/Positions of Officials Reviewing Grievance)	
<b>Action Taken:</b>	
<b>Whether Action Taken Disclosed:</b>	Yes No
<b>Means of Disclosure:</b>	

## APPENDIX 7: SAMPLE SEMI-ANNUAL ENVIRONMENTAL MONITORING REPORT TEMPLATE

*This template must be included as an appendix in the EIA/IEE that will be prepared for the project. It can be adapted to the specific project as necessary.*

### I. Introduction

- Overall project description and objectives
- Description of sub-projects
- Environmental category of the sub-projects
- Details of site personnel and/or consultants responsible for environmental monitoring
- Overall project and sub-project progress and status

No.	Sub-Project Name	Status of Sub-Project				List of Works	Progress of Works
		Design	Pre-Construction	Construction	Operational Phase		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

### II. Compliance status with National/ State/ Local statutory environmental requirements

No.	Sub-Project Name	Statutory Environmental Requirements	Status of Compliance	Action Required

### III. Compliance status with environmental loan covenants

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required

### IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

- Provide the monitoring results as per the parameters outlined in the EMP. Append supporting documents where applicable, including Environmental Site Inspection Reports.
- There should be reporting on the following items which can be incorporated in the checklist of routine Environmental Site Inspection Report followed with a summary in the semi-annual report send to ADB. Visual assessment and review of relevant site documentation during routine site inspection needs to note and record the following:
  - What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;
  - If muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads;
  - adequacy of type of erosion and sediment control measures installed on site, condition of erosion and sediment control measures including if these were intact following heavy rain;
  - Are their designated areas for concrete works, and refueling;
  - Are their spill kits on site and if there are site procedure for handling emergencies;
  - Is there any chemical stored on site and what is the storage condition?
  - Is there any dewatering activities if yes, where is the water being discharged;
  - How are the stockpiles being managed;
  - How is solid and liquid waste being handled on site;
  - Review of the complaint management system;
  - Checking if there are any activities being under taken out of working hours and how that is being managed.



**Summary Monitoring Table**

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
<b>Design Phase</b>						
<b>Pre-Construction Phase</b>						
<b>Construction Phase</b>						
<b>Operational Phase</b>						

**Overall Compliance with EMP**

No.	Sub-Project Name	EMP Part of Contract Documents (Y/N)	EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed and Additional Measures Required

**V. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT**

- Brief description on the approach and methodology used for environmental monitoring of each sub-project

**VI. MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)**

- Brief discussion on the basis for monitoring
- Indicate type and location of environmental parameters to be monitored
- Indicate the method of monitoring and equipment to be used
- Provide monitoring results and an analysis of results in relation to baseline data and statutory requirements

As a minimum the results should be presented as per the tables below.

**Air Quality Results**

Site No.	Date of Testing	Site Location	Parameters (Government Standards)		
			PM10 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>

Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)		
			PM10 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>

**Water Quality Results**

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity µS/cm	BOD mg/L	TSS mg/L	TN mg/L	TP mg/L

Site No.	Date of Sampling	Site Location	Parameters (Monitoring Results)					
			pH	Conductivity µS/cm	BOD mg/L	TSS mg/L	TN mg/L	TP mg/L

**Noise Quality Results**

Site No.	Date of Testing	Site Location	L <sub>Aeq</sub> (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LA <sub>eq</sub> (dBA) (Monitoring Results)	
			Day Time	Night Time

**VII. SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS**

- Summary of follow up time-bound actions to be taken within a set timeframe.

**APPENDIXES**

- Photos
- Summary of consultations
- Copies of environmental clearances and permits
- Sample of environmental site inspection report
- Other

**SAMPLE ENVIRONMENTAL SITE INSPECTION REPORT**

Project Name  
 Contract Number

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
 TITLE: \_\_\_\_\_ DMA: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ GROUP: \_\_\_\_\_

WEATHER CONDITION:  
 \_\_\_\_\_

INITIAL SITE CONDITION: \_\_\_\_\_

CONCLUDING SITE CONDITION:  
 Satisfactory \_\_\_\_\_ Unsatisfactory \_\_\_\_\_ Incident \_\_\_\_\_ Resolved \_\_\_\_\_ Unresolved \_\_\_\_\_

INCIDENT:  
 Nature of incident:  
 \_\_\_\_\_

Intervention Steps:  
 \_\_\_\_\_

Incident Issues

Resolution

Project Activity Stage	Survey	
	Design	
	Implementation	
	Pre-Commissioning	
	Guarantee Period	

**Inspection**

Emissions	Waste Minimization
Air Quality	Reuse and Recycling
Noise pollution	Dust and Litter Control
Hazardous Substances	Trees and Vegetation

Site Restored to Original Condition Yes

Signature  
 \_\_\_\_\_

**Sign off**

\_\_\_\_\_  
**Name**  
**Position**

\_\_\_\_\_  
**Name**  
**Position**