

INITIAL ENVIRONMENTAL EXAMINATION (IEE)

Contract Package No.: **CTEIP/BHO/DR/02**

February 2016

Coastal Towns Environmental Infrastructure Project (CTEIP)

(ADB Loan No. ID. L3133-BAN (SF)/L8284-BAN (SCF)/G0394-BAN (SCF)

Batch II: Stage I CTEIP Programme

**Construction of RCC Drains and Drainage Structures In Bhola Pourashava,
District: Bhola**

CURRENCY EQUIVALENTS

(as of 31 December 2017)

Currency unit	–	taka (Tk)
Tk1.00	=	\$0.01209
\$1.00	=	Tk82.650

NOTES

- (i) The fiscal year (FY) of the Government of Bangladesh ends on 30 June. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2017 ends on June 2017.
- (ii) In this report, "\$" refers to US dollars.

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APPENDIX E

Coastal Towns Environmental Infrastructure Project (CTEIP)

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Local Government Engineering Department
(Ministry of Local Government, Rural Development and Cooperatives)

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In Bhola Pourashava, District: Bhola**

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ABBREVIATIONS

ADB	-	Asian Development Bank
AIDS	-	Acquired Immunodeficiency Syndrome
AP	-	Affected Persons
BAN	-	Bangladesh
BFIDC	-	Bangladesh Forest Industries Development Corporation
BFRI	-	Bangladesh Forest Research Institute
BNH	-	Bangladesh National Herbarium
BOQ	-	Bill of Quantities
BPL	-	Below Poverty Line
BRM	-	Bangladesh Resident Mission
CDTA	-	Capacity Development Technical Assistance
CIF	-	Climate Investment Fund
CO	-	Carbon Monoxide
CRO	-	Complaint Receiving Officer
CTEIP	-	Coastal Towns Environmental Infrastructure Project
DDS	-	Detailed Design services
DoE	-	Department of Environment
DO	-	Dissolved Oxygen
DoI	-	Department of Irrigation
DPHE	-	Department of Public Health Engineering
DSC	-	Design and Supervision Consultant
ECA	-	Environmental Conservation Act
ECC	-	Environmental Clearance Certificate
ECR	-	Environmental Conservation Rules
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
EO	-	Environmental Officer
FGD	-	Focus Group Discussion
FHH	-	Female House Hold
GAP	-	Gender Action Plan
GoB	-	Government of Bangladesh
GRM	-	Grievances Redress Mechanism
HFL	-	High Flood Level
HIV	-	Human Immunodeficiency Virus Infection
HH	-	House Hold
HTL	-	High Tide Level
ICB	-	International Competitive Bidding
ICCCD	-	Institutional Capacity and Communication Development Consultant
IEE	-	Initial Environmental Examination
ILO	-	International Labor Organization
ISA	-	Initial Social Assessment
IWTP	-	Inland Water Transport Policy
LAO	-	Land Acquisition Officer
LGED	-	Local Government Engineering Department
LCC	-	Location Clearance Certificate
MAT	-	Bhola
MoEF	-	Ministry of Environment and Forest
MCM	-	Million Cubic Meters
mld	-	Million Liters Per Day
MoEF	-	Ministry of Environment and Forest
MS	-	Mild Steel
NEP	-	National Environmental Policy
NFP	-	National Forest Policy
NGO	-	Non-Governmental Organization
NLTP	-	National Land Transport Policy
NOx	-	Nitrogen Oxides
NWP	-	National Water Policy
O&M	-	Operations and Maintenance

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OBC	-	Other Backward Classes
PAF	-	Project Affected Family
PAM	-	Project Administrative Management
PAP	-	Project Affected Person
PD	-	Project Director
PIU	-	Project Implementation Unit
PLO	-	Project Liaison Officer
PMSC	-	Project Management Supervision Consultant
PMU	-	Project Management Unit
POL		Petrol, Oil and Diesel
PSC	-	Project Steering Committee
PWD	-	Public Works Department
PPCR	-	Pilot Programme for Climate Change
SPAR	-	Project Preparatory Technical Assistance
RD	-	Roads
RP	-	Resettlement Plan
REA	-	Rapid Environmental Assessment
SCF	-	Strategic Climate Fund
SIA	-	Social Impact Assessment
SOx	-	Sulfur dioxides
SPCR	-	Strategic Programme for Climate Resilience
TA	-	Technical Assistance
TLCC	-	Town Level Co-ordination Committee
SPM	-	Suspended Particulate Matter
STD	-	Sexually Transmitted Disease
SPS	-	Safeguard Policy Statement
TDS	-	Total Dissolved Solids
TSS	-	Total Suspended Solids
ULB	-	Urban Local Body
UNEP	-	United Nations Environmental Programme
VEC	-	Valued Eco-system Components
WLCC	-	Ward Level Co-ordination Committee
WTP	-	Water Treatment Plant

WEIGHTS AND MEASURES

°C	-	Degree Celsius
ha	-	Hectare
km	-	Kilometer
m	-	Meter
mm	-	Millimeter
Tk	-	Taka
%	-	Percentage
km ²	-	Square Kilometre (10 ⁶ m ²)
mm/hour	-	Millimetre per hour
Mm ³	-	Million Cubic Meter (10 ⁶ m ³)
m ³ /d	-	Cubic metre per day
ug/m ³	-	Microgram per Cubic metre
ppm	-	Parts per million
dB (A)	-	Decibels
No	-	Number
m ³	-	Cubic meter
m ²	-	Square meter
cm	-	Centimetre
mm	-	Millimetre

Executive Summary

i) Coastal region of Bangladesh mostly comprises low lying areas and is exposed to sea level rise, storm surges and frequent and intense storm events leading to widespread disastrous consequences. Uncontrolled urbanization, coupled with existing inadequate capacities of the Pourashavas to manage requisite infrastructure, makes this region still more vulnerable to adverse impacts of severe and highly variable climatic conditions. Such adverse conditions, along with the burden of increased urban growth, prevailing regional poverty, exacerbated by weak urban governance, have resulted in undue pressure on basic urban services and infrastructure, which has severely impaired economic growth. As a result of these natural disasters the population in the coastal region remains poor and development significantly lags behind the rest of the country even though there is a lot of potential for further development. However, the number, intensity and the regularity of such disasters appear to be increasing and this trend is restricting further development of the coastal region.

ii) The climate change has become more critical issue, particularly in low lying coastal areas, exposed to sea level rise, increase in rainfall and temperature, storm surges, and more frequent and intense storm events. The climatic change adaptation into the drainage is important in formulating appropriate management and mitigation solutions to remove or reduce climate risks. This has direct bearing on the success and sustainability of the drainage network. The clear identification and management of climate change vulnerability is important. The vulnerabilities are the risks of the impacts of climate change on drainage structures. The risk reduces asset safety; network functionality; increased costs to maintain a safe serviceable network; increase program and quality risks due to required changes in construction activities and increased business management costs. CTEIP is a key infrastructure initiative of the Government of Bangladesh. The intervention is planned to develop climate resilient structures, including Cyclone Shelters; roads and bridges; water supply; sanitation; drainage; solid waste management; municipal facilities and flood protection infrastructural works. The proposed subproject includes Construction/ Improvement of 9 Nos. Secondary Drains, totalling 4.893 km within Bhola Pourashava area under Bhola district.

iii) The challenge for the subproject is that the drainage components are implemented in the most economically feasible and environmentally and socially sensitive manner. The SPAR feasibility study, completed in October 2015, has provided a comprehensive set of recommendations for the planning, design and implementation of the Project. Based on the recommendations of this study, the DDS Consultant has completed the detailed engineering design for the construction/ re-excavation/ lining of the Bhola drainage components.

iv) The proposed locations of construction/ re-excavation/ lining of the subproject components within Bhola Pourashava area under the package **CTEIP/BHO/DR/02** have been selected based on the recommendations of the SPAR report and subsequent site verification by the DDS Consultant, which is assessed to have minimum environmental impacts. The selected sites are well suited for their intended purpose, and have the advantages of immediate accessibility from the immediate local vicinity catchment areas within Bhola Pourashava area.

v) Categorization. An environmental assessment using ADB's Rapid Environmental Assessment (REA) checklist for drainage (**Annexure I**) was conducted and results of the assessment show that the subproject is unlikely to cause significant adverse impacts on environment and society. That is why; the classification of the subproject as category "B" is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS (2009). However as per DoE classification, the construction of drainage works falls under engineering works capital greater than Tk100,000 in environmental category Red. The land on which the drains will be constructed is already available with authorities. Hence, there is no problem due to land acquisition, rehabilitation and resettlement. In order to follow ECA, Bangladesh and ADB SPS, this IEE has been conducted and prepared, which provides mitigation and monitoring measures to ensure no significant impacts as a result of the subproject. s) is considered.

vi) Implementation Arrangements. Local Government Engineering Department (LGED) is the executing agency (EA). LGED is responsible for providing support and guidance to Pourashavas concerning performance criteria and Pourashava development planning. Implementation activities will be overseen by a separate program management unit (PMU). The participating Pourashavas are the implementing agencies (IA), with a project implementation unit (PIU) within the Pourashava

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structure. Local LGED offices will be involved in the functioning of the PIUs to provide technical support. Consultant teams are responsible for (a) detailed engineering design, contract documents preparation and safeguards facilitation; (b) project management and administration support; (c) assistance in supervising construction; (d) strengthening of local governance, conducting studies/surveys on flood inundation and climate change impacts, facilitating disaster risk management capacity building and community level adaptation through locally managed climate resilience funds; and (e) community-based climate adaptation and disaster preparedness, awareness raising on behavioural change activities and facilitating resettlement procedures.

vii) IEE of package **CTEIP/BHO/DR/02** has followed and fulfilled the requirements of the Environmental Assessment Review Framework (EARF) Subproject Selection Criteria enumerated in the SPAR document.

viii)

ix) There is no resettlement or land acquisition requirement in this subproject. The adverse environmental impacts due to the subproject are anticipated during the construction period, and will be of a relatively short duration. Adequate provisions have been incorporated into the planning and design of the drainage components and related drainage works to minimize or mitigate these unavoidable environmental impacts that are a result of the works.

x) The environmental mitigation cost is estimated as TK 400,000 out of which environmental monitoring cost is TK 300,000 and environmental management cost is TK 100,000. The estimate does not include those items which are part of project intervention. This **APPENDIX E**: IEE is to be read in conjunction with the attached **Appendix F: EMP**, which gives a detailed breakdown of the costs for the Environmental Management and Monitoring, which are also referred in the attached Bill of Quantities.

xi) **Positive impacts** due to the subproject are: Employment opportunities (during planning and design phase and construction phase), skills transfer and training of the project personnel (during planning and design phase), enhancement of rural economy, social interaction and industrial activities (during construction phase). Development of the drains and related drainage works will serve not only the immediate area but also the surrounding area in the town. Establishment of the drains will stimulate ancillary projects which, in turn, will result in improved economic status of the local population, employment of local people during construction phases, potential socio-economic enhancement of rural economy, minimizing local water-logging and improving the living standard and quality of life of the inhabitants.

xii) The major **negative impacts**, to be limited within and around the areas of construction sites, will be changes in land use, soil loss in terms of soil erosion from RoWs, etc., soil pollution, water pollution, air pollution, noise pollution, etc.

xiii) Mitigation measures have been developed to reduce all negative impacts to acceptable levels. Mitigation will be assured by a program of environmental monitoring to ensure that all measures are implemented, and will determine whether the environment is protected as intended. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries. Any requirements for corrective action will be reported to the ADB.

xiv) The subproject's potential **cumulative impacts** were considered with respect to valued components in environmental and socio-economic categories. There are no foreseeable projects that will overlap with the subproject.

xv) Mitigation measures are proposed as protection against negative attributes of climate change phenomena and toward improving the quality of environment. This will keep the ecological function in circulation. The noise impact at source will be mitigated by job rotation and use of ear plug and other measures suggested in EMP.

xvi) The environmental mitigation measures as stipulated in EMP and in the obtained environmental permit shall be monitored during implementation of the drainage subproject. In order to perform monitoring of EMP, the contractor shall engage experienced laboratory and third party services in complying the required environmental testing of listed parameters.

xvii) The noise and air quality of the project area is within the permissible limits. The overall impact on air and noise quality during construction is limited to site and of short duration and can be mitigated.

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xviii) The labour camps shall be established with the septic tank and soak pit for treatment and disposal of sewage and sullage water to avoid pollution of water bodies. Contractor shall submit the EMP for construction camp site for approval of engineer in charge. In addition, contractor shall arrange water of required quality for the camp and construction activities.

xix) The environmental monitoring will be required before the start of the construction and during the construction phase. The parameters of Water Quality, Air Quality, Noise quality, and Soils shall be monitored; as specified in EMP. During the whole project period, total frequency of monitoring has been estimated for the subproject components is 36.

xx) Consultation, Disclosure and Grievance Redress. The stakeholders were involved in developing the IEE through discussions on-site and public consultation. Their views were incorporated into the IEE and in the planning and development of the subproject. The IEE will be made available at public locations in the city and will be disclosed to a wider audience via the ADB, LGED, and DPHE websites. The consultation process will be continued and expanded during project implementation to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation. A grievance redress mechanism is described within the IEE to ensure any public grievances are addressed quickly.

xxi) During public consultation recommendations were drawn including: a) involve local communities in all stages of project planning and development, b) establish permanent communication between project initiators and local authorities, c) setup grievance redress mechanism which will publicized through Pourashava level co-ordination committee and monitoring register and d) during construction, local people including women shall be given first priority in the employment of skilled and unskilled labour.

xxii) LGED will disclose this Environmental Management Framework by making copies available at its head office and in District/Pourashava where the Project is situated. The copies shall also be made available to the Local Government's Agencies, the Environmental and Social Group and other stakeholders. The Government of Bangladesh will also authorize the Asian Development Bank to disclose this IEE and EMP electronically through its Info Shop.

xxiii) Monitoring and Reporting. The PMU and project management and supervision consultants (PMSC) will be responsible for monitoring. The PMSC will submit monthly monitoring reports to PMU, and the PMU will send semi-annual monitoring reports to ADB. ADB will post the environmental monitoring reports on its website upon receipts.

xxiv) Conclusions and Recommendations. The citizens of Bhola will be the major beneficiaries of this subproject. Therefore, the proposed subproject is unlikely to cause significant adverse impacts and net environmental benefits to citizens of Bhola will be positive. The potential impacts that are associated with design, construction and operation can be mitigated to standard levels without difficulty through the application of recommended mitigation measures and procedures.

xxiv) Based on the findings of the IEE, there are no significant impacts and the classification of the subproject as Category "B" is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS (2009).

xxv) In view of above, it is concluded that the Project will bring benefit to the people of the area. The negative impacts occurring during implementation are within the manageable limits and shall be mitigated with the proposed Environmental Management Plan and hence project may be implemented.

1. NEED OF THE PROJECT

1.1 BACKGROUND

1. Coastal region of Bangladesh mostly comprises low lying areas and is exposed to sea level rise, storm surges and frequent and intense storm events leading to widespread disastrous consequences. Uncontrolled urbanization, coupled with existing inadequate capacities of the Pourashavas to manage requisite infrastructure, makes this region still more vulnerable to adverse impacts of severe and highly variable climatic conditions. Such adverse conditions, along with the burden of increased urban growth, prevailing regional poverty, exacerbated by weak urban governance, have resulted in undue pressure on basic urban services and infrastructure, which has severely impaired economic growth. As a result of these natural disasters the population in the coastal region remains poor and development significantly lags behind the rest of the country even though there is a lot of potential for further development. However, the number, intensity and the regularity of such disasters, many of which are related to climate change, appear to be increasing and this trend is restricting further development of the coastal region.

2. The climate change has become more critical issue, particularly in low lying coastal areas, exposed to sea level rise, increase in rainfall and temperature, storm surges, and more frequent and intense storm events. The climatic change adaptation into the drainage is important in formulating appropriate management and mitigation solutions to remove or reduce climate risks. This has direct bearing on the success and sustainability of the drainage network. The clear identification and management of climate change vulnerability is important. The vulnerabilities are the risks of the impacts of climate change on drainage structures. The risk reduces asset safety; network functionality; increased costs to maintain a safe serviceable network; increase program and quality risks due to required changes in construction activities and increased business management costs. The Coastal Towns Environmental Infrastructure Project (CTEIP) is a key infrastructure initiative of the Government of Bangladesh. The Project was prioritized in the Government's 2010 Strategic Programme for Climate Resilience (SPCR), prepared under the Pilot Program for Climate Resilience (PPCR), whereby the CTEIP is eligible for financing from the Strategic Climate Fund (SCF) within the multi-donor coordinated Climate Investment Funds (CIF) as a pilot project for demonstrating ways to mainstream climate resilience into development. Intervention is planned to develop climate resilient structures, including Cyclone Shelters; roads and bridges; water supply; sanitation; drainage; solid waste management; municipal facilities and flood protection infrastructural works.

3. The project consists of three components a) improved climate-resilient infrastructure b) strengthening institutional capacity, governance, and awareness, c) project management and administrative support. The outcome of the project will be improved access to climate disaster resilience municipal services including; a) municipal infrastructure such as drainage, cyclone shelters, urban roads, bridges, culverts, solid waste management, bus terminals, slum improvement, boat landing and markets; b) water supply and c) sanitation. In accordance with ADB's Safeguard Policy Statements (SPS 2009), the project requires the preparation of environmental assessment and review framework. The report is on initial environmental examination (IEE) assessment and preparation of review framework for drainage at Bhola Pourashava.

4. The proposed sites for Construction/ Improvement of 9 Nos. Secondary Drains, totalling 5.803 km are located within Bhola Pourashava area, which are mostly urban and semi urban in nature. The drainage components are designed to meet all weather requirements.

5. This Initial Environmental Examination (IEE) has been conducted by EPTISA Services de Ingenieria S.L., the Detailed Design Services (DDS) Consultant under the CTEIP, in accordance with the ADB's requirements and guidelines. The IEE is based upon a study of available reports and documents, including the Project Preparatory Technical Assistance (SPAR), under TA 8128 BAN; relevant sections of the Capacity Development Technical Assistance (CDTA) Report; discussions with related stakeholders and PIU/Pourashava authorities. Read this IEE in conjunction with the following documents, attached to this Bid Document:

- Environmental Management Plan (**EMP**) attached hereto as **Appendix F**;
- Resettlement Plan (RP): Due Diligence Report(**DDR**) attached hereto as **Appendix G**;
- Gender Action Plan (**GAP**) attached hereto as **Appendix H**.

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1.2 PURPOSE OF IEE

6. The initial environmental examination aims to provide guidance on safeguard screening, assessment, institutional arrangement and process to be followed for components of the project, where design takes place after Boards approval. This IEE (i) describes the project and its components; (ii) explains the general anticipated environmental impacts and mitigation measures for the subprojects; (iii) specifies the requirements that will be followed in relation to screening and categorization, assessment, and planning, including arrangements for meaningful consultation with affected people and other stakeholders and information disclosure requirements; (iv) assesses the capability of the project proponents to implement national laws and ADB's requirements, and identifies needs for capacity building; (v) specifies implementation procedures, institutional arrangements, and capacity development requirements; and (vi) specifies monitoring and reporting requirements.

1.3 SCOPE OF SERVICES

7. The scope of the project includes nine infrastructure categories: (i) roads, bridges and culverts, (ii) solid waste management, (iii) cyclone shelters, (iv) boat landing stations, (v) markets, (vi) bus terminals, (vii) drainage and flood control, (viii) water supply, and (ix) sanitation.

8. The major components to be taken up in Bhola under this subproject are described in **Table 1**. This report is on IEE of Bhola drainage in Bhola Pourashava area, District: Bhola and the package is designated as **CTEIP/BHO/DR/02**.

Table 1: Bhola Scope of Work (CTEIP/BHO/DR/02)

Sl. No.	SPAR Drain ID No.	Name of Drains	Proposed Design Intervention	
			Length (m)	Intervention
1	SD-06	RCC drain from Haron Hawlader's House to Balia Kandi Khal via Prof. Enayet Miah's House. (Ch. 0+000 to 0+388m) and Link drains 152m under Ward No: 03.	540	RCC U-drain with Top Slab
2	SD-07	RCC drain from BAVS Road to Bhola Khal via Noor Cycle House and Kalibari Road. (Ch. 0+000 to 0+754m) under Ward No 06 & 07.	754	RCC U-drain with Top Slab
3	SD-08	RCC drain from Safi Mia's House to Bhola Khal via Billah Mosque and Kalibari Road (Ch. 0+085 to 0+435m) under Ward No 02 & 03.	350	RCC U-drain with Top Slab
4	SD-09	RCC drain from PTI Boundary to Kathali Khal. (Ch. 0+000 to 0+773m) under Ward No: 08.	773	RCC U-drain with Top Slab
5	SD-10	RCC drain from Pandit bari Road to Muslim Para Big Drain via Doctor Bari (Ch. 0+000 to 0+458m) And Link Drain 222m under Ward No 08.	680	RCC U-drain with Top Slab
6	SD-11	RCC drain from R&H Office Campus to Ratanpur Khal via HEED Bangladesh. (Ch. 0+000 to 0+546m) under Ward No 09.	546	RCC U-drain with Top Slab
7	SD-12	RCC drain from Bida Liton's House to Bhola Khal via Tarek Miah's House and Inspector's House (Ch. 0+000 to 0+262m) under Ward No 03.	262	RCC U-drain with Top Slab
8	SD-13	RCC drain from Back Side of Nabi Mosque (Ch. 0+000 to 0+283m) under Ward No 03.	283	RCC U-drain with Top Slab
9	SD-14	RCC drain from Sikder Bari to Muslim Para Big Drain via Azgor Chowdhury's House and Sekandar Ali Madrassa. (Ch. 0+000 to 0+610m) And Link Drain 95m under Ward No: 07.	705	RCC U-drain with Top Slab

Source: SPAR, DDS Consultant Computation and Field Studies

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9. The **scope of work** includes ensuring that construction/ re-excavation/ lining of the subproject components will be in an environmentally sustainable manner and in full compliance with Bangladesh's and the Asian Development Bank's environmental safeguard policies and regulations. The scope of services in brief is as follows:

- Document baseline data for various environmental attributes on physical, water, ecological pollution and physical cultural resources and socio-economic profile;
- Assess positive and negative environmental impacts of the proposed subproject components;
- Prepare environmental mitigation measures and management plans to effectively address the impacts;
- Prepare Initial Environmental Examination (IEE) so that these are acceptable to Department of Environment (DoE), Bangladesh and the Asian Development Bank;
- Prepare post-project monitoring programs, institutional arrangement to implement the environmental plans; and
- Prepare cost estimates for the environmental management and monitoring programs.

1.4 APPROACH AND METHODOLOGY

10. The package **CTEIP/BHO/DR/02** has followed the Environmental Assessment Review Framework (EARF) subproject selection criteria as enumerated in SPAR document. The **approach** in preparation of IEE has been to follow the sequence of steps adopted in an EIA study in relation to EARF. Apart from following standard environmental impact assessment practices and procedures, **methodologies** have deployed advanced technologies, techniques and tools to the extent these are applicable and relevant to this project. The approach and methodology flow chart is presented in **Figure-1**.

11. Toward ascertaining **baseline** conditions and assessing the impacts during construction and operation of the project, the consultants have taken into account the various parameters of the environment – topography, physiography, soils, hydrology and drainage, meteorology, qualities of ambient air and noise, surface water, groundwater, biodiversity, socio-economic aspects including gender issues, land/property, physical and cultural resources. The baseline data for environmental attributes were collected from primary and secondary sources. The primary sources include site visits and visual inspection. The secondary sources include the reports, books, maps and documents from various government and non-government organizations on subject matter. The impacts are assessed for various phases of project cycle namely:

- Impacts due to project location and design,
- Impacts due to project construction, and
- Impacts due to project operation.

12. The **impacts** are categorized as negative and positive. The standard methodology for the review, field visit data collection, impact assessment and formulation of management plans is adopted. The Bangladesh National Acts, Legislation and Laws were consulted with a view to ensuring compliance with various requirements. The environmental attributes were compiled from both primary and secondary sources.

13. The **management plans** are essential to ensure that stress/ loads on the systems are within carrying capacity. The management plan aims at maintaining the environmental quality of project area at-least in pre-project stage. An environmental management plans were developed to mitigate the adverse impacts. Efforts are made to enhance the quality of environmental attributes.

14. It is necessary to **monitor** any changes of the quality of environmental parameters during construction and operation. Monitoring would indicate any environmental problems, which have reviewed. This will facilitate to assess the effectiveness of management and/or mitigation measures.

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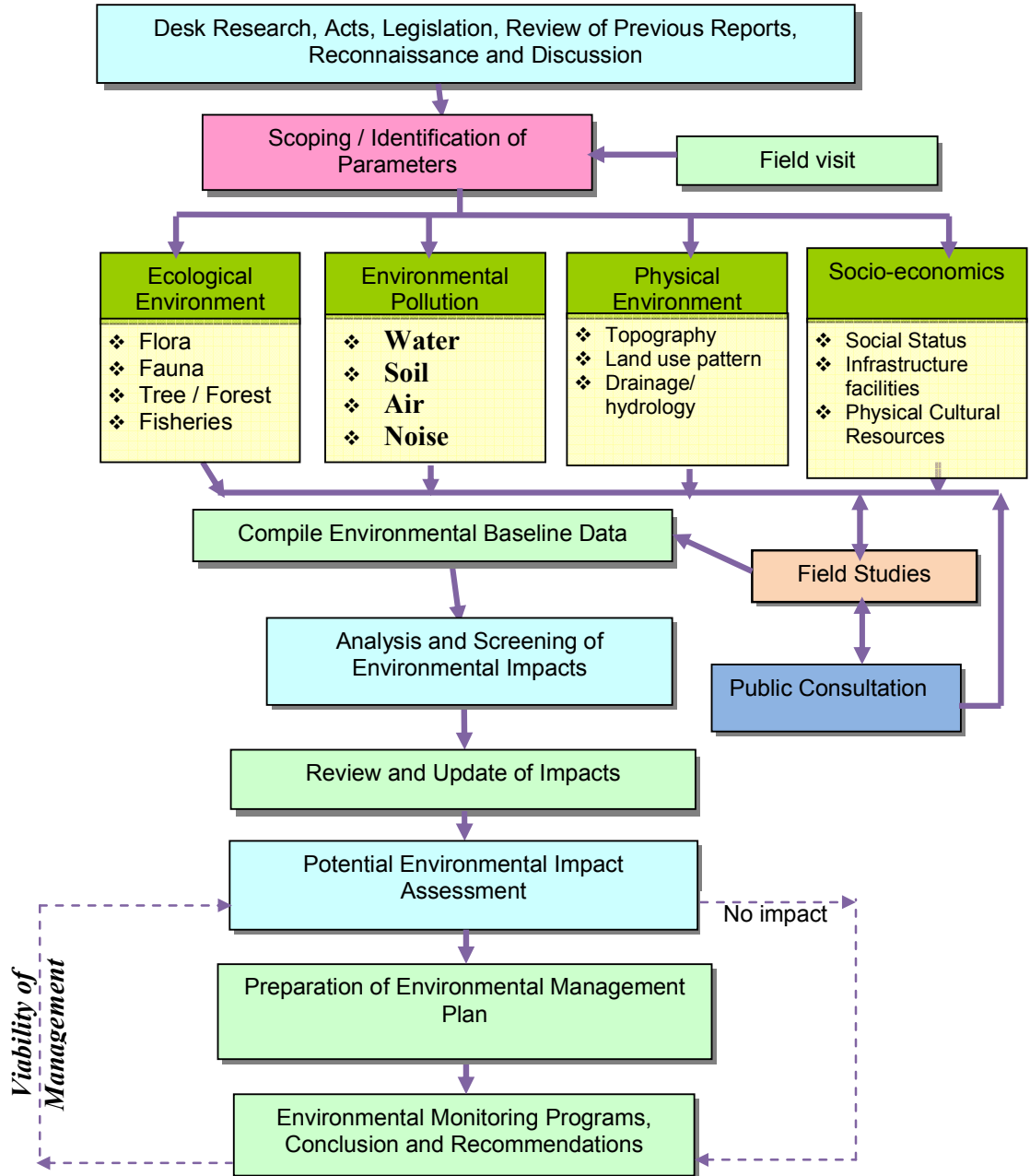


Figure 1: IEE Approach and Methodology Resulting to EMP

1.5 FORMAT OF THE REPORT

15. This report has been prepared taking into consideration the IEE mechanisms, procedures and contents spelt out in Environmental Conservation Act of 1995 and its subsequent amendments in 2000, 2002 and 2010¹ of Bangladesh and ADB Environmental Assessment Guidelines (2003) and Safeguard policy statement (2009). The main findings are reported in conclusions and recommendations for disclosure locally and the ADB web site. The report has an Executive Summary in the beginning.

Chapter 1 provides a general introduction to the project along with the project background, objectives and scope of the study and an outline on the approach and methodology adopted for the study.

Chapter 2 is a concise document on the policy and strategies; legal instruments, and institutional arrangement under which the project will be developed.

Chapter 3 is on the Project Description which highlights the need for the development. The project Construction Schedules material requirements and cost of project are also summarized.

Chapter 4 is on the baseline environmental and social conditions in pre-construction phase in sufficient detail to enable an adequate assessment of the potential environmental and social impacts.

Chapter 5 is on Screening of Potential Environmental Impacts and describes the environmental impacts that could occur as a result of the proposed project.

Chapter 6 is on Grievance Redress Mechanism;

Chapter 7 is on public consultation;

Chapter 8 is on Conclusion and Recommendations.

The literature, books, reports and maps referred are presented as foot notes in the main body of the report. At the end, the report has Annexure which are reported in the main body of the report.

¹ *ECA Amendment 2000* focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures both for fines and imprisonment and the authority to take cognizance of offences. *ECA Amendment 2002* elaborates restrictions on polluting automobiles; restrictions on 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; earth-fill or change the status of any water body/wetland/lakes/natural canals, etc., even in national interest; the aforementioned activities can be done only after getting clearance from respective the departments/agencies/authorities.

2. POLICY, LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

2.1 NATIONAL RELEVANT POLICIES AND STRATEGY

16. This Section describes the relevant policies and strategies, legal instruments, institutional arrangement and framework applicable to CTEIP-related rehabilitation and /or construction activities in various Pourashava areas in the Bangladesh coastal region. It summarizes the National Laws and describes the procedure for obtaining environmental permits to allow project implementation. Over the years the Government of Bangladesh has enacted environmental acts, rules, policies and regulation toward imposing restrictions facilitating minimization / mitigation of likely impacts due to development projects. The most important Act is Environmental Conservation Act, 1995 (ECA, 1995) and Environmental Conservation Rules (ECR, 1997).

2.1.1 National Environmental Policy

17. The National Environmental Policy was adopted in 1992 and is now under revision. It embraces different sectors related to agriculture, forest, power, health, transport, housing etc. The central theme of policy is to ensure protection and improvement in environment. The policy gives a thrust to sustainable development and long term use of natural resources. The National Environment Policy contains policy statements and strategic options with regard to population and land-use management, management and utilization of natural resources and other socio-economic sectors, as well as the necessary arrangements for the implementation of the policy. The policy enables:

- the country to strike a dynamic balance between population and resources while complying with the balance of ecosystems;
- to contribute to sustainable and harmonious socio-economic development such that, both in rural and urban areas, and well-being in a sound and enjoyable environment; and
- to protect, conserve and develop natural environment.

2.1.2 National Water Policy (NWP)

18. The National Water Policy, 2004 (NWP) aims for sustainable management of water. This policy is relevant as some of the activities such as water supply to shelters will be from existing sources/ systems. Policy also integrates the environmental impact assessment for water development projects. The policy stresses on issues related to climate change such as:

- Augmentation of dry season flows;
- Awareness raising in consumptive use of surface and ground water;
- Structural and non-structural mitigation measures (early warning systems).

2.1.3 National Forest Policy

19. National Forest Policy (NFP) was established in 1994. Under this policy it is proposed to increase the forest cover and to promote and oversee forestry activities. The policy fixed the target of forest cover at least 20% of geographic area by the year 2015. Tree plantation on the courtyards of rural organization such as Union Parishad, school, eidgah, mosque-moktob, temple, club, orphanage home, madrassah etc. and other fallow lands around can be initiated. The government will encourage this type of initiative and extend technical and other supports.

2.1.4 Bangladesh Climate Change Strategy and Action Plan

20. The Bangladesh climate change strategy and action plan was approved in 2009. The climate change plan is built on six pillars namely i) food security, social protection and health; ii) Comprehensive Disaster Management; iii) infrastructure; iv) research and knowledge management; v) Mitigation and low carbon development; and vi) capacity building and institutional. The strategy and action plan emphasizes on ensuring existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructures (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change. - enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change.

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2.2 LEGAL INSTRUMENTS

21. The environmental policies are prepared by the Ministry of Environment and Forests (MoEF). MoEF also has formulated regulation toward clearance of projects from environmental angles based on environmental impact assessment report. The Department of Environment is responsible for environmental issues while forest issues are looked after Department of Forests. Over the years the MoEF has adopted number of legal instrument in the form Acts for the protection and conservation of the environment. **Table 2** summarizes the Environmental Legislation applicable to the sub-project.

Table 2: Applicable GoB Environmental Legislations

Sl.No	Legislation	Requirement for the Project	Relevance
1	Environmental Conservation Act of 1995 and amendments in 2000, 2002 and 2010 ²	<ul style="list-style-type: none"> 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 and limits for discharging and emitting waste Environmental guidelines 	The provisions of the Act apply to the entire subproject in the construction and operation and maintenance (O&M) phases.
2	Environmental Conservation Rules of 1997 and amendments in 2002 and 2003	Environmental clearances <ul style="list-style-type: none"> Compliance to environmental quality standards 	The subproject is categorized as Orange-B and requires LCC and ECC. All requisite clearances from DoE shall be obtained prior to commencement of civil works.
3	Forest Act 1927 & amendments (2000)	<ul style="list-style-type: none"> Clearance for any felling, extraction, and transport of forest produce 	Refer Baseline and EMP
4	Bangladesh Climate Change Strategy and Action Plan of 2009	<ul style="list-style-type: none"> Ensure existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructures (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change. enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change 	Considered in project design components
5	Bangladesh Labour Law of 2006	<ul style="list-style-type: none"> Compliance to the provisions on employment standards, occupational safety and health, welfare and social protection, labour relations and social dialogue, and enforcement Prohibition of employment of children and adolescent 	The provisions of the act apply to the entire subproject in the construction and O&M phases. Provides for occupational health and safety of workers and community during construction phase.
6.	The Building Construction Act, 1952 (amended & gazetted in 2008)		Act is in English and rules currently available in Bangla: Pourashava to develop the conditions under this Act but have yet to utilize.
7.	The Town Improvement Act 1953		Only applicable for RAJUK and therefore not relevant.
8.	Building Construction Rules 2008		Building Construction Rules 2008 version appropriate to Dhaka City. Pourashava utilizing 1996 version.

² *ECA Amendment 2000* focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures both for fines and imprisonment and the authority to take cognizance of offences. *ECA Amendment 2002* elaborates restrictions on polluting automobiles; restrictions on 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 raise any hill or hillock; earth-fill or change the status any water body/wetland/lake/natural canal, etc., even in national interest; the aforementioned activities can be done only after getting clearance from respective departments.

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Sl.No	Legislation	Requirement for the Project	Relevance
9.	Bangladesh National Building Code (BNBC) 2006		Bangladesh National Building Code (BNBC) 2006 currently not gazetted by the GoB. Approved copy 1993 referred for which the relevant clauses have been closely followed and incorporated within IEE.
10.	Bangladesh Water Act, 2013	<ul style="list-style-type: none"> Restriction on design, operation and process in order to comply to the requirements of the Act for integrated development, management, extraction, distribution, usage, protection and conservation of water resources for better management of water resources 	<ul style="list-style-type: none"> The provisions of the Act apply to the entire subproject in the design, construction and operation and maintenance (O&M) phases. Requires LCC and ECC. All requisite clearances from DoE shall be obtained prior to commencement of civil works.
11.	Water Pollution Control Ordinance, 1970		EPCO'77 superseded WPCO'70 & extended the control, prevention & abatement of pollution to the entire environment & expanded definition of "pollution" from that specifically relating to waters to "air, water or soil".
12.	Environmental Pollution Control Ordinance, 1977		<ul style="list-style-type: none"> EPCO'77 repealed, and ECA'95 & ECR'97 enacted Environmental Pollution Control Board formed under EPCO'77 has now grown into DoE
13.	National Environmental Policy, 1992 (revised in 2015)	<ul style="list-style-type: none"> Restriction on operation and process to maintain overall development through protection and improvement of environment Remedial measures for injuries to ecosystems Standards for quality of air, water, noise and soil for different areas and limits for discharging and emitting waste 	The provisions of the policy apply to the entire subproject in the construction and O&M phases through environmental management.
14.	National Environmental Management Plan, 1995		NEMAP'95 includes activities relating to fisheries and agriculture
15.	The Environmental Court Act, 2000 (amended in 2002 & 2010)	<ul style="list-style-type: none"> Compliance to the relevant provisions & requirements of ERA'95 & ECR'97 	<ul style="list-style-type: none"> The provisions of the Act apply to the entire subproject in the construction and operation and maintenance (O&M) phases. Requires LCC and ECC. All requisite clearances from DoE shall be obtained prior to commencement of civil works.
16.	The National Water Policy, 1999	<ul style="list-style-type: none"> Restriction on operation and process in order for protection of water quality 	The provisions of the policy apply to the entire subproject in the construction and O&M phases through environmental management.
17.	Ozone Layer Destruction Materials (Control) Rules, 2004		No relevance with the project
18.	Bio-safety Rules, 2012		No relevance with the project

Source: TA 8128 Coastal Towns Infrastructure Improvement Project Volume 6

2.3 INSTITUTIONAL ARRANGEMENTS / FRAMEWORK

22. The main Ministry, Department, Institutions and Boards responsible for development of policy, framing regulation, developing projects, monitoring and approval of issues related to environment protection and conservation are presented in this section.

23. The **Department of the Environment** In 1977, Environment Pollution Control Board with 16 members headed by a Member of the Planning Commission and Environment Pollution Control Cell

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headed by a Director with staff complement of 26 was established. This was followed in 1977 by the establishment of the Environment Pollution Control Project, in 1985 by the establishment of the Department Pollution Control and finally, in 1989 by the restructured and renamed the Department of Environment (the Department) the activities of which are overseen by a Director General. The Department discharges its responsibilities through a head office and six Divisional offices located in Dhaka, Chittagong, Khulna, Bogra, Barisal and Sylhet. Of late, the Government has established 21 new offices at district level with the creation of 468 new positions.

24. **DOEs activities** affect every socio-economic sector and direct and influence all activities wherever they might take place in Bangladesh. The department was created in 1989 to ensure sustainable development and to conserve and manage the environment of Bangladesh. Over the last decades the major activities performed by the department had undergone significant metamorphosis- from a limited scope of performing merely regulatory and routine function scope of performing merely regulatory and routine function to a wider and broader horizon comprising more action-intensive and research oriented endeavours of investigating, identifying, conserving and nurturing as well as enhancing the qualities of the various ecosystems encompassing the overall environment of country.

25. The basic philosophy behind the establishment of the DOE was environment conservation, pollution control and management of environment in its totality. So we can easily measure the major functions of the DOE through analyzing the following points of activities:

- Environmental quality monitoring
- Awarding environmental clearance to industries/development project
- Compliance & Enforcement
- Ecologically Critical Areas and Natural Resource Management
- Planning & Development and Research
- Environmental awareness and partnership building
- Human Resource Development
- Compliance to regional and international conventions, treaties and protocols
- Information, Library and Documentation

26. The Ministry of Environment & Forests is the nodal agency in the administrative structure of the Central Government, for the planning, promotion, co-ordination and overseeing the implementation of environmental and forestry programmes. MoEF oversees all environmental matters in the country and is a permanent member of the Executive Committee of the National Economic Council. The Ministry also plays a pivotal role as a participant of United Nations Environment Programme (UNEP).

27. The principal activities undertaken by Ministry of Environment & Forests consist of conservation & survey of flora, fauna, forests and wildlife, prevention & control of pollution, forestation & regeneration of degraded areas and protection of environment, in the framework of legislations. The main tools utilized for this include surveys, impact assessment, control of pollution, regeneration programmes, support to organizations, research to solve solutions and training to augment the requisite manpower, collection and dissemination of environmental information and creation of environmental awareness among all sectors of the country's population. The organizational structure of the ministry covers a number of divisions, directorate, board, subordinate offices, autonomous institutions and public sector undertakings. In short, Ministry of Environment & Forest (MoEF) has the following major functions:

- Management of environment and ecology.
- Matters relating to environment pollution control.
- Conservation of forests and development of forest resources (government and private), forest inventory, grading and quality control of forest products.
- Forestation and regeneration of forest extraction of forest produce.
- Plantation of exotic cinchona and rubber.
- Botanical gardens and botanical surveys.
- Tree plantation.
- Planning cell is responsible for preparation of schemes and coordination in respect of forest.
- Research and training in forestry.
- Mechanized forestry operations.
- Protection of wild birds and animals and establishment of sanctuaries.
- Matters relating to marketing of forest produce.

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- Liaison with international organizations and matters relating to treaties and agreements with other countries and world bodies relating to subjects allotted to this Ministry.

2.3.1 LGED and Bhola Pourashava

28. The Local Government Engineering Department (LGED) is the executing agency. LGED has constituted a Project Management Unit (PMU) and Project Implementation Unit (PIU). The PMU is headed by Project Director (PD). In order to put the project to logical conclusion the PD is assisted by three consultant team to assist and support the PMU and PIU (Project Implementation Unit). The consultant teams are: i) Detailed Design Services (DDS); ii) Project Management and Supervision Consultant (PMSC), and Institutional Capacity and Community Development consultant (ICCDC). The Bhola Pourashava will be the implementing agency and will be assisted by PIU. The facility created during the sub-project will be operated and maintained by Bhola Pourashava.

2.4 ENVIRONMENTAL CLEARANCE PROCEDURE

29. 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 prerequisite for granting the ECC that allows project to proceed. The Environmental Clearance Certification Process is shown in **Figure 2**.

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

- Completed Application for ECC, and the appropriate fee;
- Report on the feasibility of the project;
- Report on the IEE for the project;
- Report on the environmental management plan (EMP);
- No objection certificate from the local authority;
- Emergency plan relating to adverse environmental impact and plan for
- Mitigation of the effect of pollution; and
- Outline of the relocation and rehabilitation plan (where applicable).

31. Under the ECR, DoE has 60 days to respond to receipt of the ECC application for a Red category project. This IEE will serve the basis for the ECC application and will be supplemented to fulfill any additional government requirements.

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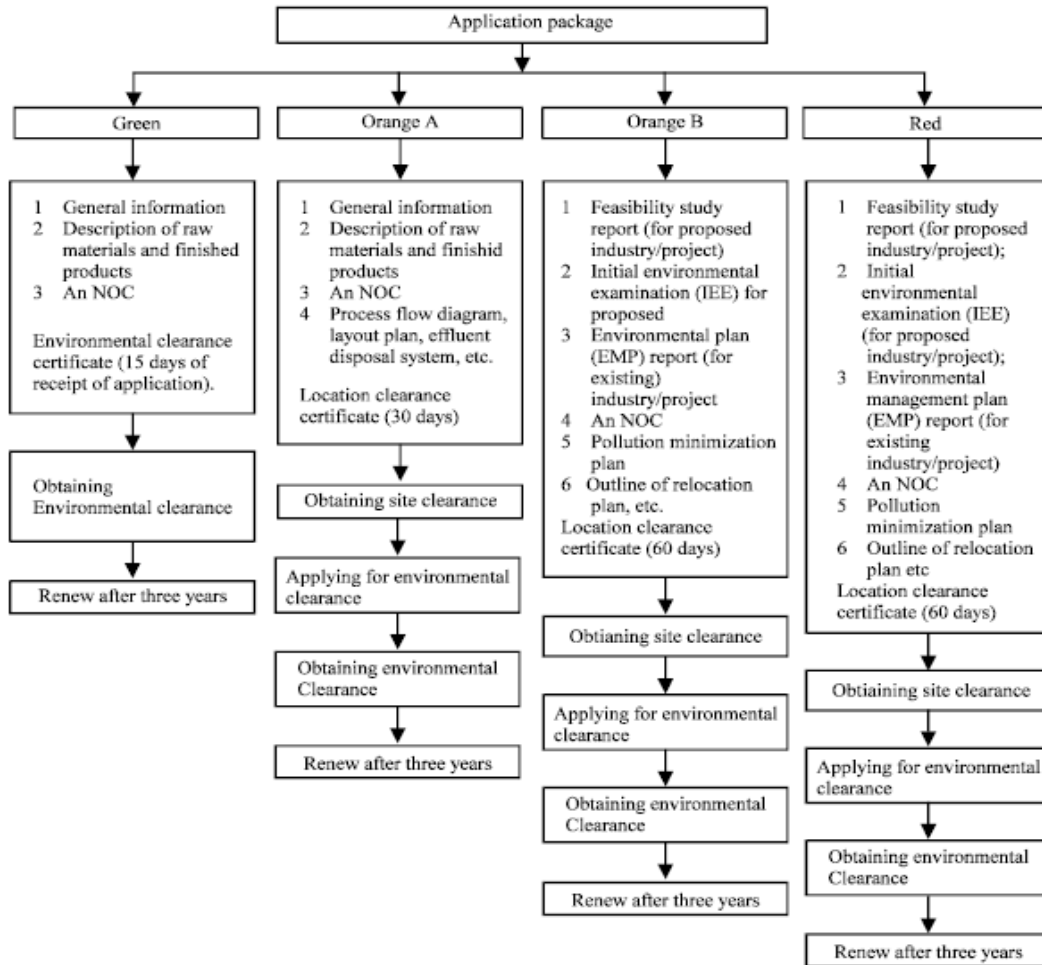


Figure 2: Environmental Clearance Process in Bangladesh

2.4.1 Environmental Category: Bangladesh

32. For the purpose of issuance of Environmental Clearance Certificate, the industrial units and projects shall, in consideration of their site and impact on the environment, be classified into the following four categories:- (a) Green; (b) Orange – A; (c) Orange – B; and (d) Red. The Industries and projects included in the various categories are specified in sub-rule (1) have been described in Schedule-1. The ECA indicates that all industrial units or projects must obtain a Location Clearance Certificate (LCC) and Environmental Clearance Certificate (ECC) from the Department of Environment (DoE). No industrial unit or project shall be established or undertaken without obtaining environmental clearance from DoE in the manner prescribed by the rules. **Table 3** describes related DoE classifications.

Table 3: Related DoE Classifications

Components	Items in Schedule-of ECR	DOE Classification
Drainage and Related Drainage works	ECR 60: Engineering works capital above 10 (ten) hundred thousand taka	Red
	ECR 45: Engineering works capital below 10 (ten) hundred thousand taka	Orange-B

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2.4.2 Environmental Category: ADB

33. Asian Development Bank (ADB) requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB SPS, 2009. This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, loans involving financial intermediaries, and private sector loans.

34. **Screening and categorization:** The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project; the sensitivity, scale, nature, and magnitude of its potential impacts; and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impacts, and are assigned to one of the following four categories:

- **Category A.** Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.
- **Category B.** Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- **Category C.** Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
- **Category FI.** Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all projects will result in insignificant impacts.

As per above ADB environmental classification, this drainage subproject falls in “**Category B**”.

2.4.3 Bangladesh Environmental Standards

35. The Ministry of Environment and Forest has developed standards from time to time for water and air quality for discharge in the ambient air. The relevant standards are summarized in **Table 4**.

Table 4: Relevant Environmental Quality Standards

Standards	ECR 1997 Rule	Details of Specification
Air Quality	Schedule 2	Standards for Air parameters: Suspended Particulate Maters (SPM); Sulphur dioxide; Carbon; Monoxide Oxides; Nitrogen For the categories: a) Industrial and mixed; b) Commercial and mixed; c) Residential and rural; d) Sensitive.
A) Inland Surface Waters	Schedule 3	Standards for water parameters: pH; BOD (mg/l); DO (mg/l); Total Coliform (number/100) For the Classifications: a) Source of drinking water for supply only after disinfecting; b) Water usable for recreational activity; c) Source of drinking water for supply after conventional treatment; d) Water usable by fisheries; e) Water usable by various process and cooling industries f) Water usable for irrigation.
B) Drinking Water	Schedule 3	Standards for the given parameters
Sound	Schedule 4	Standards for Sound (determined for Day (dBa unit); and Night (dBa unit) For the categories: a) Silent Zone; b) Residential Area; c) Mixed Area; d) Commercial Area; e) Industrial Area:
Sound originating from Motor Vehicles	Schedule 5	Standards of sound of Motor Vehicles (all types) (dBa) As measured: at a distance of 7.5 meters from exhaust pipe; at a distance of 0.5 meter from exhaust pipe.
Emissions from Motor Vehicles	Schedule 6	Standard Limits for Emission of Motor Vehicles for the parameters of Black Smoke (Hartridge Smoke Unit (HSU)); Carbon Monoxide (gm/km percent area); Hydrocarbon (gm/km ppm); Oxides of Nitrogen (gm/km ppm)
Odour	Schedule 8	Standards for odour (ppm) for the parameters of Acetaldehyde; Ammonia; Hydrogen Sulfide;

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Standards	ECR 1997 Rule	Details of Specification
		Methyl Disulfide; Methyl Sulfide; Styrene; Trim ethylamine.
Sewage Discharge	Schedule 9	Standards for Sewage Discharge for the Parameters of BOD (miligram/l); Nitrate (miligram/l); Phosphate (miligram/l); Suspended Solids (SS) (miligram/l); Temperature (Degree Centigrade); Coliform (number per 100 ml).
Waste water from Industrial Units or Projects Waste	Schedule 10	Standards for Waste water from Industrial Units or Projects Waste for the given parameters for the Places of Determination of Standards: Inland Surface Water; Public Sewerage system connected to treatment at second stage; Irrigated Land.

Source: Environment Conservation Rules (ERC), 1997

2.4.4 Institutional Capacity

36. The Ministry of Environment and Forests has the capacity to formulate policy, legislation, standards and review the environmental impact assessment (EIA) of the development projects. The project is cleared by two committees. The Pourashava gives the site clearance by location clearance committee (LCC). The project is submitted to DoE for environmental clearance committee (ECC). The projects are implemented at local or Pourashava level and executed at central level. Local Government Engineering Department (LGED) executes the projects on water supply, sewerage, solid waste management, etc. The environmental impact assessment is conducted by the consulting agencies by outsourcing including the DDC and PMSC Consultants. The sphere of LGED activities is for a better environment and health. Most of the engineers involved with design and construction activities are familiar with the environmental issues. LGED has also appointed an Executive level officer to look into the critical issues. The LGED is assisted by consultants for monitoring of environmental attributes and training. LGED has established a quality control lab where parameters related to water, waste water and soils can be monitored. However there is a scope to train engineers at each level for conducting environmental impact assessment and preparation of management plans. Further, to avoid adverse negative environmental impacts of a proposed shelter, no contract tender should be launched before specific IEE/EIA based on final design is prepared. The EMP with the management measures is approved by DoE.

3. PROJECT DESCRIPTION

3.1. OVERVIEW

37. The Coastal Towns Environmental Infrastructure Project (CTEIP) is a key infrastructure initiative of the Government of Bangladesh. The project consists of four components (i) improved climate- resilient municipal infrastructure, (ii) strengthened governance and institutional capacity, (iii) enhanced public awareness, behavior change, and community-based climate adaptation, and (iv) project management support. The outcome of the project will be improved access to climate-disaster resilient municipal services, including (i) municipal infrastructure such as roads and bridges, drainage, cyclone shelters, solid waste management, bus terminals, slum improvements, boat landings, and markets, (ii) water supply, and (iii) sanitation.

38. CTEIP finances basic urban services improvements and aims to increase climate resiliency that are vulnerable to the effects of climate change. The location of the eight Pourashavas, included under CTEIP is shown in **Figure 1.1 of Subsection 5**, which shall receive investments in two stages: (i) Stage 1 focuses on infrastructure crucial for climate resilience (e.g., roads, cyclone shelters, solid waste, drainage, water supply, and sanitation); and (ii) Stage 2 includes other infrastructure that contributes to general economic development (e.g., additional roads, markets, boat landings and bus terminals). The total project amount for the eight Pourashavas is estimated to be \$117.1 million, and the implementation period is five years.

3.2 LOCATION AND SELECTION OF DRAINS

39. The locations of proposed Construction of 9 Nos. Secondary Drains, totalling 4.893 km works are at Bhola Pourashava. Bhola is a historical urban settlement located 262 km south east of Dhaka, at a distance of about 58 km. from Barisal town. Bhola Pourashava is situated at the southern part of the country; close the Bay of Bengal, which lies between 21°54' and 22°50' north latitudes and between 90°34' and 91°01' east latitudes. Bhola, the principal town of Bhola District became a municipality on 1st October, 1920. It was reorganized as a Town Committee under basic democracy ordinance 1959. After liberation, Bhola Town Committee was again reorganized as Bhola Pourashava on 20th January, 1972 by Bangladesh Local Council and Municipal Committee (Amendment) order. As part of the present administrative reform Bhola Pourashava has become the Bhola District town.

40. The pourashava is about 262 km from Dhaka towards the south-east direction, about 58 km from Barisal City. The town is connected with Dhaka, Barisal and Patuakhahli by road and water transport. The total area of the pourashava is 31.48 sq. km, considered to be a medium sized town in the context of Bangladesh.

3.3 ENVIRONMENTAL CATEGORIZATION

41. As part of the Sub Project Appraisal Report (SPAR), environmental assessment for the Batch 2 stage I Pourashavas of Bhola was conducted and initial environmental examination reports (IEEs) with Environmental Management Plans (EMP) were prepared in accordance with requirements of the ADB Safeguard Policy Statement (SPS). As per DoE classification mentioned in Para 29, the construction of multistoried building falls in environmental category Orange-B. The land on which the shelter will be constructed is already available with authorities. Hence, there is no problem due to land acquisition, rehabilitation and resettlement. The environmental issues related to construction are anticipated during construction phase. In order to follow ECA, Bangladesh and ADB SPS the IEE has been conducted. The potential adverse environmental impacts are mainly related to the construction period, which can be minimized by the mitigating measures and by adopting environmentally sound engineering and construction practices. No Category A type of works (with significant impacts) is considered.

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3.4 PROJECT DETAILS

42. **Need for the Project:** According to the SPAR Report, there is widespread backup of sewage and water logging due to inadequate drainage results in a deterioration of public health through the increased prevalence of waterborne diseases.

43. The proposed sites for the drains under Bhola Pourashava, District: Bhola are located within the Pourashava area, which are mostly within core area and few in semi urban areas. Selection of drains on the basis of SPAR has been followed for prioritization. Construction of RCC Drains and Drainage Structures in Bhola Pourashava have been designed under the package **CTEIP/BHO/DR/02**.

44. The total designed length of construction of secondary drain is 4893 m. This package has been designed without major resettlement issues and land acquisition.

3.4.1 Objective of the Project

45. One of the prime objectives of the project is to improve drainage infrastructure with a view to supporting project area's, environmental, social, economic, physical and climate resilient development which will be facilitated by the subproject component. Specifically, the major purpose of the proposed upgrading project is to construction, re-excavation and lining of drainage network components in Bhola Pourashava in order to meet the following objectives:

- To promote socio economic and physical development of the project area by linking it within Pourashava; and
- To increase climate reliance in infrastructure.

3.4.2 Existing Condition of Bhola Drainage

46. The intervention is planned to develop climate resilient drainage structures. The proposed sites for construction, re-excavation and lining of the drainage works are located within the Bhola Pourashava area within rights of way and within urban and semi urban areas. Investments under this subproject include construction, re-excavation and lining of drainage. Existing condition of the drainage within Bhola pourashava area proposed is depicted below in **Table 5**.

Table 5: Existing Condition of Bhola Drainage

Sl. N o.	SPAR Drain ID No.	Name of Drains	Existing Condition
1	SD-06	RCC drain from Haron Hawlader's House to Balia Kandi Khal via Prof. Enayet Miah's House. (Ch. 0+000 to 0+388m) and Link drains 152m under Ward No: 03.	Damaged brick drain, narrow in width and depth is inadequate due to requirement.
2	SD-07	RCC drain from BAVS Road to Bhola Khal via Noor Cycle House and Kalibari Road. (Ch. 0+000 to 0+754m) under Ward No 06 & 07.	Some portion has existing damaged drain and rest is earthen channel.
3	SD-08	RCC drain from Safi Mia's House to Bhola Khal via Billah Mosque and Kalibari Road (Ch. 0+085 to 0+435m) under Ward No 02 & 03.	Damaged brick drain, narrow in width and depth is inadequate due to requirement.
4	SD-09	RCC drain from PTI Boundary to Kathali Khal. (Ch. 0+000 to 0+773m) under Ward No: 08.	Severely damaged brick drain.
5	SD-10	RCC drain from Pandit bari Road to Muslim Para Big Drain via Doctor Bari (Ch. 0+000 to 0+458m) And Link Drain 222m under Ward No 08.	Severely damaged brick drain.
6	SD-11	RCC drain from R&H Office Campus to Ratanpur Khal via HEED Bangladesh. (Ch. 0+000 to 0+546m) under Ward No 09.	Damaged brick drain, narrow in width and depth is inadequate due to requirement.
7	SD-12	RCC drain from Bida Liton's House to Bhola Khal via Tarek Miah's House and Inspector's House (Ch. 0+000 to 0+262m) under Ward No 03.	Existing earthen drain

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Sl. No.	SPAR Drain ID No.	Name of Drains	Existing Condition
8	SD-13	RCC drain from Back Side of Nabi Mosque (Ch. 0+000 to 0+283m) under Ward No 03.	Some portion has existing damaged drain and rest is earthen channel.
9	SD-14	RCC drain from Sikder Bari to Muslim Para Big Drain via Azgor Chowdhury's House and Sekandar Ali Madrassa. (Ch. 0+000 to 0+610m) And Link Drain 95m under Ward No: 07.	Existing earthen drain

Source: SPAR, DDS Consultant Computation and Field Studies

3.4.3 Brief Description of the Drains

47. The drainage systems in Bhola Pourashava are yet unplanned and under developed. Mostly the drainage network consists of set of natural *khals* that were part of the extensive coastal river system around which habitation developed; and (ii) various sections of these natural canals in Bhola are overtopped for design storm conditions due to extensive encroachment, restricted outflows, blockage due to dumping of solid waste and progressive siltation over many years mainly due to embankments that interrupt natural tidal flows. The drainage system needs to be improved to meet the needs of adequate reduction of flooding and inundation; and changes in climatic conditions, such as increasing rain intensities and more extreme weather events, such as thunderstorms, which will most likely aggravate these problems. SPAR proposed total 24 drainage schemes of which 3 schemes are for primary drains, 17 secondary drains and 4 tertiary drains out of which 9 secondary drains and are included in package no. **CTEIP/BHO/DR/02**. The subproject consists of Construction/Improvement of 9 Nos. secondary Drains, totalling 5.830 km mostly within the Pourashava core area and few in semi urban areas. Based on technical, economical, financial, social and environmental factors, the drains have been assigned the priority. Based on priority, all of the subproject components have been selected for environmental impact assessment. The drainage type, length, existing condition and proposed intervention are summarized in Table 6 and the existing condition of the proposed drainage including locations can be visualized in Figure-3. A brief description of drains under the subproject is presented below along with drain number:

SD-06: Construction of RCC drain from Haron Hawlader's House to Balia Kandi Khal via Prof. Enayet Miah's House. (Ch. 0+000 to 0+388m) and Link drains 152m under Ward No: 03.

- RCC Rectangular Section (W=0.60-0.80 m) (D=1.00-1.40 m), with Top Cover Slab
- Ward No. 03,
- Length of proposed Drain-540 m,
- Outfall to Bhola Khal.

SD-07: Construction of RCC drain from BAVS Road to Bhola Khal via Noor Cycle House and Kalibari Road. (Ch. 0+000 to 0+754m) under Ward No 06 & 07.

- RCC Rectangular Section (W=0.60-0.80 m) (D=6.50-1.275 m), with Top Cover Slab
- Ward No. 06/07,
- Length of proposed Drain-754 m,
- Outfall to Existing Big Drain.

SD-08: Construction of RCC drain from Safi Mia's House to Bhola Khal via Billah Mosque and Kalibari Road (Ch. 0+085 to 0+435m) under Ward No 02 & 03.

- RCC Rectangular Section (W=0.60-0.80 m) (D=0.40-1.15 m), with Top Cover Slab
- Ward No. 02-03,
- Length of proposed Drain-350 m,
- Outfall to Bhola Khal.

SD-09: Construction of RCC drain from PTI Boundary to Kathali Khal. (Ch. 0+000 to 0+773m) under Ward No: 08.

- RCC Rectangular Section (W=0.80-1.10 m) (D=0.95-1.55 m), with Top Cover Slab
- Ward No. 08,

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- Length of proposed Drain-773 m,
- Outfall to Kathali Khal.

SD-10: Construction of RCC drain from Pandit bari Road to Muslim Para Big Drain via Doctor Bari (Ch. 0+000 to 0+458m) And Link Drain 222m under Ward No 08.

- RCC Rectangular Section (W=0.60-0.90 m) (D=0.60-1.50 m), with Top Cover Slab
- Ward No. 08,
- Length of proposed Drain-680 m,
- Outfall to Muslim Para Big Drain.

SD-11: Construction RCC drain from R&H Office Campus to Ratanpur Khal via HEED Bangladesh. (Ch. 0+000 to 0+546m) under Ward No 09.

- RCC Rectangular Section (W=0.60-0.80 m) (D=0.75-1.04 m), with Top Cover Slab
- Ward No. 09,
- Length of proposed Drain-546 m,
- Outfall to Ratanpur Khal

SD-12: Construction RCC drain from Bida Liton's House to Bhola Khal via Tarek Miah's House and Inspector's House (Ch. 0+000 to 0+262m) under Ward No 03.

- RCC Rectangular Section (W=0.60 m) (D=0.85-1.255 m), with Top Cover Slab
- Ward No. 03,
- Length of proposed Drain-262 m,
- Outfall to Balia Kandi Khal

SD-13: Construction RCC drain from Back Side of Nabi Mosque (Ch. 0+000 to 0+283m) under Ward No 03.

- RCC Rectangular Section (W=0.60 m) (D=0.70-0.972 m), with Top Cover Slab
- Ward No. 03,
- Length of proposed Drain-283 m,
- Outfall to Balia Kandi Khal

SD-14: Construction RCC drain from Sikder Bari to Muslim Para Big Drain via Azgor Chowdhury's House and Sekandar Ali Madrassa. (Ch. 0+000 to 0+610m) And Link Drain 95m under Ward No: 07.

- RCC Rectangular Section (W=0.80 m) (D=0.69-1.30 m), with Top Cover Slab
- Ward No. 07,
- Length of proposed Drain-705 m,
- Outfall to Muslim Para Big Drain.

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Table-6: Drainage Type, Length, Existing Condition and Proposed Intervention

Sl. No.	SPAR Drain ID No.	SPAR Proposed Length (m)	Name of Drains	Existing Condition	Proposed Design Intervention	
					Length (m)	Intervention
1	SD-06	627	RCC drain from Haron Hawlader's House to Balia Kandi Khal via Prof. Enayet Miah's House. (Ch. 0+000 to 0+388m) and Link drains 152m under Ward No: 03.	Damaged brick drain, narrow in width and depth is inadequate due to requirement.	540	RCC U-drain with Top Slab
2	SD-07	1000	RCC drain from BAVS Road to Bhola Khal via Noor Cycle House and Kalibari Road. (Ch. 0+000 to 0+754m) under Ward No 06 & 07.	Some portion has existing damaged drain and rest is earthen channel.	754	RCC U-drain with Top Slab
3	SD-08	500	RCC drain from Safi Mia's House to Bhola Khal via Billah Mosque and Kalibari Road (Ch. 0+085 to 0+435m) under Ward No 02 & 03.	Damaged brick drain, narrow in width and depth is inadequate due to requirement.	350	RCC U-drain with Top Slab
4	SD-09	813	RCC drain from PTI Boundary to Kathali Khal. (Ch. 0+000 to 0+773m) under Ward No: 08.	Severely damaged brick drain.	773	RCC U-drain with Top Slab
5	SD-10	516	RCC drain from Pandit bari Road to Muslim Para Big Drain via Doctor Bari (Ch. 0+000 to 0+458m) And Link Drain 222m under Ward No 08.	Severely damaged brick drain.	680	RCC U-drain with Top Slab
6	SD-11	750	RCC drain from R&H Office Campus to Ratanpur Khal via HEED Bangladesh. (Ch. 0+000 to 0+546m) under Ward No 09.	Damaged brick drain, narrow in width and depth is inadequate due to requirement.	546	RCC U-drain with Top Slab
7	SD-12	397	RCC drain from Bida Liton's House to Bhola Khal via Tarek Miah's House and Inspector's House (Ch. 0+000 to 0+262m) under Ward No 03.	Existing earthen drain	262	RCC U-drain with Top Slab
8	SD-13	300	RCC drain from Back Side of Nabi Mosque (Ch. 0+000 to 0+283m) under Ward No 03.	Some portion has existing damaged drain and rest is earthen channel.	283	RCC U-drain with Top Slab
9	SD-14	900	RCC drain from Sikder Bari to Muslim Para Big Drain via Azgor Chowdhury's House and Sekandar Ali Madrassa. (Ch. 0+000 to 0+610m) And Link Drain 95m under Ward No: 07.	Existing earthen drain	705	RCC U-drain with Top Slab

Source: SPAR, DDS Consultant Computation and Field Studies

Figure 3: Selected Photographs of Existing Condition at Some Proposed Drainage Locations



Existing condition of SD-06



Existing condition of SD-07



Existing condition of SD-08



Existing condition of SD-09



Existing condition of SD-10



Existing condition of SD-11

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Existing condition of SD-12



Existing condition of SD-13



Existing condition of SD-14

3.5 ANALYSIS OF ALTERNATIVES

48. During the IEE stage of the proposed drain construction/ re-excavation/ lining of project, options were explored and these options were weighed from all considerations such as cost, environment, and ease of implementation and maximum utilization of available infrastructure. The aim of alternative analysis is to arrive at a development option, which maximizes the benefits while minimizing the adverse impacts. The two alternatives were considered “No Project Scenario” and “With Project Scenario”. More alternatives are presented along with environmental management plan.

3.5.1 Without Project Alternative

49. The No Project option in respect to the proposed project implies that the status quo is maintained. This option may be suitable alternative from an environmental perspective as it ensures non-interference with the existing environmental conditions. This option will however, involve several losses on socioeconomic and physical condition both to the local population and the nation as a whole. The local population will continue to face the constraints they are currently experiencing due to inefficient or improper drainage network and system and the anticipated economic development aimed at fulfilling the infrastructure gap remain unattainable. The No Project Option is the least preferred from the socio-economic-physical and partly environmental perspective due to the following factors:

- The socio-economic-physical status of the Bhola residents would remain unchanged. Reduced interaction both at local and national levels;
- The local skills would remain under-utilized as no employment opportunities will be created for local population who would have otherwise worked at the project area;
- Reduced business development due to current bad condition of the drainage network;
- The current erosion rate in the feeder road due to lack of drainage system will remain; and
- No project scenario case will also avoid social impacts due to the implementation of the project.

3.5.2 With Project Alternative

50. The implementation of the project will contribute to socioeconomic and physical improvement and will have positive impacts on residents’ life quality. The ‘with’ project alternative have following advantages:

- There will be improved and assured drainage facilities to the residents of Pourashava/District.
- Drainage development will stimulate socioeconomic and physical development of the area. The proposed drains are a deterrent for commercial growth in the area, the project scenario will catalyse commercial growth in different centres and there will be better business opportunities for locals.
- The primary and secondary drainage development will also contribute to circulation of water vehicle through and around the pourashava. Especially, it will connect Khakdon River through the city centre which will contribute to easy and less costly and effective transportation of goods and passengers in and around the town.
- Less emission from water vehicles due to improved water way networks and hence better environmental condition. This alternative will have minimal and temporary negative impacts on land use, forest/trees, noise and air pollution during construction and operation phases.

3.6 QUANTITY OF CONSTRUCTION MATERIAL

51. Bidding process shall not be launched for drainage subproject until ECC is obtained. The design report summarizes the quantities of construction material³. These have been further utilized in assessing the environmental impact due to development of drains. Quantity of material is summarized in **Table 7**.

Table 7: Quantity of Construction Material

S. No.	Description	Unit	Quantity
1	R.C.C Drain		
i)	Excavation in earth; Removal of heap, embankment from borrow pits and purge soils	m ³	6027

³ Source: Detailed Engineering Design of the drainage subproject components in Bhola Pourashava; District-Bhola, February 2016; LGED

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ii)	Sand Filling Works	m ³	1224
iii)	Top Slab	m ³	777
iv)	Bottom Slab	m ³	1180
v)	Drain Wall	m ³	2027

Source: DDS Computation Based on Designs

3.7 CONSTRUCTION SCHEDULE

52. The construction/ re-excavation/ lining of schedule of the drains depends on the methodology adopted for construction. In general the time period will also depend on the resources put in place by the contractor. Designs will be finalized by February 2016. The package for the construction/ re-excavation/ lining of the Bhola drains is proposed to be implemented by post-qualified contractors under a single envelope single stage bidding process through National Competitive Bidding (NCB) procedures. The drainage subproject will take 12 months for construction/ re-excavation/ lining. A Typical Construction Schedule is shown in **Figure 4** including pre-construction and post construction activities. The post construction will also include defect liability period of 12 months.

Figure 4: Typical Construction Schedule

Activity	Duration In Months										
	Pre Construction			Construction						Post Construction	
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-30	
Detail designs, Tender documents and BOQ	■										
Notice inviting Tender, Tender process evaluation & award		■									
Mobilization and Preliminary works				■							
Construction of Drains and Drainage Structures					■						
Post Construction										■	

Source: DDS Consultant Projection

3.8 COST OF ENVIRONMENTAL MITIGATION MEASURES & MONITORING

53. The project components are **Construction/ Improvement of 9 Nos. Secondary Drains, Totalling 4.893 km**. The contract is designated as **CTEIP/BHO/DR/02**. The environmental mitigation cost is estimated as TK 400,000 out of which environmental monitoring cost is TK 300,000 and environmental management cost is TK 100,000 (excluding those included in the cost of drain design). This **APPENDIX E: IEE** is to be read in conjunction with the attached **Appendix F: EMP**, which gives a detailed breakdown of the costs for the Environmental Management and Monitoring, which are also referred in the attached Bill of Quantities.

4. ENVIRONMENTAL BASELINE DATA

4.1 GENERAL

54. The objective of Initial Environmental Examination (IEE) is to ascertain the baseline environmental conditions and then assess the impacts as a result of the proposed drainage subproject during various phases of the project cycle. The baseline environmental data was compiled for the area. The approach is to follow the sequence of steps adopted in EIA study. Identification of environmental parameters, data collection and impact predictions are the core of IEE process.

4.2 BHOLA POURASHAVA AND ENVIRONMENT

4.2.1 Topography, land forms, geology and soils

55. Bhola is a historical urban settlement located 262 km south east of Dhaka, at a distance of about 58 km. from Barisal town. Bhola Pourashava is situated at the southern part of the country; close the Bay of Bengal, which lies between 21°54' and 22°50' north latitudes and between 90°34' and 91°01' east latitudes. Bhola, the principal town of Bhola District became a municipality on 1st October, 1920. It was reorganized as a Town Committee under basic democracy ordinance 1959. After liberation, Bhola Town Committee was again reorganized as Bhola Pourashava on 20th January, 1972 by Bangladesh Local Council and Municipal Committee (Amendment) order. As part of the present administrative reform Bhola Pourashava has become the Bhola District town. The zila is bounded on the north by Lakshmipur Zila and Barisal Zila, on the east by Lakshmipur Zila and Noakhali Zila, on the south by the Bay of Bengal and on the west by Barisal Zila and Patuakhali Zila. It lies between 21°54' and 22°52' north latitudes and between 90°34' and 91°01' east longitudes. The total area of the zila is 3403.48 sq.km (1314.00 sq. miles) of which 1456.87 sq.km. is under forest. Bhola Zila, the largest riverine delta of the world became a sub-division in 1845 bearing the name of South Shahbazpur. At that time it was a part of Noakhali Zila which was then transferred to Barisal zila in 1869. The sub-division was renamed as Bhola in 1876 when it's headquartered was shifted from Daulatkhan to Bhola. It was upgraded to a zila in 1984.

56. The topography of pourashava is mostly flat. The sedimentary layers are mostly horizontal to sub-horizontal and are free from major tectonic deformation in the fore deep area covering the central part of the basin and this is expressed as river to delta plain topography of the land

4.2.2 Rainfall and Temperature

57. According to BBS (2011), the annual rainfall in Bhola is 2360 mm. In winter, there is much less rainfall here than in summer. The precipitation varies 504 mm between the driest month and the wettest month. There is 3 mm of precipitation in January. With an average of 507 mm, the most precipitation falls in June. Usually the rainy season begins in May and ends in October.

58. Bhola bears a hot summer and a mild winter. But almost all the area of the area is occasionally affected by cyclonic storm surges and tidal bores that originate from the Bay of Bengal during monsoon. Temperature rises steadily from January to April, remains fairly steady from April to October and then falls to reach the lowest in January. The maximum average monthly temperature is 34.20C and minimum average monthly temperature is 24.70C. The Pourashava experiences cool periods when minimum temperature varies from 11.6° C (December) to 10.4° C (January). The driest month is January. With an average of 29.6°C, May is the warmest month. The monsoon starts from June and maximum rainfall is experienced from June to October.

4.2.3 Hydrology

59. In general, the Pourashava does not suffer from external flooding, but internal flooding occurs in most of the words due to localized storm rainfall. Due to inadequate drainage system, it has become very hard to manage local storm water during heavy rain period and causes internal flood. Floods are naturally occurred in every rainy season. The highest value of land level is 5.521 m in ward no. 2 and lowest land level is 1.024 m in ward no. 4. The core area of the Pourashava is slightly high compared the surrounding areas.

60. However Water Logging is common throughout Bhola, which results from man-made and natural causes. High volume of rainfall and poor drainage system are most important causes of water logging. There is no river within the Pourashava area. The main drainage network encompasses 3 canals which are interconnected and carry out the storm water and the waste water to the river Meghna. The Meghna River is the main drainage channel of the surface run-off for Bhola Pourashava.

4.2.4 Drainage and Flood Control

61 About 110.72 km of drainage network exist in the Bhola Pourashava and about 52% of the households have no access to planned drainage facilities. The drainage network of the Pourashava consists of both natural and man-made drainage. Most of the drains are open and natural. Besides, the man-made drainage network includes both Pucca and Katcha. Natural drainage network includes 3 khals and 271 Ponds etc, which drain out or sometimes store not only waste water but also storm water. Especially, the khals play vital roles to drain out the storm water. During high tide or Cyclone these khals act as the natural blessing to the Pourashava people. The man-made drainage network consists of Pucca and Katcha drains. In Pourashava area, about 39% drains are primary, which is followed by 33% secondary drains and 28% tertiary drains. The pucca and katcha drain coverage in the Pourashava area is about 92 km and 18 km respectively.

There is one embankment outside of the paurashava which is mainly used as primary road. Bangladesh Water Development Board (BWDB) has constructed the embankment around the pourashava which protects tidal water. BWDB is the maintenance authority also. The embankment is Pucca, its present condition is good and is regularly maintained. There is 1 sluice gate across the embankment. BWDB is the main construction and maintenance authority of the sluice gates. The major outfalls are River and the Khals which are connected to the River including low lying areas.

However, the congestion of drainage and water is a common scenario in Bhola Pourashava because of uncontrolled and haphazard disposal of solid waste and garbage into drains, lack of purposive utilization of sluice gates connecting canals and river, illegal connection of latrines to the drains, absence of adequate road-side drains, lack of secondary drains, missing links in drainage network, very low drainage coverage in some wards, low elevation and lack of proper slope of drains, lack of proper and adequate maintenance of drains, and lack of proper dumping site.

4.2.5 Ambient Air Quality

62 Air pollution mainly occurs from locally established industries, which have been identified as a key source of air pollution. There is no heavy industry in the area but there are several small and medium industries which are used for different industrial purpose such as 2 flour mills, 16 ice-cream factories, 24 boilers, 122 bamboo work based cottage industries, 105 goldsmith, 1521 potteries, 77 blacksmith, 182 wood work, 210 tailoring, 210, 38 welding, 33 weaving, 25 lathe machine based industries, etc. These industries create sound and noise and pollute water and air. Besides, a number of heavy and small motorized vehicles move through the roads and extract some pollutant particle and emissions that also cause air pollution in and around stoppages and market areas.

4.2.6 Ambient Noise

63. Noise pollution is a minor phenomenon in Bhola Pourashava. However, such type of pollution problem is mainly occurring from the road vehicles. But it has been identified that this is not a major problem for all over the Pourashava. It is mainly a problem to the road side residents, not to all over the Pourashava.

4.2.7 Groundwater Quality and Availability

64. Hydro-geological investigation in Bhola Pourashava carried out under DPHE-DANIDA WSS Project shows availability of groundwater in sufficient quantity within the area. Aquifer is confined and fully protected by an impermeable layer.

4.2.8 Biological Environment

65. Bhola Pourashava location is mainly devoid of vegetation other than nominal roadside trees, with some secondary growth trees and shrubs. There are no forests along the proposed route to and from the Drainage sites. There are no national parks or sanctuaries. There are also no rare or endangered species reported. There is no evidence of wildlife of the higher species within the urban location. There are no sensitive habitats in the areas of the proposed Drainage sites.

4.2.9 Economic Development

66. The Pourashava has insufficient capacity and resources and is finding it difficult to respond to the need for forward planning and investment in basic urban infrastructure and services. This undercuts sustainable local urban governance, makes local planning ineffective and undermines local

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economic development. The impact of climate change further exacerbates the weaknesses in municipal management more generally.

4.2.10 Socio-economic Characteristics

a) Population

67. Information on population and number of households with average size of Bhola Pourashava is presented in **Table 8**.

Table 8: Bhola Pourashava Population Data

Administrative Unit	Area (km ²)	Households (nos.)	Population			Average HH Size	Density (per km ²)
			Total	Male	Female		
Bhola Pourashava	22.66	9,635	47,477	24,493	22,984	4.93	2,095
Ward No - 01	3.80	1118	5319	2638	2681	4.76	1400
Ward No - 02	3.97	873	4123	2056	2076	4.72	1039
Ward No - 03	3.65	1223	6290	3105	3185	5.14	1723
Ward No - 04	1.68	1423	7447	3980	3467	5.23	4433
Ward No - 05	1.61	1028	4918	2578	2340	4.78	3055
Ward No - 06	1.61	895	4630	2709	1921	5.17	2876
Ward No - 07	2.11	940	4528	2266	2262	4.82	2146
Ward No - 08	2.08	1041	5229	2665	2564	5.02	2514
Ward No - 09	2.15	1094	4984	2496	2488	4.56	2318

Source: BBS Community Report, Zilla - Bhola, 2011.

b) Land Use

68. Bhola Pourashava is comprised of various categories of land, where prominent land use categories are agriculture/fallow and residential. There is dominance of agricultural/fallow land use (about 51% of the total) followed by residential land use (about 33%) and water body land use (about 6%). Basing on the percentage of land under different use categories the ranking is: Agriculture (51.25%), Residential (33.40%), Water bodies (5.83%), Institutional (2.30%), Public/Administration (1.71%), Commercial (1.35%), Open land (1.25%), Forest (1.22%), Utilities (0.99%), Recreation (0.41%), and Industrial (0.19%).

c) Socio-economic Status

69. According to MDP (2012), about 33% and 30% of the people are engaged in services and business activities respectively. The scenario reveals that there are significant numbers of respondents who are engaged as businessman and service holders, while 33% service holders both government and semi-government including employees in private offices. The day labors accounts for 18% of the total occupation group in the study area. About 4% is engaged in agricultural activities.

d) Cultural and Archaeological Characteristics

70. The subproject components are not immediately located near historical, cultural and archaeological sites, no excavation works will be conducted in the vicinities of such sites. There are no other scheduled or unscheduled archaeological, paleontological, or architectural sites of heritage listed by local and/or national authority.

5. POTENTIAL ENVIRONMENTAL IMPACTS

5.1 ENVIRONMENTAL SCREENING CONSIDERATIONS

71. Issues for consideration have been raised by the following means: (i) input from interested and affected parties; (ii) desktop work on information relevant to the proposed subproject; (iii) site visits; and (iv) evaluation of proposed design scope and potential impacts. The baseline environmental data (Section 3) indicate that the subproject component is located in Bhola urban area and hence no natural habitat is left at the site. There are no protected areas, forest within or near the location of the proposed drainage subproject components. Some of the proposed drain has link drains. These are connecting different parts of the town. The proposed subproject has been planned to minimize any adverse environmental impacts, and adequate provisions have been incorporated into the project design to mitigate the impacts.

72. Categorization of the subproject and formulation of mitigation measures have been guided by ADB's REA Checklist for Urban Development (**Annexure I**) and ADB SPS 2009. From this, it can be seen that the area where environmental impacts have been identified as temporary impacts, including noise and dust, occurring during the time of the construction/ re-excavation/ lining activities.

73. Preliminary design, field visits and results of the rapid environmental assessment indicate that Bhola drainage subproject implementation will not be having major negative impacts as activities will be localized/site-specific and of short duration. There is no rehabilitation and resettlement issues due to the proposed sub-project, as the construction works will be on existing unoccupied and vacant government land. Several aspects of the environment, that are not expected to be affected by the subproject, can be screened out of the assessment at this stage. **Table 9** reports the extent of impact.

74. Refer to the guidelines detailed in the **Traffic Management Plan (TMP)** given in **Annexure I of EMP**, whereby the Contractor shall prepare and submit for approval from the Employer, details of all required mitigate measures, associated with vehicular and pedestrian road-user issues, during any possible closure and/or infringement to road access through the course of implementation.

Table 9: Fields in which the subproject is not expected to have significant impacts

S.No	Attribute	Rationale
A Physical Characteristics		
1	Topography, land use, geology and soils	<ul style="list-style-type: none"> Land is already in possession of the respective authorities and, hence, no change in land use is anticipated; Construction materials will not cause change in Topography, geology and soils. Erosion hazard is insignificant as trenching and excavation works will be conducted only during construction stage specific to the drainage works. No degradation of land will occur as a result of the proposed works as excavated soil will be stored and reused as backfilling material according to site-specific requirements during the construction of drain phase.
2	Air Quality	<ul style="list-style-type: none"> Conducting works at dry season and moving large quantity of materials may create dust and increase concentrations of vehicle-related pollutants (such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons) which will affect people who live and work near the sites. However, impact is short-term, site-specific and within relatively small areas including developed methods for mitigation.
3	Water Quality	<ul style="list-style-type: none"> Trenching and excavation, run-off from stockpiled materials, and chemical contamination from fuels and lubricants shall be suitably controlled during construction phase and will not result in water pollution particularly during rainfall runoff which could cause siltation and reduction in the quality of adjacent bodies of water. However, impact is short term, site-specific and within relatively small areas.
4	Noise and Vibration	<ul style="list-style-type: none"> Temporary increase in noise level and vibrations may be caused by excavation equipment and the transportation of equipment and materials during construction. Adequate mitigation measures to be taken according to the EMP, given in Appendix F.
B Biological Characteristics		
1	Biodiversity, Forest and Trees	<ul style="list-style-type: none"> Activities being located in the built-up area of Bhola Pourashava will not cause direct impact on biodiversity values. The construction activities do not anticipate any cutting of trees or encroachment of forest.

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S.No	Attribute	Rationale
C	Socioeconomic Characteristics	
1	Socio-Economic	<ul style="list-style-type: none"> The project will have positive impact in providing additional job opportunity, skill transfer, training, safety during storms and space for social community activities. Road closure is not anticipated. Hauling of construction materials and operation of equipment on-site will not cause any traffic problems.
D	Historical, Cultural, and Archaeological Characteristics	
1	Physical and cultural heritage	<ul style="list-style-type: none"> There are no scheduled or unscheduled archaeological, paleontological, or architectural sites of heritage significance listed by local and/or national authority adjacent to subproject sites. The subproject components are not located in or near and excavation works.

5.2 ANTICIPATED IMPACTS AND MITIGATION MEASURES – PRE-CONSTRUCTION PHASE

75. Land acquisition and resettlement: The proposed drainage works will be located within existing or public ROWs. Existing Right of way (RoW) width is the pourashava/government land. There are no encroachers or residential/commercial structures within the proposed alignment of the drains. There is few trees within the proposed site areas to be felled. People agreed will voluntarily give their land to the pourashava authority (if required for widening drains) and also take out trees including other things for their better drainage with their own responsibility and at free of cost during Focused Group Discussion (FGD) meeting on the resettlement issue.

76. The concepts considered in design of the Bhola drainage and flood control subproject are: (i) locating facilities on government-owned land to avoid the need for land acquisition and relocation of people; (ii) prioritizing rehabilitation over new construction, using vacant government land and right of way (ROW), and taking all possible measures in design and selection of site or alignment to avoid resettlement impacts; (iii) avoiding where possible locations that will result in destruction/disturbance to historical and cultural places/values; (iv) avoiding tree cutting where possible; (v) ensuring all planning and design interventions and decisions are made in consultation with local communities and reflecting inputs from public consultation and disclosure for site selection.

77. Planning principles and design considerations have been reviewed and incorporated into the site planning process whenever possible. Locations and siting of the proposed infrastructures were considered to further reduce impacts. The subproject will be in properties held by the Pourashava and access to the subproject sites is through public ROW and existing roads; hence, land acquisition and encroachment on private property will not occur.

78. The concepts considered in design of the Bhola drainage subproject are: (i) the sites serve populations in an area most vulnerable to cyclone damage; (ii) the sites are located within or very close to locality of users; (iii) the sites are selected and impact areas where significant number of population are affected; (iv) locating facilities are on government-owned land, and hence avoids the need for land acquisition and relocation of people; (v) all planning and design interventions and decisions have been made in consultation with the local communities and has reflected inputs from public consultation and disclosure for site selection.

79. The Detailed Engineering Design has integrated a number of measures; both structural and non-structural, to mainstream climate resilience into the Bhola drainage subproject and have been designed in accordance to relevant national and international building codes to further enhance the resilience of the structures.

80. About 6,027 m³ of earth work is likely to be involved in construction/ / lining of drains which will completely be imported from outside of Bhola Pourashava area. So, there will be no impact on land environment from land excavation. However, it will be appropriate to collect the material from authorized miners. Besides, proper will be taken to mitigate impact that may be caused due to transportation of soil.

5.3 ANTICIPATED IMPACTS AND MITIGATION MEASURES – CONSTRUCTION PHASE

82. In the case of this subproject (i) the key elements of construction are relatively simple and small and will involve straightforward construction, so impacts will be mainly localized and not greatly significant; (ii) most of the predicted impacts are associated with the construction process, and are produced because that process is invasive, involving precast piling, and excavation works, inclusive of earth movements; and (iii) being located in the built-up area of the Pourashava, will not cause

direct impact on biodiversity values.

83. Construction method: Tasks to be performed for construction of the Bhola drainage works are: (i) site clearing as appropriate; (ii) construction of foundation works; (iii) casting of drain/ culvert bottom slabs; (iv) construction of upper drain/culvert slabs; (v) construction of drain/ culvert diaphragm walls (vii) construction of deck slabs; and (viii) ordering, procurement and installation of building services. Excavation for the foundation will be dug by backhoe digger (or similar), supplemented by manual digging where necessary. Excavated soil will be placed nearby, and the materials (brought to site on trucks and stored on unused land nearby) will be placed in the trench by crane or using a small rig. The infrastructures will be constructed manually according to design specifications. Any excavated road will be reinstated within required timeframes.

84. There is sufficient space for a staging area, construction equipment, and stockpiling of materials. The contractor will remove all construction and demolition wastes on a daily basis.

85. Construction of the drainage works will entail quite simple techniques of civil work and related excavation works shall be conducted in a controlled fashion. The subproject sites are generally not located in a built-up area of Bhola and, hence, a variety of human activities will not prevail, and so will not adversely impact on the environment and sensitive receptors such as residents, businesses, and the community in general. The anticipated impacts are short-term, site-specific and within relatively small areas. There are no impacts that are significant or complex in nature, or that need an in-depth study to assess the impact. Thus, Bhola drainage subproject is unlikely to cause significant adverse impacts. The potential adverse impacts that are associated with construction activities can be mitigated to acceptable levels as detailed in the **Environmental Management Plan (EMP)** given in **Appendix F**.

5.4 ANTICIPATED IMPACTS / MITIGATION MEASURES – O&M PHASE

86. In the operations and maintenance (O&M) phase, the drains will operate under routine maintenance, which should not affect the environment. Routine repairs will be very small in scale, to be conducted manually by small teams of men and works will be very short in duration thus will not cause significant physical impacts. The drains will need to be maintained from time to time, but environmental impacts will be much less than those of the construction period as the work will be infrequent, affecting small areas only. O&M will be the responsibility of Bhola local authority, which will be given training under this project. The potential adverse impacts that are associated with O&M activities can be mitigated to acceptable levels as detailed in the **EMP** given in **Appendix F**.

5.5 CUMULATIVE IMPACT ASSESSMENT

87. The cumulative impact assessment examined the interaction between the subproject's residual effects (i.e., those effects that remain after mitigation measures have been applied) and those associated with other past, existing, and reasonably foreseeable future projects or activities. The interaction of residual effects associated with multiple projects and/or activities can result in cumulative impacts, both positive and negative. The project's potential cumulative effects were considered with respect to valued components in environmental and socioeconomic categories, in four areas:

- (i) of any potential residual project effects that may occur incrementally over time;
- (ii) consideration of other known relevant projects or activities within the specified study area boundaries, even if not directly related to the project;
- (iii) potential overlapping impacts that may occur due to other developments, even if not directly related to the proposed subproject; and
- (iv) future developments that are reasonably foreseeable and sufficiently certain to proceed.

88. The project has identified the valued components as acoustic environment, socioeconomic and socio-community components, and human health and safety. There are no foreseeable projects that will overlap with the subproject.

6. GRIEVANCE REDRESS MECHANISM

6.1 Procedures

89. Generally complaint procedures are developed for those who have been adversely affected by the Project infrastructure and/or have not been compensated as per law/ legal entitlement. In this case no land related dispute is applicable as the land is already owned by the authorities. A project-specific grievance redress mechanism (GRM) will be established to receive, evaluate, and facilitate the 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. A common GRM will be in place for social, environmental, or any other grievances related to the project. GRM was discussed with stakeholders during field visits. The GRM will provide an accessible and trusted platform for receiving and facilitating 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.

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

6.2 Grievance Registration

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

6.3 Grievance Redress Process

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

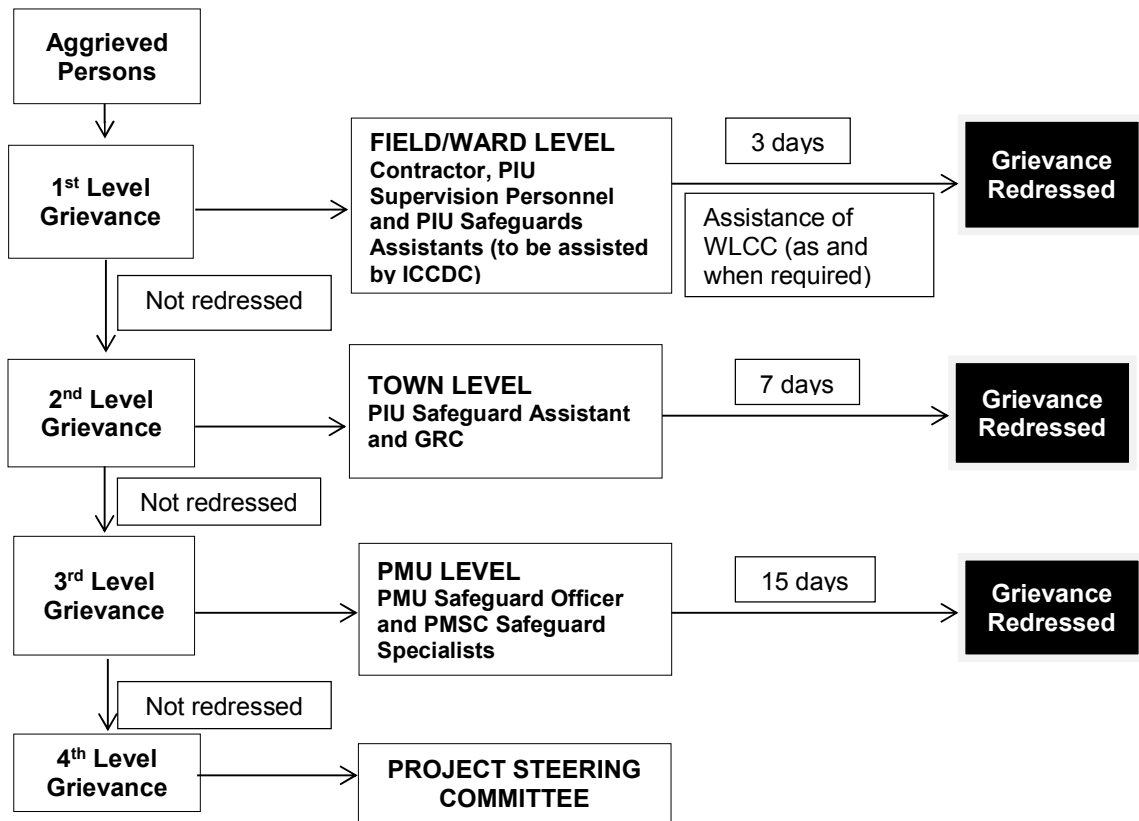
- (i) **1st Level Grievance.** The contractors, PIU supervision personnel and PIU safeguards assistant can immediately resolve issues on-site in consultation with each other, and will be required to do so within 3 days of receipt of a complaint/grievance. Assistance of ward level coordination committees (WLCC) will be sought if required for resolution of the issue, by any one or all of them jointly.
- (ii) **2nd Level Grievance.** All grievances that cannot be redressed within 3 days at field/ward level will be jointly reviewed by the grievance redress committee (GRC) at town-level and PIU safeguards assistant, who will attempt to resolve them within 7 days. The PIU safeguards assistant will be responsible to see through the process of redressal of each grievance.
- (iii) **3rd Level Grievance.** The PIU safeguards assistant will refer any unresolved or major issues to the PMU safeguards officer and PMSC (third level of grievance redress), who will resolve them within 15 days.
- (iv) **4th Level Grievance.** Very major issues that are beyond the jurisdictional authority of the GRC or those that have the potential to cause social conflicts or environmental damage or those that

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remain unresolved at PMU level, will be referred to the project steering committee (PSC) to be resolved within 14 days. 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. 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).

93. Grievance Redress Process can be diagrammatically represented in **Figure 5:**

Figure 5: Grievance Redress Process



6.4 Records

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

6.5 Grievance Redress Costs

95. All costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) will be borne by the concerned PIU at town-level; while costs related to escalated grievances will be met by the PMU.

7 PUBLIC CONSULTATION

7.1 PUBLIC CONSULTATIONS AND PARTICIPATION

96. Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Consultation was used as a tool to inform and educate stakeholders about the proposed action both before and after the development decisions were made. It assisted in identification of the impacts problems associated with the project as well as the needs of the Project Affected People (PAP). This participatory process helped in reducing the public resistance to change and enabled the participation of the local people in the decision making process. Initial Public consultation has been carried out in the project area with the objectives of minimizing probable adverse impacts of the project and to achieve speedy implementation of the project through bringing in awareness among the community on the benefits of the project.

97. As part of the project consultations, efforts were made to consult with the public as well as a number of local authorities, to determine their thoughts, opinions and feedback on the impact of the proposed drainage works. Information and comments collected from the public early in the study process were of use. Different stakeholders were consulted to give them the opportunity to express their views and concerns. As part of the process, they were also provided with relevant and sufficient information on the project prior to its start-up; refer to the **Due Diligence Report** given in **Appendix G**. These stakeholders include the central and local authorities, as well as the population so as to determine their thoughts, opinions and feedback on the impact of the project.

7.2 STAKEHOLDERS

98. Involving stakeholders through participatory direct or indirect consultations is central to completion of the IEE. Therefore, during the public consultations and disclosure of information, various groups of stakeholders were consulted. The stakeholders were those who have an interest in the project, and who will be involved in the further consultative process. During the consultative process, beside the local authorities and ordinary population (potential users), other educational organizations were also invited to attend the communication meetings.

7.3 PUBLIC PARTICIPATION – METHODS AND PROCESS

98. During these consultations, the communities were explained about the project, its benefits, social and environmental impacts. The participants were encouraged to (i) be open and make known their concerns and claims. The presentation highlighted the project background, objectives, expected upcoming activities, social economic information, and environmental information. The salient features of the meetings are presented below:

- Create awareness of the project;
- To obtain stakeholders responses, feedback and concerns on the project;
- To obtain environmental information on the community.

100. After the presentations, the community was given opportunity to give their views, comments and queries. Different community problems were addressed during the meeting in which the local participants expressed repeatedly their main concerns as follows:

- Dry access during wet season and storm events;
- Reduction of localized water-logging
- Prospects of jobs and income generating activities;
- Function of drains for storm water and sullage discharge;
- Likely impacts and proposed mitigation measures.
- Utilization and maintenance of drainage systems.

101. Comments or questions raised by stakeholders were responded to. Safety opportunities associated was a theme brought up in the meetings. The consultant explained that positive and negative impacts of the project on people and the environment will be analysed such as air pollution, dust, influx of people, employment. The consultant team highlighted that the project will follow government policies in protecting the population. All the participants confirmed that they appreciate the Project. The project received high degree of acceptability which will boost local economy due to no-loss of life during storms.

7.4 FINDINGS FROM PUBLIC CONSULTATION MEETING

7.4.1 Focus Groups Discussions (FGD)

102. As part of the impact assessment, the consultants conducted a focus group discussion with selected group. Focus groups are useful in obtaining a particular kind of information that would be difficult to obtain using other methodologies. A focus group typically can be defined as a group of people who possess certain characteristics and provide information of a qualitative nature in a focused discussion. Focus group discussion provides the opportunity to stimulate discussions and interaction between small groups of people from a similar socio cultural background. This enables the consultants to have a diversity of ideas related to the topic.

103. Further Public consultations and focus group discussions (FGDs) were conducted during February 2016 with a total of 69 participants from community at the sites of the proposed drainage systems. The objective of the meeting was to further appraise the stakeholders about the current progress of the subproject and to reiterate environmental and social impacts of the proposed subproject and safeguards to mitigate the same. Stakeholders comprising local public representative, local residents, pourashava staffs, businessmen, teachers, students etc were satisfied with the level of information provided and appreciated the selection of the sites of the proposed drainage works. Key issues discussed were similar to those already voiced during the community consultation meetings and included:

- Justification of site selection and routing for construction of the drains;
- Ownership and present position of land with regard to the drainage systems;
- Resettlement and Environmental issues and mitigation measures according to Resettlement Framework prepared and approved by ADB and government Bangladesh for this project;
- Participation of local community in construction, operation & maintenance of the drainage systems;
- Roles and responsibilities of different stakeholders for realizing desired outcome;
- Potential social and economic impacts of the proposed drainage systems.

7.4.2 Summary of Discussion

104. For details of the public consultations and Focus Group Discussions held during the design stage of the sub-project, refer to the **Due Diligence Report** given in **Appendix G**. The data obtained from public consultation and views, as well as concerns, are given below:

- i. Earlier the two rivers of Bhola were connected by canal that goes through the town and water vehicles were used to run through these canals. But now most of the canals are not under full operation and still these are indicated as canals in government document. At present condition of the entire drainage network of Bhola Pourashava is not good. In most of the cases, the drains are narrow and of varying width, irregular in shape, bed is silted up, bank has been settled and full of slushy soil and waste and garbage. Besides, encroachment of canals is responsible for reducing the width in many cases. In addition, culvert is filled up to road level in few cases. Because of these reasons, capacity of drainage reduced, tidal velocity of flow is reducing and navigation becoming more difficult. Besides, people are used to through garbage, waste and human excreta into the drains and latrines are connected to the drains in many cases. Because of the stagnation of the drains, water cannot be drained out properly and wastage and garbage are not washed out. For these reasons, stagnation of water is created, water and garbage and waste get rotten, create bad environment and breeding centre of mosquitoes and flies including various diseases which is threat to human health especially of the women and kids. People are facing these problems in their daily lives for long period. It brings bad impact to the social and economic lives of the people.
- ii. Hence, proper improvement/development of the drainage network is one of the critical needs of the people of Bhola Pourashava now and also their long cherished desire. That is why; local people expressed their deepest interest for development of the selected drains under the sub-project. Besides, they need improved drainage network on emergency basis for their present and future life. People were happy to know that the drainage project is coming to their town. They are ready to provide required land (1-2 feet) and to take out trees including other things (if required) on voluntary basis (without cost and with own responsibility) for the purpose of improving the drains.
- iii. The drainage schemes will improve socio-economic-physical conditions of the local people through creating more opportunity of environment and health improvement, income, employment, water transportation system as well as exploiting local resources for boosting local productions.

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Priority for jobs should also be given to those who will have any negative impact due to the project. Both men and women shall be considered with equal opportunity. Participant has also shown their inclination to participate in the project during planning and improvement activities. The participants were also very keen to know the likely date of start which will be after monsoon.

7.4.3 Future Consultation and Disclosure

105. This IEE and other relevant documents will be made available at public locations in the Pourashava and posted on the websites of executing agencies and ADB. The consultation process will be continued and expanded during the project implementation, to ensure stakeholders participate fully in project execution, as well as to implement comprehensive information, education, and communication plan.

106. The public consultation and disclosure program with all interested and affected parties will remain a continuous process throughout the project implementation, and shall include the following:

- (i) Consultations during construction phase: (a) public meetings with affected communities to discuss and plan work programs and allow issues to be raised and addressed once construction has started; and (b) smaller-scale meetings to discuss and plan construction work with individual communities to reduce disturbance and other impacts, and to provide a mechanism through which stakeholders can participate in project monitoring and evaluation.
- (ii) Project disclosure: (a) public information campaigns (via newspaper, flyers, and media) to explain the project to the wider city population and prepare them for disruptions they may experience once construction is underway; (b) public disclosure meetings at key project stages to inform the public of progress and future plans, and to provide copies of summary documents in local language; (c) formal disclosure of completed project reports by making copies available at convenient locations in the study areas, and informing the public of their availability; and (d) providing a mechanism through which comments can be made.

107. For the benefit of the community, the summary of the IEE will be translated in the local language and made available at (i) offices of executing and implementing agencies, (ii) area offices, (iii) consultant teams' offices; and (iv) contractor's campsites. It will be ensured that the hard copies of IEE are kept at places which are conveniently accessible to people, as a means to disclose the document and at the same time creating wider public awareness. An electronic version of the IEE will be placed in the official website of executing and implementing agencies and the ADB website after approval of the IEE by ADB.

8 CONCLUSION AND RECOMMENDATIONS

8.1 CONCLUSIONS

108. Based on Project Description (**Section 3**), Environmental Baseline Data (**Section 4**), Environmental Impacts (**Section 5**), and Environmental Mitigation Measures (**Section 6**); the following conclusion are drawn:

- i. The contract is designated as **CTEIP/BHO/DR/02**. The subproject includes **Construction/Improvement of 9 Nos. Secondary Drains, Totalling 4.893 km**. The locations of the Bhola drainage sites have been assessed as being viable engineering solution in safeguarding against poor drainage and water-logging of the localities for providing more healthy and improvement standard of living of the nearby populous during extreme storm events.
- ii. The feasibility study, completed in October 2015, has provided a comprehensive set of recommendations for the planning, design and implementation of the Project. Based on the recommendations of this study, the DDS Consultant has completed the detailed engineering design for the construction of RCC drain in Bhola. The sites are oriented in such a way so that it has minimum environmental and social impacts.
- iii. The proposed locations for the proposed drainage works were selected based on the recommendations of the SPAR report and subsequent site verification by the DDS Consultant, which is assessed to have minimum environmental impacts.
- iv. There is no resettlement or land acquisition requirement in this subproject. Categorization form is prepared and submitted in Annexure –III.
- v. The management plans, bill of quantities and cost estimates were prepared. The emphasis was given for protection of environment, capacity building, training, monitoring and evaluation. The environmental mitigation cost is estimated as TK 400,000 out of which environmental monitoring cost is TK 300,000 and environmental management cost is TK 100,000. This **APPENDIX E: IEE** is to be read in conjunction with the attached **Appendix F: EMP**, which gives a detailed breakdown of the costs for the Environmental Management and Monitoring, which are also referred in the attached Bill of Quantities.
- vi. The adverse environmental impacts will occur during the construction period, and will be of a relatively short duration. Adequate provisions have been incorporated into the planning and design of the drainage works to minimize or mitigate these unavoidable environmental impacts that are a result of the works.
- vii. The major positive achievements of drainage works are as follows:
 - Development of drainage systems will serve not only to the influence the immediate project affected area but will also positively impact on the surrounding upstream and downstream locations.
 - Establishment of improved drainage systems will stimulate ancillary projects which will improve economical status of the local population;
 - More employment of people during construction phases;
 - Will be potential socio-economic enhancement of rural economy by improving the standard and quality of life of the local people;
 - Skill Transfer and Training.
- viii. The environmental mitigation measures as stipulated in EMP and in the obtained environmental permit shall be monitored during implementation of the drainage sub-project. In order to perform monitoring of EMP the contractor shall engage experienced laboratory and third party services in complying the required environmental testing of parameters.
- ix. The noise and air quality of the project area is within the permissible limits. The overall impact on air and noise quality during construction is limited to the proposed drainage sites and of short duration and can be mitigated. Labour camps shall be established with septic tanks and soak pits for treatment and disposal of sewage and sullage water to avoid pollution of water bodies. Contractor has to make own arrangement for water supply for construction and domestic purpose.

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- x. The environmental monitoring will be required before the start of the construction and during the construction phase. The parameters of Water Quality, Air Quality, Noise quality, and Soils shall be monitored; as specified in **EMP**.
- xi. During public consultation recommendations were drawn including: i) involve local communities in all stages of project planning and development, ii) establish permanent communication between project initiators and local authorities, iii) setup grievance redress mechanism which will publicized through Pourashava level co-ordination committee and monitoring register and iv) during construction, local people including women shall be given first priority in the employment of skilled and unskilled labour.

8.2 RECOMMENDATIONS

109. In view of above, it is concluded that the Project will bring benefit to the people of the area and especially when the proposed drains will function during storm events. The negative impacts occurring during the construction phase are within manageable limits and shall be mitigated with the proposed Environmental Management Plan and hence project may be implemented.

8.3 DISCLOSURE OF ENVIRONMENTAL SAFEGUARDS INSTRUMENTS

110. The LGED will disclose this Environmental Management Framework by making copies available at its head office and in District / Pourashava where the Project is situated. The copies shall also be made available to the Local Government's Agencies, the Environmental and Social Group and other stakeholders. The Government of Bangladesh will also authorize the Asian Development Bank to disclose this IEE and EMP electronically through its InfoShop.

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ANNEXURE I: RAPID ENVIRONMENTAL ASSESSMENT CHECKLISTS

Construction/ Improvement of 9 Nos. Secondary Drains, Totalling 4.893 km within

Bhola Pourashava area under Bhola district

Screening Questions	Yes	No	Remarks
A. Project Siting			
Is the project area adjacent to or within any of the following areas:			
• Underground utilities		No	
• Cultural heritage site		No	
• Protected Area		No	
• Wetland/Ponds		No	
• Mangrove		No	
• Estuarine		No	
• Buffer zone of protected area		No	
• Special area for protecting biodiversity		No	
• Bay		No	
B. Potential Environmental Impacts			
Will the Project cause:			
• Encroachment on historical/cultural areas?		No	
• Encroachment on precious ecology (e.g. sensitive or protected areas)?		No	
• Impacts on the sustainability of associated sanitation and solid waste disposal systems?		No	
• Dislocation or involuntary resettlement of people?		No	
• Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		No	
• Accident risks associated with increased vehicular traffic, leading to loss of life?		No	
• Increased noise and air pollution resulting from increased traffic volume?	Yes		EMP: to be followed
• Occupational and community health and safety risks?	yes		EMP to be followed
• Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?		No	
• Generation of dust in sensitive areas during construction?	Yes		EMP: to be followed
• Requirements for disposal of fill, excavation, and/or spoil materials?	Yes		EMP to be followed
• Noise and vibration due to blasting and other civil works?		No	
• Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction?		No	
• Long-term impacts on local hydrology as a result of building hard surfaces in or near the building?		No	
• Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		No	
• Social conflicts if workers from other regions or countries are hired?		No	
• Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?		No	
• Risks to community health and safety caused by management and disposal of waste?	yes		EMP to be followed
• 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?		No	

Note: Hazards are potentially damaging physical events.

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ANNEXURE II: GRIEVANCE REGISTRATION FORM

(Bangla translation to be available)

The **Coastal Towns Environmental Infrastructure Project (CTEIP)** 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 the 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./Cell 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:	

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**ANNEXTURE III: CATEGORIZATION FORM
INVOLUNTARY RESETTLEMENT IMPACT CATEGORIZATION**

Date: ___/___/2016

A. Project Data			
Country/Project Title	No./Project	Country: Bangladesh ADB No.: (No. to be designated) Coastal Towns Environmental Infrastructure Project (CTEIP) Subproject: CTEIP/BHO/DR/02	
B. Involuntary Resettlement Category			
[] New [] Re-categorization — Previous Category []			
<input type="checkbox"/> Category A	<input checked="" type="checkbox"/> Category B	<input type="checkbox"/> Category C	<input type="checkbox"/> Category FI
C. Comments			
<p>No unavoidable dislocation or involuntary resettlement of persons affected by the subproject will take place as a result of the construction of RCC drain, re-excavation and lining of Khal at the below listed sites located within Bhola Pourashava, District: Bhola:</p> <ul style="list-style-type: none"> • SD-06: Construction of RCC drain from Haron Hawlader's House to Balia Kandi Khal via Prof. Enayet Miah's House. (Ch. 0+000 to 0+388m) and Link drains 152m under Ward No: 03. • SD-07: Construction of RCC drain from BAVS Road to Bhola Khal via Noor Cycle House and Kalibari Road. (Ch. 0+000 to 0+754m) under Ward No 06 & 07. • SD-08: Construction of RCC drain from Safi Mia's House to Bhola Khal via Billah Mosque and Kalibari Road (Ch. 0+085 to 0+435m) under Ward No 02 & 03. • SD-09: Construction of RCC drain from PTI Boundary to Kathali Khal. (Ch. 0+000 to 0+773m) under Ward No: 08. • SD-10: Construction of RCC drain from Pandit bari Road to Muslim Para Big Drain via Doctor Bari (Ch. 0+000 to 0+458m) And Link Drain 222m under Ward No 08. • SD-11: Construction RCC drain from R&H Office Campus to Ratanpur Khal via HEED Bangladesh. (Ch. 0+000 to 0+546m) under Ward No 09. • SD-12: Construction RCC drain from Bida Liton's House to Bhola Khal via Tarek Miah's House and Inspector's House (Ch. 0+000 to 0+262m) under Ward No 03. • SD-13: Construction RCC drain from Back Side of Nabi Mosque (Ch. 0+000 to 0+283m) under Ward No 03. • SD-14: Construction RCC drain from Sikder Bari to Muslim Para Big Drain via Azgor Chowdhury's House and Sekandar Ali Madrassa. (Ch. 0+000 to 0+610m) And Link Drain 95m under Ward No: 07. <p>Refer to Involuntary Resettlement Impact Categorization Checklist below.</p>			

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Annexure IVa: Involuntary Resettlement Impact Categorization Checklist:

**SD-06: Construction of RCC drain from Haron Hawlader's House to Balia Kandi Khal via Prof. Enayet Miah's House.
(Ch. 0+000 to 0+388m) and Link drains 152m under Ward No: 03.**

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many?				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.

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Annexure IVb: Involuntary Resettlement Impact Categorization Checklist:

SD-07: Construction of RCC drain from BAVS Road to Bhola Khal via Noor Cycle House and Kalibari Road. (Ch. 0+000 to 0+754m) under Ward No 06 & 07.

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many?				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.

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Annexure IVc: Involuntary Resettlement Impact Categorization Checklist:

SD-08: Construction of RCC drain from Safi Mia's House to Bholā Khal via Billah Mosque and Kalibari Road (Ch. 0+085 to 0+435m) under Ward No 02 & 03.

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many? _____				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.

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Annexure IVd: Involuntary Resettlement Impact Categorization Checklist:

SD-09: Construction of RCC drain from PTI Boundary to Kathali Khal. (Ch. 0+000 to 0+773m) under Ward No: 08.

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many? _____				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.

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Annexure IVd: Involuntary Resettlement Impact Categorization Checklist:

SD-10: Construction of RCC drain from Pandit bari Road to Muslim Para Big Drain via Doctor Bari (Ch. 0+000 to 0+458m) And Link Drain 222m under Ward No 08.

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many? _____				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.

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Annexure IVd: Involuntary Resettlement Impact Categorization Checklist:

SD-11: Construction RCC drain from R&H Office Campus to Ratanpur Khal via HEED Bangladesh. (Ch. 0+000 to 0+546m) under Ward No 09.

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many? _____				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.

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Annexure IVd: Involuntary Resettlement Impact Categorization Checklist:

SD-12: Construction RCC drain from Bida Liton's House to Bholu Khal via Tarek Miah's House and Inspector's House (Ch. 0+000 to 0+262m) under Ward No 03.

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many? _____				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.

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Annexure IVd: Involuntary Resettlement Impact Categorization Checklist:

SD-13: Construction RCC drain from Back Side of Nabi Mosque (Ch. 0+000 to 0+283m) under Ward No 03.

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many? _____				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.

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Annexure IVd: Involuntary Resettlement Impact Categorization Checklist:

SD-14: Construction RCC drain from Sikder Bari to Muslim Para Big Drain via Azgor Chowdhury's House and Sekandar Ali Madrassa. (Ch. 0+000 to 0+610m) And Link Drain 95m under Ward No: 07.

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?		No		
2. Is the site for land acquisition known?				Not applicable
3. Is the ownership status and current usage of land to be acquired known?				Not applicable
4. Will easement be utilized within an existing Right of Way (ROW)?				Not applicable
5. Will there be loss of shelter and residential land due to land acquisition?				Not applicable
6. Will there be loss of agricultural and other productive assets due to land acquisition?				Not applicable
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				Not applicable
8. Will there be loss of businesses or enterprises due to land acquisition?				Not applicable
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				Not applicable
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?		No		
11. If land use is changed, will it have an adverse impact on social and economic activities?		No		
12. Will access to land and resources owned communally or by the state be restricted?		No		
Information on Displaced Persons:				Not Applicable
Any estimate of the likely number of persons that will be displaced by the Project? If yes, approximately how many? _____				[--] No [--] Yes
Are any of them poor, female-heads of households, or vulnerable to poverty risks?				[--] No [--] Yes
Are any displaced persons from indigenous or ethnic minority groups?				[--] No [--] Yes

Note: The project team may attach additional information on the project, as necessary.