Environmental Assessment and Review Framework

May 2014

BAN: Third Urban Governance and Infrastructure Improvement Project

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

CURRENCY EQUIVALENTS

(as of 7 May 2014)

Currency Unit	=	Tk
Tk1.00	=	$0.01289
$1.00	=	Tk 77.60

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 cell
GRM	–	grievance redress Mechanism
IEE	–	initial environmental examination
LCC	–	location clearance certificate
LGED	–	Local Government Engineering Department
MDS	–	Management Design Supervision
MLGRDC	–	Ministry of Local Government, Rural Development, and Cooperatives
O&M	–	operations and maintenance
PMO	–	project management office
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.

TABLE OF CONTENTS

I. INTRODUCTION

A. Overview

1. After the successful implementation of Urban Governance and Infrastructure Improvement Projects (UGIIP I and II)[1] in the selected *pourashavas*, Local Government Engineering Department (LGED) with the financial assistance of Asian Development Bank (ADB) have planned to implement a similar project (UGIIP-3) in selected thirty *pourashavas* over a period of 6 years (2014 to 2020).

2. The impact will be improved living environment in project towns. The outcome will be improved municipal service delivery and urban governance in project towns. Project towns are pre-selected 30 towns to be supported in an integrated manner under the project.. UGIIP-3 will improve existing and provide new municipal infrastructures including (i) roads; (ii) drainages; (iii) water supply system; (iv) solid waste management facilities; (v) slaughterhouses; (vi) markets, community center/auditorium, bus and truck terminals and river *ghats*; (vii) public toilets; and (viii) others such as provision for street lighting and improvement of slums.

3. A sector-lending approach will be used for the project as it has been well established and successfully practiced in the UGIIP I and II.

4. The Local Government Engineering Department (LGED) and the Department of Public Health Engineering (DPHE), both under the Local Government Division (LGD) of the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C) and having extensive experience in managing urban and water supply projects financed by ADB, will be the executing agencies of the project. The participating *pourashavas* are the implementing agencies. 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

5. The 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 ADB Board approval. The subproject selection will be in accordance with the environmental project selection criteria as outlined in this EARF. The executing agency 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.

6. 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

[1] The Government of Bangladesh with the assistance of ADB has introduced a system whereby funds/loans for development are disbursed in a phased manner based on the successful accomplishment by the recipient *pourashavas* of a set of performance-criteria in the area of urban governance. UGIIP I and II reflect this approach that aims to incentivize participating *pourashavas* to become well-managed and maintained towns in a sustainable way through systems of governance ensuring citizen's participation and inclusion of women, poor and the minority groups in *pourashava* activities. UGIIP I targeted for 27 and UGIIP II for 47 *pourashavas*. The subprojects were (i) water supply (ii) sanitation, (iii) solid waste management, (iv) urban drainage, (v) urban transport & communication and (vi) public use facilities.

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.

7. The EARF ensures systematic assessment process for all subprojects, in the entirety of their project cycle..

C. Environmental Categorization

8. The scope of the project includes 13 infrastructure categories: (i) roads, (ii) drains, (iii) street lighting, (iv) river bank and *ghat*, (v) community center/auditorium, (vi) bus terminals, (vii) truck terminals, (viii) slaughterhouse, (ix) improvement of slums, (x) markets, (xi) public toilets, (xii) water supply, and (xiii) solid waste management. The target *pourashavas* are shown in **Figure 1**.

9. As part of the project preparatory technical assistance (PPTA 39295-032 BAN), environmental assessment for three sample *pourashavas*[2] was conducted and 5 sample initial environmental examination (IEE) reports[3]with environmental management plans (EMPs) were prepared in accordance with requirements of ADB SPS. The IEEs concluded that the project will have only low-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 *pourashava*s, and are thus expected to be category B due to the low-impact nature of such works. No category A type of works (with significant impacts) are anticipated.

[2] The three sample *pourashavas* include Naogaon, Lalmonirhat and Magura

[3] Five draft initial environmental examinations (IEEs) with environmental management plans (EMPs) were prepared for the following sample subprojects in accordance with ADB's Safeguard Policy Statement (SPS), 2009, and government laws: (i) roads in Lalmonirhat (ii) drains in Naogaon; (iii) water supply in Lalmonirhat; (iv) markets in Magura; and (v) solid waste management in Magura. 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.

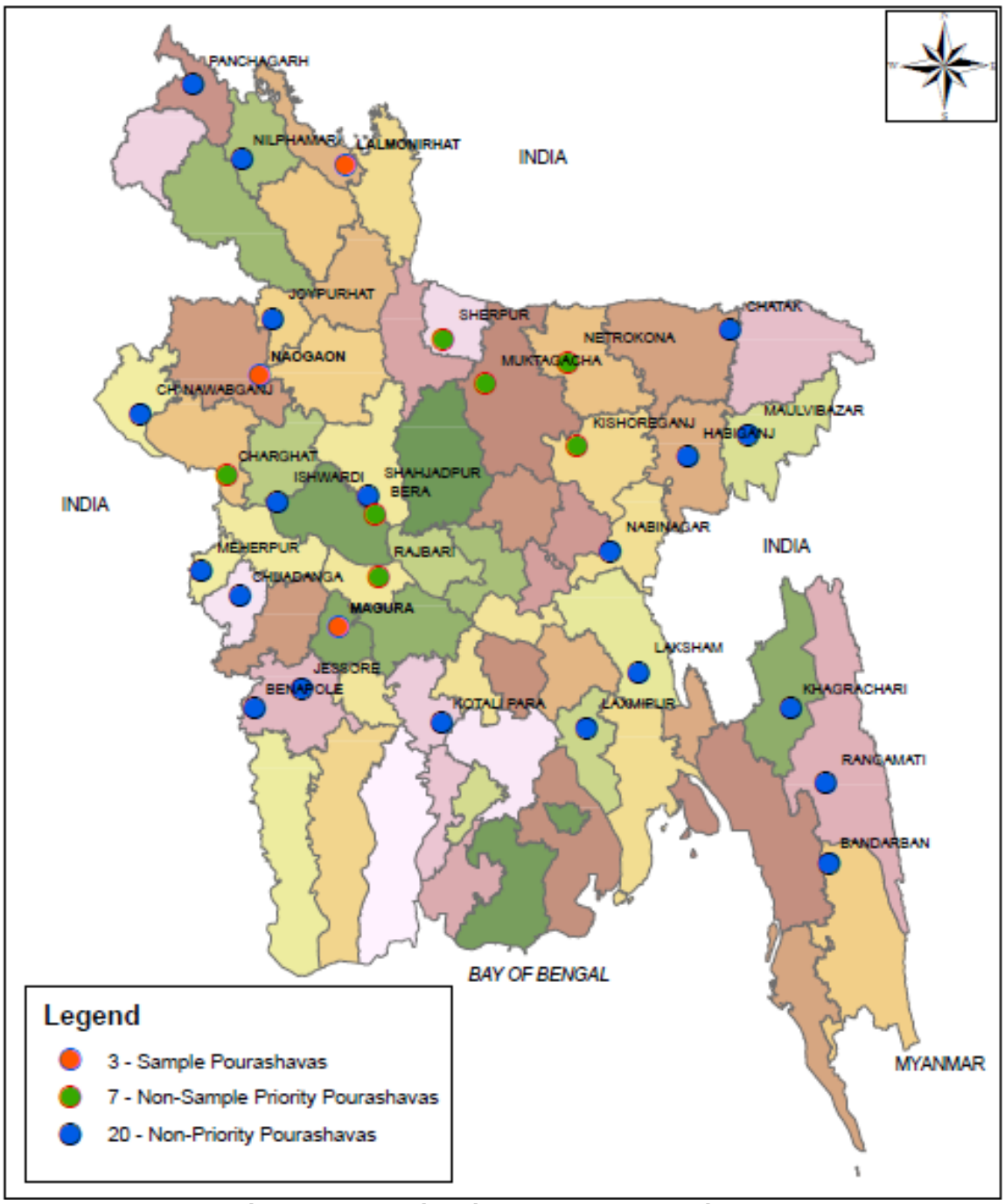


Figure 1: Map showing UGIIP-3 Pourashavas

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. Environmental Legislation

10. Under the project, the 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. Of these the most important ones are the Environment Conservation Act, 1995 (ECA, 1995), and the Environment Conservation Rules (ECR, 1997).

11. In addition to the ECA, 1995 and ECR, 1997 there are a number of other policies, plans and strategies which deal with the sectors the proposed subprojects fall in. Table 1 provides salient features and applicability of the legislations to the project. Appendix 1 presents relevant Government of Bangladesh environmental legislations. Appendix 2 provides the environmental standards for air, surface water, groundwater, drinking water, emissions, noise and vehicular exhaust those relevant to the environmental issues expected to be triggered out of the construction works of the subprojects.

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[4]	- 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 and limits for discharging and emitting waste - Environmental guidelines
2.	Environmental Conservation Rules of 1997 and amendments in 2002 and 2003	- Environmental clearances - Compliance to environmental quality standards
3.	Forest Act of 1927 and amendments in 2000	- Clearance for any project within the forest areas **(Figure 2)** - Clearance for any felling, extraction, and transport of forest produce
4.	Bangladesh Climate Change Strategy and Action Plan of 2009	- Enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change
6.	National Safe Drinking Water Supply and Sanitation Policy of 1998	- *Pourashavas* and water and sanitation authorities (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. - *Pourashavas* 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.
7.	Bangladesh Labor Law of 2006	- Compliance to the provisions on employment standards, occupational safety and health, welfare and social protection, labor relations and social dialogue, and enforcement - Prohibition of employment of children and adolescent
8.	Bangladesh Pure Food (Amendment) Act 2005	- Compliance on the provision on modern slaughterhouses with hygienic facilities - Compliance on the process of animal slaughtering
9.	Guideline for Sanitary Slaughtering of Animals in City Corporations and Municipalities	- Guidance on sanitary slaughtering of animals to ensure healthy living environment; - Requirement for proper waste management system incorporating measures for the handling, recycling, treating, and disposing of slaughterhouse wastes (liquid and solid).

B. Government of Bangladesh Environmental Assessment Procedures

12. Under 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

[4] *ECA Amendment 2000* focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures for both 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.

prerequisite for granting the environmental clearance certificate (ECC) that allows the project to proceed. The ECA indicates that all industrial units or projects must obtain a location clearance certificate (LCC) and ECC from the Department of Environment (DoE).

13. Schedule 1 of the law provides a classification for industrial projects and types of development that are common in Bangladesh. Table 2 indicates 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, 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.	Road improvement (roads, bridges and culverts)	Road provisions (include new road, road resurfacing, roadside footpath, roadside drains, road signs, road/pavement markings, intersection improvement, or high mast lighting)	Construction, re-construction and extension of road (feeder road, local road)	Orange–B
		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.	Drainage improvement	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)		
3.	Improvement of street lighting	Installation of electric poles, electric lines and electric bulbs	No similar facility	Orange-B
4.	River bank and *ghat* development	River bank protection works	Engineering works (up to 10 hundred thousand Taka capital)	Orange-B
		Construction of boat landing jetties		
5.	Community center/ auditorium	Construction of community building	No similar facility	Orange-B (because impacts similar to hotel, multi-storied commercial and apartment building which is Orange-B as per ECR,1997)
6.	Bus/truck terminals	New or refurbishment of bus/truck terminals	Engineering works (up to 10 hundred thousand Taka capital	Orange-B
7.	Slaughterhouse	Construction of shed	No similar facility	Orange-B[5]
		Drains		
		Animal waste disposal and treatment		
8.	Slum Improvement	Construction of footpath, low-cost toilets, community	Engineering works (up to 10 hundred thousand Taka capital	Orange-B[5]

[5] As per consultation with Department of Environment on 31 March 2014.

	Subproject	Component	Equivalent in Schedule I of ECR	DoE Classification
		toilets, tube wells, drains, dustbins, etc.		
9.	Market development	Construction of sheds, internal roads, drains, toilets, solid waste management systems, etc.	No similar facility	Red (because engineering works up to 10 hundred thousand taka capital)
10.	Sanitation	Toilet facilities and latrines	No similar facility	Orange-B
		Sewage/septage treatment facility	Sewage treatment plant	Red
11.	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)		
12.	Solid waste management	Community storage bins	No similar facility	Green (because bins and STS are small and unlikely to have major impacts)
		Secondary transfer station		
		Medical wastes treatment facilities	Medical wastes treatment facilities	Red
		Waste disposal (includes sanitary landfill, composting site, or access road)	Land-filling by industrial, household and commercial wastes	Red

14. 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:

Green category projects:

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

Orange-A category projects:

Same requirements as green category projects, plus the following:
(i) process flow diagram;
(ii) layout plan (showing location of effluent treatment plant or ETP);
(iii) effluent discharge arrangement; and
(iv) outlines of the plan for relocation and rehabilitation (if applicable).

Orange-B category projects:

(i) completed Application for ECC, and the appropriate fee;
(ii) report on the feasibility of the project;
(iii) report on the IEE for the project, plus process flow diagram, and in the case of an industrial project, layout plan (showing ETP) and ETP design;
(iv) report on the 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).

Red category projects:

Same requirements as Orange Category B, except that Item 3 (IEE) is amended to read as follows:
(i) report on the IEE for the project, and terms of reference for the EIA; or EIA report prepared 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.

15. 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

16. The executing and implementing agencies are responsible for preparation of EIAs/IEEs and monitoring of safeguards issues for (i) roads, (ii) drainage, (iii) street lighting, (iv) river bank and *ghats*, (v) community centers and auditoriums, (vi) bus and truck terminals, (vii) markets, (viii) slaughterhouses, and (ix) solid waste management subprojects. The executing agency will also be responsible for providing support and guidance to *pourashavas* concerning performance criteria and *pourashava* development planning.

17. The executing agency 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 implementing and executing 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.

18. Therefore, the executing and implementing agencies of the project require capacity building measures (i) for 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 executing and implementing agencies, and *pourashava* staffs to conduct impact assessments, 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.

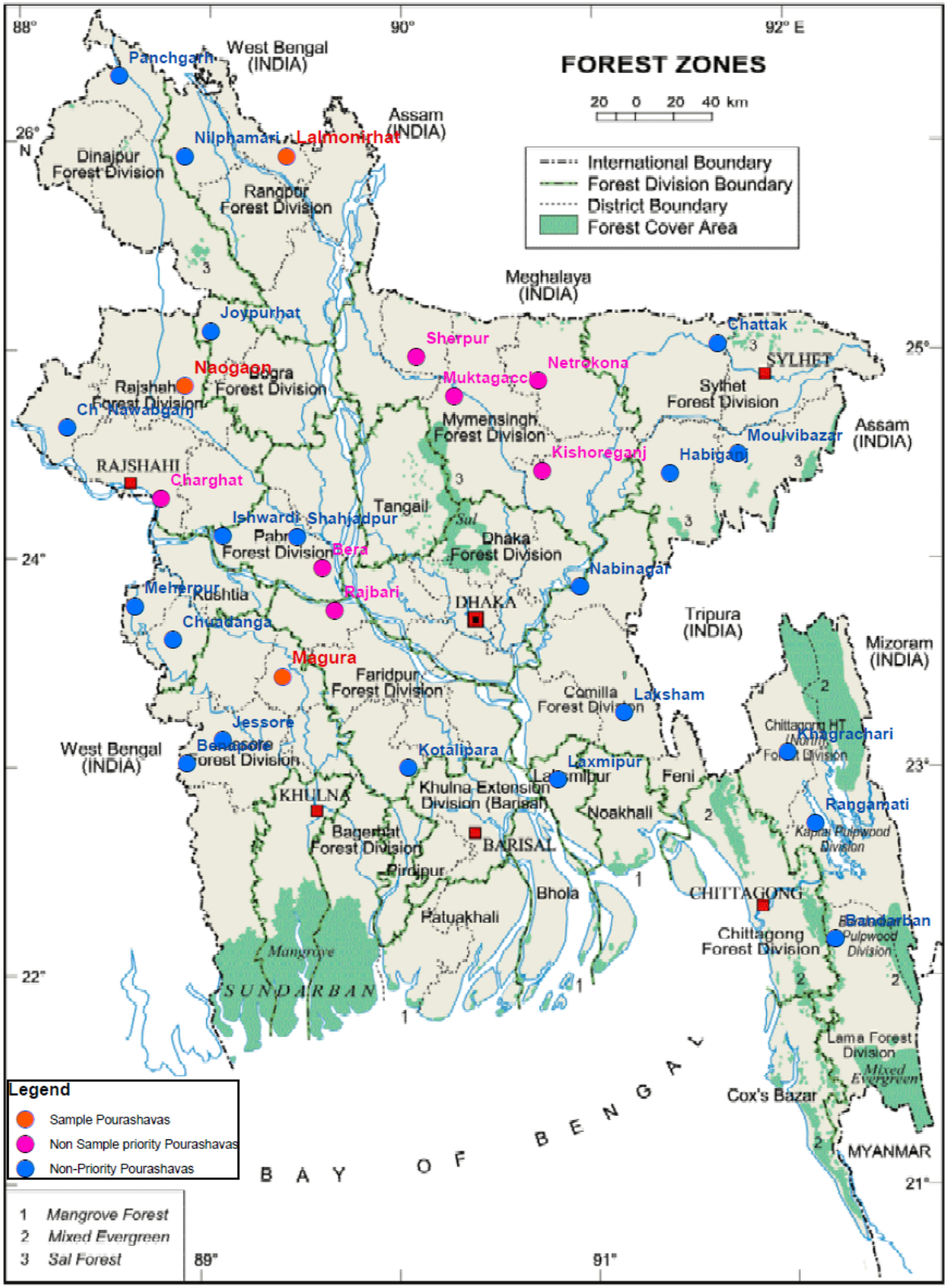


Figure 2: Map showing Protected Areas and UGIIP-3 Pourashavas

III. ANTICIPATED ENVIRONMENTAL IMPACTS

19. 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; on the biological environment, like flora and fauna; and on the socioeconomic environment will be carefully assessed by the project environmental specialists.

20. 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 and 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.

21. 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

22. **Climate Change Resilient Infrastructure**. In order to strengthen urban climate resilience, urban drainage designs will accommodate additional flow caused by more intense rainfall, and key facilities such as water treatment plants, landfill sites, and production tube-wells will be built with freeboard above the highest recorded flood level..

23. 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) encroachment on cultural features like places of worship, cultural heritage sites, graves/cemeteries, historical monuments, etc. (no such encroachments are envisaged).

24. 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

Environmental Selection Guidelines	Remarks
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/minimize 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
iii. Avoid 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.
iv. 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
v. 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.
vi. Synchronize all road improvement and pipe laying works (to extent possible) to minimize disturbance and optimize use of resources (e.g., water pipes laid prior to road improvements).	Coordinate planning of works with *pourashava*.
2. Roads improvement	
i. Include the provision of new or improved storm water drainage to remove the increased runoff caused by increasing the road surface area	
ii. Include tree planting alongside roads to provide a natural barrier to noise and visual impacts, and include additional man-made barriers where suitable for public safety.	
3. Drainage improvement	
i. Outfalls should be to suitable drainage areas (*nallas*, canals, etc.) and avoid flooding to adjacent private lands.	
ii. Include measures to ensure the safe disposal of canal dredge (e.g., to dumpsite or landfill) without causing an environmental hazard.	
4. Improvement of street lighting	
i. Include measures that during installation of the electric poles no or minimal disturbances happen to traffic movement on the roads.	
ii. Install adequate safety measures to avoid being electrified during and after the installation of electric lines.	
5. Community centre/auditorium	
i. Ensure community centres/auditorium 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 community centre/auditorium are designed to comply with the national standards.	
6. Slaughter houses	
i. A new slaughterhouse should not be located in a residential area. Location will be reviewed depending on site availability, buffer zone planning, and sufficient area for basic facilities.	See Appendix 4 of this EARF for sample layout. Refer to Ministry LGD guidelines on sanitary slaughter of animals.
ii. Provide adequate facilities for good water supply, electricity supply, sewage disposal by providing underground drainage and handling, recycling, treating, and disposing of solid and liquid waste. Include in the slaughterhouse design all of the	See Appendix 4 of this EARF for sample layout

Environmental Selection Guidelines	Remarks
elements necessary to provide a sanitary facility and maintain high standards of: (a) animal welfare; (b) workers' health and safety; (c) meat hygiene; and (d) waste management. Hot and cold water supply is necessary.	
iii. There should be a reasonable relationship between the size of slaughter facilities and the number of animals to be killed.	
iv. Provide air circulation to minimize dust and insects entering the abattoir. Proper effective ventilation with entry of fresh air and removal of obnoxious odor, heat and moisture has to be provided.	
v. Include facilities for the re-use of waste products (e.g. blood and offal). Unopened stomachs and intestines should be removed by sanitary means to a separate room for cleaning. There should be adequate measures for immediate separation and disposal of condemned materials. Fat should be collected separately and converted into tallow or lard by using wet and dry rendering processes.	
vi. For the safe disposal of liquid and solid waste, the following action should be taken: (i) separation of blood; (ii) screening of solids; and (iii) trapping of grease. Disposal of effluent without treatment should not be allowed.	
vii. Ensure that waste and wastewater disposal in constructed slaughterhouses are designed to national standards.	See Section II of this EARF
7. Market development	
i. 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 standards.	
8. Solid waste management	
i. Ensure small (secondary) transfer stations are not located within 30 m 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.
ii. 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.
iii. 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,dust, and visual appearance of the site, and travel of leachate into any water body..	Distance restriction may be reviewed depending on site availability, buffer zone planning, and leachate technology.
iv. Locate all new facilities/buildings at sites where there is low risk of flooding or other hazards that might impair functioning of, or present a risk of damage to the facilities, or their environs.	Flood 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.
v. Ensure no new landfills are constructed within or near water supply wells, and at least 500 m of any groundwater wells.	Locational clearance from Department of Environment needed.
vi. Ensure a buffer zone is provided around the landfill with the distance agreed upon with the regulatory agencies	
vii. 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	Landfills to include the following: liner system to prevent leachate, leachate collection system and control facility, gas vent system, final cover system, surface water drainage system, environmental

Environmental Selection Guidelines	Remarks
ensure safe handling of waste during construction and operation.	monitoring system for air, water, soil, odour, and gas. Operations and maintenance manual (O&M) shall include closure and post-closure plan.
viii. For medical waste treatment facilities comply with Medical Waste Rules, 2008	Incinerators will not be considered in UGIIP-3
ix. Locate new medical waste treatment facility at least 50 m away from nearest habitation.	Special design measures to be adopted if this cannot be adhered to.
x. Ensure a separate receiving and sorting area for medical wastes	
xi. Provide back-up power source for medical treatment facility to ensure uninterrupted operations	
9. Water supply	
i. Utilize water sources at sustainable levels of abstraction only (i.e. without significant reductions in the quantity or quality of the source overall).	See Section II of this EARF
ii. Avoid using water sources that may be polluted by upstream users.	
iii. 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
iv. Locate all new facilities/buildings at sites where there is low risk of flooding or other hazards that might impair functioning of, or present a risk of damage to water treatment plants, tanks/reservoirs, 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.
v. Avoid all usage of pipes that are manufactured from asbestos concrete, and avoid disturbance to existing asbestos concrete pipes (keep in the ground)	
vi. Ensure water to be supplied to consumers will meet national drinking water standards at all times.	
vii. Include measures to address additional sewage/domestic wastewater due to improved/new water supply system	
10. Sanitation	
i. Ensure sanitation facilities are provided with electric power and water supply. Ensure that water and waste disposal in constructed facilities are designed to national standards.	
ii. Ensure no immediate drinking water intakes downstream of discharge point of effluent from sanitation facilities	Include design measures and consider relocating existing deep tube wells.
iii. Locate sanitation facilities (public toilets and latrines) and septage/sludge 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.	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.
iv. Locate septage/sludge 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 septage treatment plant.	Distance restriction may be reviewed depending on the technology adopted for the treatment of wastewater, site plant availability, and buffer zone planning.
v. Locate at sites septage/sludge treatment plant where there is a suitable means of disposal for the treated wastewater effluent and bio-solids.	Include design measures and follow guidelines to ensure the safe disposal of bio-solids without causing environmental hazards, and if possible to promote its safe and beneficial use as an agricultural fertilizer. Any wastewater and bio-solids reuse shall be to improve soil properties and sustain soil fertility and avoid any contamination risks.

B. Environmental Assessment Procedures for Projects

1. Screening and Classification/Categorization

25. As soon as sufficient information on a subproject is available, the Management Design and Supervision Consultants (MDSC) regional environment specialist will conduct screening to determine the works' environmental category by completing ADB's rapid environmental assessment (REA) checklists in Appendix 5[6] and submitting this for review to the project management unit (PMO), which will determine if the component would require environmental assessment and/or environmental clearance as per national requirements. If required, PMO will contact DoE for necessary endorsement and issuance of terms of reference for the environmental impact assessment study.

26. PMO will submit completed REA checklist to ADB for review as part of the semiannual monitoring reports. To ensure that the project meets ADB's environmental safeguard requirements, as stipulated in the SPS 2009, projects will be reviewed, and the level of environmental assessment required (EIA/IEE) determined. It is anticipated that most eligible projects will fall under 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

27. 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.

28. For projects projected to have potentially significant adverse environmental impacts (categorized as A), an EIA will be prepared and submitted to ADB for review. 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 6 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.

29. 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 and 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.

30. 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

[6] REA forms are for 13 subproject categories: (i) road improvement, (ii) drainage improvement (iii) improvement of street lighting (iv) river bank and *ghat* development (v) community center/auditorium (vi) bus terminals (vii) truck terminals (viii) market development (ix) slaughterhouse (x) solid waste management (xi) improved water supply (xii) slum improvement and (xiii) sanitation/public toilets).

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 6 as a guide for preparing a robust EMP.

31. 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.

32. 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

33. 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

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

35. Under a sector loan, the borrower or the executing agency is primarily responsible for identifying, prioritizing, formulating, appraising, approving, and implementing subprojects in accordance with technical, financial, and economic appraisal criteria, including social and environmental criteria, mutually agreed upon between ADB and the borrower/executing agency. ADB will be minimally involved in processing subprojects, except that in the initial phase, if deemed necessary, a few subprojects may be appraised by ADB to serve as models. ADB will review the IEEs of first two subprojects of each subsector (feasibility studies, if necessary detailed design too) of each subsector (water supply, road, drainage etc).

36. LGED will forward the all EIAs for Category A projects, but this type of project is not foreseen under the project. ADB will review draft final reports of: (i) IEEs for the first two subprojects of each subsector (water supply, road, drainage etc).; and (ii) EIAs of any new subproject classified as category A.

37. 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	EARF 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): PMO 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 Updating of sample IEEs based on detailed design	DoE to issue scoping and terms of reference (TOR) for the EIA/IEE
	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.[7]	Preparation of draft EIA/IEE as per TOR
	Public consultation will be carried out in a manner commensurate with the impacts of affected communities. The consultation process and its results are to be documented and reflected in the EIA/IEE.	There is no mention of public consultation and disclosure in the ECR, so the requirements for 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.

[7] The plan will define necessary remedial actions, the budget for such actions, and the period 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 Safeguard Requirements 1–3.

Project Stage	EARF Procedure	Government of Bangladesh Procedure
	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. For category B: Disclosure on ADB's website of the final IEE; updated IEEs and corrective action plans; and environmental monitoring reports. 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.	
	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 will review draft final reports of: (i) IEEs for the first two subprojects of each subsector (Water supply, road, drainage etc).; and (ii) EIAs of any new subproject classified as category A..	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 may begin.
Implementation	Submission of semi-annual monitoring report to ADB, including corrective action plan where non-compliance is identified	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. 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.

V. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

A. Public Consultation and Information Disclosure

38. 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.

39. 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.

40. Project-affected persons (APs) 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 will 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) PMO staff and consultants; and
(vii) 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) designated safeguard focal person and governance improvement and capacity development consultants (GICDC) 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 PMO and management, design and supervision consultants (MDSC) 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 7 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 office (PMO) safeguard 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 designated safeguard focal person.

49. **Grievance redress process**. In case of grievances that are immediate and urgent in the perception of the complainant, the contractor and MDSC on-site personnel 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 safeguard focal person and contractors, will be posted at all construction sites at visible locations.

i. **1st Level Grievance.** The phone number of the PIU office should be made available at the construction site signboards. The contractors and PIU safeguard focal person can immediately resolve on-site in consultation with each other, and will be required to do so within 7 days of receipt of a complaint/grievance.
ii. **2nd Level Grievance.** All grievances that cannot be redressed within 7 days at field/ward level will be reviewed by the grievance redress cell (GRC) headed by Panel Mayor of the pourashava with support from PIU designated safeguard focal person and MDSC regional environment and resettlement specialists. GRC will attempt to resolve them within 15 days.[8] The PIU designated safeguard focal person will be responsible to see through the process of redressal of each grievance.
iii. **3rd Level Grievance.**The PIU designated safeguard focal person will refer any unresolved or major issues to the PMO safeguard officer and MDSC national environmental and resettlement specialists. The PMO in consultation with these officers/specialists will resolve them within 30 days.

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.

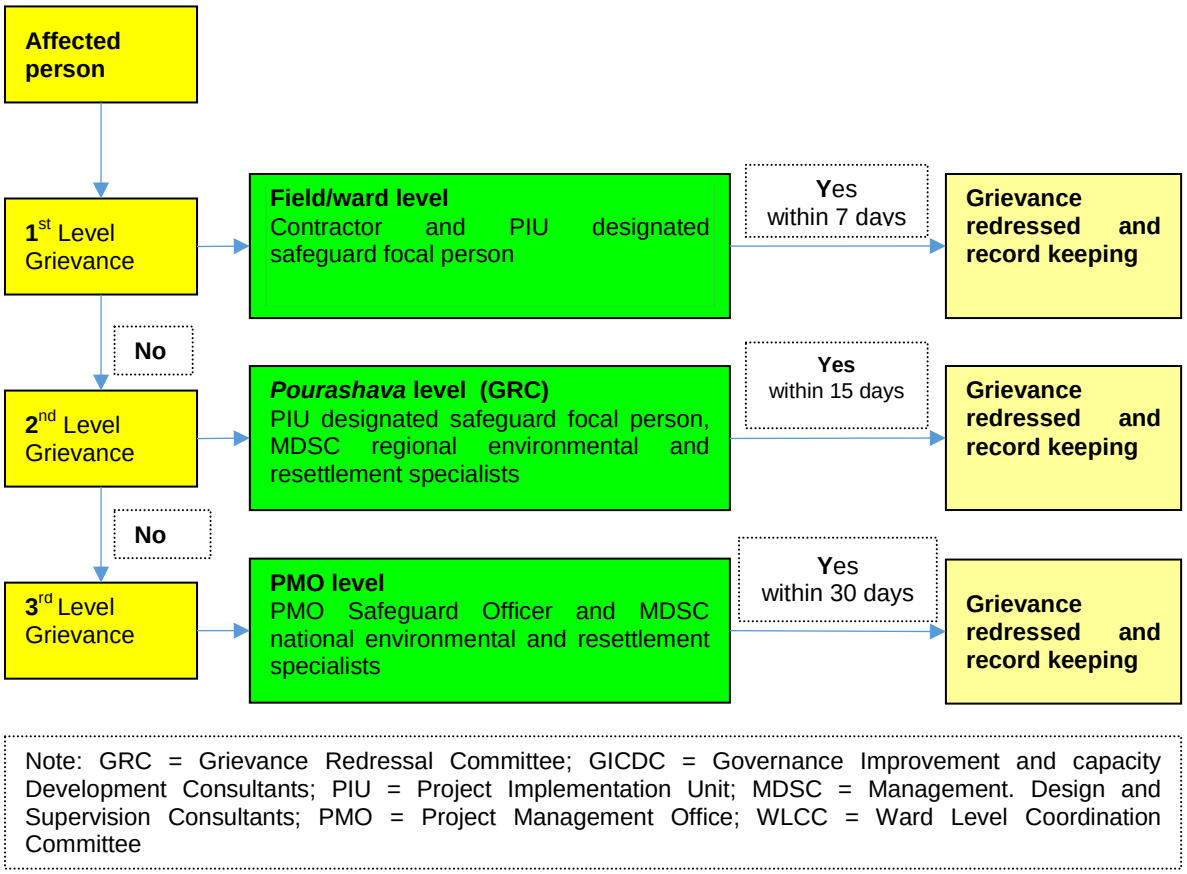
51. In the event that the established GRM is not in a position to resolve the issue, the affected person also can use the ADB Accountability Mechanism (AM) through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB headquarters or the ADB Bangladesh Resident Mission (BRM). 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 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 will be kept by PIU. The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the PMO office, *pourashava* office, and on the web, as well as reported in monitoring reports submitted to ADB on a semi-annual basis.

[8] Grievance redress committees (GRC) will have been formed at Pourashava-level. For example in Lalmonirhat pourashava, the GRC comprises Panel Mayor as Chairperson, and 1 councilor, the pourashava Executive Engineer, Secretary *pourashava* and *pourashava* administrative officer, as members. All *pourashava*-level GRCs shall have at least one-woman member/chairperson and AP representative or independent NGO as committee member. In addition, for project-related grievances, representatives of APs, community-based organizations (CBOs), and eminent citizens must be invited as observers in GRC meetings.

53. **Periodic review and documentation of lessons learned.** The PMO safeguard officer will periodically review the functioning of the GRM in each *pourashava* 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 *pourashava*-level; while costs related to escalated grievances will be met by the PMO. Cost estimates for grievance redress are included in resettlement cost estimates.



Note: GRC = Grievance Redressal Committee; GICDC = Governance Improvement and capacity Development Consultants; PIU = Project Implementation Unit; MDSC = Management. Design and Supervision Consultants; PMO = Project Management Office; WLCC = Ward Level Coordination Committee

Figure 3: Project Grievance Redress Mechanism

VI. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

55. **Executing and implementing agencies.** The Local Government Engineering Department (LGED) and the Department of Public Health Engineering (DPHE), both under the Local Government Division (LGD) of the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C) and having extensive experience in managing urban and water supply projects financed by ADB, will be the executing agencies of the project. The participating *pourashavas* will be the implementing agencies.

A. Safeguard Implementation Arrangement

56. **Project management office.** A PMO will be established for the overall management of the project. The PMO will be headed by Project Director (PD) supported by officials including three project managers in charge of (i) municipal infrastructure (excluding water supply and sanitation), (ii) water supply and sanitation, and (iii) governance improvement and capacity development, respectively. The PMO will receive support from national

environmental specialist and national resettlement specialist on the MDSC team. Key tasks and responsibilities of the PMO safeguard (environment) 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;
   a. confirm whether IEEs/EMPs are included in bidding documents and civil works contracts;
   b. provide oversight on environmental management aspects of subprojects and ensure EMPs are implemented by project implementation unit (PIU) and contractors;
   c. establish a system to monitor environmental safeguards of the project, including monitoring the indicators set out in the monitoring plan of the EMP;
   d. 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;
   e. supervise and provide guidance to the PIUs to properly carry out the environmental monitoring and assessments as per the EARF;
   f. review, monitor, and evaluate the effectiveness with which the EMPs are implemented, and recommend necessary corrective actions to be taken as necessary;
   g. consolidate monthly environmental monitoring reports from PIUs and submit semi-annual monitoring reports to ADB;
   h. ensure timely disclosure of final IEEs/EMPs in locations and form accessible to the public; and
   i. address any grievances brought about through the grievance redress mechanism in a timely manner.

57. **Project implementation unit**. The participating *pourashavas* will establish a PIU within the *pourashava* structure. The PIUs will (i) be responsible for land acquisition; (ii) take necessary action for obtaining rights of way; (iii) plan, implement and monitor public relations activities, gender mainstreaming initiatives and community participation activities at *pourashava* level; (iv) disseminate information related to the project to the public and media; (v) ensure compliance with loan covenants concerning safeguards measures; and (vi) facilitate implementation of safeguards plans. The PIUs will each designate a safeguard focal person[9] and will receive assistance from the assigned MDSC regional environmental specialist to:

(i) update IEEs/EMPs during detailed design stage and prepare new IEEs/EMPs in accordance with the EARF;
(ii) conduct environmental compliance audit of existing facilities as per Item F, Appendix 6 of ADB SPS, 2009;
(iii) include IEEs/EMPs in bidding documents and civil works contracts;
(iv) comply 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 PMO,
(ix) conduct continuous public consultation and awareness;

[9] It is recommended that existing *pourashava* health officer or executive engineer will also work as safeguard officer in addition to his/her regular responsibilities within the *pourashava*.

(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.

58. **Project Management, Design and Supervision Consultants (MDSC).** MDSC will be engaged to work closely with and advise the PMO, to be involved in project supervision including monitoring during construction phase. The MDSC will have one national environmental specialist and three regional environmental specialist as well as one national resettlement specialist and three regional resettlement specialist. The MDSC national environmental specialist will, but not limited to:

(i) work under the general supervision of the team leader and the deputy team leader;
(ii) review the environmental guidelines and requirement of the government of Bangladesh and ADB SPS, 2009, environmental subproject selection guidelines and EARF;
(iii) Guide the implementation of future subprojects;
(iv) provide technical support to the PMO and PIUs including review and update of EARF and guidelines for specific type of subprojects and assist in preparing terms of reference for environmental assessment;
(v) assist and guide the MDSC regional environmental specialists to provide support to environmental management functions including updating subproject IEEs in respect to EMP;
(vi) assist in preparing IEEs and in monitoring impact and mitigation measures associated with subprojects;
(vii) assist PIUs and MDSC regional environmental specialists working in the steps for preparing the EIA/IEE, capacity building and training, preparation of guidelines and procedure and subproject specific guidance;
(viii) provide support and guidance to PIUs in undertaking environmental monitoring
(ix) support PMU in submitting semi-annual environmental monitoring reports to ADB;
(x) facilitate in grievance redress and corrective actions;
(xi) train PIU officials regarding environmental requirement and issues; and
(xii) perform any other task assigned by the team leader, deputy team leader and the project director.

59. The MDSC regional environmental specialists will, but not limited to:

(i) work under the supervision and guidance of the team leader, deputy team leader and MDSC national environmental specialist;
(ii) assist PIUs in preparing and updating IEEs including EMPs in accordance with the EARF, and assist in monitoring impact and mitigation measures associated with subprojects including implementation of EMPs by contractors;
(iii) assist in preparation of IEEs and in the environmental review of subproject consisting of screening at *pourashava* level by PIU through a committee formed with municipal mayor as chairman and representatives from DOE, LGED and other relevant district office as members;
(iv) assist PIUs in the steps for preparing EIA/IEE, capacity building and training, preparation of guidelines and procedure and subproject specific guidance;

(v) support PIU in environmental monitoring and submit monitoring reports to PMU as inputs into the semi-annual monitoring report submitted to ADB;
(vi) undertake mitigation measures and other specific measures in the construction contract;
(vii) facilitate in grievance redress and corrective actions;
(viii) follow subproject selection guidelines and EARF to ensure compliance with the environmental guidelines and requirement of the Government of Bangladesh and ADB SPS, 2009;
(ix) support PMO and MDSC national environment specialist by providing data, information and all other requested assistance;
(x) train PIU officials regarding environmental issues
(xi) perform any other task assigned by MDSC national environment specialist, team leader, deputy team leader and the project director.

60. **Civil works contracts and contractors**. EMPs are to be included in bidding and contract documents and verified by the PIUs and PMO. The contractor will be required to designate an environmental supervisor to (i) coordinate with MDSC on updating the IEE/EMP based on detailed designs, and (ii) ensure implementation of EMP during civil works. Contractors are to carry out all environmental mitigation and monitoring measures outlined in their contract.

61. **Governance Improvement and Capacity Development Consultants (GICDC)**. The PMO and PIUs will require support on a range of activities related to governance improvement and capacity development of *pourashavas*. The GICDC will support PMO and PIUs in implementing urban government improvement action plan (UGIAP) by providing capacity development, community mobilization and other facilitation services. There will be 4 GICDC regional offices consisting of 4 regional coordinators at each regional office. There will be 2 community mobilizers in each project *pourashava*. The regional coordinators will assist *pourashavas* and the community mobilizers in the activities related to community participation and inclusive development. The community mobilizers will be posted at the *pourashava* and will (i) have to work maintaining close liaison with the mayor, councilors, *pourashava* staffs and communities, (ii) provide assistance and support to PIU regarding planning and implementation of citizen awareness and participation activities, urban planning, equity and inclusiveness of women and urban poor. The GICDC will also have a training specialist who will be responsible for identifying and coordinating capacity building activities at *pourashava* level.

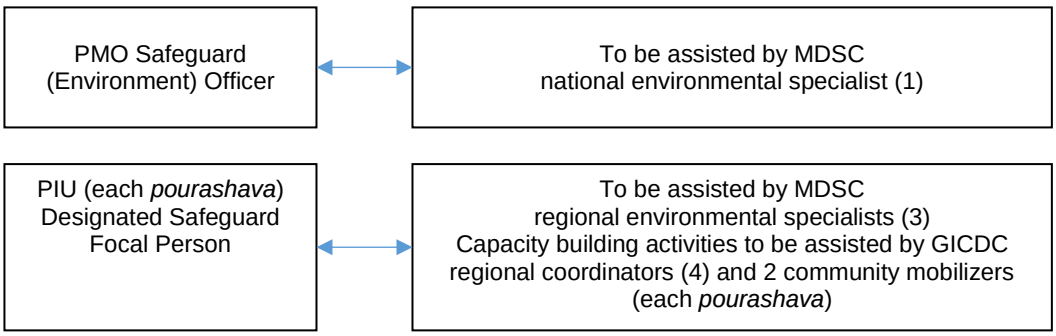


Figure 4: Safeguards Implementation Arrangement

B. Institutional Capacity Development Program for the Implementation of EMP

62. The MDSC national and regional environmental specialists will be responsible for trainings on environmental awareness and management in accordance with both ADB and government requirements. 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. 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. 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: Proposed Institutional Capacity Building Training Program

Description	Contents	Schedule	Participants
Pre-construction stage			
Orientation workshop	**Module 1 – Orientation** • ADB Safeguards Policy Statement • Government of Bangladesh Environmental Laws and Regulations **Module 2 – Environmental Assessment Process** • 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	1 day	LGED, DPHE, PMO, and PIUs officials involved in the project implementation
Construction stage			
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	PMO 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	PMO PIUs Contractors

C. Staffing Requirement and Budget

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

(i) updating IEE, preparing and submitting reports and public consultation and disclosure;
(ii) application for environmental clearances; and
(iii) implementation of EMP, environmental monitoring program and long-term surveys.

64. 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 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.

65. Each of the IEEs prepared to date involved approximately 2 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.

66. The infrastructure involved in each scheme is generally straightforward and will take between 3 and 9 months 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 MDSC regional environment specialists under supervision of PMO safeguard officer and MDSC national environment specialist. Therefore no separate budget required for MDSC environment management specialist.

67. 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.

68. 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 (O&M) phase will be conducted by LGED and PIUs, therefore, there are no additional costs.

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

Table 6: Indicative Cost of EARF Implementation

	Particulars	**Stages**	**Unit**	**Total Number**	**Rate (Taka)**	**Cost (Taka)**	**Cost covered by**
A.	**Consultants Costs**						
1.	MDSC national environmental specialist (1 person)	Responsible for environmental safeguards of the project	person months (spread over entire project implementation period)	60 person months	320,000 per person month	1,280,000	Remuneration and budget for travel covered in the MDSC contract
2.	MDSC regional environmental specialists (3 persons)	Responsible for environmental safeguards of the project	person months (spread over entire project implementation period)	60 each = 180 person-months	320,000 per person-month	57,600,000	Remuneration and budget for travel covered in the MDSC contract
B.	**Mitigation Measures**						
1.	**Pre-construction phase**						
	- Air quality monitoring	Pre-construction	Per *pourashava*	30	10,000	300,000	Civil works contract
	- Noise level monitoring	Pre-construction	Per *pourashava*	30	10,000	300,000	Civil works contract
	- Inventory of trees	Pre-construction	Per *pourashava*	30	10,000	300,000	Remuneration and budget for travel covered in the MDSC contract as part of update of IEE during detailed design and preparation of IEEs for ensuing subprojects
2.	**Construction phase**						

	Particulars	Stages	Unit	Total Number	Rate (Taka)	Cost (Taka)	Cost covered by
	Compensatory plantation measures	Construction	Per tree	100	2,000	200,000	Civil works contract
	Air quality monitoring	Construction	Per location	30	10,000	300,000	Civil works contract
	Noise levels monitoring	Construction	Per location	30	10,000	300,000	Civil works contract
3.	**O&M phase**						
	Leachate monitoring (SWM subprojects)	O&M	lump sum per year (to be updated during detailed design stage as per ECC and O&M manual)		200,000	200,000	*Pourashava*
	Compost quality monitoring (SWM subprojects)	O&M	lump sum per year (to be updated during detailed design stage as per ECC and O&M manual)		100,000	100,000	*Pourashava*
	Water quality monitoring	O&M	lump sum per year (to be updated during detailed design stage as per ECC and O&M manual)		100,000	100,000	*Pourashava*
C	**Capacity Building**						
1.	(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 MDSC environmental specialists 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	lump sum		Module 1 – 30,000 Module 2 – 30,000 Module 3 – 30,000	90,000	Covered under MDSC contract

	Particulars	Stages	Unit	Total Number	Rate (Taka)	Cost (Taka)	Cost covered by
D.	**Administrative Costs**						
1.	Legislation, permits, and agreements	Permit for excavation, tree-cutting permits, etc.	Lump sum		50,000	50,000	These consents are to be obtained by contractor at his own expense.
		Environmental assessment and environmental clearances as per ECA and ECR requirements Obtaining right of way clearances with related national agencies.	Lump sum		100,000	100,000	LGED DPD cost for municipal infrastructures
E.	**Other Costs**						
1.	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		1,000,000	Covered under MDSC contract
2.	GRM implementation	Costs involved in resolving complaints (meetings, consultations, communication, and reporting/information dissemination)		Lump sum		1,000,000	PMO cost
3.	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	Civil works contract – contractor's insurance

VII. MONITORING AND REPORTING

70. PMO will monitor and measure the progress of EMP implementation. The monitoring activities will correspond with the project's risks and impacts, and will be identified in the IEEs for the subprojects. In addition to recording information on the work and deviation of work components from original scope PMO, PIUs, and MDSC will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome. DPD-Safeguard on behalf of PMO will work as the focal person to communicate with ADB regarding safeguard issues including environment.

71. MDSC will submit monthly monitoring and implementation reports to PMO, who will take follow-up actions, if necessary. PMO will submit semi-annual monitoring reports to ADB. The suggested monitoring report format is in Appendix 8. Subproject budgets will reflect the costs of monitoring and reporting requirements. For subprojects 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.

72. For subprojects 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).

73. 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 [1]	• Provide, among 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 are restricted in ecologically critical areas[2]	• 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 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 forest lands 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 Action Plan of 2009	• A comprehensive strategy to address climate change challenges built around the following six themes: (i) food security, social protection, and health; (ii) comprehensive disaster management; (iii)	• Climate Change Unit of MoEF	• 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

[1] *ECA Amendment, 2000* focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures for both fines and imprisonment, and the authority to take cognizance of offenses. *ECA Amendment, 2002* elaborates restrictions on polluting automobiles; restrictions on the sale and production of environmentally harmful items like polythene bags; assistance from law enforcement agencies for environmental actions; breakdown 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 or fill up or change any remarkable water body. However, in case of national interest, the mentioned activities can be done after getting clearance from the respective departments.

[2] Sunderban, Cox's Bazar-Tekhnaf Sea Shore, Saint Martin Island, Sonadia Island, Hakaluki Haor, Yanguar Haor, MarzatBaor, and Gulshan-Baridhara Lake

	Legislation	Description	Regulatory Body	Applicable Requirements for the Project
		infrastructure; (iv) research and knowledge management; (v) mitigation and low carbon development; and (vi) capacity building and Institutional strengthening		drainage) are put in place to deal with the likely impacts of climate change. • Enhance the capacity of 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)	• *Pourashavas* 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. • *Pourashavas* shall be responsible for solid waste collection, disposal, and 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) http://www.moef.gov.bd/html/laws/env_law/178-189.pdf**
1.	Air	Schedule 2
2.	Inland surface water	Schedule 3
	Drinking water	
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) http://www.moef.gov.bd/html/laws/env_law/178-189.pdf**
1.	Sewage discharge	Schedule 9
2.	Waste from industrial units or project 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) http://www.moef.gov.bd/html/laws/env_law/178-189.pdf**
1.	Environmental clearance certificate or renewal	Schedule 13
2.	Supplying various analytical information, data, or test results of samples of water, effluent, air, and sound	Schedule 14

[1]"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 10,000,000	Tk. 10,000	-Do-

[1] *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.*

(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
Design phase	
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.
Construction phase	
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. Contamination of water bodies during rehabilitation of existing sanitation systems, landfills or slaughterhouses
Groundwater quality	Contamination of groundwater during rehabilitation of existing sanitation systems, landfills or slaughterhouses
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. Repeated trenching may disturb roads, people, and businesses.
Income	Impede the access of residents and customers to nearby shops. Shops may lose business temporarily.
Occupational health and safety	Occupational hazards 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
Post-construction phase	
Clean-up operations, restoration and rehabilitation	Impacts on social or sensitive receptors when post-construction requirements are not undertaken, e.g. proper closure of camp, disposal of solid waste, and restoration of land after project construction.
Operation and maintenance phase	
Environmental clearance	For orange and red category projects, the ECC must be renewed every year, for

Impact Field	Anticipated Impact on the Environment
certificate renewal	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 be 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 affect the environment.
Health and safety	Danger of operations and maintenance-related injuries Safety of workers and 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.
Solid waste	Solid waste residuals that may be generated during operations and maintenance activities. Sludge will be generated from water treatment plants. Bio solids will be generated from septage treatment plants.
Hazardous chemicals	Water treatment involves the use of chemicals for coagulation, disinfection, and water conditioning.

APPENDIX 4: TYPICAL SLAUGHTER HOUSE DESIGN

This is a typical design for a slaughter house accommodating 20 cows and 15 goats at a time per day. The design will have the minimum facilities as below; however the design will fit in an area according to its site specifications:

Overall slaughter house: The overall shed will be of a tin-roof supported by a truss made of angle iron bars on RCC columns. The height of the structure will be 12 ft from the plinth level and the structure will be surrounded by a 3ft height brick wall to allow sufficient air flow and natural light. The floor will be of RCC (Reinforced Cement Concrete) work with a minimum reinforcement for temperature shrinkage.

Cow waiting shed: The design (Fig.1) is for accommodating 20 cows at a time in the shed.

Slaughter shed: A slaughter shed of 25ftx15ft is for slaughtering 4 cows at a time. The floor-slope will be maintained towards a drain in front of the blood tank.

Processing shed: For a processing of four cows at a time.

Blood tank: Underground circular shape RCC well to receive only bloods from 20 cows and 15 goats in a day. The blood tank will be emptied manually everyday for use in the next day.

Goat waiting shed: A goat waiting shed to receive 15 goats in a day.

Office building: A office room for use by the sanitary inspector of a Pourashava for his official work such as inspecting animals, stamping on animals, tax collection and issuing receipts, etc.

Water pump for cleaning purpose and waste water drain: There will be a hand tube well in the slaughter house. A low-capacity (5 hp) electricity driven pump will be there with a sufficient length of hose pipe that will wash the whole slaughter house after completion of slaughtering and processing of all animals or as per requirement. The wastewater from the slaughter house will enter a drain (small drain of 6 inch x 6 inch) to be constructed around the slaughter house. The waste water so received will enter either the nearby existing drain, or the low-lowing land/ditches, if any. In case there is no such drain/low-lying land/ditch, a soak pit (covered with a RCC slab) will be constricted for receiving waste water.

Table: land requirements for slaughter house for 20 cows and 15 goats (area in m2 and volume in m3)

Number of cows and goats	Cow waiting shed	Goat waiting shed	Animal processing shed	Blood tank	Animal wastes (cow dung etc),	Internal road	Treatment unit	Office room	Summed space	Others/ free space	Total
Cow=20, Goat=15[1]	78	9	35	1	4	65	23	11	226	108	334
Cow=15 Goat=10[2]	59	6	26	0.6	3	45	15	11	166	83[3]	249
Cow=10 Goat=5	39	3	18	0.5	2	32	10	11	116	58	173
Cow=5 Goat=3	20	2	9	0.5	1	16	5	11	65	32	97

Note: With the total required space calculated in the table, the number of animals to be slaughtered can be increased by 20%.

[1] Based on figure 1
[2] Based on projections on the basis of the calculation from Figure 1 as shown in the table.
[3] Free space is assumed to be roughly 50% of the summed space as calculated from Figure 1.

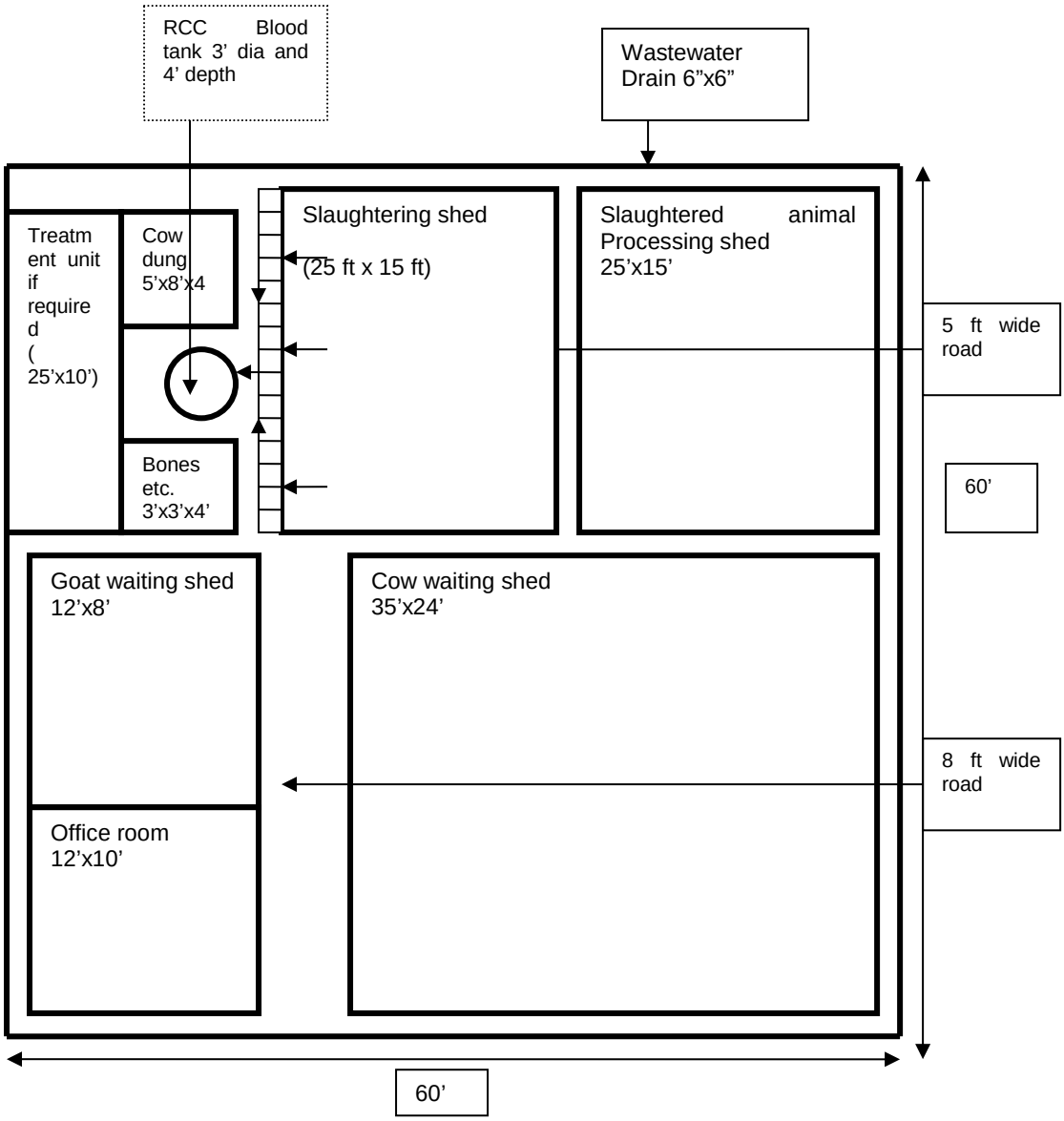


Figure-1: Typical slaughter house accommodating 20 cows and 15 cows

APPENDIX 5: RAPID ENVIRONMENTAL ASSESSMENT CHECKLISTS

1. Roads Improvement Rapid Environmental Assessment (REA) Checklist

Instructions:
Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Subproject Title: _____

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

Screening Questions	Yes	No	Remarks
▪ 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)?			
▪ 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 causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning.			

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[1]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

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

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

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

Other Comments: _____

Prepared by: _____
Designation: _____
Date: _____

2. Urban Development Subproject - REA Checklist

Instructions:
Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

To be used for the following subprojects (checklist to be accomplished separately):

[ ] Drainage Subproject	[ ] Street lighting Improvement Subproject	[ ] Slaughterhouse Subproject
[ ] Market Development Subproject	[ ] Community Center/Auditorium Subproject	

Subproject Title: _____

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area…			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site			
• Protected Area			
• Wetland			
• Mangrove			
• Estuarine			
• Buffer zone of protected area			
• Special area for protecting biodiversity			
• Bay			
B. Potential Environmental Impacts Will the Project cause…			
▪ **impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services.**			
▪ **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?**			
▪ degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?			
▪ dislocation or involuntary resettlement of people?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable group?			
▪ degradation of cultural property, and loss of cultural heritage and tourism revenues?			
▪ 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?			
▪ water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality , and pollution of receiving waters?			
▪ air pollution due to urban emissions?			
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical and biological hazards during project construction and operation?			
▪ road blocking and temporary flooding due to land			

Screening Questions	Yes	No	Remarks
excavation during 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 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?			

A Checklist for Preliminary Climate Risk Screening

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

Options for answers and corresponding score are provided below:

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

Response	Score
Not Likely	0
Likely	1
Very Likely	2

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

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

Other Comments: _____

Prepared by: _____
Designation: _____
Date: _____

3. Solid Waste Management Subproject - REA Checklist

Instructions:
Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Subproject Title: _____

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area…			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site			
• Protected Area			
• Wetland			
• Mangrove			
• Estuarine			
• Buffer zone of protected area			
• Special area for protecting biodiversity			
• Bay			
B. Potential Environmental Impacts Will the Project cause…			
▪ **impacts associated with transport of wastes to the disposal site or treatment facility**			
▪ **impairment of historical/cultural monuments/areas and loss/damage to these sites?**			
▪ degradation of aesthetic and property value loss?			
▪ nuisance to neighboring areas due to foul odor and influx of insects, rodents, etc.?			
▪ dislocation or involuntary resettlement of people?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ risks and vulnerabilities related occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?			
▪ public health hazards from odor, smoke from fire, and diseases transmitted by flies, insects, birds and rats?			
▪ deterioration of water quality as a result of contamination of receiving waters by leacheate from land disposal system?			
▪ contamination of ground and/or surface water by leach ate from land disposal system?			
▪ land use conflicts?			
▪ pollution of surface and ground water from leach ate coming form 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?			

Screening Questions	Yes	No	Remarks
▪ emission of potentially toxic volatile organics from land disposal site?			
▪ surface and ground water pollution from leach ate and methane gas migration?			
▪ loss of deep-rooted vegetation (e.g. tress) from landfill gas?			
▪ explosion of 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?			

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[3]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score

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

Not Likely	0
Likely	1
Very Likely	2

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

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

Other Comments: _____

Prepared by: _____
Designation: _____
Date: _____

4. Water Supply - REA Checklist

Instructions:
Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Subproject Title: _____

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

Screening Questions	Yes	No	Remarks
▪ 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 sewage flow due to increased water supply?			
▪ 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?			
▪ 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?			

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[4]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance		

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

Screening Questions		Score	Remarks[4]
	(scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

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

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

Other Comments: _____

Prepared by: _____
Designation: _____
Date: _____

5. Sanitation and Sewage Treatment - REA Checklist

Instructions:
Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Subproject Title: _____

Screening Questions	Yes	No	Remarks
B. Project Siting Is the project area…			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site			
• Protected Area			
• Wetland			
• Mangrove			
• Estuarine			
• Buffer zone of protected area			
• Special area for protecting biodiversity			
• Bay			
A. Potential Environmental Impacts Will the Project cause…			
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?			
▪ interference with other utilities and blocking of access to buildings; nuisance to neighboring areas due to noise, smell, and influx of insects, rodents, etc.?			
▪ dislocation or involuntary resettlement of people?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?			
▪ overflows and flooding of neighboring properties with raw 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?			

Screening Questions	Yes	No	Remarks
▪ 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?			

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[5]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

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

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

more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

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

Other Comments: _____

Prepared by: _____
Designation: _____
Date: _____

APPENDIX 6: OUTLINE OF AN ADB ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OR INITIAL ENVIRONMENTAL EXAMINATION (IEE) REPORT

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 7: 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.

Date		**Place of registration**			
Contact information/personal details					
Name		**Gender**	* Male * Female	**Age**	
Home address					
Place					
Phone no.					
E-mail					
Complaint/suggestion/comment/question Please provide the details (who, what, where, and how) of your grievance below: If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of official registering grievance)	
Mode of communication: Note/letter E-mail Verbal/telephonic	
Reviewed by: (Names/positions of officials reviewing grievance)	
Action taken:	
Whether action taken disclosed:	Yes No
Means of disclosure:	

APPENDIX 8: 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 subprojects
- Environmental category of the subprojects
- Details of site personnel and/or consultants responsible for environmental monitoring
- Overall project and subproject progress and status

No.	Subproject Name	Status of Subproject				List of Works	Progress of Works
		Design	Pre-construction	Construction	Operational Phase		
		☐	☐	☐	☐		
		☐	☐	☐	☐		
		☐	☐	☐	☐		

II. Compliance status with national/state/local statutory environmental requirements

No.	Subproject 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 that can be incorporated in the checklist of routine environmental site inspection reports, followed with a summary in the semi-annual report send to ADB. Visual assessment and review of relevant site documentation during routine site inspection need 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 there designated areas for concrete works and refueling;
  - are there 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;
  - are there any dewatering activities, if yes, where is the water being discharged;
  - how are the stockpiles being managed;
  - how are solid and liquid waste being handled on-site;
  - review of the complaint management system; and
  - checking if there are any, activities being undertaken outside 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
Design Phase						
Pre-construction Phase						
Construction Phase						
Operational Phase						

Overall Compliance with EMP

No.	Subproject 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 subproject

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)		
			PM_{10} µg/m^3	SO_2 µg/m^3	NO_2 µg/m^3

Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)		
			PM_{10} µg/m^3	SO_2 µg/m^3	NO_2 µg/m^3

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	LA_{eq} (dBA) (Government Standard)	
			Daytime	Nighttime

Site No.	Date of Testing	Site Location	LA_{eq} (dBA) (Monitoring Results)	
			Daytime	Nighttime

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 ☐ No ☐

Signature
_____

Sign off

_____ _____

Name **Name**
Position **Position**