GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT (LGED)

RTIP-II (Additional Financing)

Environmental & Social Management Framework (ESMF)



January, 2018

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Abbreviations

AE	Assistant Engineer
ARP	Abbreviated Resettlement Plan
BBS	Bangladesh Bureau of Statistics
BDWS	Bangladesh Drinking Water Standard
BIDS	Bangladesh Institute of Development Studies
BIWTA	Bangladesh Inland Water Transport Authority
BMD	Bangladesh Meteorological Department
BWDB	Bangladesh Water Development Board
CBO	Community-Based Organization
CHT	Chittagong Hill Tracts
CI	Corrugated Iron
CO	Community Organizer
CSC	Construction Supervision Consultant
CUL	Compensation-Under-Law
DC	Deputy Commissioner
DG	Director General
DF	Department of Forest
DLAC	District Land Acquisition Committee
DoE	Department of Environment
DPHE	Department of Public Health Engineering
DPR	Detailed Project Report
DS	Design and Supervision
DSM	Design Supervision Management
DWQ	Drinking Water Quality
EA	Environmental Assessment
ECA	Environmental Conservation Acts
ECC	Environmental Clearance Certificate
ECP	Environmental Code of Practices
ECR	Environment Conservation Rules
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EMRP	Environmental Management Regulatory Procedure
EMS	Environmental Management System
EMT	Environmental Management Team
EP	Entitled Persons
FGD	Focus Group Discussions
GAP	Gender Action Plan
GOB	Government of Bangladesh
GRC	Grievances Redress Committee
GWQ	Ground Water Quality
HCG	House Construction Grant
HTG	House Transfer Grant
IDA	International Development Association
ICZMP	Integrated Coastal Zone Management Plan
IEE	Initial Environmental Examination
IP	Indigenous Peoples
IPP	Indigenous People's Plan
IRC	Independent Review Committee
LA	Land Acquisition

LAP	Land Acquisition Plan
LCS	Labour Contracting Societies
LGD	Local Government Division
LGED	Local Government Engineering Department
MLGRD&C	Ministry of Local Government, Rural Development & Cooperatives
MOEF	Ministry of Environment and Forest
MS	Management Support
MSDS	Material Safety Data Sheets
NEMAP	National Environment Management Action Plan
NEQS	National Environmental Quality Standards
NGOs	Non-Government Organizations
NOC	No Objection Certificate
NSC	National Conservation Strategy
OP	Operational Policy
OP 4.10	Operational Policy 4.10 on Indigenous Peoples
OP 4.11	Operational Policy 4.11 on Physical Cultural Resources
OP 4.12	Operational Policy 4.12 on Involuntary Resettlement
PAPs	Project Affected Persons
PBMC	Performance-based Maintenance Contracting
PD	Project Director
PM	Project Manager
PIC	Project Implementation Cell
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personnel Protective Equipment
PWD	Public Works Department
RCC	Reinforced Cement & Concrete
RHD	Roads and Highways Department
RP	Resettlement Plan
RRMIMP	Rural Roads and Markets Improvement and Maintenance Project
RTIP	Rural Transport Improvement Project
RTIP-I	Rural Transport Improvement Project
RTIP-II: AF	Second Rural Transport Improvement Project –Additional Financing
SCC	Suggestion and Complaints Committee
SCM	Suggestion and Complaints Mechanism
SECs	Special Environmental Clauses
SIMF	Social Impact Management Framework
SPARSO	Space Research and. Remote Sensing Organization
SWQ	Surface Water Quality
TA	Transition Allow ance
TG	Transfer Grant
TRG	Transfer and Reconstruction Grant
UE	Upazila Engineer
UP	Union Parishad
UNR	Union Road
URO	Upazila Revenue Office
UZR	Upazila Road
VNR	Vested and Non-resident
WB	World Bank
WMS	Women Market Sections
XEN	Executive Engineer

RTIP-II (Additional Financing)

Volume A

Environmental Management Framework (EMF)

Executive Summary

1. Introduction

The Local Government Engineering Department (LGED) with the financial assistance of the World Bank (WB) has been successfully implementing rural infrastructure development projects since early nineties of the last century. After successful implementation of previous three projects, the Government of Bangladesh (GOB) looked for financial assistances from the International Development Association (IDA) of the World Bank to improve and rehabilitate the high-priority rural infrastructure in 26 districts covering mainly eastern parts of Bangladesh (excluding Chittagong Hill Tracts) under LGED. Responding the GoB's request, IDA agreed to extend its credit facilities of about US$ 300 million for the Second Rural Transport Improvement Project (RTIP II). The GoB contribution for this project was US$ 117 million. This project supported rural transport related infrastructure including inland water transport and maintenance needs of the 26 contagious districts of Bangladesh. As per the original plan, this project is going to be concluded on April 2018.

In 2017, Bangladesh had experienced devastating flood due to heavy rainfall and water flow from the upstream hills in India in the countryside. It disrupted people's normal life. 1200 union of 183 upazilas under 31 districts are affected and 8746 villages were affected. That flood resulted interuption in the transportation network of Bangladesh damaging numerous LGED roads and bridges which were constructed and maintained under RTIP-II and other projects. That devastation in the road network of rural area needs urgent maintenance and rehabilitation in order to maintain the connetctivity to the rural area. On this circumstences, World Bank has come forward with additional financing of US$ 100 million under RTIP-II (Additional Financing) for damaged road and bridge repair and maintenance.

This Environmental Management Framework (EMF) for the RTIP-II (Additional Financing) describes the required environmental management measures that need to be addressed during the planning, design, construction and operations of the rural road and bridge maintenance and rehabilitation in order to ensure compliance with the Government of Bangladesh own requirements and those of the World Bank. All the major environmental impacts along with mitigation and management measures have been compiled in the EMF.

The EMF provides environmental policies of Bangladesh, World Bank safeguard policies, guidelines, institutional arrangement, environmental assessment of sample subprojects, generic environmental management plan and monitoring plan, codes of practice and procedures for the implementation of the World Bank-supported RTIP-II (Additional Financing). It defines the steps, processes, and procedures for screening, alternative analysis, assessment, monitoring and management.

The EMF will be followed by the Project authorities during the planning, design, construction and operations for the different subprojects under the subcomponebts of the project mainly rural road and bridge maintenance and rehabilitation in order to ensuring environmental integration in planning, implementation, and monitoring of project supported activities. For ensuring good environmental management in the proposed RTIP-II (Additional Financing) program, the EMF will provide guidance on pre-investment works/studies (such as environmental screening, environmental assessment, environmental management plans, etc.), provide set of steps, process, procedure, and mechanism for ensuring adequate level of environmental consideration and integration in each investment in the project-cycle; and describes the principles, objectives and approach to be followed to avoid or minimize or mitigate impacts. The EMF contains the following:

- Environmental factors that needs to be considered while planning and design of different categories of activities under the RTIP-II (Additional Financing).
- Environmental screening criteria: A screening/assessment process and actions to be taken in case there is any possibility that the IDA's environmental safeguards may be triggered under the RTIP-II (Additional Financing).
- Environmental assessment guidelines: Steps, process and procedures to be followed in different levels of environmental assessment (limited or full assessment). This includes guidance on the project level baseline information, impact identification, public consultation, alternative analysis, assessment and designing mitigation measures, and in preparing Environmental Management Plan (EMP) as well as the Monitoring Plan.
- The EMF includes project/ activity level environmental monitoring framework.
- The EMF includes the institutional arrangement for implementing EMF, environmental code of practices to be followed in project/activity level, capacity strengthening plan for environmental capacity of the involved parties in accordance with their role and functions, guidance on appropriate ways of holding consultations.
- A framework for implementation, monitoring, supervision, auditing and reporting

The EMF has been prepared through participatory process mainly based on open ended discussions, formal and informal interaction with stakeholders that lead to an understanding of the existing system from the perspectives of all the stakeholders. The work has been performed in close cooperation with the project team. This included collection of secondary data, related literatures, field surveys, public/stakeholder consultations, and desk studies.

The EMF is intended to define the process and outputs necessary to address the potential negative impacts of the physical works to be carried out under RTIP-II (Additional Financing) for various sub-projects. The EMF clearly describes how the potential environmental impacts of all sub-projects will be managed during preparation, implementation and, in the post-implementation periods.

2. Environmental Policy, Legal and Administrative Framework

Regulatory requirements toward protection and conservation of environment have been enunciated by the GOB as well as the WB and pertinent policies and regulations among these requirements are summarized as under:

- Relevant Government Policies, Acts, Rules, Strategies and Guidelines
  - Environmental Conservation Act (ECA), 1995 and Amendments
  - Environment Conservation Rules (ECR), 1997 and Amendments
  - Environmental Policy, 1992
  - Environmental Action Plan, 1992
  - National Environmental Management Plan (NEMAP), 1995
  - Bangladesh Wildlife (Preservation) Order, 1973 (Amended in 1994)
  - National Conservation Strategy (NCS), 1992
  - Wetland Policy, 1998 (Draft)
  - National Water Policy, 1999
  - National Water Management Plan, 2001 (Approved in 2004)
  - The National Fisheries Policy, 1999
  - The Protection and Conservation of Fish Rules, 1985
  - National Agricultural Policy, 1999
  - Coastal Zone Policy, 2005

- Coastal Development Strategy, 2006
- The Embankment and Drainage Act, 1952
- Bangladesh Climate Change Strategy and Action Plan
- DoE's IEE/EIA including EMP Guidelines for Industry, 1997
- LGED's Strategy, Guidelines and Environmental Code of Practices

- World Bank's Environmental Safeguard Policy
  - OP/BP 4.01 Environmental Assessment
  - OP/BP 4.04 Natural Habitats
  - OP/BP 4.11 Physical Cultural Resources
  - OP/BP 4.36 Forestry
  - OP/BP 4.12 Involuntary Resettlement
  - IFC Environmental, Health and Safety Guidelines

3. Description of Baseline Environment

The EMF includes the environmental baseline of the each subproject type. In addition, the generic environmental baseline on the basis of national & divisional context is also described in Annex 1. The baseline environment for the subproject of each project components of RTIP-II (Additional Financing) has been described under this chapter regarding the project activities that relates to the area-specific conditions pertaining to Atmosphere and Climate, Topography, Physiography and Geology, Seismicity, Hydrology and Drainage, Air Quality, Noise Quality etc. under physical environment and Terrestrial Ecology, Aquatic Ecology, Biodiversity, National Conservation Site of Importance under Biological Environment, and Demography, Settlement Pattern, Land Use and Water Use Pattern, Water Supply and Sanitation, Fisheries, Industries and Commerce, Cultural and Archeological Resources under Socio-economic Environment.

4. Environmental Management Procedure

The Environmental Management Procedure establishes the criteria to identify the level of Environmental Assessment (EA) and the processes involved, their sequence to conduct the EA studies for various components/phases of the rural road and bridge maintenance and rehabilitation including their legal requirements and implications (Figure 4.1). Comprehending the level of EA will help the RTIP-II (Additional Financing) in assessing the requirement of external agency in the form of consultancy services and also the stage of such requirement, like Design Consultant at planning and design stages and Construction Supervision Consultant (CSC) at construction stage etc.

Once the need/justification of a project is finalized based on the engineering parameters (like traffic, economical and financial analysis), the process of Environmental Management Procedure starts. First step is screening of the project components to ascertain the category of Environmental Assessment required.

The general principles of RTIP-II (Additional Financing) is given below-

- The Project Director will be responsible for the environmental compliance monitoring and oversight to ensure overall project environmental compliance. The Consultants that would be hired by LGED would assist the project proponent to carry out this mandate.
- The implementing agency will follow the related government rules (laws, ordinances, acts etc.) and World Bank Operational Policies and Guidelines. This EMF would serve as the basis for ensuring this compliance.
- LGED will submit the EMF to the Department of Environment (DoE) for their review and concurrence.

- LGED will ensure the participation of local community in planning and implementation of sub-projects.
- LGED will be responsible for obtaining and ensuring clearance required from the DoE. The LGED will be responsible for obtaining environmental clearance for the RTIP-II (Additional Financing) components for which the EIA study is required. For the rest components of the RTIP-II (Additional Financing), LGED will implement themselves without DoE clearance. No project activities will be carried out in and nearby the environmental protected and critical areas as well as in disputed lands or lands restricted for development.
- All the activities proposed under the project will abide by existing Environmental Code of Practices (ECP) prepared under RTIP-II (Additional Financing).

The summary of the environmental assessment are given below:

Rural Road and Bridge Maintenance and Rehabilitation

- LGED will ensure that proper environmental screening will be done by the design consultant.
- Project Monitoring Unit will review and clear all screening reports.
- LGED will conduct verification of some screening.

The purpose of the environmental screening is to get relevant concerns addressed early on before further design of a project and to ensure that actions to mitigate environmental impacts or enhance environmental opportunities are budgeted for. The environmental screening will be the preliminary step to identify any potential impacts due to the project activities. Based on an extensive literature review and expert consultation, screening checklist have been developed and provided in the Annex 5. The Environmental Screening, Initial Examination and/or Impact Assessment will need to be carried out for sub-projects under RTIP-II (Additional Financing). The environmental screening and assessment will be used by the implementing agencies as a decision-making tool to ensure that the project design and implementation of activities such as dredging are environmentally sound and sustainable. However, site specific environmental baseline, environmental analysis and management plan to be incorporated.

The environmental impacts identified at this stage are preliminary in nature and will need to be further elaborated and potential for occurrence has to be ascertained during further stages of project design and implementation. The potential impacts will be identified during various stages of the project preconstruction, construction and operation as their potential nature, extent, duration and severity differs between the nature of projects and stages.

The overall mitigation strategies will the following main components:

- Impact avoidance: changing project location, design and construction methods to avoid impacts.
- Impact minimization: where impacts cannot be avoided, implementing mitigation measures to reduce the impact to acceptable levels.
- Compensation: where impacts cannot be avoided or sufficiently mitigated, arranging compensation.
- Enhancement: measures, which, at little cost to the project, give appreciable social or developmental benefits.

Subcomponent wise impacts and mitigation measures has been described in Annex 3.

For each of the environmental components, the monitoring plan specifies the parameters to be monitored; location of the monitoring sites and duration of monitoring. The monitoring plan also specifies the applicable standards, implementation and supervising responsibilities. There are two types of monitoring: Quantatitive & Qualatitive. The quantitative monitoring plan for the various environmental condition indicators of the subproject in construction and operation stages is presented in Table 5.8 to Table 5.11. Monitoring plan does not include the requirement of arising

out of regulation provision such as obtaining NOC/ consent for plant site operation. LGED field level laboratories will be involved in the monitoring process.

5. Institutional Arrangement and Capacity Building

The Environmental Management Framework (EMF) implementation requires an organization support structure in the form of organizational requirements, training needs and plan, and information management system. The following section captures these institutional arrangements for EMF implementation by concerned officials of LGED, their consultant and working contractors. An organizational structure shall be developed at the corporate, regional and site level to aid effective implementation of the EMF document. The organizational of the LGED flowchart are shown in Figure 5.1. The Design Consultant, PMU Support and Supervision Consultant that would be hired by LGED for the project execution also assist the implementation of the environmental steps in accordance with EMF.

The EMU to be strengthened to implement and manage the EMF will be structured to provide co-ordination, technical support and services during the environmental screening and preparation of EA, and implementation of the environmental mitigation measures. Functions and the staffing responsibilities of EMU are listed in Table 5.1. In order to effectively manage the EA process and EMP implementation, the EMU will be established and made operational as soon as possible. The XEN (Environment) and the two Assistant Engineers (Environment) as shown in the Fig 6.1 could be selected from the existing GoB officials and provided extensive training and exposure during the project implementation period to be able to undertake the assigned responsibilities effectively. For the first year of subprojects, an individual consultant from LGED will carry out the environmental screening.

The PMU Support Consultant will review and clear all screening and environmental assessment reports. LGED will conduct verification of some screening. The PMU Support Consultants will also review and update Environmental Supervision Manual incorporating the rural road and bridge maintenance and rehabilitation market improvement issues in the beginning of their contract to confirm the environmental supervision procedures and systems including inspection, monitoring and reporting mechanisms to be followed by each associated parties during the sub-project implementation. The manual will be continuously updated / modified throughout the implementation period so as to document the best operating / construction practices for future use by LGED as part of the agreed strategy or mainstreaming the environmental management process into all LGED works. The Environmental Specialist of the PMU Support Consultants would primarily be responsible for providing technical assistance to the EMU, XEN, and Upazila Engineers.

The PMU Support Consultant shall assist LGED in quality control, monitoring, coordinating and implementation of EMF, supervising the measures necessary to mitigate the projects effects on the society and environment as outlined in the documents. The assistance will include review of social and environmental screening/assessment, plans and & budget and, where necessary, structuring and phasing implementation of the plans and identifying the specific agencies to be involved in the mitigation of social and environmental protection activities, particularly in cases where NGO participation needs to be arranged and coordinated.

The DS consultants will be based in the regional office and will be responsible for design and overall supervision including proper environmental screening, IEE or EIA (If necessary) of sub-project activities. The design consultants will ensure quality control and report to PD through the management consultant. The DS will also assist the EMU for ensuring environmental compliance and monitoring of progress including EMP and/or ECP implementation.

LGED will ensure that Initial Environmental Examination (IEE) report will be prepared by the design consultant and site clearance will get from DoE. PMU Support Consultant will review and clear the IEE and EIA reports before sending to DoE.

The success of the project authorities may be attributed to vigorous and continuous monitoring of all its activities including environment and social issues. The Environmental Management Unit (EMU) is a dedicated department for monitoring entire project activities and reporting to the project director (PD). Regular monitoring of activities is carried out by district/upazila offices and supervision consultants at site and is being reviewed by the EMU on monthly basis. The EMU and Directors also take regular review of ongoing project activities including environment and social issues and corrective measures if required are implemented at site. For environmental and social components of a project, environmental and social monitoring plan is developed, based on baseline data and impacts predicted during the environmental and social assessment process.

6. Stakeholder Consultations

Participatory consultation is both an essential criteria and important strategy for an integrated environmental and social analysis process, the project design and its implementation. Views of the project affected persons and NGOs have been fully taken into account during the project preparation and continue to form as a basis for further design and implementation of the sub-project throughout the implementation period of the RTIP-II (Additional Financing). The purpose of the stakeholder consultation is to identify the views of major institutional and project affected persons (PAPs) stakeholders to the roads and bridges being examined, and to identify issues of relevance to the study, as well as any impacts which the alignment may have on project planned by the stakeholders, and to assess any mitigation measures which may be undertaken to minimize any adverse impacts of the proposals under consideration. Subsequently, stakeholder consultation is one of the important parts of the environmental assessment to address the environmental aspects as well as socio-economic issues from stakeholders' point of view. Project consultants were carried out a series of stakeholder consultations at different locations of the sub-project.

The EMF preparation includes one initial field level consultations in addition to follow-up consultations. The consultation was held at Hatkhalir Bazar, Fulbaria Upazila of Mymensingh district and attended by around 60 persons from in and around the bazaar. The Fulbaria Upazila Engineer organized the meeting and the local Upazila Chairman facilitated. An Upazila Road has been nominated for the first year construction under RTIP-II (Additional Financing). Only about 100-m of the road will need earth work and it has sufficient land for improvement. The local people including the elected representatives are yelling for long to get their road improved. They assured that if any additional strip of land is required for the improvement work, they are ready to organize by themselves. The participants in consultations were happy to understand that social and environmental impacts will be addressed under the project to maximize project benefits. They did not foresee any major environmental issues from the project activities. In addition, the LGED field level staffs were consulted for effective environmental management considering the RTIP experience.

In addition, 6 meetings were held on the sample project site. Total 50 participants from different locations have taken part in the consultations. The schedules, venues and the major feedbacks or queries from the participants for rural road and bridge maintenance;

A critical element in planning a participation and consultation program is associated with the selection of participation techniques to meet desired objectives. Considering the importance of effective participation and consultation in a wide spread project area along with the time and resource constraints in the present project, the following participation techniques were followed:

- Information dissemination and information sharing techniques will be used to inform the stakeholders regarding the action being taken in a program area through personal communication to make them aware about the project as well as to incorporate users input at different stages of the project.
- Information gathering techniques to gather quantitative and qualitative information about the individual schemes through questionnaires survey.

- Focused Group Discussions (FGDs) will be conducted covering different components of the project aims to increase local awareness about the forthcoming project as well as to incorporate their views, needs, priorities considering different positive and negative impact of the project.
- Key Informant surveys will be carried out among the knowledgeable and elderly people of the project area to incorporate their views and suggestions from their long experiences and knowledge.
- Hot Spot Consultation will be conducted in problematic locations of the schemes with participation of knowledgeable and affected people, local elite, public representatives, officials and NGO people to mitigate adverse impact considering their views suggestions from their practical experiences as per local needs and demands.
- Participatory workshops will be organized with the participation of different types of representative stakeholders.
- Public disclosure of the Draft EA Reports (including a non-technical summary) will be disclosed at the project districts, Project Headquarters and the World Bank.

Consultations with PAPs during project preparation will ensure that views of PAPs on compensation and resettlement assistance measures are fully incorporated while consultations conducted during resettlement plan (RP) implementation will identify necessary assistance required by APs during rehabilitation. Continuing involvement of those affected by sub-projects is necessary in the resettlement process. The municipality with support and guidance from the PMU Support Consultants will ensure that PAPs and other stakeholders are informed and consulted about the sub-project, its impact, their entitlements and options, and allowed to participate actively in the development of the sub-project. This will be done particularly in the case of vulnerable PAPs, who will be encouraged to choose options that entail the lowest risk. This exercise will be conducted throughout the sub-project-during preparation, implementation, and monitoring of sub-project results and impacts.

Under the harmonized safeguard policy, two public consultations will be required for the Project as part of the environmental assessment procedure. LGED guided the EMU in preparing the program of public meetings, presentations about the Project and drafting the comments sheet in English and Bengali. Information on the public consultation meetings will be published in national and regional newspapers 10 days prior to the consultations. Announcements on the commencement of the Environmental Assessment in the newspaper, the availability of the Background Information Document, the venue and the schedule of consultations and public opinion feedback processes will be published in the national newspapers.

The Environmental Assessment, documenting the mitigation measures and consultation process, will be made available for public review in both English and Bengali. The summary EA will be published on the LGED and WB websites, and the full environmental report will be available upon request from the WB and will be accessible in LGED website.

It is expected that through a participatory process, acceptance of the sub-projects and grievances can be minimized. However, it is necessary to establish an effective grievance redress mechanism to address complaints/grievances related to social issues that may arise. Any grievances and objections retarding the social aspects of the project will be referred to the project Grievances Redress Committee (GRC). The project GRC will be formed at central and district levels. The committee of the GRC at national level will have several members and connection with local authorities under headed by a chairperson.

The affected persons can register their grievances at the complaint cell established at central level and district level. All cases will be registered, categorized and prioritized by the district level authority and by the Environmental Specialist at central level. The GRCs will meet periodically to discuss the merit of each case and fix a date for hearing and notify the PAP to submit necessary documents in proof of her/his claim/case; resolve grievances within 4 weeks of receipt of complaint.

1. INTRODUCTION

1.1 Background

The Local Government Engineering Department (LGED) with the financial assistance of the World Bank (WB) has been successfully implementing rural infrastructure development projects since early nineties of the last century. After successful implementation of previous three projects, the Government of Bangladesh (GOB) looked for financial assistances from the International Development Association (IDA) of the World Bank to improve and rehabilitate the high-priority rural infrastructure in 26 districts covering mainly eastern parts of Bangladesh (excluding Chittagong Hill Tracts) under LGED. Responding the GoB's request, IDA agreed to extend its credit facilities of about US$ 300 million for the Second Rural Transport Improvement Project (RTIP II). The GoB contribution for this project was US$ 117 million. This project supported rural transport related infrastructure including inland water transport and maintenance needs of the 26 contagious districts of Bangladesh. As per the original plan, Tthis project is going to be concluded on April 2018.

In 2017, Bangladesh had experienced devastating flood due to heavy rainfall and water flow from the upstream hills in India in the countryside. It disrupted people's normal life. 1200 union of 183 upazilas under 31 districts are affected and 8746 villages arewere affected. That flood resulted casualitiesinteruption in the transportation network of Bangladesh damaging numerous LGED roads and bridges which were constructed and maintained under RTIP-II and other projects. That devastation in the road network of rural area needs urgent maintenance and rehabilitation in order to maintain the connetctivity to the rural area. On this circumstences, World Bank has come forward with additional financing of decided to contribute US$ 100 million to RTIP-II under RTIP-II (Additional Financing) for damaged road and bridge repair and maintenance.

This Environmental Management Framework (EMF) is required for the RTIP-II (Additional Financing) to identify the required environmental management measures that need to be taken by the Project authoritiesbe addressed during the planning, design, construction and operations of the rural road and bridge maintenance and rehabilitation in order to ensure compliance with the Government of Bangladesh own requirements and those of the World Bank. All the major environmental impacts along with mitigation and management measures have been compiled in the form of EMF.

It is expected that improvement of physical infrastructure will help reduce rural poverty by providing people and communities with opportunities to enhance productivity and access to innovations and more gainful marketing facilities. To this end, the locations of the project's physical components, such as the rural road and bridge maintenance and rehabilitation will be selected to create transportation and socio-economic networks to maximize intra-rural as well as rural-urban interactions. The participatory approach in selection, operation and maintenance of these facilities is expected to bring together various stakeholder groups, especially those who are socio-economically vulnerable, into the decision-making process and be benefited by the development.

The RTIP-II (Additional Financing) bears potential risk on physical, biological, social and cultural environment in the project area. Because of weak geology, rich biodiversity, high dependency of people on natural resources and widespread poverty, the social and environmental impacts are visibly significant, particularly when construction works are undertaken in rural areas. Generally, the environmental and social risks triggered by RTIP-II (Additional Financing) activities include erosion and slope instability; loss of plants, biodiversity and agricultural land; effect to water sources due to sedimentation, water logging and drainage congestion, displacement/damage of permanent assets and loss of land. So, proper consideration

of all environmental and social factors during design and implementation is of utmost concern in RTIP-II (Additional Financing) of LGED in Bangladesh.

Figure – 1 Location Map of RTIP-II: AF (18 Districts)

1.2 Objectives of EMF

The EMF provides general policies, guidelines, codes of practice and procedures to be integrated into the implementation of the World Bank-supported RTIP-II (Additional Financing). It defines the steps, processes, and procedures for screening, alternative analysis, assessment, monitoring and management. In addition, the EMF will analyze environmental policies and legal regime of Bangladesh and safeguard policies of the World Bank as well as institutional and capacity assessment for environmental management. The physical intervention of the projects The EMF is intended to be used as a practical tool during program formulation, design, implementation, and monitoring in RTIP-II (Additional Financing).

The EMF will be followed during project preparation and implementation for ensuring environmental integration in planning, implementation, and monitoring of project supported activities. For ensuring good environmental management in the proposed RTIP-II (Additional Financing) program, the EMF will provide guidance on pre-investment works/studies (such as environmental screening, environmental assessment, environmental management plans, etc.), provide set of steps, process, procedure, and mechanism for ensuring adequate level of environmental consideration and integration in each investment in the project-cycle; and describes the principles, objectives and approach to be followed to avoid or minimize or mitigate impacts. The EMF contains the following:

- Environmental factors that needs to be considered while planning and design of different categories of activities under the RTIP-II (Additional Financing).
- Environmental screening criteria: criteria, process, procedures, steps, time, and responsibility as well as necessary tools (format, checklist etc.) for environmental screening of the investment under the RTIP-II (Additional Financing).
- Environmental assessment guidelines: Steps, process and procedures to be followed in different levels of environmental assessment (limited or full assessment). This includes guidance on the project level baseline information, impact identification, alternative analysis, assessment and designing mitigation measures, and in preparing Environmental Management Plan (EMP).
- The EMF includes project/ activity level environmental monitoring framework.
- The EMF includes the institutional arrangement for implementing EMF, environmental code of practices to be followed in project/activity level, capacity strengthening plan for environmental capacity of the involved parties in accordance with their role and functions, guidance on appropriate ways of holding consultations.

1.3 Approach and Methodology

The EMF has been prepared through participatory process mainly based on open ended discussions, formal and informal interaction with stakeholders that lead to an understanding of the existing system from the perspectives of all the stakeholders. The work has been performed in close cooperation with the project team. This included collection of secondary data, related literatures, field surveys, public/stakeholder consultations, and desk studies.

In order to prepare the EMF, relevant secondary source of information were reviewed and limited field investigation has been carried out to explain the environmental concerns related to different subprojects. The specific tools and methods used to meet the desired scope of work are highlighted below:

a) Environmental review of overall program and preparation of preliminary baseline of RTIP-II (Additional Financing).

In order to meet the above scope, the following strategies have been adopted:

- Review of program details available at the time of assessment;
- Collection of secondary information (periodic plans of participating districts, situation analysis of pre-feasibility study and its conformity with interaction with stakeholders); and
- Sample of different subproject of baseline information at larger stage by field visit to the different districts.

b) Review of relevant plan, policies and legislations of GOB and WB:

In order to meet the above scope, the following strategies were adopted:

- Review of plan, policies, government directives and legislations related to environment in the context of Bangladesh;
- Identification of environmental provisions that is applicable to the present project;
- Review of the World Bank's environmental safeguard policies and identifies provisions/requirements that need to be met by this project; and
- Review of similar documents being used in similar type of programs.

c) Review of existing environmental management practices of RTIP-I.

In order to meet the above scope, the methodologies adopted are as follows:

- Review of current environmental requirements and practices followed by RTIP-I;
- Study of the effectiveness of environmental provisions applied to similar project activities in Bangladesh;
- Discussion with LGED about their existing environmental management practices existing environmental problems;
- Review and "on the ground" verification of environmental management practices and its effectiveness followed by RTIP-I including review and record of good and bad environmental practices followed; and
- Environmental Practices in other projects (WB funded, etc.).

d) Institutional and capacity assessment

The following methodologies were adopted by the consultant to meet and its objectives:

- Review of institutional mechanisms for environmental management of institutional involved in proposed program and their environmental management practices. The assessment will be made to find out the institutional capacity in terms of existence of environmental management unit, environmental staff & work load, existence of environmental management practices, resources (manpower, budget, and equipment facilities), mandate, roles and responsibility of staff in environmental management, currently ongoing environmental programs and its effectiveness;
- The system, process, procedures in complying environmental mandate, guideline, framework and its effectiveness, (tools if any, such as screening format, checklist etc.); and
- Assessment of participating institutions in terms of their capacity with regard to their existing mandates, functions, human, and financial resources available for environmental management functions as well as assessment of their capacity considering incremental workloads from the proposed program.

Based on the above, the consultant has developed the necessary institutional and capacity building activities.

e) Stakeholder analysis, consultation and disclosures

The following methodologies were adopted to meet the above scope and its objectives:

- Plan for the stakeholder consultations at the national and district level with respect to the program and its environmental management. Based on the outcomes of the stakeholders analysis, policy review and capacity assessment, institutional mechanism for environmental management in the RTIP-II (Additional Financing) program were developed;
- Share in LGED during the interaction about the likely environmental issues, environmental requirements of GOB and WB;

- During the preparation of EMF, interactions were also held with District LGED offices, and private sector for their views with regards to their opinions, their roles and responsibilities in the RTIP-II (Additional Financing) program; and
- Assessment of stakeholder's impressions on environmental issues, causes and in exploring ways to address it.

1.4 Overview of the EMF

The EMF is intended to define the process and outputs necessary to address the potential negative impacts of the physical works to be carried out under RTIP-II (Additional Financing) for various sub-projects associated with the rural road and bridge maintenances and rehabilitation. In order to safeguard against any unexpected serious impacts and to improve the general environmental management practices, this EMF outlines a screening/assessment process and actions to be taken in case there is any possibility that the IDA's environmental safeguards may be triggered.

The EMF clearly describes how the potential environmental impacts of all sub-projects will be managed during preparation, implementation and, in the post-implementation periods. The EMF incorporates a framework for implementation, monitoring, supervision, auditing and reporting of the EMF requirements. The EMF report also includes Environmental Codes of Practice (ECP) and sample Environmental Management Plan (EMP) for each type project subcomponent to assist the LGED/Design Supervision Management (DSM) Consultants in preparation of the necessary environmental specifications and/or sub-project specific EMP for integration of impacts avoidance/prevention/mitigation measures with the design and contract documents of the sub-projects. The applicability of the sample EMP/ ECP to a particular type of sub-projects under each project component and/or need for further EA and sub-project specific EMP has also been established in the EMF.

The EMF also defines required mitigation measures to be carried out by this contractor to minimize potential negative impacts during and after the execution of physical works. The minimum prevention /mitigation requirements to be implemented during the implementation of the sub-projects will be included in the bidding and contract documents. The EMF provides for integration of the environmental assessment and management process with the overall project preparation and implementation process.

1.5 Environmental Code of Practices

The Environmental Code of Practices (ECP) for compliance with the World Bank's OP 4.01 is contained of this EMF. The requirements of these ECP and of the Bangladesh standard will be included in all sub project civil works contracts through a set of special environmental clauses (SECs) included in the Technical Specification of the bidding documents. These set of Special Environmental Clauses will be subject to revision for each sub project to ensure the relevant issues for each sub project are being adopted.

2. ENVIRONMENTAL POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 Relevant Government Policies, Acts, Rules, Strategies and Guidelines

2.1.1 Environmental Conservation Act (ECA), 1995

The ECA is currently the main legislation relating to environment protection in Bangladesh. This Act is promulgated for environment conservation, environmental standards development and environment pollution control and abatement.

The main objectives of ECA are:

- Conservation and improvement of the environment; and
- Control and mitigation of pollution of the environment.

The main focuses of the Act can be summarized as:

- Declaration of ecologically critical areas and restriction on the operations and processes, which can or cannot be carried out/ initiated in the ecologically critical areas (ECA);
- Regulations in respect of vehicles emitting smoke harmful for the environment;
- Environmental clearance;
- Regulation of industries and other development activities' discharge permits;
- Promulgation of standards for quality of air, water, noise and soil for different areas for different purposes;
- Promulgation of a standard limit for discharging and emitting waste; and
- Formulation and declaration of environmental guidelines.

Before any new project can go ahead, as stipulated under the ECA, the project promoter must obtain Environmental Clearance from the Director General (DG), DoE. An appeal procedure does exist for those promoters who fail to obtain clearance. Failure to comply with any part of this Act may result in punishment to a maximum of 5 years imprisonment or a maximum fine of Tk.100, 000 or both. The DoE executes the Act under the leadership of the DG.

The Project will be undertaken in line with the aims and objectives of the Act by conserving the environment and controlling and mitigating potential impacts throughout the drilling program.

Environmental Conservation Act (Amendment 2000)

The Bangladesh *Environment Conservation Act* 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.

Environmental Conservation Act (Amendment 2002)

The 2002 Amendment of the ECA elaborates on the following parts of the Act:

- Restrictions on polluting automobiles;
- Restrictions on the sale, production of environmentally harmful items like polythene bags;
- Assistance from law enforcement agencies for environmental actions;
- Break up of punitive measures; and
- Authority to try environmental cases.

Environmental Conservation Act (Amendment 2010)

This amendment of the act introduces new rules & restriction on:

- No individual or institution (Gov. or Semi Gov, / Non Gov. / Self Governing) cannot cut any Hill and Hillock. In case of national interest; it can be done after getting clearance from respective the department

- Owner of the ship breaking yard will be bound to ensure proper management of their hazardous wastes to prevent environmental pollution and Health Risk
- No remarked water body cannot be filled up/changed; in case of national interest; it can be done after getting clearance from the respective department; and
- Emitter of any activities/incident will be bound to control emission of environmental pollutants that exceeds the existing emission standards.

2.1.2 Environment Conservation Rules (ECR), 1997 and Amendments

These are a set of rules, promulgated under the *ECA,* 1995 and its amendments. The Environment Conservation Rules provide categorization of industries and projects and identify types of environmental assessment required against respective categories of industries or projects. The Rules set:

- The National Environmental Quality Standards (NEQS) for ambient air, various types of water, industrial effluent, emission, noise, vehicular exhaust etc.;
- The requirement for and procedures to obtain environmental clearance; and
- The requirement for IEE and EIA according to categories of industrial and other development interventions.

The Environment Conservation Rules, 1997 were issued by the GOB in exercise of the power conferred under the Environment Conservation Act (Section 20), 1995. Under these Rules, the following aspects, among others, are covered:

- Declaration of ecologically critical areas;
- Classification of industries and projects into 4 categories;
- Procedures for issuing the Environmental Clearance Certificate (ECC); and
- Determination of environmental standards.

Rule 3 defines the factors to be considered in declaring an 'ecologically critical area' as per Section 5 of the ECA (1995). It empowers the Government to declare the area as the Ecologically Critical Areas (ECA), if it is satisfied that the ecosystem of the area has reached or is threatened to reach a critical state or condition due to environmental degradation. The Government is also empowered to specify which of operations or processes may be carried out or may not be initiated in the ecologically critical area. Under this mandate, the Ministry of Environment and Forest (MOEF) has declared Sunderban, Cox's Bazar-Tekhnaf Sea Shore, Saint Martin Island, Sonadia Island, Hakaluki Haor, Tanguar Haor, Marzat Baor and Gulshan-Baridhara Lake as ecologically critical areas and prohibited certain activities in those areas.

Rule 7 of the 1997 ECR provides a classification of industrial units and projects into four categories, depending on environmental impact and location. These categories are:

- Green;
- Orange A;
- Orange B; and
- Red.

The categorization of a project determines the procedure for issuance of an Environmental Clearance Certificate (ECC). All proposed industrial units and projects that are considered to be low polluting are categorized under "Green" and shall be granted Environmental Clearance. For proposed industrial units and projects falling in the Orange-A, Orange-B and Red Categories, firstly a site clearance certificate and thereafter an environmental clearance certificate will be required. A detailed description of those four categories of industry/project is in Schedule-1 of ECR (1997). The Rules were essentially developed for industrial developments, but under Schedule 1 of the Guidelines (Clauses 63 and 64) the following falls into the Orange B Category.

All existing industrial units and projects and proposed industrial units and projects, that are considered to be low polluting are categorized under "Green" and shall be granted Environmental Clearance. For

proposed industrial units and projects falling in the Orange- A, Orange- B and Red Categories, firstly a site clearance certificate and thereafter an environmental clearance certificate will be issued. A detailed description of those four categories of industries has been given in Schedule-1 of ECR'97. Apart from general requirement, for every Red category proposed industrial unit or project, the application must be accompanied with feasibility report on Initial Environmental Examination, Environmental Impact Assessment based on approved TOR by DoE, Environmental Management Plan EMP etc.

The ECR'97 also contains the procedures for obtaining Environmental Clearance Certificates from the Department of Environment for different types of proposed units or projects. Any person or organization wishing to establish an industrial unit or project must obtain ECC from the Director General. The application for such certificate must be in the prescribed form (provided later in this chapter) together with the prescribed fees laid down in Schedule 13, through the deposit of a Treasury Chalan in favor of the Director General. Rule 8 prescribes the duration of validity of such certificate (3 years for green category and 1year for other categories) and compulsory requirement renewal of certificate at least 30 days before expiry of its validity.

- Road Construction/reconstruction/extension (feeder roads, local streets etc.) and bridge construction reconstruction/extension (less than 100m in length).

2.1.3 Environmental Policy, 1992

The concept of environmental protection through national efforts was first recognized and declared with the adoption of the Environmental Policy, 1992 and the Environmental Action Plan, 1992. The importance of policies in beefing up the environmental regime is recognized in a number of international instruments including the World Conservation Strategy in 1980 and the Brundtland Commission Report, 1987. Paragraph 14 of Chapter 8 of Agenda 21 underscored the necessity of formulation of national policies as well as laws for environmental protection and sustainable development. The major objectives of Environmental Policy are to:

i) maintain ecological balance and overall development through protection and improvement of the environment;

ii) protect country against natural disaster;

iii) identify and regulate activities, which pollute and degrade the environment;

iv) ensure environmentally sound development in all sectors; and

v) ensure sustainable, long term and environmentally sound base of natural resources; and vi) actively remain associate with all international environmental initiatives to the maximum possible extent.

2.1.4 Environmental Action Plan, 1992

The National Environmental Action Plan,1992 recommended sector specific action plan to achieve the objectives and implement the policy recommendations of the National Environment Policy. The followings are water resources key recommended actions:

- Environmental audit on an emergency basis will be conducted for water resources development, flood control and irrigation projects. Steps to mitigate the adverse impact on the environment identified in the audit will be taken through appropriate modification of these projects.
- Environmental Impact Assessment will be incorporated in all new projects. Adverse impacts will be prevented through proper steps and adequate investments.
- Operation and maintenance will be ensured subsequent to execution of projects related to water resources development and management. Regular monitoring will be conducted to evaluate the impact of all projects.

2.1.5 National Environmental Management Plan (NEMAP), 1995

The National Environment Management Action Plan (NEMAP, 1995), based on a nationwide consultation program identified the main national environmental issues, including those related to the water sector

which EA practitioners should note. The main related national concerns included flood damage, river bank erosion, environmental degradation of water bodies, increased water pollution, shortage of irrigation water and drainage congestion; various specific regional concerns were also identified.

2.1.6 Bangladesh Wildlife (Preservation) Order, 1973 (Amended in 1994)

The *Bangladesh Wildlife (Preservation) Order* makes provisions for the safety of wildlife, particularly those vulnerable to extinction. It has provisions for the establishment of 'wild life sanctuaries', banning hunting of certain species, banning 'game reserves' and provision for special permits to keep and care for certain types of animals. Schedule III to the statute includes a list of animals that are declared as protected animals, which shall not be hunted, killed or captured. The maximum penalty for any offence committed under this statute is two years imprisonment and a maximum fine of 10,000 taka.

The Government of Bangladesh under the provisions of the Act, has established three categories of protected areas being National Parks, Wildlife Sanctuaries and Game Reserves. In addition to these, the Government of Bangladesh has declared 14 protected areas and is considering declaring more. Further, the Government of Bangladesh has recently declared six areas as Ecologically Critical Areas under the *Environmental Conservation Act* 1995.

2.1.7 National Conservation Strategy (NCS), 1992

The National Conservation Strategy (NCS) was drafted in late 1991 and submitted to the Government in early 1992. It was approved in principal; however the final approval of the document is yet to be made by the cabinet.

For sustainable development in the energy sector, the strategy document offered various recommendations, though there are none specifically relating to exploratory drilling or similar activities.

For 'Energy and Minerals' sector, the relevant strategy recommendations include:

- To use the minimum possible area of land in exploration sites;
- To take precautionary measures against Environmental Pollution from liquid effluent, condensate recovery and dehydration plants; and
- To apply technology assessment for selection of appropriate technology.

The Project aims to reduce the land required for the program where possible by implementing measures to reduce pollution risk and using appropriate technology.

2.1.8 Wetland Policy, 1998 (Draft)

The Policy is relevant to the Project because it seeks to:

- Conserve wetlands to sustain their ecological and socio-economic functions and further sustainable development;
- Establish key principles for wetland sustainability and unsustainable practices;
- Maintain existing levels of biodiversity;
- Maintain wetland functions and values; and
- Actively promote integration of wetland functions in resources management and economic development decision taking.

2.1.9 National Water Policy, 1999

The National Water Policy promulgated in 1999 with the intension of guiding both public and private actions in the future for ensuring optimal development and management of water that benefit both individuals and the society at large. The policy aims to ensure progress towards fulfilling national goals of economic developments, poverty alleviation, food security, public health and safety, decent standard of living for the people and protection of natural environment. According to the policy, *all agencies and departments entrusted with water resource management responsibilities (regulation, planning,*

construction, operation, and maintenance) will have to enhance environmental amenities and ensure that environmental resources are protected and restored in executing their tasks. Environmental needs and objectives will be treated equally with the resources management needs.

The policy has several clauses related to the protection and prevention of the natural environment for ensuring sustainable development. Some of the relevant clauses are:

Clause 4.5b: Planning and feasibility studies of all projects will follow the Guidelines for Project Assessment, the Guidelines for People's Participation (GPP), the Guidelines for Environmental Impact Assessment, and all other instructions that may be issued from time to time by the Government.

Clause 4.9b: Measures will be taken to minimize disruption to the natural aquatic environment in streams and water channels.

Clause 4.9e: Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding.

Clause 4.10a: Water development projects should cause minimal disruption to navigation and, where necessary, adequate mitigation measures should be taken.

Clause 4.12a: Give full consideration to environmental protection, restoration and enhancement measures consistent with National Environmental Management Action Plan (NEMAP) and the National Water Management Plan (NWMP).

Clause 4.12b: Adhere to a formal Environmental Impact Assessment process, as set out in the EIA guidelines and manuals for water sector projects, in each water resources development project or rehabilitation program of size and scope specified by the Government from time to time.

Clause 4.12c: Ensure adequate upland flow in water channels to preserve the coastal estuary eco-system threatened by intrusion of salinity from the sea.

Clause 4.13b: Only those water related projects will be taken up for execution that will not interfere with aquatic characteristics of those water bodies.

2.1.10 National Water Management Plan, 2001 (Approved in 2004)

The National Water Resources Council approved on March 31, 2004 a 25-year National Water Management Plan. The plan provides a framework within which all concerned with the development, management and use of water resources water services in Bangladesh can plan and implement their own activities in a coordinated and integrated manner. The planned activity programs have been presented in the eight sub-sectoral clusters: i) Institutional Development, ii) Enabling Environment, iii) Main River, iv) Towns and Rural Areas, v) Major Cities; vi) Disaster Management; vii) Agriculture and Water Management, and viii) Environment and Aquatic Resources. Each cluster comprises of a number of individual programs, with overall a total of 84 sub-sectoral programs identified and presented in the investment portfolio. It was planned to implement in three phases. It was approved at the seventh meeting of the National Water Resources Council. It calls for a coordinated approach of concerned ministries and departments to stop water-logging and to incorporate the issues of arsenic mitigation, river administration, and dredging and fisheries resources. To mitigate the environmental risks of water sector project development, the plan suggested for a holistic view, which includes the environment itself as an important water sector stakeholder with an entire cluster of programs devoted to it. Furthermore, programs within the environment cluster are strategically timed in order that public awareness raising, the establishment and enforcement of regulatory mechanisms and long term planning are addressed as priority. Water Resources Planning Organization (WARPO) was assigned to monitor the national water management plan.

2.1.11 The National Fisheries Policy, 1999

The National Fisheries Policy, 1999 was formulated following review and intent of the *East-Bengal Protection and Conservation of Fish Act* 1950, which was updated by the *Protection and Conservation of Fish (Amendment) Ordinance* 1982 and further refined by the *Protection and Conservation of Fish*

(Amendment) Act 1995. These Acts and ordinance provide provisions for the protection and conservation of fish in fresh water and brackish water bodies.

The Fisheries Policy highlights the need to conserve fish breeding grounds and habitats, especially in the development of water management infrastructure. It intends to promote fisheries development and conservation in all water bodies.

The Project should consider these policies to protect the habitats, migration and connectivity of fish and fisheries resources around the Project area. Measures to reduce any potential negative impacts on local fish populations will be incorporated into all stages of the Project.

2.1.12 The Protection and Conservation of Fish Rules, 1985

The *Protection and Conservation of Fish Rules* 1985 are a set of rules in line with the overall objectives of the *East-Bengal Protection and Fish Conservation Act*. The Rules require that "*no person shall destroy or make any attempt to destroy any fish by explosives, gun, bow and arrow in inland waters or within coastal waters".* Further, the Rules states *"…no person shall destroy or make any attempt to destroy any fish by poisoning of water or the depletion of fisheries by pollution, by trade effluents or otherwise in inland waters*".

The Project will comply with these rules by enacting appropriate mitigation measures to reduce the potential for pollution of waterways, depletion of fisheries or disturbance of fish populations within the Project area.

2.1.13 National Agricultural Policy, 1999

The overall objective of the National Agriculture Policy is to make the nation self-sufficient in food through increasing production of all crops including cereals and ensure a dependable food security system for all. One of the specific objectives of National Agricultural Policy is to take necessary steps to ensure environmental protection as well as „environment-friendly sustainable agriculture. Through increased use of organic manure and strengthening of the integrated pest management program. The policy also suggests creating awareness so that the chemical fertilizers and pesticides used for increased crop production do not turn out to be responsible for environmental pollution. Water logging and salinity are identified as one of the serious problem in some parts of the country including the coastal areas for agricultural activities and environmental damage. The policy recommends for crop rotation and salt tolerant crop varieties.

2.1.14 Coastal Zone Policy, 2005

Coastal zone policy initiated as a harmonized policy that transcends beyond sectoral perspectives. The policy provides general guidance so that the coastal people can pursue their livelihoods under secured conditions in a sustainable manner without impairing the integrity of the natural environment. The policy framework underscores sustainable management of natural resources like inland fisheries & shrimp, marine fisheries, marine fisheries, mangrove and other forests, land, livestock, salt, minerals, sources of renewable energy like tide, wind and solar energy. It also emphasis on conservation and enhancement of critical ecosystem- necessary measures will be taken to conserve and develop aquatic and terrestrial including all the ecosystems of importance identified by the *Bangladesh National Conservation Strategy* (Mangrove, coral reef, tidal wetland, sea grass bed, barrier island, estuary, closed water body, etc.).

Coastal Development Strategy, 2006

Coastal Development Strategy has been approved by the Inter-Ministerial Steering Committee on Integrated Coastal Zone Management Plan (ICZMP) Project on February 13, 2006. The strategy is based on the Coastal Zone Policy and takes into account the emerging trends: increasing urbanization, changing pattern of land use, declining land and water resources, unemployment and visible climate change impacts. The strategy has 9 strategic priorities and the following 3 are relevant priorities with proposed type of interventions:

- Safety from man-made and natural hazards - i) Strengthening and rehabilitation of sea dykes; and ii) reduction of severe vulnerability in the coastal zone through multi-purpose cyclone shelters-including coping mechanism.
- Sustainable management of natural resources - i) environmentally and socially responsive shrimp farming; ii) introduction of renewable energy in coastal areas; and iii) development of marine fisheries and livelihood.
- Environmental conservation – i) Marine and coastal environmental development; and ii) strengthening of Coast Guard for improvement of coastal safety and security in coordination with other law enforcing agencies.

2.1.15 The Embankment and Drainage Act, 1952

The *East Bangle Act No. 1,* 1953 was amended in 1953 which has been adapted by the People Republic of Bangladesh, by the Bangladesh Order (adaptation of Existing Laws), 1972 (President's Order No. 48 of 1972). The Act consolidates the laws relating to embankments and drainage providing provision for the construction, maintenance, management, removal and control of embankments and water courses for the better drainage of lands and for their protection from floods, erosion or other damage by water.

The specific Sections and Articles relevant to the Project are mentioned below:

- Section 4 (1) of the Act states that the embankment, water-course, and tow-path, earth, pathways, gates, berms and hedges of the embankments shall vest in the Government of the Authority (BWDB).
- Section 56 (1) states that, person will be subject to penalty (500 taka or imprisonment… if he erects, or causes of willfully permits to be erected, any new embankment, or any existing embankment, or obstructs of diverts, or causes or willfully permits to be obstructed or diverted, any water course.
- Section 15 allows for the engineer (engineer in charge of Divisional level BWDB) for constructing new embankment or enlarging, lengthening or repairing existing embankments.
- The other sections of the Act give powers and access to the Government or Authority or Engineers to commence necessary Project activities, for land acquisition (through the Deputy Commissioner), and site clearing activities including removal of trees or houses (if necessary).

2.1.16 Bangladesh Climate Change Strategy and Action Plan

The GOB also prepared the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) in 2008 and revised in 2009. This is a comprehensive strategy to address climate change challenges in Bangladesh. Bangladesh Climate Change Strategy and Action Plan built on and expanded the NAPA. It is built around the following six themes:

- Food security, social protection and health to ensure that the poorest and most vulnerable in society, including women and children, are protected from climate change and that all programs focus on the needs of this group for food security, safe housing, employment and access to basic services, including health.
- Comprehensive disaster management to further strengthen the country's already proven disaster management systems to deal with increasingly frequent and severe natural calamities.
- Infrastructure to ensure that existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructure (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change.
- Research and Knowledge management to predict that the likely scale and timing of climate change impacts on different sectors of economy and socioeconomic groups; to underpin future investment strategies; and to ensure that Bangladesh is networked into the latest global thinking on climate change.
- Mitigation and low carbon development to evolve low carbon development options and implement these as the country's economy grows over the coming decades.

- Capacity building and Institutional strengthening to enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change.

There are 44 specific programs proposed in the BCCSAP under the above six themes.

2.1.17 LGED's Guidelines and Environmental Code of Practices

In response to the Environmental Conservation Act (1995) and Rules (1997), and recognizing the need of its donors to ensure sound environmental practices, LGED has developed guidelines and code of practices to ensure that its activities sustain, and where feasible enhance the environment. The LGED aims to implement all its projects in an environmentally sound and sustainable manner that meets all the requirements of the GOB and its financing partners. This approach is embodied in the LGED document:

- Environmental Assessment Guidelines for LGED Projects, Environmental Unit of LGED, October, 2008.

Two documents have been prepared under RTIP which provide a sound basis for defining the environmental management procedures and arrangements for RTIP-II (Additional Financing):

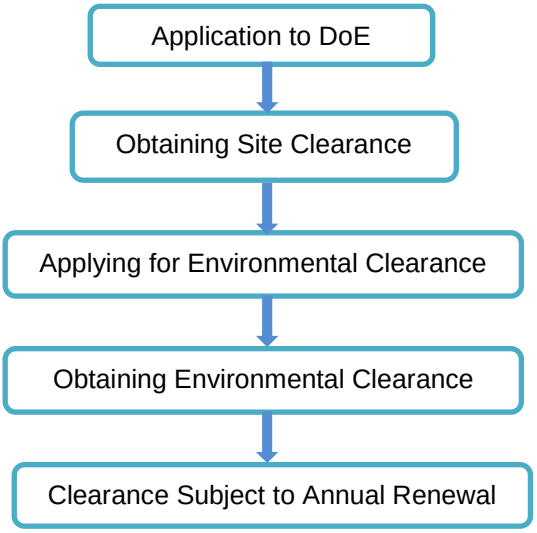
- Manual for Environmental Supervision and Monitoring and Guidelines for Environmental Screening and Categorization of Sub-project, EMU, RTIP (RDP -26), September, 2004.
- Environmental Code of Practices (ECP), EMU, RTIP (RDP -26), September, 2004.

2.2 Environmental Clearance Procedure

Legislative bases for the EIA in Bangladesh are the Environmental Conservation Act 1995 (ECA'95) and the Environmental Conservation Rules 1997 (ECR'97). The Department of Environment (DoE), under the Ministry of Environment and Forest (MOEF), is the regulatory body responsible for enforcing the ECA'95 and ECR'97. It is the responsibility of the proponent to conduct the EIA of development proposal, the responsibility to review EIA for the purpose of issuing Environmental Clearance Certificate (ECC) rests on DoE. The procedure for "Red" Category includes submission of:

- Initial Environmental Examination (IEE)
- Environmental Impact Assessment (EIA)
- Environmental Management Plan (EMP)

Environment clearance has to be obtained by the respective implementing agency from the Department of Environment. The main steps for environmental clearance procedure for Red Category projects can be summarized as follows:



The environmental impact assessment and subsequent environmental clearance for sub-projects having minor environmental impacts will be waived taking into consideration of significant nature of the project and the immediate local needs. However, if IEE indicates that there are significant environmental impacts from the sub-projects, the implementing agency will conduct the EIA. The concerned implementing agency will provide environmental screening report to the DoE on quarterly/half-yearly basis highlighting the possible impacts from the sub-projects and measures taken for possible impacts. The DoE will review all the screening reports of civil works and may decide to cross check some of the interventions. However, the report will have separate location specific baseline information, environmental analysis and EMP for each sub-project.

2.3 World Bank's Environmental Safeguard Policy

OP/BP 4.01 Environmental Assessment

The Bank requires Environmental Assessment (EA) of projects proposed for Bank support to ensure that they are environmentally sound and sustainable, and thus to improve decision making. The EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. The EA evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. The EA takes into account the natural environment (air, water and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples and physical cultural resources); and transboundary and global environmental aspects. The borrower is responsible for carrying out the EA and the Bank advises the borrower on the Bank's EA requirements.

The Bank classifies the proposed project into three major categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.

- *Category A*: The proposed project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.
- *Category B*: The proposed project's potential adverse environmental impacts on human population or environmentally important areas-including wetlands, forests, grasslands, or other natural habitats- are less adverse than those of Category A projects. These impacts are site specific; few if any of them are irreversible; and in most cases mitigatory measures can be designed more readily than Category A projects.
- *Category C*: The proposed project is likely to have minimal or no adverse environmental impacts.

OP/BP 4.04 Natural Habitats

The conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions in its economic and sector work, project financing, and policy dialogue. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. The Bank promotes and supports natural habitat conservation and improved land use by financing projects designed to integrate into national and regional development the conservation of natural habitats and the maintenance of ecological functions. Furthermore, the Bank promotes the rehabilitation of degraded natural habitats. The Bank does not support projects that involve the significant conversion or degradation of critical natural habitats.

OP/BP 4.11 Physical Cultural Resources

Physical cultural resources are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Their cultural interest may be at the local, provincial or national level, or within the international community. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. The Bank assists countries to avoid or mitigate adverse impacts on physical cultural resources from development projects that it finances. The impacts on physical cultural resources resulting from project activities, including mitigating measures, may not contravene either the borrower's national legislation, or its obligations under relevant international environmental treaties and agreements. The borrower addresses impacts on physical cultural resources in projects proposed for Bank financing, as an integral part of the environmental assessment (EA) process. The following projects are classified during the environmental screening process as Category A or B, and are subject to the provisions of this policy: (a) any project involving significant excavations, demolition, movement of earth, flooding, or other environmental changes; and (b) any project located in, or in the vicinity of, a physical cultural resources site recognized by the borrower. Projects specifically designed to support the management or conservation of physical cultural resources are individually reviewed, and are normally classified as Category A or B. When the project is likely to have adverse impacts on physical cultural resources, the borrower identifies appropriate measures for avoiding or mitigating these impacts as part of the EA process. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the physical cultural resources may be lost.

OP/BP 4.36 Forestry

The Policy envisages the protection of forests through consideration of forest-related impact of all investment operations, ensuring restrictions for operations affecting critical forest conservation areas, and improving commercial forest practice through the use of modern certification systems.

In the process of forest conservation interventions, especially the local people, the private sector and other pertinent stakeholders should be consulted.

In general, the Policy aims at reducing deforestation and enhancing the environmental and social contribution of forested areas. Experience with the Bank reveals that the Bank does not support commercial logging in primary tropical moist forest.

OP/BP 4.12 Involuntary Resettlement

This Policy is based on assisting the displaced persons in their efforts to improve or at least restore their standards of living.

The impetus of this Policy is that development undertakings should not cause the impoverishment of the people who are within the area of influence of the undertakings. In cases where resettlement of people is inevitable, or in cases where loss of assets and impacts on the livelihood of the PAPs is experienced, a

proper action plan should be undertaken to at least restore, as stated above, their standard of life prior to the undertakings.

Concerning public consultation, resettlers as well as the host communities should be consulted for the successful implementation of the resettlement process. The views of the consulted resettles and the host communities should be incorporated into the Resettlement Action Plan (RAP) including the list of their choices.

2.4 IFC Environmental, Health and Safety Guidelines

The Environmental, Health and Safety (EHS) Guidelines of the International Finance Corporation (IFC), 2008 is the safeguard guidelines for environment, health and safety for the development of the industrial and other projects. They contain performance levels and measures that are considered to be achievable in new facilities at reasonable costs using existing technologies.

2.5 Implication of GOB Policies in RTIP-II (Additional Financing)

Except ECA'95 and ECR'97, all other policies, strategies and legal instruments do not explicitly require any environmental assessment. However, most of the policies, strategies and legal instruments emphasized the need for environmental consideration along with the project planning and implementation. Again, there is no straight forward environmental categorization for the proposed RTIP-II (Additional Financing)as per ECA'95 and ECR'97. However, depending on the extent of the subprojects, the road improvement will fall under the Red or Orange-B category as per ECR'97. The road maintenance should be marked as Orange–A category. All the proposed improvement of road networks will require IEE or EIA including EMP (depend upon the impacts). But for the maintenance of roads need EMP. LGED will ensure that the Environmental management will be integral part of the components of project planning, designing, implementation and operation and maintenance (O&M). LGED will screen and monitor the environmental issues in both construction, and operation & maintenance phases and it will ensure the implementing the project keeping all environmental parameters in control. Considering the number of subprojects spread over large area and developing a mechanism for environmental due diligence at LGED level, the subprojects only requiring Environmental Impact Assessment i.e., road improvement with culverts more than 100 m will be sent for DoE clearance. Other subprojects having limited environmental impacts will be reviewed and cleared at LGED.

2.6 Implication of Safeguard Policies of WB in RTIP-II (Additional Financing)

The project has been considered as a Category A project and the subprojects are yet to be selected, the degree and extent of impact not known also the details of the most of the sub-projects areas are not prepared. The policies on environment assessment (OP/BP 4.01), natural habitats (OP/BP 4.04) and physical cultural resources (OP/BP 4.11) have been triggered for the proposed operation. Each subproject will require environmental screening/assessment before processing. As per Bank requirement, the borrower needs to consult project-affected groups and local nongovernmental organizations (NGOs) about the project's environmental aspects and takes their views into account. The borrower initiates such consultations as early as possible. Since this is Category A project, the borrower will consult groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them.

3. DESCRIPTION OF BASELINE ENVIRONMENT

3.1 General

The Project will be implemented in several districts out of 64 districts of Bangladesh. The sub-project will be decided considering the needed maintenance and rehabilitation on the rural roads and bridges. After finalizing sub-projects, the name and details about them will be updated in EMF.

3.2 Environmental Baseline- Rural Road and Bridge Maintenance and Rehabilitation

Subproject Example: Mowchak – Fullbari Road Maintenance

3.2.1 Subproject Description

About 21km long Mouchak – Fullbari Road Maintenance has been identified as one the roads, which will be maintained under the project. The road is located in Upazila Kaliakoir, District Gazipur. Location of the road is shown in Figure 3.3.

The road was constructed in 1980. The entire road is bituminous paved road. Total average crest width of the existing road is about 5.5m of which paved width is 3.05m. The overall condition of the road is good. The road runs over the undulated high land, canals and river. The road is not submerged even during high floods such as 1987, 1988, 1998, 2004 & 2007. A 105m bridge over the Turag River & many other small bridges/culverts are located on this road. Major Road and Bridge Maintenance and Rehabilitation Works are: Repairing of potholes, slopes, crack pavement, earth shoulders & bridge parapet.

3.2.2 Physical Environment

Atmosphere and Climate

The project location has a humid sub-tropical climate with large variations between summer and winter temperatures. The cluster has a tropical monsoon climate. It has three main seasons: Summer/Pre-monsoon (March to May), Rainy Season/monsoon (June to October), and winter season (November to February). The rainy season is hot and humid having about 90 percent of the annual rainfall. The winter is predominately cool and dry. The summer is hot and dry interrupted by occasional heavy rainfall. The annual average temperature maximum 36^0C and minimum temperature is about 12.7^0C. Annual rainfall is about 2,376 mm.

Topography

Topographically the cluster of project location is almost flat, with some undulations, natural khals, bounded by the Turag River. There are many vacant low lands on the bank of the Turag River, where many brick manufacturing industries exist. The depressions and canals are dominated by organic clay and peats. The cluster lies on the Madhupur Clay with its average thickness of about 10 meters consists of over-consolidated clayey slit and is underlain by the Pleistocene Dupi Tila formation. Most depression and canals are tectonically controlled. The average ground elevation of the project area is about 13mPWD.

Physiography and Geology

The project area lies in the deep geosynclinals part. It is characterized by a huge sedimentary sequence of mostly tertiary age testified high tectonic instability or mobility. The stratigraphy of the deep basin including fore deep and fold belt to the southeast is characterized by an enormous thickness of tertiary sedimentary succession. The rocks encountered here are much younger in geologic age and ranges between Oligocene and Recent time. The basin has got the record of rapid subsidence and sedimentation.

The height of the land gradually increases from the east to the west. The southern part of the project area is composed of the alluvium soil of the Turag River. The land feature of the project area bears uneven

elevation. Once, the area was covered with green vegetation. Now, due to the rapid growth of population and industrialization, the area is being used for establishing buildings, mills and factories.

Seismicity

The project area remains in the seismic zone II which is vulnerable for earthquake. In the medium risk zone, shocks of moderate intensity are possible, with a probable maximum magnitude of 6 to 7 on the Richter scale.

Hydrology and Drainage

The project road crosses a number of water bodies such as 150m wide Turag River and several canals (Table 4.4). There are 23 fish ponds are available along the ROWs of the road. The surface areas size of the ponds varies from 250 to 11,000 square meters (m2). All the ponds are man-made, often located in former borrow pits, and are used for fishing, water supply, and domestic use (e.g., washing clothes, and bathing).

Air Quality

Several Small and medium industries such as the Aftab industrial park, various textiles dyeing and other industries are located at both sides of the road which pollute air of subproject area (Table 4).. The brick kilns located on the banks and flood plains of Turag River in the periphery of Konabari-Kashimpur cluster are a major source of air pollution. Most of the internal roads within the industrial and residential clusters of Konabari-Kashimpur are unpaved, and vehicular movements on these, especially heavy vehicles (buses, trucks etc.) generates dust and impair the air quality. While dust impacts are significant due to the poor road conditions, vehicular air pollution impacts are not envisaged to be significant due to the widespread use of Clean Natural Gas (CNG) vehicles.

Noise Quality

Noise is another threat to the quality of the environment in the study area. Many heavy vehicles such as trucks, buses, cars, tempo, votvoti move on the road during day & nights and these vehicles generate high noise in this subproject area.

3.2.3 Biological Environment

3.3.3.1 Forest and Natural Habitats

There are few natural terrestrial habitats in and around inhabited areas, because in most cases vegetation was cleared many years ago to provide land for development, and for agriculture in the suburbs. The project area is similar to the character to many areas of alluvial delta in Bangladesh with mixed crop vegetation. Rice, other grains and seasonal vegetables are the main crops in this area. Terrestrial plants are now mainly limited to trees, shrubs and flowers grown alongside roads and in parks and gardens, and the crops and fruit trees planted in agricultural areas. The composition of plant community includes low growing grasses and herbaceous vegetation as well as other flora. No wild animals inhabit and endangered species are present in this area. The common birds like crow, sparrow, mayna, etc and some domestic cattle, no other wild animals inhabit the area. No forestland is involved in this area are found surrounding the proposed subproject locations.

Photograph: Homestead Forest along the Road Side

Aquatic Flora and Fauna

The main aquatic flora in this area is Kalmilata (*Ipomoea reprans*), Shapla (*Nymphaea lotus*) Helencha (*Alternathera philoxeroides*), Kuchuripana (*Eihhcormia crassipes*). The main aquatic fauna in this area are different types of fishes. The fresh water fishes are carp (Rui, Catla, Mrigal, Ghania, Kalibaus, etc.) catfish (Boal, Bacha, etc.) and live fish (Koi, Singh, Magur, etc.). The stretch of that rivers provide a habitat for a wide variety of fishes and shellfish species which include carp (Rui, Catla, Mrigal, Ghania, Kalibaus etc) catfish (Boal, Pangas, Shilong, Bacha etc) and live fish (Koi, Singh, Magur etc). The other fauna is tortoise, frogs, water snake etc.

3.2.4 Socio-economic Environment

Demography

The project location has been experiencing rapid industrial growth and urbanization since 2000. With the growth of industry and demand for housing in the area, agricultural land has largely disappeared in the core industrial areas. Kaliakair (Town) consists of 4 mouzas with an area of 5.37 sq km. It has a population of 10374; male 57.61%, female 42.39%; density of population is 1932 per sq km. Literacy rate among the town people is 51.2%. According to 1991 data, the sex ratio of the Upazilla is 105 males per 100 females. The decadal population growth ratio is 40.51% and annual compounded growth rate is 3.46%. (BBS, 2006)

Settlement Pattern

The town is gradually expanding centering round Talibabad Satellite Ground Centre, Bangladesh Adventist Seminary and College (Banglapedia, 2006). It is certain that, over the next 40 to 60 years, the density of rural settlement in Kaliakoir Upazila will markedly increase. This will increase the absolute number of people at risk from climatic variations and extremes. It is clear that densities in rural and urban areas will increase, exposing settlements to the full range of climatic extremes.

Kaliakoir Upazila is an industrial site where rapid industrial expansion has led to serious local pollution. This area was historically a prime rice growing area but the number of industries locating there has steadily grown over the past 15 years. There are now several types of industry in the area but it is dominated by textile manufacturers, including dyeing and printing units, as well as poultry farms, some pharmaceutical industries.

Land Use and Water Use Pattern

Most of the surrounding areas are developing industrial & rural in nature. There are many industries operating in the area. Some scattered small houses, vacant & low lands with paddy fields, commercial activities are found around the project site. Proper use of land can bring prosperity in production & growth. The productivity of land is very high & present agricultural production can be increased to a large extent with intensive cultivation.

Fisheries

Fresh water fish habitat such as river, pond (23 nos. fish ponds) and ditches exist in and around the cluster, which provide shelter, feeding, and spawning ground for different types of fresh water fish species. Large-scale human intervention for catching fresh water fishes from their natural habitat/Turag River has been observed. The reproduction, breeding and multiplication of aquatic fishes are very finely tuned and adjusted to the rhythm and amplitude of monsoon flooding in and around the proposed cluster. There are many fishermen within the cluster whose income source is mainly fishing from the Turag River as well as natural canals. Due to river water pollution by industries fish resources are decreased, as reported by local fishermen. Main fisfes are rui, bain, tengra, baila, taki, boal, mrigel etc.

Industries and Commerce

Ten industries & 7 bazars/markets have been identified within the project influence area of the subproject (Table 3.4).

Socio-cultural, Religious and Archeological Sites

There are several cultural, religious and medical structures (6 schools, 1 graveyard, 7 mosques and 2 medical centres); have been identified within the project influence area (Table 3.4).

There are no archaeological structures / monuments or sites that are of significance in the vicinity of the subproject locations.

Important Environmental Features/Hotspots

The project influence area (PIA) for the proposed road maintenance site of RTIP-II (Additional Financing) was confined within a radius of 1 km from the center of the road since the nature of the project is such that most of the potential impacts are likely to occur within this area (Figure 3.3). Locations of major environmental hotspots/features along the road are shown in the Table 3.5 from the Consultant's Survey Report.

Table 3.5: Important Environmental Features (IEFs)/Hotspots at the Road Sides along the Mouchak to Fulbaria Road Maintenance Sub-project

Chainage (km)	IEFs	Road Side	Comments
0+010	Police Station	LS	It is located at about 20m far from the CL of the road
0+000 to 2+300	Markets	LS/RS	Several Markets are located along the both sides of the road
0+020	School	LS	Mowchak Gov. Primary School is located at about 20 m far from the CL of the road
0+030	Hospital	LS	Sufia Hospital is along the road
0+600	Mosque	RS	Along the road
0+800	Industry	LS	Marico industry is along the road
0+900	Industry	LS	Likko knitting industry is along the road
1+100	Industry	LS/RS	Remo industry (big industry)/Sandip textile
1+200	Industry	RS	Along the road
1+500	Industry	LS	Aftab industrial park is located close to road
1+600	Industry	LS	Aftab global textile is located close to road

Chainage (km)	IEFs	Road Side	Comments
1+800	Industry	RS	DAF Accessories ltd.
1+950	Rail crossing	CL	Dhaka –Tangail Railway line crosses the road
2+100	Community Clinic	R	About 800m far from CL of thr road
2+250	Industry	LS	BEO apparel ltd.
2+400	Bazar	LS/RS	Bhannara bazar
2+400	Mosque	RS	Mosque at Bhannara bazar
3+100 to 5+500	Nursery	LS/RS	Nursery garden is located both sides of the road
4+500	Mosque	RS	Along the road at 5m far
5+000	Madrasha and small bazar	LS/RS	Madrasha is located left side of the road
5+900	Mosque	LS	Close to project road maintenance
6+000	Pond	LS	Beside the road and is used for fish culture
6+100	Bazar	LS/RS	Lasker bazar is established at Thakurpara
6+800	Chicken farm	LS	It is 15 m far from the CL of road
6+750	Madrasha	LS	It is 20 m far from the CL of road
7+200	Union Parishad Office	RS	Along the road at 10m far
7+6500	Bashundhara Housing Society	RS	It is situated right side of the road
7+750	Graveyard	LS	Along the road at about 10m far
7+800	Pond	LS/RS	Beside the road and is used for fish culture.
8+300	Industry	LS	Beside the road
8+400	School	LS	Located at about 20m far from the CL
8+600	Mosque	LS	Along the road at 10m far from the CL
8+800	Pond	RS	Beside the road and is used for fish culture
9+000	Tower	RS	Tower is located 20m far from the CL of the road
9+100	Mosque	RS	At about 12m far from CL
9+500	Pond	RS	Fish culture at ditches and it is almost 200m far from the road
11+100	RCC Bridge	CL	105 m long single lane bridge over the Turag River. The Turag is stable but almost meandering river. Structural and hydrological condition of the bridge is good. Turag is navigable river.
11+150	School	RS	It is 50m far from the road
11+500	Chicken farm	LS	It is 20 m far from the road
11+550	Pond	LS	Beside the road
11+650	Pond	LS	Beside the road
11+900	Pond	LS	Beside the road
12+900	Bazar	LS/RS	Sonatala Bazar
13+000	Graveyard	RS	About 50m far from the road
13+500	Mosque	LS	About 5m from the road side.
13+600	Industry	LS	Beside the road
14+400	Community Clinic	L	250m far from CL
15+600	Bazar	LS/RS	Gachbari Bazar is located along the road

Chainage (km)	IEFs	Road Side	Comments
15+600	Tower	RS	Mobile tower is located at Gachbari bazar
16+600	Box Culvert	CL	5mX5m box culvert over a canal
18+000	School	RS	Along the road at about 6m far.
19+100 to 20+000	16 ponds	RS/LS	16 big fish cultured ponds are located. At both sides of the road.
20+400	Industry	RS	Wood Mills
20+700	Bazar	LS/RS	Fulbaria bazar is mainly located along the road side (L/S)
20+800	Union Parishad Office	LS	It is 10m far from the road alignment

Note: From Chainage: 1+000 to end densely trees were observed at both sides of the road; LS=left side, RS=right side, CL=center line.

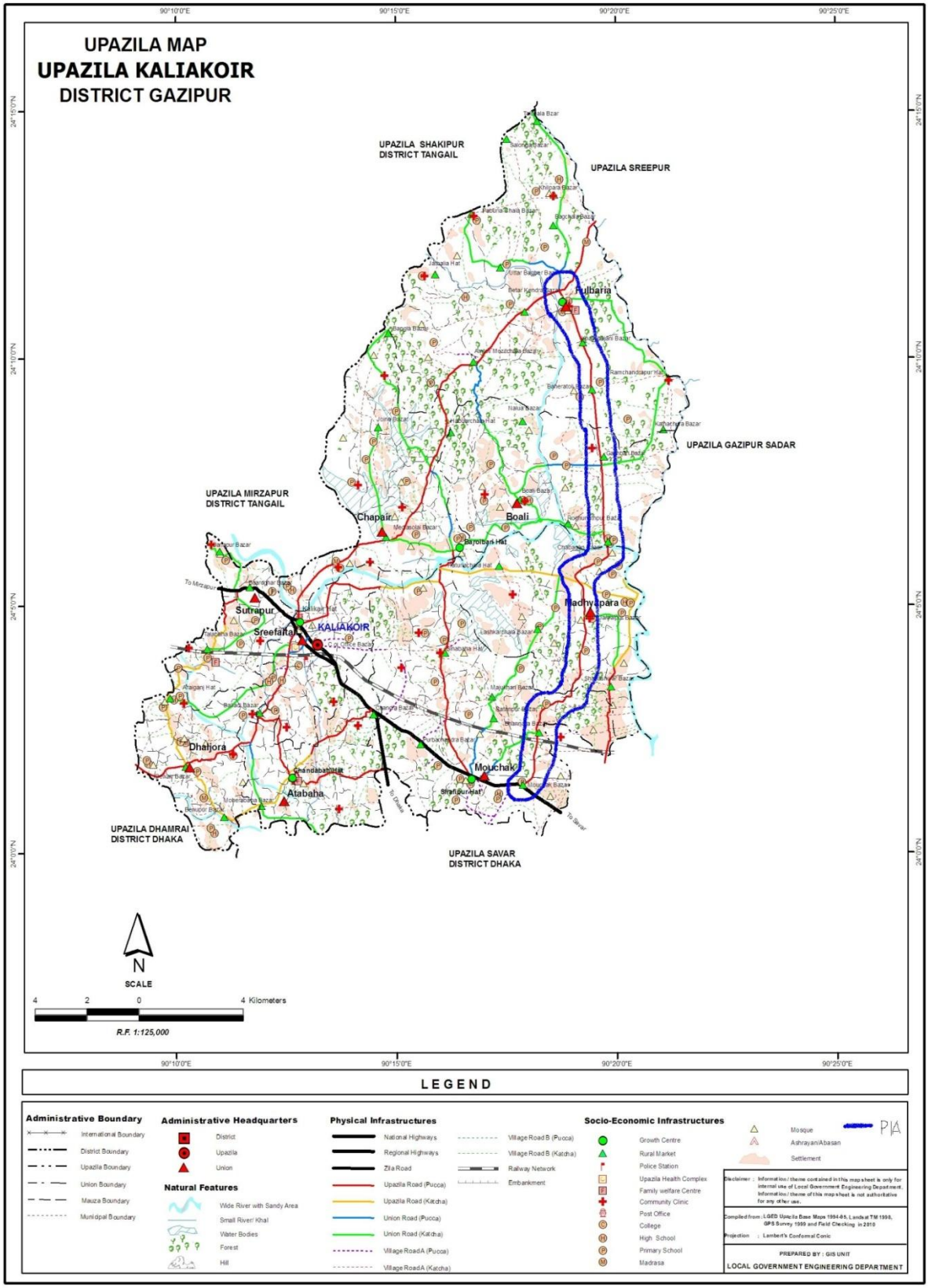


Figure 3.3: Location of Mouchak-Fulbaria Road Maintenance

4. ENVIRONMENTAL MANAGEMENT PROCEDURE

4.1 Introduction

The Environmental Management Procedure establishes the criteria to identify the level of Environmental Assessment (EA) and the processes involved, their sequence to conduct the EA studies for various components/phases of the rural road improvements, rural road maintenance including their legal requirements and implications (Figure 4.1). Comprehending the level of EA will help the RTIP-II (Additional Financing) in assessing the requirement of external agency in the form of consultancy services and also the stage of such requirement, like Design Consultant at planning and design stages and Construction Supervision Consultant (CSC) at construction stage etc.

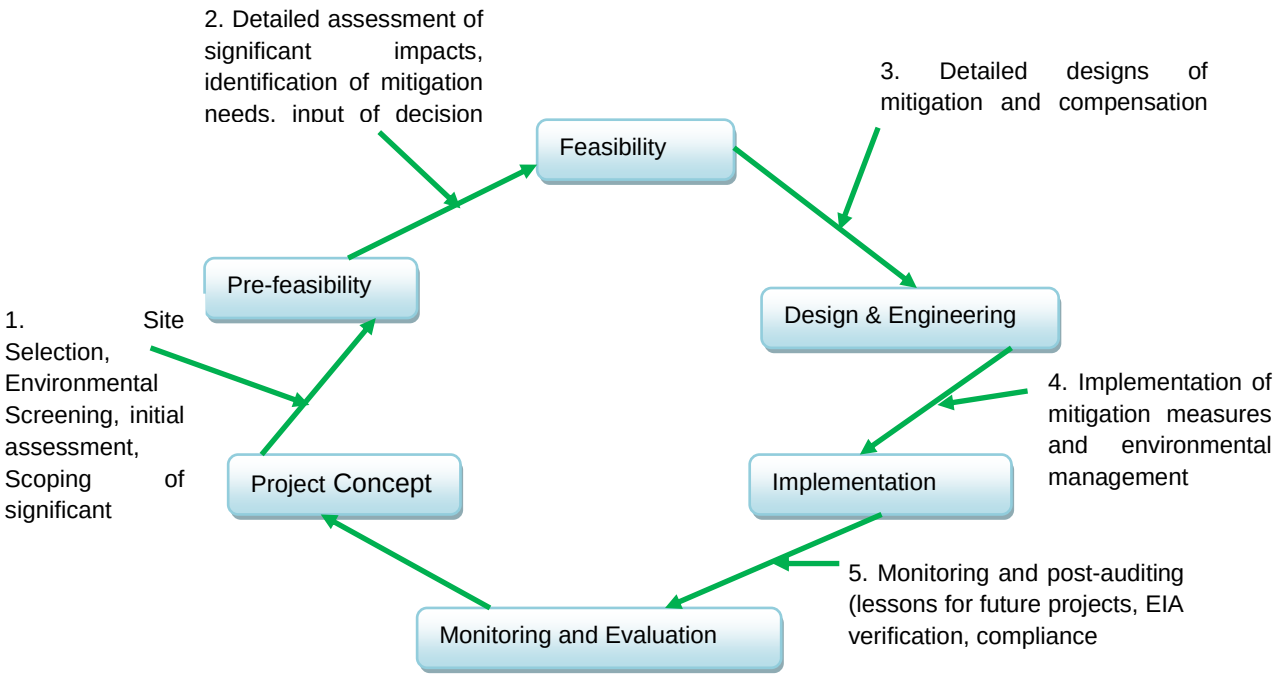


Figure 4.1: Environmental Management Procedurein Project Life Cycle

Environmental Management procedure starts at the beginning of the project concept stage. First step is screening of the project components to ascertain the category of Environmental Assessment required.

The category of EA can be assessed by RTIP-II (Additional Financing)or if desired can be offered to some agency or independent environmental expert. It is worth to mention here that any external agency or consultant or expert can help RTIP-II (Additional Financing)in analyzing and reporting of environmental features and parameters, filing the application for clearance and approval, but ultimately the responsibility lies with RTIP-II (Additional Financing). The RTIP-II (Additional Financing)has to ensure that all legal rules and regulations set by the DoE through the Ministry of Environment and Forest (MOEF) are adhering with.

4.2 General Principles for Environmental Management

- The Project Director will be responsible for the environmental compliance monitoring and oversight to ensure overall project environmental compliance. The Consultants that would be hired by LGED would assist the project proponent to carry out this mandate.
- The implementing agency will follow the related government rules (laws, ordinances, acts etc.) and World Bank Operational Policies and Guidelines. This EMF would serve as the basis for ensuring this compliance.
- LGED will submit the EMF to the Department of Environment (DoE) for their review and concurrence.

- LGED will ensure the participation of local community in planning and implementation of sub-projects.
- LGED will be responsible for obtaining and ensuring clearance required from the DoE. The clearance procedure has been mentioned in Section 2.1.19 of Chapter-2.The LGED will be responsible for obtaining environmental clearance for the RTIP-II (Additional Financing) components for which the EIA study is required. For the rest components of the RTIP-II (Additional Financing), LGED will implement themselves without DoE clearance. No project activities will be carried out in and nearby the environmental protected and critical areas as well as in disputed lands or lands restricted for development.
- All the activities proposed under the project will abide by existing Environmental Code of Practices (ECP) prepared under RTIP-II (Additional Financing).

4.3 Environmental Assessment Process of RTIP-II (Additional Financing) Components

Rural Road and Bridge Maintenance and Rehabilitation

- LGED will carry out the environmental screening.
- Management Consultant will review and clear all screening reports.
- LGED will conduct verification of some screening.
- Design consultant will ensure that environmental considerations are given sufficient attention. To this end, it will carry out Environmental Management Plan (EMP) with cost estimate for all rural road maintenance subprojects based on screening criterion.
- Bid documents will prepare by the design consultant and EMP implementation should be done by Contractor.
- RTIP-II (Additional Financing) road improvement works will be supervised by the design consultant and monitoring should be done by management consultant and LGED.
- The project will ensure that the Environmental Management Plan (EMP) based on final environmental screening addresses all potential environmental direct and indirect impacts of the sub-project throughout its life: pre-construction, construction and operation stages and mitigation measures have been taken for it. All the activities of road maintenance will follow existing Environmental Code of Practices (ECP) prepared under RTIP-II (Additional Financing).

4.4 Environmental Assessment Procedure

4.4.1 Regulatory Clearance Requirements and current :

a. Environmental Clearance from the Department of Environment, Ministry of Environment and Forests, Government of Bangladesh? If so, under what category
b. Does Project require any type of Forest clearance? If so provide the details including current status and relevant documents
c. Status of No Objection Certificate (NOC) from the Department of Environment with supporting documents
d. What is the project arrangement (like contract provisions, concession arrangements, etc.) for required construction stage environmental permits/clearance (e.g. quarries, borrow pits, tube wells for construction water, construction camps etc.). Provide the current status
e. Which of the World Bank Safeguard Policies are applicable for the project and how does the project comply with these arrangements (refer www.worldbank.org/safeguard)

4.4.2 Screening

Screening is the process by which the appropriate level and type of EIA is determined for a given project on the basis of its likely environmental impacts. The methodology for screening includes desk study, reconnaissance survey and literature available.

Desk Study: To collect the secondary information and choking out the methodology for carrying out the EA study and fixing of responsibilities of the EA team members for preparing a complete, addressing all issues, Environmental Management Plan.

- Gathering and reviewing existing environmental data (secondary data) relevant to the proposed development, in the form of topo sheets, physical maps, thematic maps showing details of soil type, geology, seismic activity, hydrology etc.
- Collect all the earlier carried out environmental and engineering studies in project influence area.

Reconnaissance survey: to collect the first hand information about the project area and develop a perspective of the entire team and revise the methodology and work programme.

- Verifying the data collected during desk study, assessing the likely impacts, identifying the major/main issues and preparing the methodology for detailed investigation.

Screening Statement: compiles the primary & secondary data thus collected, and checking with the legal framework of Bangladesh Government thus suggesting the requirement/category of the Environmental Assessment Required. There are usually three possible outcomes (categories) of a screening process:

i. Where significant concerns exist or where there is a lot that is unknown about project impacts, a full EIA study is necessary.
ii. If environmental impacts of a project are known and can be easily mitigated, a limited environmental study and mitigation plan may be all that is necessary.
iii. If screening identifies no concerns, further environmental analysis is unnecessary, and the project may proceed without the EIA study.

Subproject wise sample Screening checklists are shown in annex-6 and the workdone screening checklist for four sample subprojects under different subcomponents are shown in annex-7.

Determining Degree of Impact

Once all project environmental aspects will be identified, the level of impact that may result from the following parameters

- type – biophysical, social, health or economic
- nature – direct or indirect, cumulative, etc.
- extent– local, regional, transboundary or global
- timing – immediate/long term
- duration – temporary/permanent
- uncertainty – low likelihood/high probability
- reversibility – reversible/irreversible
- significance* – unimportant/important

An environmental impact is an estimate or judgment of the significance and value of environmental effects on physical, biological, social or economic environment .Low, medium and high representing impact or level of importance associated with a factor. The impact level depends on duration, reversibility, magnitude, benefit, significance etc.

4.4.3 Initial Environmental Examination (IEE)

In addition, the sub-projects will require initial environmental assessment (IEE) based on the requirement of DoE. Based on the extent of environmental impact obtained from the environmental screening, the decision for further environment impact assessment will be taken. In general, rural road improvements with minor environmental impact under RTIP-II (Additional Financing) will require only IEE. Environmental screening is part of the IEE. IEE is considered as the first level of assessment applied project identification and pre-feasibility stage. The IEE addresses the issues at project (sub-project) identification and pre-

feasibility planning stage. The main objective at this stage is to help in defining the project (sub-project) in terms of locations, components and designs. The main activities are to:

- assess regional resources and the effects of past interventions;
- examine the likely project-environment interactions;
- establish an effective people's participation program;
- identify the key environmental issues and the range and potential severity of impacts;
- compare the environmental consequences of project alternatives; and
- prepare an initial EMP.

4.4.4 Description of the Environment

To achieve the following objectives general description and background of physical resources, ecological resources, environmental quality baseline, social and cultural profile, and economic activities will need to be explained in the EIA preparation phase of the subprojects under the RTIP-II (Additional Financing).

- To establish the environmental baseline in the subproject area, and to identify any significant environmental issue;
- To assess these impacts and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures;
- To integrate the environmental issues in the project planning and design;
- To develop appropriate management plans for implementing, monitoring and reporting of the environmental mitigation and enhancement measures suggested.

In order to identify any potential impact on and potential change to the natural and socioeconomic environments, the existing baseline environmental data are to be collected. Baseline will include but not limited to following:

- Primary data/monitoring to define characteristics of the existing environmental condition including soil, water, air, noise, land use, cultural properties and flora and fauna.
  - Monitoring to be carried at critical locations;
  - Identification of residential, commercial, industrial and forest areas for monitoring;
  - Air and noise monitoring at significant location, major settlements, mosques, schools and hospitals etc.;
  - Water monitoring at river/canal/pond and ground water sources near major settlements;
  - Soil monitoring at major settlements, near surface water bodies;
  - Tree inventory to be carried out, in consultation with the Forest Department; and
  - Inventory of cultural, religious and archeological sites will be done along with measurements, details and photographs, consultation will be done for gathering public opinion.
- Secondary data to define meteorological, geology, seismicity, quarries, borrow areas, disposal sites etc.
  - Details of quarry and borrow areas to be used will be collected (photographs, measurements and public opinion) and a comprehensive plan for extracting material will be prepared.
  - Meteorological data from Bangladesh Meteorological Department (BMD), topographic sheets and maps from Survey of Bangladesh (SOB), geological and soil data from Bangladesh Soil Resources Institute, Seismic data from Space Research and Remote Sensing Organization (SPARSO).
- Social data including ownership pattern, identification of tribals, vulnerable social groups, land estimates etc.

- Provide information if any of the following sensitive environmental features are present within the project site/corridor and an influence zone of about 5km, including a brief on the sensitive features:

Sl. No.	Sensitive Environmental Features
1	Biosphere reserves
2	National park and wildlife sanctuaries and reserves
3	Natural lakes, swamps, seismic zones, tribal settlements
4	Notified areas of habitat for migratory birds
5	Areas of scientific and geological interests
6	Religious, heritage, historic sites and cultural properties
7	Notified archaeological monuments/sites
8	Scenic areas, water bodies and areas of tourism importance
9	Hill resorts/mountains/ hills
10	Presence of resorts (beach resorts, health resorts, etc.)
11	Coastal areas rich in corals, mangroves, breeding grounds of specific species, estuaries
12	Defense installations, especially those of security importance and sensitive to pollution
13	Border areas

The EIA report should clearly spell out the site specific environmental issues those are associated with the subproject.

4.4.5 Scoping

The next step in the EA will be to define the RTIP-II (Additional Financing) activities and the natural, regulatory (i.e. legal) and environment of the area in which development will occur. This will be achieved through scoping. Scoping will identifies which of the activities has a potential to interact with the environment. Scoping will be conducted early in the EA process so that a focus on the priority issues (i.e. those that have the greatest potential to affect the natural and/or environment) can be established for the rest of the EA process.

Key elements/inputs to the scoping exercise will be as follows:

- Gathering and reviewing existing environmental data like atmosphere, climate, topography, congestion area, alternative requirement, land use pattern, hydrology and drainage pattern, major river and waterways, religious, cultural and archaeological sites and sensitive areas.
- Identifying project stakeholders; including PAPs, Government and non-government agencies (utilities), Forest Department, Agricultural Department, Department of Environment (DoE) etc.
- Assemble and review relevant legislative requirements, environmental standards and guidelines (national and international) associated with the proposed development as well as the World Bank's operational policies and standards.
- Gathering existing information sources and local knowledge;
- Informing stakeholders of the project and its objectives and get input on the EA;

- Identifying the key environmental concerns (community and scientific) related to a project and the relative importance of issues;
- Defining/preparing the EA work program, including a plan for public and stakeholder involvement;
- Carrying out monitoring of natural environment including air, water, soil, noise etc.
- Defining the range of project alternatives to be considered.
- Obtaining agreement/consensus on the methods and techniques to be used in EA studies and document preparation;
- Determining/freezing the spatial and temporal boundaries for the EA studies.

Focus of scoping will be on the collection and analysis of pertinent data and the assessment of significant environmental attributes. The end result will be a work program which is well focused and cost-effective. The following issues will be addressed through scoping, but will not be limited to.

- To improve the quality of EA information by focusing scientific efforts and EA analysis on truly significant issues;
- To ensure environmental concerns identified and incorporated early in the project planning process, at the same time as cost and design factors are considered;
- To ensure research efforts are not wasted on insignificant issues, rather focused on core issues.
- Reducing the likelihood of overlooking important issues;
- Thinning the chance of prolonged delays and conflicts later in the EA process by engaging stakeholders in a constructive participatory process early in the EA process.

4.4.6 Stakeholder Consultation at all Stages of Project

- Identification of stakeholders primary as well as secondary.
  - Primary stakeholders include people having direct impact.
  - Secondary stakeholders include village representatives, women's group, voluntary organizations NGOs, field level officers and staff, other government officials.
- Structured Consultation
  - Consultation at Village Level
  - Consultation at Upazila and District Level
  - Consultation at Divisional level

Consultation at Village Level

- Along with preliminary inventory and survey information dissemination will be done along the RTIP-II (Additional Financing) area by one by one canvassing about the project. Date and venue for detailed consultation will be fixed.
- Pictorial method (Pamphlet) will be adopted to explain proposed improvements and possible environmental impact in the concerned villages.
- Public consensus would try to be arrived for and mitigation proposed.
- Public suggestion and graveness will be addressed at appropriate level.

Consultation at Upazila and District Level

- Consultation with officers of Agricultural Department, Forest Department, Soil Department, Fisheries Department, Department of Public Health Engineering (DPHE), etc.
- Consultation with the elected representatives and other stakeholders.

Consultation at Divisional level

- Consultation with senior department officers, like DoE office, District Commissioner Offices, Settlement offices etc. and mechanism of regulatory clearance, utility shifting, land acquisition etc.

The Stakeholder Consultation For this RTIP-II (Additional Financing) project is described separately in the Chapter 6.

4.4.7 Impact Identification :

Subprojects wise possible impact are shown below,

Possible Impacts for Rural Road and Bridge Maintenance and Rehabilitaion

Project Activity	Planning & Design Phase	Pre-construction Phase		Construction Phase					Operation	Indirect effect of operation of induced development
Env. Component affected	Land acquisition	Removal of structures	Removal of trees and vegetation	Earth works including quarrying	Laying of pavement	Vehicle & machine operation & maintenance	Concrete & crusher plants	Sanitation & waste (labor camps)	Project operation	
Air		Dust generation during dismantling	Reduced buffering of air and noise pollution, hotter, drier microclimate	Dust generation	Dust due to Aggregates Emission due to hot mix asphalt	SPMs, NOx, SOx	Dust pollution	Odour / smoke	SPMs, NOx, SOx	Other pollution
Land	Loss of productive land	Generation of debris	Erosion and loss of top soil	Erosion and loss of top soil	Spills from Bitumen plants may contaminate	Contamination by fuel and lubricants compaction	Contamination compaction of soil	Contamination from wastes	Spill from accidents deposition of lead	Change in land use
Water		Siltation due to loose earth	siltation due to loose earth	Alternation of drainage break in continuity of ditches siltation, stagnant water pools in quarries	Reduction of ground Water recharge area Spills from Bitumen plants may contaminate	Contamination by fuel and lubricants	Contamination by leakage or fuel	Contamination from wastes overuse	Spill contamination by fuel, lubricants	Increased contamination of ground water
Noise			Noise pollution due to machinery	Noise pollution		Noise pollution	Noise pollution		Noise pollution	Noise pollution

Project Activity	Planning & Design Phase	Pre-construction Phase		Construction Phase					Operation	Indirect effect of operation of induced development
Env. Component affected	Land acquisition	Removal of structures	Removal of trees and vegetation	Earth works including quarrying	Laying of pavement	Vehicle & machine operation & maintenance	Concrete & crusher plants	Sanitation & waste (labor camps)	Project operation	
Vibration				Vibration					Vibration level increase	May impact the surrounding structures
Flora		Loss of biomass		Lowered productivity loss of ground for vegetation		Removal vegetation	Lower productivity use as fuel wood	Felling trees for fuel	Impact of pollution on vegetation lowered productivity toxicity of vegetation	
Fauna			Disturbance habitat loss	Disturbance		Disturbance	Disturbance	Poaching	Collision with traffic	Distorted habitat
People and community		Displacement of people psychological impact on people loss of livelihood	Loss of shade and community trees, loss of fuel wood and fodder, loss of income	Noise and Air pollution	Odour and dust	Noise and air pollution, collision with pedestrians livestock and vehicles	Air and noise pollution and discomfort	Community clashes with migrant labor	Noise pollution, risk of accident	Induced pollution
Utilities and amenities		Interruption in supply				Damage to utility and amenities	Dust accumulation on water bodies	Pressure on existing amenities		
Worker's health and safety				Increase of stagnant water and disease	Asphalt odour and dust	Collisions with vehicles, pedestrian and livestock	Impact on health due to inhale of dust	Increase in communicable diseases	Collisions pedestrians and livestock	

4.4.8 Environmental Management Plan

EMP will be done for the subprojects, in the following order of priority, to:

- Eliminate or avoid adverse impacts, where reasonably achievable.
- Reduce adverse impacts to the lowest reasonably achievable level.
- Regulate adverse impacts to an acceptable level, or to an acceptable time period.
- Create other beneficial impacts to partially or fully substitute for, or counter-balance, adverse effects.

Project specific environmental construction guidelines should be developed. These guidelines should specify precautions and mitigation measures for construction activities, and to be included with the EMP. Good Environmental Construction guidelines has been compiled in Annex 8: Environmental Code of Practice (ECP).

EMP has 2 parts: i) Environmental Mitigation Plan; ii) Environmental Monitoring Plan.

A. Environmental Mitigation Plan

Mitigation measures will be considered starting with Environmental Assessment process. Impacts identified severe in consequence category and or likelihood category will be further analyzed to identify additional mitigation measures that are potentially available to eliminate or reduce the predicted level of impact. Potential mitigation measures will include:

- Habitat compensation program
- Species specific management program
- Engineering design solutions
- Alternative approaches and methods to achieving an activity's objective
- Stakeholders participation in finalizing mitigation measures
- Construction practice, including labour welfare measures.
- Operational control procedures
- Management systems

Based on the past experience, a template for impacts mitigation plan has been presented below for reference. This table will be prepared for three phases of the subprojects, i.e Pre-Construction Activities, Construction Phase Activities and Post-construction Operation & Maintenance Phase Activities.

Sub-project Activity	Potential Environmental Impact(s)	Mitigation Measures	Location	Estimated Mitigation	Responsibility	
					Implementation	Supervision

Environmental Management Measures

Generic Environmental Activities and Management Measures for RTIP-II (Additional Financing) are addressed and shown in the table below.

Sl. No.	Environmental Parameter	Specification
Effective Implementation of Environmental Management Measures		
1. Soil/Aggregate		
1.1	Disposal of Debris and Other Wastes	No-objection from land owner / Revenue Authorities as may be applicable. Disposal Areas ▪ No residential areas are located downwind side of these locations; ▪ Dumping sites are located at least 1000 m away from sensitive locations such as all notified forestlands, all water bodies, and productive lands ▪ Available waste lands are given preference. Specifications for Waste Disposal ▪ In case of bituminous wastes, debris are to be disposed in a minimum 60cm thick clay lined pits so as to eliminate any chances of leaching and top layer shall be covered with soil/good earth so as to enable natural re-vegetation of the disposed area/site. Care should be taken not to dispose these wastes near farmland and water bodies. ▪ In case of filling of low-lying areas with wastes, it needs to be ensured that the level matches with the surrounding areas. In this case care should be taken that these low lying areas are not used for rainwater storage ▪ In case oil and grease are trapped for reuse in a minimum 60cm thick lined pit, care shall be taken to ensure that the pit should be located at the lowest end of the site and away from the residential areas. ▪ All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary will be planned and implemented as approved and directed by the Engineer.
1.2	Borrowing of Earth (in case of opening of new borrow areas)	Borrow Area Selection Borrowing within the ROW is prohibited. However, earth available from excavation for road side drains as per design, may be used as embankment material (if necessary and applicable), subject to approval of the Engineer, with respect to acceptability of material. Borrowing to be avoided on the following areas: ▪ Lands close to toe line and within 0.5 km from toe line. ▪ Irrigated agricultural lands (In case of necessity for borrowing from such lands, the topsoil shall be preserved in stockpiles. ▪ Grazing land. ▪ Lands within 1km of settlements. ▪ Environmentally sensitive areas such as reserve forests, protected forests, sanctuary, wetlands. Also, a distance of 500 m should be maintained from such areas. ▪ Unstable side-hills. ▪ Water-bodies (only if permitted by the local authority, and with specific pre-approved redevelopment plans by the concerned authority and engineer-in-charge) ▪ Streams and seepage areas.

Sl. No.	Environmental Parameter	Specification
		▪ Areas supporting rare plant/ animal species; Documentation of Borrow Pit The contractor must ensure that following data base must be documented for each identified borrow areas before commencing the borrowing activity that provide the basis of the redevelopment plan. ▪ Chainage along with offset distance; ▪ Area (Sq.m); ▪ Photograph and plan of the borrow area from all sides; ▪ Type of access/width/kutcha/pucca etc. from the roadway; ▪ Soil type, Slope/drainage characteristics; ▪ Water table of the area or identify from the nearest well, etc; ▪ Existing land use, for example barren / agricultural / grazing land; ▪ Location/name/population of the nearest settlement from borrow area; ▪ Quantity excavated (likely and actual) and its use; ▪ Copy of agreement with owner/government; and ▪ Community facility in the vicinity of borrow pit. ▪ Rehabilitation certificate from the land owner along with at least four photograph of the rehabilitated site from different angles.
1.3	Contamination of Soil by Fuel and Lubrican	Location of fuel storage and refilling areas at least 500m from all cross drainage structures and important water bodies and storing of fuel and lubricants on a sand flooring of at least 6" thick, done on brick edge flooring lined with polyethylene sheet
1.4	Quarry Operations and Management (if new quarries are opened)	To minimize the adverse impact during excavation of material following measures are need to be undertaken: ▪ Adequate drainage system shall be provided to the excavated area ▪ At the stockpiling locations, the Contractor shall construct sediment barriers to prevent the erosion of excavated material due to runoff. ▪ Construction of offices, laboratory, workshop and rest places shall be done in the up-wind of the plant to minimize the adverse impact due to dust and noise. ▪ The access road to the plant shall be constructed taking into consideration location of units and also slope of the ground to regulate the vehicle movement within the plant. The followings precautions shall be undertaken during quarry operations. ▪ Overburden shall be removed. ▪ During excavation slopes shall be flatter than 20 degrees to prevent their sliding. ▪ In case of blasting, the procedure and safety measures shall be taken as per DoE guidelines. ▪ The Contractor shall ensure that all workers related safety measures shall be taken. ▪ The Contractor shall ensure maintenance of crushers regularly as per manufacturer's recommendation. ▪ During transportation of the material, measures shall be taken to minimize the generation of dust and to prevent accidents.
2. Water		
2.1	Labor Camp, Sanitation and Waste Disposal in	Construction labor camps shall be located at least 500m away from the nearest habitation complying all relevant legal requirements.

Sl. No.	Environmental Parameter	Specification
	Construction Camps	
3. Air Pollution		
3.1	Generation of Dust	▪ All vehicles delivering materials should be provided with tail guard and shall be covered to avoid spillage of materials. ▪ No fugitive dust emission at settlement sites arising from maintenance activities shall be allowed. All such operation leading to dust pollution in settlement areas shall be performed with necessary dust suppression by adequate water sprinkling to keep the dust below visible limit. Such measures shall be taken to ensure no dust pollution arises from construction stock piles
3.2	Concrete Mix Plants and Batching Plants	▪ Concrete mix plants to be used at least 1000m from the nearest habitation in the cross wind direction. ▪ In case if new Concrete mix plants/Batching plants are set up, the conditions of DoE shall be strictly adhered
3.3	Odor from Construction Labor Camps.	▪ Construction worker's camp shall be located at least 500 m away from the nearest habitation. ▪ The waste disposal and sewerage system for the camp shall be properly designed, built and operated so that no odour is generated.
3.4	Pollution from Crusher	All crushers used in construction shall confirm to relevant dust emissions control stipulated as per DoE norms
4. Noise Pollution		
4.1	Noise from Vehicles, Plants and Equipment	▪ Any activities related to road maintenance operations and/or associated facilities near settlements shall not be carried out during night time (10:00 PM to 6.00 AM). ▪ Workers in vicinity of strong noise, and workers working with or in crushing, compaction, batching or concrete mixing operations shall wear earplugs.
5. Flora and Fauna		
5.1	Loss or Damage of Vegetation	▪ All works shall be carried out in a fashion that ensures minimum damage or disruption to the flora. Prior tree felling permission under Forest Act will be obtained before felling any tree. Trees or shrubs will only be felled or removed that impinge directly on the permanent works or necessary temporary works with prior approval from the Engineer. ▪ The Engineer shall approve such felling; only when the proponent secures receives a "clearance" for such felling from the DOF, as applicable.
5.2	Loss, Damage or Disruption to Fauna	▪ All works shall be carried out in a fashion to ensure minimum damage to the fauna. ▪ Construction workers shall be instructed to protect natural resources and fauna, including wild animals and aquatic life, Hunting and unauthorized fishing are prohibited.
6. Disruption to Users		
6.1	Loss of Access	▪ At all times, the Contractor shall provide safe and convenient passage for vehicles, pedestrians and livestock to and from side roads and property accesses connecting the project corridor. Work that affects the use of side roads and existing accesses shall not be undertaken without providing adequate provisions to the prior satisfaction of the

Sl. No.	Environmental Parameter	Specification
		Engineer. ▪ The works shall not interfere unnecessarily or improperly with the convenience of public or the access to, use and occupation of public or private roads, and any other access footpaths to or of properties whether public or private.
6.2	Traffic Jams and Congestion in Road Crossing Areas	▪ Detailed Traffic Management Plans (TMP) shall be prepared and submitted to the Engineer for approval 5 days prior to commencement of maintenance works on any cross-section with road. The traffic control plans shall contain details of temporary diversions, details of arrangements for construction under traffic and details of traffic arrangements after cession of work each day. ▪ Temporary diversion for road traffic (including scheme of temporary and acquisition) will be constructed with the approval of the Engineer. ▪ Special consideration shall be given in the preparation of the traffic control plan to the safety of pedestrians and workers at night ▪ The contractor shall ensure that the running surface is always maintained within diversion guidelines, particularly during the monsoon so that the traffic flow is smooth at all times. ▪ The temporary traffic detours in settlement areas shall be kept free of dust by frequent application of water.
6.3	Traffic Control and Safety	▪ The Contractor shall take all necessary measures for the safety of traffic during construction and provide, erect and maintain such barricades, including signs, markings, flags, lights and flagmen as may be required by the Engineer for the information and protection of traffic approaching or passing through the cross section. ▪ All signs, barricades, pavement markings shall be as per road specification.
7. WORKERS' ACCIDENT RISKS		
7.1	Risk from Operations	The Contractor is required to comply with all the precautions as required for the safety of the workmen as per the International Labor Organization (ILO) convention. The contractor shall supply all necessary safety appliances such as safety goggles, helmets, masks, books, etc., to the workers and staff. The contractor has to comply with all regulation regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress.
7.2	Risk from Electrical Equipment	Adequate precautions will be taken to prevent danger from electrical equipment. No materials on any of the sites will be so stacked or placed as to cause danger or inconvenience to any person or the public. All necessary fencing and lights will be provided to protect the public. All machines to be used in the construction will conform to the relevant Bangladesh Standards (BS) codes, will be free from patent defect, will be kept in good working order, will be regularly inspected and properly maintained as per BS provisions and to the satisfaction of the Engineer.
7.3	Risk at Hazardous Activity	All workers employed on mixing material, cement, lime mortars, concrete etc., will be provided with protective footwear and protective goggles. Workers, who are engaged in welding works, would be provided with welder's protective eye-shields. Stone-breakers will be provided with protective goggles and clothing and will be seated at sufficiently safe intervals.
7.4	Malarial Risk	The Contractor shall, at his own expense, conform to all anti-malarial

Sl. No.	Environmental Parameter	Specification
		instructions given to him by the Engineer and the EMU, including filling up any borrow pits which may have been dug by him.
8. WORKERS' RESIDENCE AND HEALTH CONCERNS		
8.1	First Aid	▪ Medical facilities shall be provided to the labor at the construction camp. Visits of doctor shall be arranged twice a month wherein routine checkups would be conducted for women and children. A separate room for medical checkups and keeping of first aid facilities should be built. Workplaces remote and far away from regular hospitals will have indoor health units with one bed for every 250 workers. Suitable transport will be provided to facilitate take injured or ill person(s) to the nearest approachable hospital. ▪ First Aid Box will be provided at every construction campsite and under the charge of a responsible person who shall always be readily available during working hours.
8.2	Payment of Wages	▪ The payment of wages should be as per the Minimum Wages Act, Department of Labor, and Government of Bangladesh for both male and female workers. ▪ Display of the minimum wages board at camps and major construction sites should be done in local languages at the construction and labor camp sites. ▪ Wages should be paid to the laborers only in the presence of RTIP-II (Additional Financing) staff; ▪ Contractor is required to maintain register for payment of labor wages with entry of every labor working for him. Also, he has to produce it for verification if and when asked by the Engineer, EMU and/or the concerned RTIP-II (ADDITIONAL FINANCING) staff/Engineer's representative.
8.3	Rehabilitation of Labor and Construction Camp	At the completion of construction, all construction camp facilities shall be dismantled and removed from the site. The site shall be restored to a condition in no way inferior to the condition prior to commencement of the works. Various activities to be carried out for site rehabilitation include: ▪ Oil and fuel contaminated soil shall be removed and transported and buried in waste disposal areas. ▪ Soak pits, septic tanks shall be covered and effectively sealed off. ▪ Debris (rejected material) should be disposed of suitably. ▪ Underground water tank in a barren/non-agricultural land can be covered. However, in an agricultural land, the tank shall be removed. ▪ If the construction camp site is on an agricultural land, preserve top soil and good earth can be spread back for a minimum 30cm for faster rejuvenation of the land. ▪ Proper documentation of rehabilitation site is necessary. This shall include the following: - Photograph of rehabilitated site; - Land owner consent letter for satisfaction in measures taken for rehabilitation of site; and - Undertaking from contractor; In cases, where the construction camps site is located on a private land

Sl. No.	Environmental Parameter	Specification
		holding, the contractor would still have to restore the campsite as per this guideline. The rehabilitation is mandatory and should be include in the agreement with the landowner by the contractor. Also, he would have to obtain a certificate for satisfaction from the landowner.
9. DAMAGE AND LOSS OF CULTURAL PROPERTIES		
9.1	Conservation of Religious Structures and Shrines	▪ All necessary and adequate care shall be taken to minimize impact on cultural properties which includes cultural sites and remains, places of worship including temples, mosques, churches and shrines, etc., graveyards, monuments and any other important structures as identified during design and all properties / sites / remains notified. No work shall spill over to these properties, premises and precincts. The design options for cultural property relocation and enhancement need to be prepared. ▪ All conservation and protection measures will be taken up as per design. Access to such properties from the road shall be maintained clear and clean.
9.2	Chance found Archaeological Property	▪ During earth excavation, if any property is unearthed and seems to be culturally significant or likely to have archaeological significance, the same shall be intimated to the Engineer. Work shall be suspended until further orders from the PD. The Archaeological Department shall be intimated of the chance find and the Engineer shall carry out a join inspection with the department. Actions as appropriate shall be intimated to the Contractor along with the probable date for resuming the work. ▪ All fossils, coins, articles of value of antiquity and structures and other remains or things of geological or archaeological interest discovered on the site shall be the property of the Government, and shall be dealt with as per provisions of the relevant legislation.
10. ENVIRONMENTAL ENHANCEMENT		
10.1	RTIP-II (Additional Financing) Landscape	Protect all the trees, re-vegetation of RTIP-II (Additional Financing) project road embankments and other slopes, edge treatment of water bodies shall be taken up as per either detailed design or typical design guidelines given as part of the bid documents.

4..4.8.1 Potential Environmental Impacts And Mitigation Measures For Each Subcomponent

Rural Road and Bridge Maintenance and Rehabilitation

The main activities of the subprojects are as follows:

- Construction Camp;
- Earth works for filling of deep potholes;
- Repairing of bridges/culverts;
- Bituminous pavement works for pothole & crack repairing;
- Slope protection repairing works for road & bridge/culvert
- Removal of construction waste.

The potential impacts along with possible mitigation measures due to the above subproject activities are given below.

➢ ***Preconstruction Phase***

Impacts- Due to implementation of the subproject the following potential negative impacts will be occurred:

- loss of land including agricultural, commercial and homestead;
- loss of buildings such as homestead, bazaars, religious, cultural, etc.;
- loss of crop production due to widening of existing road;
- loss of income; and
- loss of trees due to widening of road.

Mitigation- To minimize the above impacts, the possible mitigation measures are recommended:

- To ensure that adverse impacts on the community, agricultural and commercial will be avoided, mitigated or compensated.
- To ensure similar or better living conditions for project affected persons (PAPs) for the limited period of time their livelihood may be interrupted.
- Formulate a comprehensive Compensation Plan with due consideration to the 'Social Safeguard Framework for RTIP-II (Additional Financing) in LGED as agreed between WB and Government of Bangladesh to be implemented whenever community along the road is affected adversely.
- Replantation of suitable trees (wood 50%, fruit 30%, fuel 10% & medicine 10%) on the road side slopes during operation stage.
- Conduct public consultations on the compensation package and implement the Compensation Plan where necessary.

➢ ***Construction Phase***

Construction impacts on road maintenance will consider being negligible as all the construction works will be carried out within the site boundary and will be controlled via the mitigation measures.

- **Earthworks**

Impacts-The earthworks for the rural road maintenance sub-project activities might affect crop production; hinder drainage etc. within the subproject area and in the vicinity. Direct impacts of embankment improvement are erosion on embankment slopes, deposition of silt on crop fields, dust blowing, noise and vibration to disturb the local people.

Mitigation Measures- Cutting and filling of land for the rural road maintenance sub-project will be done in such a way that the slope or toe of the road embankment should be within right of way and will not disrupt crop production as well as drainage problems.

- **Dust**

Impacts- Possible sources of air pollution will be dust due to rural road maintenance activities, machinery movement and other sources. Maintenance works involve breaking up, digging, crushing, transporting, and dumping small quantities of dry materials.

Mitigation Measures- Spraying of water is the main way of controlling dust. Water is, in any case, required to be added to fill material during the construction of the road base. Spraying of road surfaces, including haul roads from borrow pits and quarries, should be undertaken during construction, particularly in the vicinity of villages.

- **Topography, Geology, and Soils**

Impacts-The main impacts generating activities during maintenance will be clearing of right-of-way, cutting and filling, blasting, and dismantling damaged pavements and borrows pits. The topography along the rural roads will change to some extent because of filling and cutting of soil, filling and improvement of project related structures.

Loss of productive soil, albeit during the construction stage only, is envisaged at locations of workers camps, storage, go downs etc. (for the duration of construction) if these are located on fertile areas. The EMP can ensure that no productive areas are used for these purposes and avoid adverse impact. In any case, though it would be a direct impact, it would be reversible as the soil can be stockpile and replace after the construction is complete and the worker camps etc. are closed.

Mitigation Measures-To avoid landslides, land stabilization will be included in the rural road maintenance. Visual changes to the landscape will have no mitigation measures, but the rural road improvements should consider aesthetic concerns. Tree planting along the rural road improvements sub-project area should be properly planned.

- **Occupational Health and Safety**

Impacts- Roads in good condition will reduce traffic blocks, engine idle time and damage to motor vehicles. The ensuing benefits to public health and economy though marginal will also add to the main benefit of smooth and faster traffic flow. Construction workers may be affected adversely due to hazardous working environments where high noise, dust, unsafe movement of machinery etc. may be present. The construction of a high-speed road can lead to severance issues.

Mitigation Measures-The contractor shall instruct his workers in health and safety matters, and requires the workers to use the provided safety equipment. Arranging for provision of first aid facilities, rapid availability of trained paramedical personnel, and emergency transport to nearest hospital with accident and emergency facilities should be available. The contractor will responsible for ensuring that all construction vehicles observe speed limits on the construction sites and on public roads.

- **Socio-economic**

Impacts-The project maintenance of the rural road maintenance will (i) reduce travel time; (ii) ensure uninterrupted traffic and; (iii) increase economic activities in the region. The social development outcomes of the project will include increased employment due to augmentation of the regional trade and thereby reduce poverty in the long run.

Mitigation Measures-All the above adverse impacts of construction phase are localized in spatial extent, temporary and short in duration and can be mitigated by good standard construction practices. Provide alternative sites for vendors/micro businesses and houses using or are in the right of way. These sites should be selected to facilitate equal or enhanced income/living conditions. Schedule the construction activities to avoid or minimize impact on road side shops, businesses and houses.

The project authorities might employ local people wherever possible, hopefully with preference to the qualified landless and jobless poor of the rural road maintenance areas ensuring socio-economic enhancement in the real terms.

- **Bituminous pavement works**

Impacts-

- Spills from Bitumen plants may contaminate surrounding area as well surface water quality.
- Generated emission and polluted air due to burning of asphalt.

Mitigation Measures - Careful management of any petroleum products used in the preparation of the bitumen mixture to avoid spills and contamination of the local water table. Using of hot mix plants, crushers and batching plants with adequate stack height will minimize the effect due to emission. Tree plantation on the slopes all along the approach road, construction yards, construction camps, to reduce the effect of emission of dust and pollutants on the adjacent/nearby communities

In the selection of borrow areas for the subproject, productive agricultural areas will be avoided for borrowing of materials. The workers camps, storage and godowns will not be established at agricultural land. In case productive areas are taken for storage or workers' camp, the post construction rehabilitation will be ensured.

In case of damages of trees/plants due to bitumen heating, adequate plantation needs to be confirmed in the damaged area to ensure the green environment.

- **Surface Water Quality**

Impacts- Surface water quality of the water bodies such as ponds, canals, rivers, and in close proximity to the rural road maintenance sub-project construction sites may deteriorate if construction material including borrowed fill material and sand, construction waste, water used in construction activities and domestic effluent from work camps will allowed to reach the receiving water bodies. Surface water quality in the rivers and other water bodies could be affected due to rise of suspended solids that could affect the living conditions of aquatic flora and fauna. The sources of the contamination could be:

- removal of vegetation cover could cause local erosion; and
- movement of heavy building machinery can cause the rise in amounts of suspended solids in the surface water.

Mitigation Measures - Proper construction management including, training of operators and other workers to avoid pollution of water bodies by the operation of construction machinery and equipment. Temporary construction facilities including structures and material stockpiles shall be located at least 50 m away from water bodies. Construction of small bridges and culverts should be done during dry season as much as possible.

- **Ground Water Quality**

Impacts-Impact on ground water will anticipated due to seepage of untreated waste from workers' camps, discharges from the service facilities, storage depots, etc

Mitigation Measures-Proper sanitary conditions and treatment facilities and regular monitoring need to be ensured toward making such wastes and effluents correspond to acceptable standards.

- **Air Quality**

Impacts-Construction works will involve breaking up, digging, crushing, transporting, and dumping large quantities of dry material. It will inevitably lead to an increase in suspended particulate matter (SPM) in and around the construction zones. Possible sources of air pollution will be dust due to construction activities, machinery movement and other sources.

Mitigation Measures- Spraying of water is the main way of controlling dust. Water is, in any case, required to be added to fill material during the construction of the road base. Spraying of road surfaces, including haul roads from borrow pits and quarries, should be undertaken regularly during construction, particularly in the vicinity of villages. Excessive exposure should be avoided; therefore, the asphalt and crushing plants should not be placed near residential areas or social infrastructure such as mosques, schools, markets etc. At least 0.5-1 km should be placed between these facilities and residential areas or social infrastructure.

- **Noise and Vibration**

Impacts-A significant increase in noise is expected during construction specially during driving of piles at culvert and bridge sites. Noise and vibration levels in and around the construction sites could increase as a result of operating construction machinery and during unloading and loading of material. The main sources are heavy machinery such as bulldozers, excavators, stabilizers, concrete mixing plant, drills, and stone crushers.

Mitigation Measures-All powered mechanical equipment and machinery shall be fitted with noise abating gear such as mufflers for effective sound reducing, in full compliance with the DoE regulations. Prior to the blasting the elementary precautions should be undertaken. Also, health and safety equipment, such as helmets, masks, ear plugs, hand gloves and boots should be used. The visual and audible warnings should be presented to the people. The noisiest operations should be performed during daytime. Proper equipment maintenance and restricted operation between 0700 to 1800 hours will reduce noise.

- **Hydrology/ Drainage Congestion**

Impacts-The potential risk of erosion will increase during rural road improvements if the culverts and bridges crossings improvements are provided with waterway width less than the regime width of the canal and river. The portion of the road that is in contact with canal and river will be provided with slope protection measures. Adequate drainage structures need to be provided at appropriate location of the road.

Mitigation Measures-Provision of adequate waterway opening of the bridges/culverts should be included in the design and implement accordingly. River bank revetment works should be done to protect the roads from river bank erosion. In the short-term, either temporary or permanent drainage works shall protect all areas susceptible to erosion, flood damage and rainfall. Drainage facilities need to be provided in the diversion road at the bridge/culvert construction sites to avoid temporary drainage congestion.

- **Flora, Fauna and Livestock**

Impacts-Wildlife and livestock of the rural road widenning area will be affected by the activities during the construction. There will be number of trees in area of influence. These trees and bushes are at high risk of being cut for the construction or the heating or cooking in the camps. The natural and planted vegetation in the rural road improvements area of influence, especially in the immediate vicinity of the rural road sub-project area, will be subjected to disturbance and removal during the construction.

Mitigation Measures-Try to avoid using trees/bushes as fuel for the construction & general purposes. Special care should be taken to preserve the lives and health of all animals that cross the road. The plant cover should be repaired after the construction, especially with fast growing species on suitable sites on embankment slopes. All construction related disturbances will be expected to be temporary and the situation will be restored after the construction is over.

- ***Operation Phase***

  - **Noise Quality**

Impacts-During operation, passing vehicles will generate noise. Noise levels may also marginally increase as more vehicles use the rural road maintenance at higher speeds. In open areas, traffic noise will disperse and will create a minor impact. Impact on the traffic noise due to operational activities after completion of the rural road maintenance would be minimal.

Mitigation Measures-In sensitive areas such as schools, mosques, bazar, settlement areas etc., sound barriers including berms and tree linings may be required. Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.

  - **Air Quality**

Impacts-Levels of air pollutants could increase marginally as more vehicles would use the roads after maintenance of the rural road sub-project. Impact on the air quality due to operational activities after completion of the rural road maintenance would be minimal. The number of vehicles would increase but due to improved road quality and openness of the area the overall increase in air pollution will be miniature. Due to the maintenance of the road there will be less dust affecting the people and animals.

Mitigation Measures- Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles. Training and measuring equipment need to be provided to law enforcement authority to enable them to enforce smoke emission standards.

  - **Road Accidents**

Impacts- After maintenance, road accidents may increase due to higher number of vehicles using the roads at increased speeds. The road after completion of construction will attract settlements and undesired structures including commercial facilities particularly near the community. Growth of settlement on vacant ROWs near the community increase accident risk.

Mitigation Measures-The speed breaker should be clear in views and in some important crowdy place like school, mosques, industries, hats and bazar should under zebra crossing to avoid accidents. Turning sign to the vehicles should be clear. Traffic signs should be installed in the right place.

  - **Surface and Ground Water Quality**

Impacts- Impacts due to the operational activities after the completion of the rural road improvements is mainly of indirect nature:

- The increase traffic will induce development of traffic-related infrastructure such as filling stations, repair-shops that can cause risks to the water quality.
- The increased industrial activities, such as local industries can cause harmful effects to the surface water and gradually can affect also the groundwater.

Mitigation Measures-Traffic related infrastructure should be managed properly through local administration. Drainage is an important part of rural road improvements. Unless road drainage is maintained properly, drains and culverts can block, causing localized flooding and damage to the road itself. A commitment to regular monitoring and maintenance will be a requirement under the LGED.

- **Flora, Fauna and Livestock**

Impacts-The operation of widenned road causes additional direct disturbance to the wildlife. Better accessibility increases directly hunting pressure and exploitation of few forest resources in the rural road improvements area. Also by increasing general development in the area affected by road development the pressure to the wildlife resources would increase as significant numbers of trees will be affected due to widening of road.

Mitigation Measures-The proper wildlife monitoring system should be applied along the rural road improvements area, especially in the vicinity of larger settlements. In formerly forested areas reforestation should be considered. The various suitable trees need to be replanted on the rural road improvements side slopes.

B. Environmental Monitoring Plan

The environmental monitoring is another part of the EMP. The results of the monitoring program are used to evaluate the following: (i) extent and severity of the environmental impacts against the predicted impacts; (ii) performance of the environmental protection measures or compliance with pertinent rules and regulations; (iii) trends in impacts; and (iv) overall effectiveness of the project environmental protection measures. Table below provides the template for the environmental monitoring Plan. This table will be prepared for three phases of the subprojects, i.e Pre-Construction Activities, Construction Phase Activities and Post-construction Operation & Maintenance Phase Activities.

A) MITIGATION MONITORING							
Environmental Indicator	Parameters/ Units	Location	Means of Monitoring	Frequency / Duration Standards	Responsibilities		Estimated Cost
					Implementation	Supervision	

For each of the environmental components, the monitoring plan specifies the parameters to be monitored; location of the monitoring sites and duration of monitoring. The monitoring plan also specifies the applicable standards, implementation and supervising responsibilities.

- A generic Environmental Monitoring Plan for each subcomponets is shown in the table below.

Rural Road and Bridge Maintenance and Rehabilitation

Environmental component	Location	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
Construction Stage					
Dust Management	Dust Generating place Close to School/Madrasha, Hospital, etc.	Observation	As & when required	Contractor	LGED
Worker facilities	Proper sanitation facilities should be provided at construction camp	Observation	As & when required	Contractor	LGED
Health and Safety	Construction Site and Camp sites	Inspection	As & when required	Contractor	LGED
Air Quality	Close to School/ Madrasha, Hospital & Villages	Test (Measurement of dust and vehicular emissions such as SPM, etc.)	once	Contractor	D&SC & LGED
Surface Water Quality	River (if any)	Test (Monitoring of water such as PH, DO, BOD, COD, etc)	once	Contractor	D&SC & LGED
Flora and fauna	in vicinity of construction camp	Inspection (Monitoring of flora, fauna and other resources.)	Monthly	Contractor	D&SC & LGED
Traffic movements	Construction areas	Inspection (Monitoring of traffic control devices)	Daily	Contractor	D&SC/LGED
Waste management (including construction wastes)	Construction Yard/Labor Camp	Inspection (Monitoring of collection, transportation and disposal of solid waste. Inspection of waste disposal sites and construction camps)	Daily	Contractor	D&SC/LGED
Documentation	Along the road	Reporting	Daily	Contractor	D&SC/LGED
Operation Stage					
Air Quality	Close to School/ Madrasha, Hospital & Villages	Test (Measurement of dust and vehicular emissions such as SPM, etc.)	Once	LGED	LGED
Traffic Safety	Along the road	Inspection (Monitoring of traffic control devices)	Once	LGED	LGED
Tree	Road side slope	Inspection	Monthly	FD/NGOs	LGED

Environmental component	Location	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
plantation		(Two tree seedlings to be planted for each tree felled)			

In addition to the critical locations selected during design stage, the environmental monitoring will also be done at the construction camp site and any other plant site during construction stage. List of critical locations for caring out monitoring should be presented in the IEE/EIA report.

Rapid Monitoring Indicators
Moreever a rapid environmental monitoring will be crried out according the following checklist in terms of visual judgement during field visit as an indirect control to implement Environmetal Mitigation plan.

Parameters	**Visual judgement**		
	Poor	**Moderate**	**Satisfatory**
Traffic Safety			
Workers Safety			
Emergency Response			
Camp Site Management			
Plant Site Management			
Borrow Area Management			
Top Soil Prevention			
Waste Management			
Reporting and Documentation			

4.4.9 Technical and public review

Public disclosure on EIA and EMP to the government officials, NGOs, affected people, local government's representatives etc

4.4.10 Reporting and Implementation

To describe the results of the EIA for decision-makers and other interested. A decision as to whether the project should proceed and, if so, under what conditions; and, if the project is approved.

The implementation of the terms and conditions of approval during the construction and operation phases to be checked; to take any actions necessary to ameliorate problems; and, as required.

4.4.11 Monitoring and Post Auditing

Construction Monitoring, including field inspections and surveys, should be carried out by an environmental expert (to be employed by RTIP-II (Additional Financing) on regular basis) to ensure that environmental protection requirements are being met. It is important to plan and budget for environmental construction monitoring as part of the project. If construction is to be contracted out, RTIP-II (Additional Financing) to reconfirm that specific environmental requirements during construction (as already specified) are built into construction bidding documents and contracts to ensure, they are met (e.g. requirements for local hiring, penalty for not adhering to the EMP clause requirements etc.).

Post Construction Monitoring is used to identify environmental changes resulting from the implementation of the project. In the context of EIA, post construction monitoring programs are carried out to achieve the following results:

- to ensure that the facility is meeting all environmental regulatory requirements, and that commitments made in the EIA document and/or the conditions of approval are being met;
- to test impact hypotheses, and to verify the predictions and assessment of environmental impacts, thus contributing to better assessments in the future;
- to evaluate the performance effectiveness of mitigation;
- to compare actual and predicted changes to the environment, so that immediate actions can be taken to mitigate unanticipated impacts;
- to strengthen confidence by both government and the public in the EIA process, the decisions made the road design etc.

The monitoring programs to be carried out during the construction and operation of the undertaking are normally described in the EIA document.

4.5 EIA Report

Report At a minimum, an EIA report should have the following contents:

Executive Summary

1. Introduction
2. Description of the Project : Project Type, Need Assessment, Location etc
3. Description of the Environment : Baseline data
4. Anticipated Environmental Impacts and Mitigation Measures
5. Alternatives
6. Environmental Monitoring
7. Additional Studies
8. Environmental Management Plan
9. Institutional Arrangement
10. Summary and Conclusions
11. Annexes

4.6 Bid Document

To prepare bid document DS/LGED will ensure that all the relevant clauses regarding proper implementation of EMP as well as obligations to Contractor are properly ventelated in the document; if necessary a BOQ item should be kept against EMP implementation.

- Prepare cost estimates, to be incorporate in Bid Documents.
- Environmental Management Plan along with the good environmental construction guidelines to be incorporated in the bid document's work requirements.
- Preparation of work requirement (addendum/corrigendum to road specifications) and
- Corrigendum / Addendum to road specification as special provisions to be incorporated in bid document. Penalty clauses for not complying with EMP requirements to be incorporated. Indicative penalty clauses proposed in the RTIP-II (Additional Financing) are presented below (Addendum to Clause 17.2 Contractor's Care of the Works of FIDIC).
  - The contractor has to follow all traffic safety measures as defined in the technical specification. Damage shall be levied at the rate Tk. 3000/- per day per location for non – conformity of traffic safety measures as per the decision of the engineer.
  - The contractor has to follow all environmental mitigation measures as defined in the technical specification read along with the Environmental Management Plan for the specific RTIP-II (Additional Financing) activities. Damage shall be levied at the rate Tk. 3000/- per day per location for nonconformity of Environmental Management Plan measures as per the decision of the Engineer.
  - The contractor has to ensure that prior to every monsoon season, during the construction period; all the temporary and permanent cross drainage structures are free from debris as defined in the Technical Specifications read along with the Environmental Management Plan. Damage shall be levied at the rate of Tk.3000/- per day per location for non-conformity as per the decision of the Engineer.
  - The contractor has to ensure that sufficient numbers and good quality Personnel Protective Equipment (PPE), should be provide to staff and labor all time as defined in the labor codes read along with the Environmental Management Plan (EMP). Damage shall be levied at the rate of Tk. 1000/- per day for non-conformity as per the decision of the Engineer.

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5. INSTITUTIONAL ARRANGEMENT AND CAPACITY BUILDING

5.1 Introduction

The Environmental Management Framework (EMF) implementation requires an organization support structure in the form of organizational requirements, training needs and plan, and information management system. The following section captures these institutional arrangements for EMF implementation by concerned officials of LGED, their consultant and working contractors. An organizational structure shall be developed at the corporate, regional and site level to aid effective implementation of the EMF document. The organizational of the LGED flowchart are shown in Figure 5.1.

5.2 EMU - Functions and Staffing Responsibilities

The EMU to be strengthened to implement and manage the EMF will be structured to provide co-ordination, technical support and services during the environmental screening and preparation of EA, and implementation of the environmental mitigation measures. Functions and the staffing responsibilities of EMU are listed in Table below. In order to effectively manage the EA process and EMP implementation, the EMU will be established and made operational as soon as possible. The XEN (Environment) and the two Assistant Engineers (Environment) could be selected from the existing GoB cadre and provided extensive training and exposure during the project implementation period to be able to undertake the assigned responsibilities effectively.

Functions and Responsibilities of the EMU

Designation	Function / Responsibilities
EMU	- Assist the PD in conducting environmental screening and categorization of the sub-projects; - Assist the PD in the preparation of Environmental Assessment; - Assist the PD in implementation of the EMF during the project implementation period; - Ensure integration of the EA and resulting EMP into the sub-project design and implementation plans (contract documents); - Ensure compliance of the mitigation measures by the Contractors; - Ensure incorporation of appropriate environmental specifications (on the basis of screening and ECP) into the respective bidding & contract documents; - Assist the LGED Engineers at site by providing appropriate environmental advice, and developing appropriate environmental mitigation measures for the sub-projects; - Documenting the experience in the implementation of the environmental process; - Assist PMU Support/DS consultant's and LGED community organizer to carryout participatory consultation during planning, design and implementation of the sub-projects; - In collaboration with the Environmental Specialist or the PMU Support and DS Consultants, prepare and conduct training programs for the LGED Engineers and Contractors by incorporating standard construction practices and sound environmental management of the sub-projects; and - prepare periodic progress reports on the implementation of the EMF for transmission to the World Bank throughout the project implementation period.
Executive Engineer (Environment)	- Assist the PD in the proper and timely implementation of EMF. - Assist the PD in screening and categorization process of sub-projects - preparation of EA and finalization of the same in close co-ordination with the PMU Support and DS Consultants and the World Bank; - Ensure compliance of the respective ECP and EMP during sub-projects design and implementation including post construction;

Designation	Function / Responsibilities
	- Assist the PD in obtaining Environmental Clearances from the DoE; - Assist in development of training programme for the key stakeholders (LGED, contractors, public representatives and local government institutions/ NGOs, in collaboration with the Environmental Specialist; - Review and approve the Contractor's Implementation Plan for the environmental measures, as per the EMP; - Liase with the Contracts, PMU Support and DS Consultants and the PPC the Implementation of the EMP; - Liase with the DoE on environmental and other regulatory matters; - Interact with the NGOs and Community based organizations to be involved in the project for EMP implementation; - Dialogue with the project affected persons (PAPs) and ensure that the environmental concerns and suggestions are incorporated and implemented in the project; - Undertaking environmental monitoring and reporting to the Project Director and follow-up activities; - Document the standard construction practices in the project on incorporation and integration of environmental issues into engineering design and on implementing measures in the road construction and maintenance programs; - Assist the PD to arrange for the Environmental Auditing and follow up action on the Audit recommendation. - Report to the PD on the environmental aspects pertaining to the project. - To guide and assist the PD and the LGED to strengthen the environmental management practices in rural infrastructure development projects base on the experiences gained in the implementation of the RTIP II.
Assistant Engineers (Environment)	- Assist the PMU Support and DS Consultants in Environmental screening process - Assist the PMU in Environmental Assessments for the projects; - Assist PMU in obtaining of requisite Environmental Clearances for the project; - Assist the Executive Engineer (Environment) and the Environmental Specialist of the PMU support and DS consultants in preparation of the training materials and in conducting training; - Review the contractor's Implementation Plan for the environmental measures, as per the EMP with assistance from the Environmental Specialist of the PMU Support and DS consultant; - Liase with the contractors and PMU Support and DS Consultants on the implementation of the EMF and EMP; - Carry out consultations with the NGOs and Community groups to be involved in the project; - Establish dialogue with the affected communities and ensure that the environmental concerns and suggestions are incorporated and implemented in the project; - Carry out site inspections, check and undertake periodic environmental monitoring and initiate necessary follow-up actions; - Document the good practices in the project on incorporation and integration of environmental issues into engineering design; - Report to the Executive Engineer (Environment) / Project Director on the environmental aspects pertaining to the project; - Assist in the preparation of periodic reports for dissemination to the PMU, World Bank, etc.

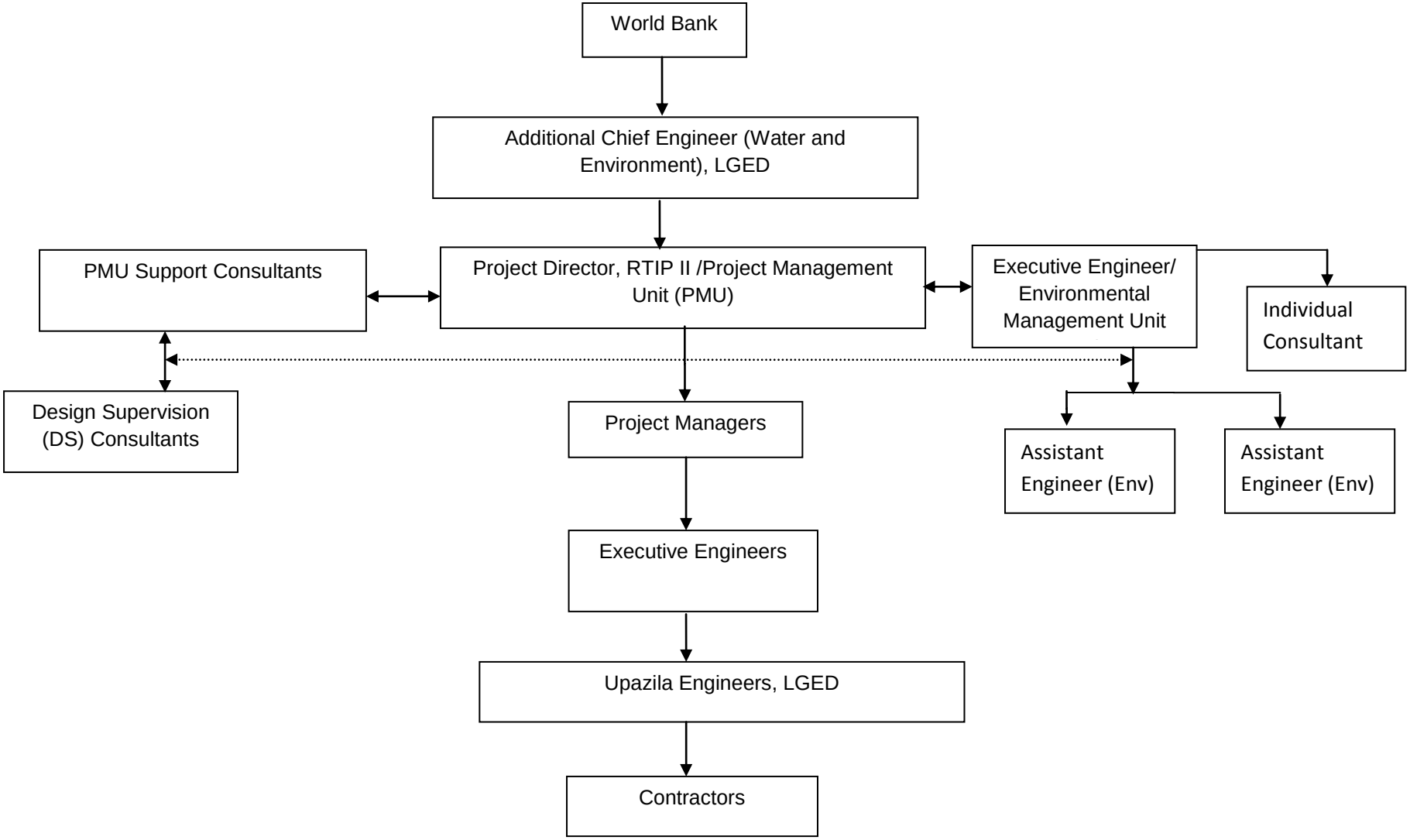

Figure **5.1**: LGED Organizational Arrangement for Implementation of RTIP-II (ADDITIONAL FINANCING)

5.3 Project Monitoring Unit (PMU) Support Consultants

The PMU Support Consultants and are expected to have in-house capacity to prepare EA, to advise on and to supervise the implementation of the EMF and the EMPs including making the decisions regarding environmental categorization of the sub-project, to assess the applicability of relevant ECP to the sub-projects, preparation of site specific environmental designs and modifications to the mitigation and enhancement measures, as necessary, during the sub-projects' implementation. For this purpose the PMU Support Consultants will deploy a full time Environmental Engineer. The prime duty of the Environmental Engineer would be to:

- review the screening and categorization of the sub-projects;
- prepare the EA, as required by the EMF;
- assist the XEN & AE to supervise the implementation or the EMP by the contractors; and
- ensure that day to day construction activities are carried out in an environmentally sound and sustainable manner.

Management Consultant will review and clear all screening and environmental assessment reports. LGED will conduct verification of some screening.

The PMU Support consultants will also review and update Environmental Supervision Manual incorporating the rural road and bridge improvements, rural road and bridge maintenance and rehibilitation issues in the beginning of their contract to confirm the environmental supervision procedures and systems including inspection, monitoring and reporting mechanisms to be followed by each associated parties during the sub-project implementation. The manual will be continuously updated / modified throughout the implementation period so as to document the best operating / construction practices for future use by LGED as part of the agreed strategy or mainstreaming the environmental management process into all LGED works. The Environmental Specialist of the PMU Support Consultants would primarily be responsible for providing technical assistance to the EMU, XEN, and Upazila Engineers.

The PMU Support consultant shall assist LGED in quality control, monitoring, coordinating and implementation of EMF, supervising the measures necessary to mitigate the projects effects on the society and environment as outlined in the documents. The assistance will include review of social and environmental screening/assessment, plans and & budget and, where necessary, structuring and phasing implementation of the plans and identifying the specific agencies to be involved in the mitigation of social and environmental protection activities, particularly in cases where NGO participation needs to be arranged and coordinated.

5.4 Design and Supervision (DS) Consultants

The DS consultants will be based in the regional office and will be responsible for design and overall supervision of sub-project activities. The design consultants will ensure quality control and report to PD through the management consultant. The DS will also assist the EMU for ensuring environmental compliance and monitoring of progress including EMP and/or ECP implementation.

RTIP-II (Additional Financing) will ensure that proper environmental screening will be done by the design consultant. Design consultant will ensure Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA) of the all rural road sub-projects. LGED will conduct verification of some screening and assessment. LGED will ensure that proper environmental screening will be done by the design consultant.

The project will support two fulltime Junior Environment Specialist in Design and Supervision Consultancy. The specialists will prepare subproject specific environment screening/assessment report with EMP, supervise the implementation of EMP and support capacity building of the field level staff of LGED and contractor. A Senior Environment Specialist under the Management Support Consultancy will review the quality of the environmental screening/assessment with EMP. The project will implement an environmental monitoring program (i) to monitor the contractor's work during project implementation in order to check contractual compliance with specified mitigation measures, and subsequently (ii) to assess the actual environmental impacts of the project over the years following completion of the various project components. The Senior Environment Specialist will design the detailed monitoring plan of the project and prepare a routine monitoring report based on the monitoring results by LGED and the Junior Consultants. In addition, the environmental audit will be carried out before the mid-term evaluation and before project closing. The Bank would also supervise the environmental compliance as part of regular implementation support missions.

Job Descriptions for Senior Environment Specialist

The Senior Environmental Specialist, an Environmental Science/Environmental Engineering/Civil Engineering, preferably with the post-graduation specialization in environmental Science/engineering /relevant field, shall have at least 10 years of working experience related to preparation of EA, integration of environmental and social issues in the design, implementation and operation of rural infrastructure projects. Experience in construction and maintenance management of rural road and bridge projects and Environmental management is preferred.

The specific roles and responsibilities of the Senior Environmental Specialist or the PMU Support Consultant shall include, but not limited to the following:

- Supervise the implementation of the EMP by the Contractors;
- Monitor and review the screening and categorization process for each sub-project;
- Develop, organize and deliver environmental training programmes and workshops for the staff of the PMU, Contractors (of both up gradation and maintenance routes), Field Supervision Staff, LGED officials (responsible for the supervision of the Maintenance works) and the Quality Auditors;
- Review and approve site specific environmental enhancement/mitigation designs worked out by the Contractor Review and approve site specific environmental enhancement/mitigation designs worked out by the Contractor;
- Hold regular construction meetings with the Environmental management unit in the PMU;
- Review the Contractors Environmental Implementation Plans to ensure compliance with the Environmental Management Plan (EMP);
- Develop good practice construction guidelines to assist the contractors in implementing the EMP;

- Monitor tree plantation programmes and the periodic environmental monitoring programmes to ensure compliance with the EMP & GOB requirements;
- Prepare and submit regular environmental monitoring and implementation progress reports;
- Assist Environmental Management Unit to prepare good practice dissemination notes based on the experience gained from site supervision;
- Develop and detail out an implementation plan for the Environmental Provision as envisaged in the EMP, and get it approved by the EMU / PMU;
- Continuously interact with the Environmental Engineers/Environmental specialist of the EMU of the PMU regarding the implementation of the environmental provisions;
- Identify suitable locations for sitting of labour camps, construction waste disposal locations, construction and vehicle parking/maintenance sites and obtain the approval of the Environmental Specialist of the PMU/DS Consultant of the same;
- Ensure that the brickkilns from where the Contractors procure the bricks are licensed ones and do not use firewood as fuel;
- Ensure the implementation of the various mitigation measures proposed for the protection of bio diversity etc, prior to the commencement of construction activities at that particular sub-section of the project road;
- Ensure that proper environmental safeguards are being maintained at all ancillary sites such as brick fields, borrow areas, brick crushing area, materials storage yards, worker's camps etc. from which the contractor procures material for construction;
- Supervise the proper construction and maintenance of the facilities for the labour camps, including the provisions for the safety and health of workers and their families;
- Ensure that proper facilities are available for the monitoring of water quality and vehicular emissions as provided for in the environmental monitoring plan during the construction period;
- Assist Upazila Engineers in carrying out the measurement of quantities for environmental management activities, prepare the site-specific designs and bills of quantities for the works for environmental enhancement.

5.5 Individual Consultant

An individual consultant will prepare 2 separate screening, IEE and EIA report. LGED will ensure that Initial Environmental Examination (IEE) report will be prepared by the design consultant and site clearance will get from DoE. Management Consultant will review and clear the IEE and EIA reports before sending to DoE.

5.6 Contractor

The Contractor will be responsible for implementation of all environmental related activities under the project. In addition, the contractor shall be responsible for familiarizing themselves with “Chance Finds Procedures” in the IEE/EIA’s Report incase culturally valuable materials are uncovered during excavation or any project activities. Chance-Find Procedures for Physical Cultural Property

The Contractor will be responsible for familiarizing themselves with the following “Chance Finds Procedures” in case culturally valuable materials are uncovered during excavation or any project activities, including:

- Stop work immediately following the discovery of any materials with possible archeological, historical, paleontological, or other cultural value, announce findings to project manager and notify relevant authorities;
- Protect artifacts as well as possible using plastic covers, and implement measures to stabilize the area, if necessary, to properly protect artifacts;
- Prevent and penalize any unauthorized access to the artifacts; and
- Restart construction works only upon the authorization of the relevant authorities.

5.7 Monitoring

The success of the project authorities may be attributed to vigorous and continuous monitoring of all its activities including environment and social issues. The Environmental Management Unit (EMU) is a dedicated department for monitoring entire project activities and reporting to the project director (PD). Regular monitoring of activities is carried out by district/upazila offices and supervision consultants at site and is being reviewed by the EMU on monthly basis. The EMU and Directors also take regular review of ongoing project activities including environment and social issues and corrective measures if required are implemented at site. For environmental and social components of a project, environmental and social monitoring plan is developed, based on baseline data and impacts predicted during the environmental and social assessment process. The concerned forest department staffs, as part of their duties monitor impacts on ecological resources through which the transport line traverses. The project authority appoints concerned officials for timely implementation various activities such as compensatory afforestation, ROW maintenance, prevention of fire hazards, natural regeneration of vegetation etc. The environmental and social monitoring plan for each project will be integrated with construction, operation and maintenance and shall be monitored by the EMU on a monthly basis in association with the LGED monitoring group. The higher management is apprised through a monthly report.

5.8 Capacity Building

Since the effectiveness of the Environmental Assessment & implementation depends considerably on the understanding and preparedness of their Engineers and in particular their Environmental Team (Consisting of LGED Environmental specialist, and Consultant environmnetal specialist, EMU). It is important that the project authority makes effort to sensitize the Engineers and Environmental Team on management of environmental issues, provides guidance, and encourages them to build requisite capacities. Capacity building can be achieved by two prong strategy.

- Training programme for existing staff.
- Technical Assistance: knowledge sharing with consultants, having requisite expertise.

5.9 Training Programme

All the issues discussed in previous chapters, will at some stage require a certain element of training in the process of developing capacity within the organization. A number of the identified issues will be new to the existing environmental team and their staff members. It is therefore vital that a major programme of training is developed and implemented by the project authority. Before commencing any training, there are a number of activities which needs to be completed. The first step is to ensure that all procedures in the Environmental Management Procedure have been properly worked out. As part of this process, there is a need to closely evaluate the existing organizations both at central and local level in relation to their suitability and current capacity to take on the new responsibilities. This exercise needs to clearly identify the performance requirements of the various officials involved. Duties and responsibilities need to be clearly defined for the institutions as a whole and individually for each category of staff. It is only on this basis that the new staff performance requirements can be established, and the training required for existing and new staff can be determined. When developing a training programme of this nature, it is important to acknowledge that this is not a one-time event. It is rather the start of a long term training service which not only strengthens capacity, but also contributes to sustain this capacity within the organization.

A key concept in training programs for any organization is to provide training through a combination of formal classroom training and practical on-the job sessions. Technical assistance should be made available to provide training, guidance and advisory support in all aspects of works implementation in order that the key players (environmental as well as technical team) become fully conversant with, and capable of carrying out their respective duties. Training for the various categories of staff needs to be carried out with varying durations and through different approaches, such as on-site and classroom training, workshops, seminars and practical on-the-job training.

Training is always an effective up-front quality assurance measure. Experience shows that there is a great demand for training in technical subjects for the government staff in charge of work supervision. Effective training programs involve both the introduction of new technology as well as in-depth studies of the particular skills required in each position in the works organization. As the training content for these reasons relate to practical hands-on skills, the training often consists of dissemination of best practices and work methods which have been proved most effective in projects with similar tasks and working conditions (i.e. neighboring districts, projects, etc.).

6. STAKEHOLDER CONSULTATIONS

6.1 Introduction

Participatory consultation is both an essential criteria and important strategy for an integrated environmental and social assessment process, the project design and its implementation. The purpose of the stakeholder consultation during the project preparation of the sub-project and throughout the implementation period of the RTIP-II (Additional Financing) is toIdentify the views of major institutional persons, project affected persons (PAPs) as well as all stakeholders involve with the subprojects.

- To address the environmental aspects as well as socio-economic issues from stakeholders' point of view.
- Assess any mitigation measures which may be undertaken to minimize any adverse impacts of the proposals under consideration. Subsequently,

Project consultants were carried out a series of stakeholder consultations at different locations of the sub-project.

The schedule of consultations will be well announced by local miking, notices, 3 days prior to the consultations. Ensure the presence of project affected people, LGED officials, local officials, public representatives, NGOs, local entrepreneurs, etc in the public consultation meetings.

The EMF for RTIP-II preparation includes one initial field level consultations in addition to follow-up consultations. The consultation was held at Hatkhalir Bazar, Fulbaria Upazila of Mymensingh district and attended by around 60 persons from in and around the bazaar. The Fulbaria Upazila Engineer organized the meeting and the local Upazila Chairman facilitated. An Upazila Road has been nominated for the first year construction under RTIP-II (Additional Financing). Only about 100-m of the road will need earth work and it has sufficient land for improvement. The local people including the elected representatives are yelling for long to get their road improved. They assured that if any additional strip of land is required for the improvement work, they are ready to organize by themselves. The participants in both consultations were happy to understand that social and environmental impacts will be addressed under the project to maximize project benefits. They did not foresee any major environmental issues from the project activities. In addition, the LGED field level staffs were consulted for effective environmental management considering the RTIP experience.

A public consultation was arranged for the Additional Financing of the Second Rural Transport Improvement Project (RTIP-II:AF) at Gheor, Manikganj on January 3, 2018 Local people along with their representatives, different professionals including NGOs and women's organizations, LGED officials & consultants attended the consultation. The main objective of the meeting was to share project's planned activities and their associated potential impacts on the environment & society. In this regard, the Environmental and Social Safeguard Policy of the GoB and the

Development Partner were disclosed. In the consultation program, participants feedback was also received which reflected the necessity and demand of the proposed project.

Photograph: Public Consultation of ESMF at Gheor, Manikganj on January 3, 2018 for RTIP-II (Additional Financing)

6.2 Consultation and Information Disclosure

Public Consultation

A critical element in planning a participation and consultation program is associated with the selection of participation techniques to meet desired objectives. Considering the importance of effective participation and consultation in a wide spread project area along with the time and resource constraints in the present project, the following participation techniques were followed:

- Information dissemination and information sharing techniques will be used to inform the stakeholders regarding the action being taken in a program area through personal communication to make them aware about the project as well as to incorporate users input at different stages of the project.
- Information gathering techniques to gather quantitative and qualitative information about the individual schemes through questionnaires survey.
- Focused Group Discussions (FGDs) will be conducted covering different components of the project aims to increase local awareness about the forthcoming project as well as to incorporate their views, needs, priorities considering different positive and negative impact of the project.
- Key Informant surveys will be carried out among the knowledgeable and elderly people of the project area to incorporate their views and suggestions from their long experiences and knowledge.
- Hot Spot Consultation will be conducted in problematic locations of the schemes with participation of knowledgeable and affected people, local elite, public representatives, officials and NGO people to mitigate adverse impact considering their views suggestions from their practical experiences as per local needs and demands.
- Participatory workshops will be organized with the participation of different types of representative stakeholders.
- Public disclosure of the Draft EA Reports (including a non-technical summary) will be disclosed at the project districts, Project Headquarters and the World Bank.

Modes of Future Consultations

A range of formal and informal consultative methods will be carried out for all subprojects including, but not limited to: focus group discussions, public meetings, community discussions, and in depth and key informant interviews; in addition to the censuses and socio-economic surveys. Consultations will be held with special emphasis on vulnerable groups. Encouraging public participation in consultations informs the public and serves as a venue for the public to express their opinion on priorities which the Project should address.

The key stakeholders to be consulted during sub-project preparation and program implementation includes:

- all project affected persons (PAPs), including vulnerable households;
- project beneficiaries;
- host populations in resettlement sites (if any);
- political party representatives, community leaders, and representatives of community based organizations;
- local NGOs;
- Officials of municipalities and relevant government agency representatives.

Consultations with PAPs during project preparation will ensure that views of PAPs on compensation and resettlement assistance measures are fully incorporated while consultations conducted during resettlement plan (RP) implementation will identify necessary assistance required by APs during rehabilitation. Continuing involvement of those affected by sub-projects is necessary in the resettlement process. The municipality with support and guidance from the PMU Support consultants will ensure that PAPs and other stakeholders are informed and consulted about the sub-project, its impact, their entitlements and options, and allowed to participate actively in the development of the sub-project. This will be done particularly in the case of vulnerable PAPs, who will be encouraged to choose options that entail the lowest risk. This exercise will be conducted throughout the sub-project-during preparation, implementation, and monitoring of sub-project results and impacts.

Under the harmonized safeguard policy, two public consultations will be required for the Project as part of the environmental assessment procedure. LGED guided the EMU in preparing the program of public meetings, presentations about the Project and drafting the comments sheet in English and Bengali. Information on the public consultation meetings will be published in national and regional newspapers 10 days prior to the consultations. Announcements on the commencement of the Environmental Assessment in the newspaper, the availability of the Background Information Document, the venue and the schedule of consultations and public opinion feedback processes will be published in the national newspapers.

Plan for Continued Participatory Consultation

While the same process as was followed during the project preparation will also be followed during further selection, planning and design of the sub-project, the Figure 6.1 shows the consultation process to be followed during the implementation stage.

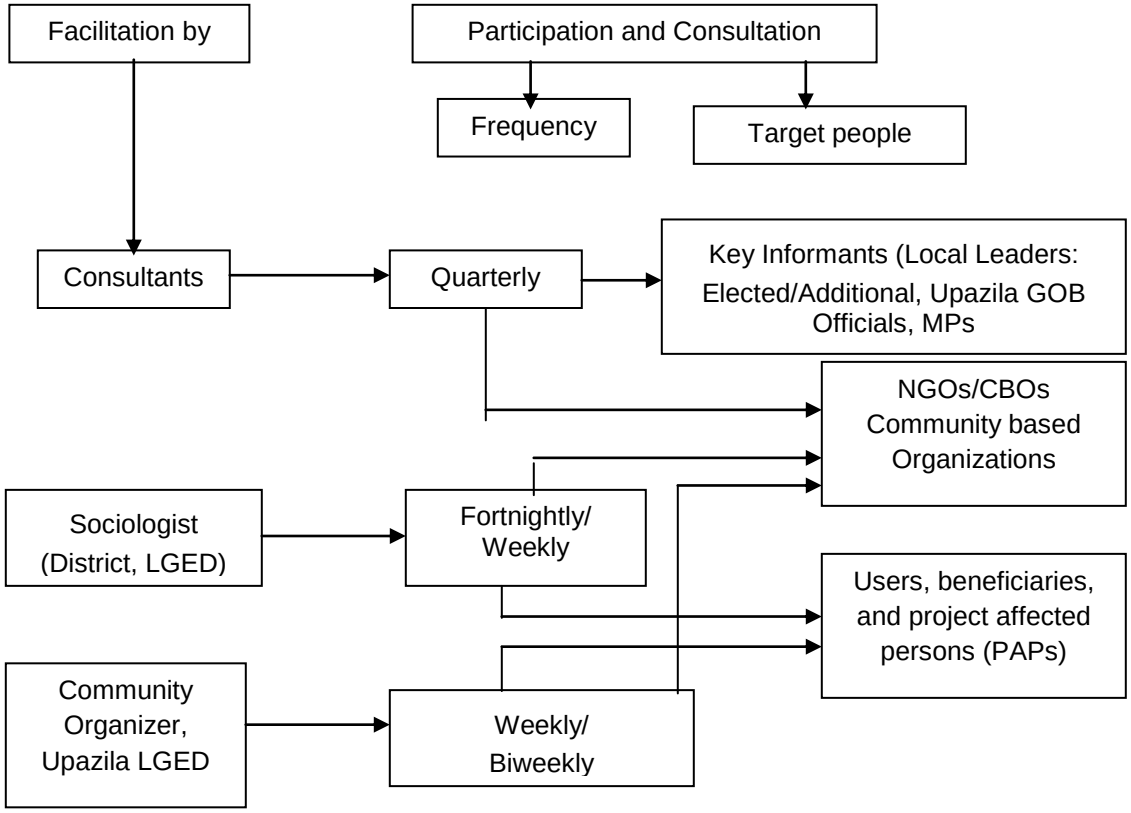

Figure: Flow Chart for Participatory Consultation during Project Implementation

Information Disclosure and Dissemination

The Environmental Assessment, documenting the mitigation measures and consultation process, will be made available for public review in both English and Bengali. The summary EA will be published on the LGED and WB websites, and the full environmental report will be available upon request from the WB and will be accessible in LGED website. The relevant information prior to these consultations in a timely manner and in a form that is meaningful for, and accessible to, the groups being consulted, has been disseminated. The framework for the information disclosure that has been adopted for the project is shown in Table below. The Table also includes the framework for further information dissemination during the future design and implementation of the sub-projects.

Table : Information Disclosure Framework

Stage of Consultation	Information dissemination tools
Initial Consultation	Documentation of a summary of the project description and objectives, and potential adverse effects of the proposed project.
Draft Environmental Reports	A non-technical summary of the findings comprising of conclusions of the environmental analysis in the local language (Bangla) as well as the draft Environmental Reports have been made available at places freely accessible to affected groups and local NGOs for their review and comment. The venue for this information dissemination has been District and Project headquarters levels. These have also been posted on the Project web-site
Environmental Screening and Assessment of sub-projects under RTIP-II (Additional Financing)	The Executive Summary of the EMF and potential impacts of individual subprojects.

The Information and Consultation Framework

It is intended to layout the way in which information will be provided to the project implementers and beneficiaries and also how consultations will be held during project implementation. Its purpose is to ensure social and environmental issues are effectively addressed by the project and subprojects through a transparent and participatory manner as table below.

Table**:** Information and Consultation Framework

Stages of a subproject	Consultation and Information steps
Pre-project planning stage	STEP 1: Proposal and Feasibility (Information Role) Once a project is identified the RTIP-II (Additional Financing)should undertake a feasibility study determining the feasibility of the project in view

Stages of a subproject	Consultation and Information steps
	of the adverse social impacts it may pose. This study is an important source of information to the executing and implementing agencies and also to the community for whom the project has been proposed. The feasibility study should address the following: ▪ Are the proposed goals of the sub-project valid ▪ Who is the public for whose benefit the sub project is being introduced ▪ How is the sub-project going to serve them and is it in their interests ▪ The alternatives to the sub-project and whether the alternatives are cost affective ▪ Will there be any adverse social impacts due to the implementation of the sub-project ▪ What would be the implementation strategy of the sub-project etc. ▪ The information will be provided to stakeholders through both print and electronic media.
	STEP 2: Initial Public Consultation (Consultation Role) The findings of the project feasibility, its benefits and impacts need to be discussed with the community for whom the project is proposed. This would help the implementing agency in taking the opinion of people, make them understand the pros and cons of the project, alternatives examined and the project finalized.
Planning and grounding stage	STEP 3: Environmental Review, Assessment (Information and Consultation Roles) In this stage it is important to ensure that there are no adverse environmental impacts of the project. The project may be passed if it has no impacts and implementation can be initiated, Category A type projects are not entitled for support. However, if the project triggers any environmental impacts then such requirements shall be meet. Such requirements and study objectives, methodologies shall be discussed with stakeholders. This environmental studies/assessment shall be carried along with project feasibility study and completed prior detailed project report (DPR). The environmental findings shall be part of DPR. All the EAs shall be completed and included as integral to DPR.

Stages of a subproject	Consultation and Information steps
	STEP 4: Detailed Project Report (Information Role) Initial consultations, feasibility and EAs on the project will pave the way for the preparation of the DPR. The DPR should constitute information on various components for successful project implementation. The DPR will constitute: ▪ A final design of the proposed project after examining the various alternatives to reduce the environmental impact on the people ▪ EA report ▪ The cost of the project construction ▪ The time frame the completion of the project ▪ The institutional arrangements for implementing the project ▪ Plans and proposals covering R&R issues ▪ Design to ensure community participation in the sub-project (Beneficiaries, PAPs, NGOs, community organizations) ▪ Plan for external help wherever needed (Experts, Advisors, Consultants) ▪ Grievance redress mechanisms.
	STEP 5: Preparing for project implementation and sharing information (Information and Consultation Role) Once all the documents like prepared list of PAPS affected, the type of entitlements, plans for reconstruction of public utility infrastructures, details of land acquisition etc., steps have to be taken to disseminate the information among the PAPs and prepare agencies for project implementation. Following tasks will be carried out in this step: ▪ Announcement of the project ▪ Displaying the layout of the project affected area ▪ Disclosure of EMF ▪ Consultations with the affected people and public hearing ▪ Involving NGOs/community in EMF implementation.
Implementation stage	STEP 6: Addressing issues that arise during implementation (Consultation Role) In this stage there may be many issues that the project-implementing agency may face during the implementation of the project such as: ▪ Ensuring EMF compliance during implementation

Stages of a subproject	Consultation and Information steps
	▪ Problems pertaining to compensations & allowances ▪ Unexpected reactions from the PAPs with regard to the entitlements ▪ Conflicts between the displaced community and the host community etc. To overcome these problems the RTIP-II (ADDITIONAL FINANCING) would adopt a consensual approach and address the grievances and queries of the people affected.
Monitoring and evaluation stage	STEP 7: Monitoring Process through participation (Information and consultation Roles) The process of participatory monitoring and evaluation (M&E) is the logical extension of the activities. Beneficiary committees can be formed for monitoring and supervision of the project works. The process should also ensure that the project benefits have properly reached the affected people and the execution of the project sticks its original designs so that social compliance is achieved. Following tasks are essential in this stages: ▪ Ensuring the implementation of the EMF and timely delivery of entitlements (Consultation Role) - Ensuring that the EMF is implemented according to a designed plan ▪ Reporting (Information Role) - Reporting is an important aspect of the M&E process. Periodical reporting is important to generate information on the progress of the work undertaken. The status of the implementation of the EMF and progress has to be documented

Grievances Redress Mechanism

It is expected that through a participatory process, acceptance of the sub-projects and grievances can be minimized. However, it is necessary to establish an effective grievance redress mechanism to address complaints/grievances related to social issues that may arise. Any grievances and objections retarding the social aspects of the project will be referred to the project Grievances Redress Committee (GRC). The project GRC will be formed at central and district levels. The committee of the GRC at national level will have several members and connection with local authorities under headed by a chairperson.

The affected persons can register their grievances at the complaint cell established at central level and district level. All cases will be registered, categorized and prioritized by the district level authority and by the Environmental Specialist at central level. The GRCs will meet periodically to discuss the merit of each case and fix a date for hearing and notify the PAP to submit necessary documents in proof of her/his claim/case; resolve grievances within 4 weeks of receipt of complaint.

7. LESSON LEARNT FROM THE IMPLEMENTATION OF RTIP II

7.1 Introduction:

Second Rural Transport Improvement Project (RTIP II) is being implemented by Local Government Engineering Department (LGED) with financial assistance from the World Bank in 26 districts of Bangladesh aiming at improving rural accessibility and strengthening institutional capacity of LGED. This project is going to be concluded on April 2018. RTIP-II included four components: Accessibility Improvement, Institutional Strengthening, Capacity Building & Governance Enhancement Component, Rural Transport Safety and Contingency Emergency Response. Accessibility Improvement comprises of Road Improvement, Road Maintenance and Rehabilitation, Growth Centre Market Development, Pilot River Dredging and Jetty Development. The Project was classified as Category A project as river dredging work was included in the sub-components which makes significant environmental impacts and also the uncertainty (lack of details at project preparation) of the most of the sub-projects to be implemented in widespread areas. Environmental Management Framework for RTIP- II was prepared and formed to mitigate and management of environmental impacts emerges during the project work.

In 2017, Bangladesh experienced prolonged rainfall and flood which damaged numerous LGED roads and bridges in rural area. On these backdrops, the World Bank has come forward with additional financing under RTIP-II (Additional Financing) for damaged roads and bridges repair and maintenance. As the scope of RTIP-II (Additional Financing) is limited within maintenance and rehabilitation of Roads and Bridges only, this project will make nominal impact on physical, biological, social and cultural environment in the project area.

7.2 Lessons Learnt

7.2.1 Reluctance in Using Personal Protective Equipment(PPE):

Construction works poses health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. Considering these health and safety risks, EMF of RTIP-II provided provision of Personal Protective Equipment (PPE) for workers such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields and ear protection. This provision ensured the availability of PPE in work site. But during the site visit, some workers were observed to be reluctant using PPE with an excuse of comfortability. So, proper counselling of contractors and workers through workshops, presentations, seminars should be implemented to make them realized about the importance and necessity for personal protective equipment for safety.

7.2.2 Implementation Problem of Camp Facilities

In RTIP-II, the rate of different environmental items such as camp facilities or tube-well were estimated as fixed lump-sum amount, which caused problem in implementation of those items due to higher price in several places. In RTIP-II (Additional Financing), most of the environmental items' rate will be estimated considering the site requirement, location and other criteria.

7.2.3 Damage of Green Land

In few cases of RTIP-II works, burning of bitumen damages the nearby green grass including small plants. In additional financing provision/scope of tree plantation has been proposed to bring back the nature green again and also to mitigate the Greenhouse Gases (GHG) emission from bitumen burning.

7.2.4 Insufficient Dustbin

The Growth Centers developed under RTIP-II had provision of dustbin for waste disposal. In some of the GCMs, dustbin size was found insufficient for the generated waste. With this lesson learnt, the waste disposal facility in labor shed of road work has been proposed to be of sufficient size.

Thus, the experiences and lessons learnt from the RTIP-II has been reflected in the EMF of the additional financing.

ANNEX 1: General Baseline Description for RTIP-II (Additional Financing)

1.1 Physical Environment

1.1.1 Atmosphere and Climate

National Context: Bangladesh has a tropical monsoon climate with the three main seasons: monsoon or wet season (from June to October), cold season (November to February) & hot season (March to May). The mean annual temperature in Bangladesh is about 26°C. The temperature varies from 10° C to 39° C. Bangladesh is monsoonal and characterized by highly seasonal rainfall. The mean annual rainfall is around 2540mm but concentrated in the five months of the monsoon (June to October). During monsoon season, rainfall varies from 1300 to 4300mm. Humidity remains as high as 80 % or more in Bangladesh. The wind speed may rise up to 150 km/hour. Cyclones develop in the Bay of Bengal and cause damage to coastal areas of Bangladesh. The most severe cyclone (wind speed 224km/hr.) that ever hit Bangladesh occurred on 12 November 1970 killing 300,000 people.

Divisional Context: Rajshahi Division has a tropical wet and dry climate. The climate of Rajshahi Division is generally marked with monsoons, high temperature, considerable humidity and moderate rainfall. The hot season commences early in March and continues till the middle of July. The maximum mean temperature observed is about 32 to 36 °C during the months of April, May, June and July and the minimum temperature recorded in January is about 7 to 16 °C. The highest rainfall is observed during the months of monsoon. The annual rainfall in Rajshahi Division is about 1,832 millimeters. The maximum mean temperature observed in Sylhet Divion is about 30 to 33.2 °C during the months of April, May, June and July and the minimum temperature recorded in January is about 7 to 13.2 °C. The highest rainfall is observed during the months of monsoon. The annual rainfall in Sylhet Division is about 3334 millimeters. The maximum mean temperature observed in Dhaka Division is about 32 to 35.2 °C during the months of April, May, June and July and the minimum temperature recorded in January is about 9 to 15.2 °C. The highest rainfall is observed during the months of monsoon. The annual rainfall in Dhaka Division is about 3000 millimeters.The maximum mean temperature observed in Chittagong Division is about 35.1 °C during the months of April, May, June and July and the minimum temperature recorded in January is about 10 to 17.2 °C. The highest rainfall is observed during the months of monsoon. The annual rainfall in Chittagong Division is between 2,500 to 3,500mm.

1.1.2 Topography

National Context: Bangladesh is a mostly low-lying delta formed at confluence of 3 major rivers namely Jamuna, Ganges & Meghna. Overall topography of Bangladesh is relatively flat alluvial plains (about 90% area) except Chittagong & Sylhet Zones. The topography of Chittagong & Sylhet Zones is hilly, undulated & flat. The land gradient of Bangladesh is approximately 1m /20km from north to south. The maximum elevation above the mean sea level is about 1230m at Keocradang Hill in Rangamati District under Chittagong Hill Tracks.

Divisional Context: The topography of the Rajshahi Division is mainly flat. The lands in Rajshahi are generally classified as very low (about 10m water depth during high flood) to medium high (about 0.90m water depth during minimum flood). The ground elevation of the region ranges from 25mPWD to 40mPWD. The major rivers run in Rajshah are: Padma, Brahmaputra, Atrai, Punarbhaba and Karatoya. The topography of the Sylhet and Dhaka Divisions is low-lying floodplains covering Sunamganj, Habiganj, Netrokona, Manikganj, Munshiganj districts. The maximum flooding is in the haor areas of Kishoreganj, Netrakona, Sunamganj, Hobiganj and Brahmanbaria districts, large parts of which are deeply flooded during the monsoon season. Dhaka Division covers Dhaka itself, Narayanganj, Gazipur and Narshingdi districts are generally more deeply flooded than those in the other parts of the Division. In greater Dhaka, the Madhupur terrace extends north-west from the north of the city, resulting in higher, dry land areas covering the north-west of Dhaka district, much of Gazipur and parts of Narayanganj district. The north-east of Narshingdi district is also relatively high. The highest elevation in Bangladesh occurs in the Chittagong Division at around 1,000 meters above mean sea level (MSL). There are upland areas in many of the districts that border on to India and Mayanmar – run-off from these hills makes the downstream areas prone to flash-flooding.

1.1.3 Physiography and Geology

National Context: The term "physiography' refers to the form of the earth's surface. The physiography of Bangladesh may be classified into three distinct regions: (a) floodplains, (b) terraces, and (c) hills, each having distinguishing characteristic and has been divided into 24 sub-regions and 54 units. Bangladesh has been tentatively divided into 30 Agro-ecological Zones. The Project area encompasses 17 agro-ecological zones of Ganges floodplains, Brahmaputra and Jamuna Floodplain, Barind Tract, Surma-Kushiyara Floodplain, Piedmont Plain, Meghna River Floodplain, Northern and Eastern Hills, Chittagong Coastal Plain, etc.

Geologically, Bangladesh is a part of the Bengal Basin, one of the largest geosynclinals in the world. The Basin is bordered on the north by the steep Tertiary Himalayas; on the northeast and east by the late Tertiary Ceylong Plateau, the Tripura hills of lesser elevation, and the Naga-Lusai folded belt; and in the west by the moderately high, ancient Chotanagpur plateau. The geophysical evidence indicates that the southern fringe of the basin is open towards the Bay of Bengal for a considerable distance, though it is not distinct. The formation and growth of the Bengal Basin is directly related to the origin and morphology of the Indo-Gangetic trough, which itself is overlaid and filled by sediments thousands of meters thick. The flat topography of the Basin, and the occurrence of recurring floods that cause rivers to change course have complicated the river morphology pattern.

Divisional Context: A large portion of the project area lies within the major physiographic unit of the Ganges-Brahmaputra and Meghna floodplains covers Rajshahi Division. Chandpur, Laxshmipur, Noakhali, Feni, Chittagong and Cox's Bazar all have coastal areas. There are upland areas in many of the districts that border on to India – run-off from these hills makes the downstream areas prone to flash-flooding. Scattered throughout the RTIP-II (Additional Financing) project area there are higher land areas which form part of the Pleistocene terraces. In greater Dhaka the Madhupur terrace extends north-west from the north of the city, resulting in higher, dry land areas covering the north-west of Dhaka district, much of Gazipur and parts of Narayanganj district. The north-east of Narshingdi district is also relatively high. The Sylhet Division covers Northern and Eastern Hills floodplains of low hills, and piedmont plains, high hill range.

1.1.4 Seismicity

National Context: Bangladesh is situated in one of the most tectonically active regions in the world. Here is where three major plates meet (the Indian Plate, the Tibet Sub-Plate, and the Burmese Sub-Plate). However due to the location of relevant plates, fault lines and hinge zones, Bangladesh itself is divided into three seismic zones, based on the ranges of the seismic coefficient (*note: the seismic coefficient is a measure of how strong an earthquake has the potential to be based on a combination of the mass of the plate and the seismic forces acting on it, as well as how frequently these quakes are likely to occur*). Zone 3 is in the most seismically active area with a seismic coefficient on 0.25, and Zone 1 is the least active with a significantly lower seismic coefficient of 0.075. The project area are located all the three seismic zones based on the ranges of the seismic coefficient.

Divisional Context: Rajshahi and Sylhet Divisions are located in zone I which is defined as being seismically severe area and most vulnerable to eartquake disaster. Dhaka Division and Noakhali and the western part of Chittagong Division are located zone II is the moderately severe and moderate vulnerable to earthquake disaster. The other part of Chittagong region is located in zone III which is defined as being seismically relatively quiet and has the lowest probability of an earthquake occurring.

1.1.5 Hydrology and Drainage

National Context: In Bangladesh, rainfall and transnational river flows are the main sources of surface water (SW). The sources of SW in the Project area are mainly: rivers, canals, ponds and beels. Bangladesh has an average annual surface flow of approximately 1,323,526, 014 m3 (1,073 million acre feet (MAF), of which about 1,073,129 m3 (870 MAF (93%) are received from India as inflow and the remaining 250,397 m3 (203 MAF (7%)) as rainfall. This is enough water to cover the entire country to a depth of 9.14m. About 162,820 m3 (132 MAF (65% of rainfall and 12% of total)) is evaporated (114.30 cm), and the remainder flows into the Bay of Bengal. The rivers passing through the Project areas carry a considerable amount of flow during the rainy season. The surface hydrology of the coastal plains of Bangladesh presents a complicated interaction of fresh water flows with the tides and tidal flows from the Bay of Bengal (FAO, 1985).

Except for higher ridges including the Madupur Tract, the water table is generally high because of soil porosity and permeability, and low topography. In the floodplains it varies from within one meter of the surface in the wet season to seven meters or more during the dry season. In the older terraces the water level is more than 15 meters below the surface during the dry season. However, increasing extraction of water for irrigation and domestic use, and the reduced flow of the Ganges, in recent years have contributed to general lowering of the water table. However, in 1993 Department of Public Health and Engineering (DPHE) first detected arsenic in hand tube wells (HTW's) and arsenic contamination has become one of the most pressing environmental issues in Bangladesh. The levels of arsenic in groundwater in Bangladesh are considered to be some of the highest in the world. At present, occurrence of Arsenic in drinking water has been identified in 272 Upazilas under 61 Districts of the country. The World Health Organization's (WHO) has defined the tolerance limit of arsenic for drinking water as 0.01mg/L while the Bangladesh standard for arsenic in drinking water is 0.05mg/L.

Divisional Context: The project comprises vast floodplains traversed by three river basins of the Himalayan drainage system: the Ganges, the Brahmaputra and Meghna. Rajshahi Division is located in Ganges-Padma and Brahmaputra-Jumuna-Tista River systems. The headwaters of both the Ganges-Padma and Brahmaputra-Jumuna-Teesta River systems are in the main Himalayan ranges. Dhaka region is located in the Meghna river system and most of the water drains throung this river system. The Meghna and the Padma Rivers join a few kilometers downstream of Munshiganj, Dhaka Division. Water for the Meghna River, originating in the Shillong Plateau, drains one of the heaviest rainfall areas of the world. Sylhet Division is located in Surma-Kushiyara river system and maximum water are drained through this system. Chittagong Division is located in Karnaphuli river system and maximum water drains through this channel. Lots of channels and streams are found in the Chittagong Division which have immense productive value as surface water source. The levels of arsenic in groundwater in Bangladesh are the highest in the coastal areas and hilly regions. Rajshahi Division is also considered relatively high in arsenic contamination. Dhaka Division is considered relatively low in arsenic contamination. The ground water table of Sylhet Division is generally high because of soil porosity and permeability, and low topography.

1.1.6 Air Quality

National Context: There is no official record of secondary air quality data due to non-availability of a regular air quality monitoring program for ambient conditions or emissions. Air quality monitoring in Bangladesh is mainly done in Dhaka city and Chittagong city where ambient concentrations of airborne pollutants have been found to be generally higher than the WHO guidelines and the United States EPA National Ambient Air Quality Standards. The main sources of air pollutant emissions in Bangladesh are brick kilns and domestic biomass burning (such as wood, dung, and straw) is responsible for most air emissions. Other contributors to air pollution include vehicular and rail traffic, re-suspended road dust to make bricks, and small industries.

Divisional Context: Air Pollution problem is acute in Dhaka (capital city) and Chittagong (commercial capital city) cities However, the air quality is generally good in the other two divisions like Rajshahi and Sylhet. Moreover, air pollution due to vehicular emissions is also low in those areas.

1.1.7 Noise Quality

National Context: Noise is another potentially serious threat to the quality of the environment. Noise levels vary at the given locations according to (i) the number, composition, and speed of vehicles; (ii) horn usage by locomotives; and (iii) other sources of ambient noise, including road-traffic noise, industrial noise, general community noise, and noise from birds and insects.

Divisional Context: The background noise level at the project area is low except Dhaka and Chittagong Divisions, due to an absence of heavy industries, large urban development or other significant noise sources.

1.2 Biological Environment

1.2.1 Terrestrial Ecology

National Context: The countries of South and Southeast Asia are considered by the IUCN as regions of high species diversity. A large number of native plants, including 3,000-4,000 species of woody flora, have been recorded from Bangladesh. The country lies at the meeting point (ecotonal region) of several floristic provinces, including the Manipur-Khasia, Bengal and North Burman provinces within the Indo-Malayan realm.

The entire floodplain of Bangladesh was once well forested, but most of the native forests have disappeared in recent decades due to mounting pressure from human populations. The floodplain land has long been subject to cultivation, the most dominant land use within the study area. Thus only scattered patches of native trees, savanna, wetlands and associated fauna habitat remain in isolated locations within the terrestrial environment. In many parts of the country, such as eastern Sylhet and northern Barisal, the abundance of plantations and groves of trees around villages creates an aspect of discontinuous fores. In many of these village groves, density and diversity of plant species are extremely good. However the Ganges floodplain, which constitutes the major part of the study area, possesses very low endemism and there is a low probability of the occurrence of any rare or vulnerable plant species in the Project areas.

Divisional Context: The terrestrial floral habitats in the project area include various types of trees and natural vegetation in common, fairly common and frequent distributions in and around homesteads, along roads and in open spaces as well as in non-cultivated highlands that support a wide range of wildlife species. The tree species in Dhaka, Rajshahi, Sylhet Divisions are almost same and include: jackfruit (*Artocarpusheterophylla*), bamboo (*Bambusabalcoona*), fanpalm (*Borassusflabellifer*), coconut (*Cocosnucifera*), eucalyptus (*Eucalyptus sp.*), banyan tree (*F. religiosa*), mango (*Mangiferaindica*), banana (*Musa sapientum*), guava (*Psidiumguajava*), mahogany (*Swieteniamahogoni*), tamarind (*Tamarindusindica*), shajna (*Moringaoleifera*), etc. Natural vegetations occurring in the subproject site areas include: dholpata (*Commelinabenghalensis*), junjhuni (*Crotalaria saltiana*), grasses (*Axonopuscompressus, Cynodondactylon, Dicanthiumannulatum, Digitariasanguinalis, Eleusineindica, Oplismenusburminii, Veteveriazizanioides, etc.*), kantamehdi (*Durantareppens*), matkila, datmajon (*Glycosmispentaphylla*), dulkalmi (*Ipomoea crassicaulis*), dhanchi (*sesbaniacanabina*), pakur (*Ficuscomosa*). Tree species in Chittagong are generally: Jhaw, coconut, babla, shilkoroi, shishu, mehogoni, shishu, epil-epil etc.

The terrestrial common faunal species in most of the divisions are: mongoose (Herpestesauropunctatus), field mouse (*Musboodga*), rodent (*Musmusculus*), squirrel (*Callosciurus sp*.), wild cat (*Felischaus*), jackal (*Vulpesbengalensis*), frog (*Ranacyanophyctis*), toad (*Bufomelanostictus*), lizard (*Hemidactylusflaviviridis*), monitor (*Varanusbengalensis*), etc. Bird species include crow, woodpecker, kite, sparrow, weaver bird, parakeet, robin, bulbul, pigeon, dove, hawk, cuckoo, black cormorant, owl, etc.

1.2.2 Aquatic Ecology

National Context: Rivers, canals, perennial water bodies and fishponds are the permanent wetland. Seasonal wetlands are mainly floodplains which inundates in the monsoon. Most of the Project areas support seasonal wetlands. Wetlands govern necessary nutrients and other elements for whole ecosystems as it is an important type.

Divisional Context: Aquatic flora in the wetland ecosystem within the project divisions include aquatic vegetation species, like ghechu (*Aponogetonappendiculatus*), wild paddy (*Hygrorizaaristata*), water lily (*Nymphaeanouchali*), panchuli (*Nymphoidesindica and*

Nymphoidescristata), kuchkola (*Otleliaalismoides*), water hyacinth (*Eichhomiacrassipes*), floating grass (*Echinocloacolonum*), water chestnut (*Trapabispinosa*), spiral algae (Spirogyra sp.), reeds/sedges, etc., within and along the banks of ponds, lakes, rivers, channels and floodplain lands. The fish species include: prawn (*Macrobrachiummalcolmsoni, M. dyanus, M. birmanicus, M. lamenii, Leander styliferus, etc.*), perch (*Anabas testudineus*), catfish (*Mystusvittatus, Mystustengara, Clariusbatrachus, Wallagoattu, Heteropneustesfosslis, Ompokbimaculatus, etc.), major carp (Labeorohita, Catlacatla, etc.*), minor carp (*Puntiussophore, Puntiusticto, Amblypharyngodonmola, Pseudeutropicusatherinoides, etc.*), shads (*Gudusiachapra, Coricasoboma), snakehead (Channapucntatus, Channastriatus, Channamanulius*), eel (*Mastacembelusarmatus, Xenentodoncancila*), etc.

The faunal species present in the terrestrial ecosystems are the common kingfisher (*Alcadoathis*), openbill stork (*Anastonusoscillans*), great egret (*Egretta alba*), small egret (*Egrettagazetta*), intermediate egret (*Egrettaintermedia*), fish eagle (*Ichthyophagusichthyaetus*), snipe (*Gallinagohenura*), kite (*Haliasterindus*), water snake (*Enhydrisenhydris*), monocellate cobra (*Najanaja*), common toad (*Bufomelanostictus*), and others.

1.2.3 Biodiversity

National Context: Traditionally biodiversity in Bangladesh has been identified and described in three levels (e.g. Genetic, species and ecosystem). Bangladesh was once rich in wildlife species and is an important transition zone between Indo-China, the Himalayas and the rest of the Indian subcontinent. The tropical moist forests were botanically amongst the richest in the Indian subcontinent, and they also supported the greatest diversity of mammals and a high diversity of birds. In recent times, although the endemism is low and the species richness is relatively large for the small area of Bangladesh, the population size of most of the species has declined drastically. Eighteen species of wildlife are now extinct from Bangladesh. Among them are several internationally threatened species such as the three species of Asian rhinoceros, and also the banteng, nilgai, swamp deer, pink headed duck, bengal florican and mugger crocodile.

Divisional Context: Fish and aquatic resources, and other biodiversity of this country are summarized in the following Table below. Red list of IUCN data indicates there are 54 species of inland fishes, 8 amphibians, 58 reptiles, 41 resident birds, and 40 mammals, which are threatened throughout the country. Among the marine and migratory species of animals, 4 fishes, 5 reptiles, 6 birds, and 3 mammals are threatened. Most of the forests of project districts are located in the Chittagong, Sylhet, Dhaka, Mymensingh, Noakhali, Lakshmipur, Feni and Tangail districts.

Table: Flora Resources

Category	Total number of Species
Flora	
Angiosperms	5000
Gymnosperms	5
Algae/seaweed	168

Category	Total number of Species
Source: Khan, 1991; Ahmed and Ali, 1996; Alam 1967; IUCN, 2000, Adopted from: State of Environment, Bangladesh	

Table: Fauna Resources

Category	Total number of Species
Fauna	
Sponges	3
Corals	66
(Marine + freshwater) Molluscs	(336+26) 362
Insects	2493
Mites	19
Shrimp/prawns	56
(Marine + freshwater) Crabs	(11+4) 15
Lobsters	3
Echinoderms	4
(Marine + freshwater) Fish	(442+266) 708
Amphibians	22
(Marine + inland) Reptiles	(17+109) 126
Birds	628
(Marine + inland) Mammals	(3+110) 113
Source: Khan, 1991; Ahmed and Ali, 1996; Alam 1967; IUCN, 2000, Adopted from: State of Environment, Bangladesh	

1.2.4 National Conservation Site of Importance

National Context: Several Environmentally Protected Areas (EPA) are located in Bangladesh. All of them are ecologically very important. Some endangered wildlife species such as wild elephants, monkeys, snakes are living in these habitats. The national conservation sites of importance in Bangladesh are: (a) Himchari National Park, Cox' Bazar District, (b) Teknaf game reserve, Cox's Bazar, (c) St. Martins island, Cox's Bazar, (d) Bostami pond, Chittagong, (e) Chunati reserve forest, Chittagong, (f) Bogakine lake, Chittagong , (g) Rangamti lake, Chittagong District, (h) Cox's Bazar Sea Beach, Cox' Bazar, (i) Sundarban, Khulna District, (j) Kuakata, Patuakhali District, (k) Tangua Haor, Sunamganj District, (l) Hakaluki Beel, M. Bazar District, (m) Ramsagar , Dinajpur (n) Bhawal National Park,Gazipur District & (o) Modhupur Forest, Tangail Disrict.

Divistional Context: In the project divisions, there are 7 National Parks, 4 Wildlife Sanctuaries and 1 Game Reserve, declared as environmentally protected areas according to the provisions of the Bangladesh Wildlife Preservation Act 1973 and Bangladesh Wildlife Preservation Act [Amendment] 1974 for biodiversity conservation and improvement . A location map for protected areas and 26 districts under the project is shown in this chapter.

But none of these is affected by any of the sub-projects under the RTIP-II (Additional Financing)as these are located far away (> 2km) from the sub-project sites.

Table: List of National Parks & Wildlife Sanctuary & Game Reserve*

Sl. No.	Name	Location	Year created	Area (ha)
NATIONAL PARK				
1	Himchari National Park	Northeastern part of Cox's Bazar District	1980	1729
2	Madhupur National Park	Northeastern part of Tangail District with some part in Mymensingh District	1982	8436
3	Bhawal National Park	Gazipur district near Dhaka	1982	5022
4	Lawachara National Park	Sylhet Forest Division, Moulavibazar District)	1996	1250
5	Kaptai National Park	Rangamati Hill District	1999	5465
6	Ramsagar National Park	Eastern part of Dinajpur District	2001	15
7	Nijhum Dweep National Park	Consisting of 11 different chars in the South eastern part of Noakhali District	2001	16352
WILDLIFE SANCTUARY				
1	Hazarikhel Wildlife Sanctuary	North eastern part of Chittagong District	1973 (Not formally notified)	2903
2	Rema Kalenga Wildlife Sanctuary	Sylhet Forest Division(Eastern Part of Habiganj District)	1981/1996 (area expanded in 1996)	1796
3	Pablakhali Wildlife Sanctuary	Khagrachari Hill District	1983	42087
4	Chunati Wildlife Sanctuary	South western part of Chittagong District	1986	7764

Sl. No.	Name	Location	Year created	Area (ha)
GAME RESERVE				
1	Teknaf Game Reserve	South eastern part of Cox's Bazar District	1983	11615
			Total	244**74**

Table : List of Ecologically Critical Areas to be preserved *

Sl. No.	Name	Location	Area (ha)	Year	Present condition/remarks
1	Cox's Bazar toTeknaf sea beach	Teknaf, Ukhia, Ramu and Cox's Bazar Upazilas of Cox's Bazar District	10645	1999	Will be managed under GEF supported project to be implemented by DoE. The project has been approved and will enter into execution phase soon
2	St Martin's Island	Teknaf Upazila, Cox's Bazar District	590	1999	Will be managed under GEF supported project to be implemented by DoE. The project has been approved and will enter into execution phase soon
3	Sonadia Island	Moheshkhali Upazilla, Cox's Bazar District	4916	1999	Will be managed under GEF supported project to be implemented by DoE. The project has been approved and will enter into execution phase soon
4	Hakaluki Haor	Barolekha and Kulaura upazilas Moulvibazar District, and Fenchuganj, Golabganj upazilas Sylhet District	18383	1999	Will be managed under GEF supported project to be implemented by DoE. The project has been approved and will enter into execution phase soon. Certain activities are underway by IUCN/CNRS under SEMP support.
5	Tanguar	Taherpur and	9727	1999	Declared as a Ramsar site

Sl. No.	Name	Location	Area (ha)	Year	Present condition/remarks
	Haor	Dharmapasha upazilas, Sunamganj District			Environment Management Plan prepared MOEF is seeking fund from NORAD for implementation of the Environment Management Plan prepared under NCS Implementation Project 1
6	Gulshan Baridhara lake	Dhaka City Corporation	Not specified	2002	A rather strange ECA in the very urban setting, which has aesthetic and recreational value

*Note that the above mentioned environmental protected and critical areas are not affected by the project activities as these areas are located far away (>2km) from the RTIP-II (Additional Financing)sites.

1.3 Socio-economic Environment

1.3.1 Demography

National Context: Bangladesh is the most densely populated country in the world. Based on the 2001 census, the total population of Bangladesh is 123 million of which 64 million (about 52%) male and 59 million (about 48%) female**.** The national average population density of Bangladesh is 981 persons/sq,km in 2011 which was 881 in 2001**.** According to BBS, 2003, the rate of population growth is 1.54%. About 77 % populations live in rural areas & rest 23% in urban areas. The average household size in Bangladesh is 5.5. According to 2001 population census, muslim communities comprise about 90**%** of the total population 8.2% Hindus are the largest religious minority in Bangladesh. Rest (1.1%) is Buddhist, Christians & others. The Muslim and Hindus are distributed throughout the country. The Buddhists are mainly concentrated in the Eastern Hill areas. The country's settlement pattern is predominantly rural & about 80% population lives in rural areas. Indigenous or tribal minority communities are reported to comprise slightly over 1% of the country's population and are geographically concentrated mainly in Chittagong Hill Tracks Areas. The major ethnic of Bangladesh are Bengali. The minor ethnic group includes Santhal, Chakma, Garo, Bihari, Oraon, Munda and Rohingya.

Divisional Context: The highest population density of the project divisions was observed in Dhaka (1252 persons /sq.km) & lowest was in Chittagong Division (67 persons/sq.km)**.** Indigenous or tribal minority communities are reported to comprise slightly over 1% of the country's

population and are geographically concentrated mainly in Chittagong and Sylhet Division. The major ethnic of Sylhet regions are monipur. But none of the project sites are located inn the minority communities.

1.3.2 Settlement Pattern

National Context: The population of Bangladesh is overwhelmingly rural; forming about 84 per cent of the whole (Ericksen *et.al.* 1997). Rural land is densely settled, especially in the more fertile areas where alluvial soils support such crops as rice, jute, fruit and vegetables. However, in only seven of the 64 districts making up Bangladesh does the population density fall below 500/km2. Because of flooding in the rainy season, settlements in low basins, floodplains, and the delta are sited on natural or artificially raised land (ridges or mounds). Thus, linear settlements are the norm. About half of rural settlement in Bangladesh is of this type. The remainder— in areas of Medium Highland and Highland land types- the settlement pattern is either semi-nucleated or scattered. In low-lying basins, homestead mounds may be 3-5m high (Sultana, 1993). Also worth noting is the rather surprising prevalence of dispersed settlement in estuarine *char* areas, with homesteads built on plinths raised only above normal seasonal flood levels, not above experienced storm surge levels. The latter does not seem to reflect a misplaced sense of security behind coastal embankments, since the practice pre-dates modem embankments. There seems little prospect that this basic rural settlement pattern will alter over the next 40 years. Three things that may change are:

- The continued spread of population onto flood- and cyclone-prone *char* land;
- The spread of settlements onto relatively lower land in flood-protected areas (as in the Dhaka- Narayanganj-Demra project area) where they would be exposed to risk of catastrophic flooding if embankments are breached;
- The expanding urban population will spread onto floodplain agricultural land.

Divisional Context: The mostly densities population areas in Dhaka district, where it averages 3,000 people per km2, and the nearby districts of Narayanganj and Narsingdi, where it is over 1500/km2 (BBS, 1992). These three districts also have large urban populations. In a band extending south-east from Dhaka to Chittagong, the population averages over 1,000/km2. The concentration in these areas probably reflects more stable agricultural production and less proneness to flood and drought than in many other areas of the country. The other two divisions like Rajshahi and Sylhet are experinced low population densties rather than Dhaka. It is certain that, over the next 40 to 60 years, the density of rural settlement in Bangladesh will markedly increase. This will increase the absolute number of people at risk from climatic variations and extremes. It is clear that densities in rural and urban areas will increase, exposing settlements to the full range of climatic extremes. If these extremes are exacerbated by climate change and sea level rise, then the exposure of infrastructure associated with settlements will be greatly enhanced, especially on floodplains and along the coast in the project areas.

1.3.3 Land Use and Water Use Pattern

National Context: The land area of Bangladesh is 147,470 sq,km. Land is an important non produced asset of Bangladesh. Proper use of land can bring prosperity in production & growth. The productivity of land in Bangladesh is very high & present agricultural production can be increased to

a large extent with intensive cultivation. In terms of use of land in Bangladesh 52% of total land are agricultural land, 24% water bodies & urban land, 17% forests land, 3% fallow land, & rest 4% are wasteland (BBS,2004).

Divisional Context: Agriculture land is dominating the land use in all four regions. Clustered houses are found elsewhere with numerous small, medium & large homestead trees. Roadside settlement is frequently visible. Roadside trees are also observed. Roadside borrow-pits & ponds are found at most of the road sides in the Rajshahi and Sylhet regions. But in Dhaka and Chittagong Divisions such type of scenario is very rare in case. Big scour hole (treats as fish ponds) are found at downstream of most of the bridges on the roads. These borrow-pits & ponds are mainly used for fish culture. Rivers & canals are across almost all the roads in Sylhet and Chittagong Divisions. Factories & industries are also located at both sides of some roads and river side's factories are common in the Dhaka Division.

1.3.4 Water Supply and Sanitation

National Context: About 96% of population in Bangladesh had access to potable water within 150m of their dwellings via DTWs, HTWs, taps or ring wells (WaterAid Bangladesh Country strategy Plan 2006-2011). The effective coverage of safe water dropped to approx. 80% due to arsenic (As) contamination. About 60% of the households in rural areas of Bangladesh used hygienic latrines such as water sealed latrines & homemade pit latrines as of 2004. Using of hygienic latrines in urban areas is double that of rural areas.

Divisional Context: Bangladesh has made commendable strides in improving access to safe water. About 96% of the people drink tube well water. Arsenic in groundwater is estimated to have affected 19% of the shallow wells increasing the ratio of persons per tube well from 15 to 188; in pockets of hard to reach areas, the ratio is even higher. Hand tube wells, of which there are an estimated 7.5 million, are the primary means of water supply in rural Bangladesh of the project area. However, the majority of these do not have a proper platform and drainage, jeopardising the current claimed level of access to safe water further. More than 50% of the urban populations of the project areas of Bangladesh have access to an improved water supply. Less than one third, i.e. about 31%, of the 300-plus municipal towns has piped water that primarily serves the urban core. The people in urban slums, fringes and in medium and small towns rely on hand tube wells. Surface water is the traditional source of water in Bangladesh but high pathogen, agro-chemical and industrial loads render most surface water sources of the project areas unsuitable for consumption without treatment. Surface water from perennial water bodies have been used for developing small-scale piped water systems as demonstrated by the DCH. Arsenic in groundwater poses a great challenge to the water supply in the regions of the country. Since the detection of arsenic in 1993, various organizations have been screening tube wells for arsenic contamination in excess of the Bangladesh Drinking Water Standard (BDWS) of 0.05mg/L. The most contaminated areas lie in the in the districts of Chandpur, Comilla, Noakhali, Munshiganj. Excessive levels have also been found in the part of the North West of Rajshahi Division, Sylhet and Dhaka Divisions. The least contaminated or uncontaminated areas lie in the Rajshai, Dhaka and Chittagong Divisions. (WaterAid Bangladesh Country strategy Plan). 2006-2011).

The access to sanitary latrines is 44% in rural areas, 69% in municipalities and 73% in city corporations of the project areas (Progress Report March 2005, Government of Bangladesh). Half of rural primary schools do not have sanitary latrines in the project regions. GOB's effort to achieve 100% sanitation coverage by 2010 has pushed sanitation high up in the list of government priorities. They undermine the strong empirical evidence

suggesting that social mobilization, not funding, is critical to sustainable access to sanitation in the project areas. The sanitation facilities in schools and public places and their proper use and maintenance are again a big challenge to achieving the sanitation target.

1.3.5 Fisheries

National Context: The challenges for sustaining multiple uses of aquatic resources are evident globally. Until recently, traditional management of fisheries resources has commanded a low level of compliance with management measures (Alam and Thomson, 2001; Nielsen et al*.,* 2004) and resulted in over exploitation leading to resource degradation. Such management has often ignored the socio-economic aspects of small-scale fisheries (World Bank, 1991), generating increasing calls for a tangible change in the process. The most significant issues arising from attempts to change existing fisheries management will be the need for resource protection and equity in the allocation of access to the resource, both between and within the various user groups. However, many developing countries face major constraints in capacity and the ability to identify and achieve implementation of long-term sustainable policies (Rahman, 1992; Williams, 1996).

In addition to varieties of aquatic organisms, a total of 260 indigenous freshwater bony fish species suitable for human consumption, belonging to 145 genera and 55 families (Rahman, 1992), constitutes a very rich aquatic bio-diversity. Within these, Hilsha (*Tenualosa ilisha*) is perhaps the most important single species and highly demanded in the local market. The annual catch of Hilsha is over 0.20 million metric ton (Mmt) and accounts for 20% of the country's total fisheries production (FAO, 1995a). Besides the large number of fresh water fish species, there are 24 species of shrimps belonging to five families having a very high commercial value and playing an important role in the economy. Fish from inland water accounts for an average of 83% of the total fish protein and most of the inland water fish species are only used for domestic consumption. More than 70% of the population of the country lives in flood plain and coastal areas where the fish and aquatic resources are perceived as exploitable natural capital assets but needing no husbandry. The unrestricted access which fishing communities have to the rivers and floodplains which are the ideal natural breeding grounds for many commercial and non-commercial fish species, has significantly contributed to over-fishing and severe resource degradation. However, the denial of access to certain public fishing grounds which have been leased to private leaseholders has also contributed to making life more difficult for fishing communities. Fish habitat destruction by the construction of roads and embankments, together with drainage, flood control and natural siltation, along with weak implementation of outdated policy measures by the government, have been commonly cited as causes for the deterioration of the country's fishery resources. Increased use of pesticides and fertilizers for producing high yielding varieties of food crops and rising industrial pollution are also contributing to the deterioration of the aquatic environment (Ali, 1997). The situation has further been complicated by upstream damming in the major river systems that significantly reduces the water level and raises much of the river beds, thus dangerously modifying many of the aquatic habitats of the country. The conflicting demand for agricultural production, particularly rice, encourages attempts to dry out the floodplains, reducing open water areas and destroying their fisheries resources. Furthermore, population growth, rapid urbanization and industrialization are also imposing rapidly growing pressures on aquatic resources.

Divisional Context: The project areas located in the delta of three mighty rivers (the Ganges, the Meghna and the Brahmaputra), has vast inland water resources in the forms of ponds, *beels*, *haors*, *baors*, canals, rivers, floodplains and reservoirs. Among these resources ponds, *baors*, Flood Control Drainages (FCD) and burrow pits are used for freshwater aquaculture (MOFL, 1995). However, the freshwater culture fisheries include the

following water bodies**.** The total area of freshwater ponds is about 0.15 million ha representing 3.53 percent of total inland water resources (DoF, 1995). The total area under this component is estimated to be 0.7 million ha, of which about 7,000 ha area is now under being developed for different integrated aquaculture projects. Data regarding the area of water bodies under burrow pits could not obtained (MOFL, 1995).The freshwater area is getting reduced and the overall ecology of fish habitats and the routes of migration have altered due to various water resources development activities in the project areas. So, it is very difficult to fulfill the minimum protein requirement of the teeming millions from the freshwater sub-sector alone. But the highest priority has always been accorded to the freshwater fisheries, as reflected in the number of fisheries development projects implemented since liberation, in spite of that the marine and brackish water fisheries sectors have the lion's share of foreign exchange earnings and contributes to the development budget in that proportion. If similar level of management and development attention was paid to the marine and brackish water sectors, it would be possible to give substantially increased production in the coastal areas.

1.3.6 Industries and Commerce

National Context: The industrial sector in Bangladesh is relatively small, but growth in output has been at nearly 6 percent per year during the past decade. Some 3 million people were employed in this sector in 1986 out of a total labor force of 31 million (Bangladesh Bureau of Statistics, 1991a). Industries are largely based on agricultural commodities, such as jute, cotton, sugarcane, tea, and hides. However, Bangladesh also has some heavy industries, such as steel, pharmaceuticals, chemicals, machine tools, and diesel plants. According to the Bangladesh Bureau of Statistics (1991a,), the industrial sector accounted for 8.74 per cent of the GDP in 1989-90, of which 58 per cent was due to large-scale industries and 42 per cent to small scale industries. However, there is a large number of rural (generally cottage type) industries dispersed throughout the country, most of which are not included in the statistics of the Bangladesh Bureau of Statistics, but significantly contribute to national income and employment, and have the potential to contribute much more to both. Much of the industry is located on floodplains, although in the metropolitan areas it is often on elevated land or land that is protected by embankments. Nevertheless, whether concentrated or dispersed, much of the nation's industry is susceptible to severe flooding and/or cyclones**.**

Divisional Context: Different industrial units including garment factories, jute mills, dying industries, fertilizer factories, sugar mills and brick manufacturing units (fields) are in operation in the project area. Most of these industries are concentrated in the city areas Dhaka, Chittagong, Sylhet and other district towns. Industry along the coast is predominantly concentrated within the Patenga area of Chittagong areas. This area supports a variety of industrial plant which includes the following:

- Fertilizer Manufacturing Plant (TSP)
- Chittagong Steel Mills
- General Electrical Manufacturing
- Chittagong Cement Clinker Factory
- Eastern Cable

- Eastern Refinery

Another concentration in this industrial area is the Bangladesh Export Processing Zone which was established in 1983. There are many farmers engaged in salt production particularly in the districts of Chittagong and Cox'sbazar. Tannaries are mostly concentrated in the Hazaribag areas of Dhaka City and some in the Chittagong area. As the industrial units are mostly without proper effluent treatment facilities are the major source of pollution including untreated sewerage disposal.

1.3.7 Cultural and Archeological Resources

National Context: Bangladesh is exceptionally rich in historical, archaeological & cultural wealth, especially of the medieval period during muslim & pre-muslim rules. Buddist Monastery at Rajshahi District, Mausoleum of Hazrat Shah Jalal, one of the greatest muslim saints in the sub-continents, at Sylhet District, Ahshan Monjil at Dhaka, the stronghold of Isha Khan (one of the famous Twelve Bhuyians of Bengal during Maghal Rule) at Kishoreganj District, ancient Shib Temple at Dinajpur District named as Kantajeer Temple, two famous Majar (Islamic holy or memorial places) at Chittagong named "Baro Awliar Majar" and "Bijit Bostami'r Majar", Mohasthangarh at Bogra District, the seat of administration of the old rulers with its ruins & archaeological finds, Independence War Monument at Dhaka etc. All these resources signify abundance of historical/ archaeological and cultural resources of concerned areas in Bangladesh. Other cultural resources such as mosques, graveyards, temples are frequently found in all over Bangladesh.

Divisional Context: The following important cultural and archeological sites which have immense natural and environmental value, are located in the project divisions. But these cultural and archeological sites are not at all affected by any of the sub-projects under the RTIP-II (Additional Financing) as these are located far away (> 2km) from the sub-project areas.

- The stone sarcophagus of Sultan Ghiyasuddin Azam Shah (1409 A.D.) Sonargaon, Narayanganj;
- Atia Jami Mosque, Tangail;
- Shah Muhammad Mosque at Egarasindur, Mymensingh;
- Hajiganj Fort at Narayanganj;
- Sonakanda Fort on the eastern bank of Sitalakhya river, Narayanganj;
- Lalbagh Fort, Dhaka City;
- Three domed two-storeyed Mosque, built by Khan Muhammad Mirdha, Dhaka;
- Bara Katra, Dhaka;
- Highly ornate 'Jor Bangla' temple at Dakshin Raghabpur, Pabna Town;
- Bara Ahnik temple at Puthia;

- ‘Pancharatna’ Govinda temple at Puthia;
- ‘Pancharatna’ Siva temple at Puthia;
- The Siva and Kali temples at Sonarang (Tongibadi) near Dhaka;
- A Buddhist pagoda with tapering spire at Cox’s Bazar;
- Picturesque Buddhist Khyangs at Ramu near Cox’s Bazar;
- Megalithic memorial monuments at Jaintiapur, associated with the Khasi tribe, Jaintiapur, Sylhet; and
- Ahsan Manzil or the palace of the Nawabs’ of Dhaka, Dhaka City.

ANNEX 2:Potential Environmental Impacts And Mitigation Measures For Sample Subprojects

Road and Bridge maintenance and rehabilitation : Mouchak-Fulbaria

The main activities of the subprojects are as follows:

- Construction Camp;
- Earth works for filling of deep potholes;
- Repairing of bridges/culverts;
- Bituminous pavement works for pothole & crack repairing;
- Slope protection repairing works for road & bridge/culvert
- Removal of construction waste.

The potential impacts along with possible mitigation measures due to the above subproject activities are given below.

Road maintenance does not lead to substantive degradation of the environment or have tangibly negative effects on people living sideways the road. Maintenance work may result, nevertheless, in frequent minor damage to existing conditions (e.g. tree-cutting, dust, landscape damage) at the length of the entire network. To prevent the gradual deterioration of the environment or to improve existing conditions, it is important therefore to include environmental considerations in the preparation and implementation of road maintenance programs.

Preconstruction Phase

Impacts- Due to implementation of the subproject the following potential negative impacts will be occurred:

- loss of land including commercial & homestead (about 5.5ha);
- loss of income;
- loss of about 16,246 trees due to widening of road.

Mitigation- To minimize the above impacts, the possible mitigation measures are recommended:

- To ensure that adverse impacts on the community will be avoided, mitigated or compensated.
- Replantation of suitable trees (wood 50%, fruit 30%, fuel 10% & medicine 10%) on the road side slopes (min. 32,000 nos.) during operation stage.
- Conduct public consultations on the compensation package and implement the Compensation Plan where necessary.

Construction Phase

Construction impacts on road maintenance will consider being negligible as all the construction works will be carried out within the site boundary and will be controlled via the mitigation measures.

- Earthworks

Impacts-The earthworks for the road maintenance for Mouchak-Fulbaria Road sub-project activities might affect crop production; hinder drainage etc. within the project area and in the vicinity. Direct impacts of embankment improvement are erosion on embankment slopes, deposition of silt on crop fields, dust blowing, noise and vibration to disturb the local people.

Mitigation Measures- Cutting and filling of land for the improvement of the Mouchak-Fulbaria Road sub-project will be done in such a way that the slope or toe of the road embankment should be within right of way and will not disrupt crop production as well as drainage problems.

- Dust

Impacts- Possible sources of air pollution will be dust due to maintenance activities, machinery movement and other sources. Construction works involve breaking up, digging, crushing, transporting, and dumping small quantities of dry materials.

Mitigation Measures- Spraying of water is the main way of controlling dust. Water is, in any case, required to be added to fill material during the construction of the road base. Spraying of road surfaces, including haul roads from borrow pits and quarries, should be undertaken during construction, particularly in the vicinity of villages.

- Topography, Geology, and Soils

Impacts-The main impacts generating activities during improvement will be clearing of right-of-way, cutting and filling, blasting, and dismantling damaged pavements and borrows pits. The topography along the project roads will change to some extent because of filling and cutting of soil, filling and improvement of project related structures.

Mitigation Measures-To avoid landslides, land stabilization will be included in the project road rehabilitation. Tree planting along the Hatubhanga-Mouchak -Fulbaria Road via Khatar Hat Road sub-projectarea should be properly planned.

- Occupational Health and Safety

Impacts- Roads in good condition will reduce traffic blocks, engine idle time and damage to motor vehicles. The ensuing benefits to public health and economy though marginal will also add to the main benefit of smooth and faster traffic flow. Construction workers may be affected adversely due to hazardous working environments where high noise, dust, unsafe movement of machinery etc. may be present. The construction of a high-speed road can lead to severance issues.

Mitigation Measures-The contractor shall instruct his workers in health and safety matters, and requires the workers to use the provided safety equipment. Arranging for provision of first aid facilities, rapid availability of trained paramedical personnel, and emergency transport to nearest

hospital with accident and emergency facilities. The contractor will responsible for ensuring that all construction vehicles observe speed limits on the construction sites and on public roads.

- Socio-economic

The project maintenance of the Mouchak-Fulbaria Road will (i) reduce travel time; (ii) ensure uninterrupted traffic and; (iii) increase economic activities in the region. The social development outcomes of the project will include increased employment due to augmentation of the regional trade and thereby reduce poverty in the long run.

Mitigation Measures-All the above adverse impacts of construction phase are localized in spatial extent, temporary and short in duration and can be mitigated by good standard construction practices. Provide alternative sites for vendors/micro businesses and houses using or are in the right of way. These sites should be selected to facilitate equal or enhanced income/living conditions. Schedule the construction activities to avoid or minimize impact on road side shops, businesses and houses.

The project authorities might employ local people wherever possible, hopefully with preference to the qualified landless and jobless poor of the project areas ensuring socio-economic enhancement in the real terms.

- Bituminous pavement works

Impacts-

- Spills from Bitumen plants may contaminate surrounding area as well surface water quality.
- Generated emission and polluted air due to burning of asphalt.

Mitigation Measures - Careful management of any petroleum products used in the preparation of the bitumen mixture to avoid spills and contamination of the local water table. Using of hot mix plants, crushers and batching plants with adequate stack height will minimize the effect due to emission. Tree plantation on the slopes all along the approach road, construction yards, construction camps, to reduce the effect of emission of dust and pollutants on the adjacent/nearby communities

In case of damages of trees/plants due to bitumen heating, adequate plantation needs to be confirmed in the damaged area to ensure the green environment.

- Surface Water Quality

Impacts- Surface water quality of the water bodies such as (small, 55m river and canals) in close proximity to the Mouchak-Fulbaria Road sub-project construction sites may deteriorate if construction material including borrowed fill material and sand, construction waste, water used in construction activities and domestic effluent from work camps will allowed to reach the receiving water bodies. Surface water quality in the rivers and other water bodies could be affected due to rise of suspended solids that could affect the living conditions of aquatic flora and fauna. The sources of the contamination could be:

- removal of vegetation cover could cause local erosion; and
- movement of heavy building machinery can cause the rise in amounts of suspended solids in the surface water.

Mitigation Measures - Proper construction management including, training of operators and other workers to avoid pollution of water bodies by the operation of construction machinery and equipment. Temporary construction facilities including structures and material stockpiles shall be located at least 50 m away from water bodies. Construction of small bridges and culverts should be done during dry season as much as possible.

- Ground Water Quality

Impacts-Impact on ground water will anticipated due to seepage of untreated waste from workers' camps, discharges from the service facilities, storage depots, etc

Mitigation Measures-Proper sanitary conditions and treatment facilities and regular monitoring need to be ensured toward making such wastes and effluents correspond to acceptable standards.

- Air Quality

Impacts-Construction works involve breaking up, digging, crushing, transporting, and dumping large quantities of dry material. It will inevitably lead to an increase in suspended particulate matter (SPM) in and around the construction zones. Possible sources of air pollution will be dust due to construction activities, machinery movement and other sources.

Mitigation Measures- Spraying of water is the main way of controlling dust. Water is, in any case, required to be added to fill material during the construction of the road base. Spraying of road surfaces, including haul roads from borrow pits and quarries, should be undertaken regularly during construction, particularly in the vicinity of villages. Excessive exposure should be avoided; therefore, the asphalt and crushing plants should not be placed near residential areas or social infrastructure such as mosques, schools, markets etc. At least 0.5-1 km should be placed between these facilities and residential areas or social infrastructure.

Operation Phase

- Road Accidents

Impacts- After maintenance, road accidents may increase due to higher number of vehicles using the roads at increased speeds. The road after completion of construction will attract settlements and undesired structures including commercial facilities particularly near the community. Growth of settlement on vacant ROWs near the community increase accident risk.

Mitigation Measures-The speed breaker should be clear in views and in some important crowdy place like school, mosques, industries, hats and bazar should under zebra crossing to avoid accidents.. Turning sign to the vehicles should be clear. Traffic signs should be installed in the right place.

- Noise Quality

Impacts-During operation, passing vehicles will generate noise. Noise levels may also marginally increase as more vehicles use the road at higher speeds. In open areas, traffic noise will disperse and will create a minor impact. Impact on the traffic noise due to operational activities after completion of the Mowchak-Fulbaria Road maintenance would be minimal.

Mitigation Measures-In sensitive areas such as schools, mosques, bazar, settlement areas etc., sound barriers including berms and tree linings may be required. Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles.

- Air Quality

Impacts-Levels of air pollutants could increase marginally as more vehicles would use the roads after maintenance. Impact on the air quality due to operational activities after completion of the project would be minimal. The number of vehicles would increase but due to improved road quality and openness of the area the overall increase in air pollution will be miniature. Due to the improvement of the road there will be less dust affecting the people and animals.

Mitigation Measures- Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles. Training and measuring equipment need to be provided to law enforcement authority to enable them to enforce smoke emission standards.

- Surface and Ground Water Quality

Impacts- Impacts due to the operational activities after the completion of the Mouchak-Fulbaria Road sub-project will be mainly of indirect nature:

- The increase traffic will induce development of traffic-related infrastructure such as filling stations, repair-shops that can cause risks to the water quality.
- The increased industrial activities, such as local industries can cause harmful effects to the surface water and gradually can affect also the groundwater.

Mitigation Measures-Traffic related infrastructure should be managed properly through local administration. Drainage is an important part of road improvement. Unless road drainage is maintained properly, drains and culverts can block, causing localized flooding and damage to the road itself. A commitment to regular monitoring and maintenance will be a requirement under the LGED.

- Flora, Fauna and Livestock

Impacts-The operation of improved road causes additional direct disturbance to the wildlife. Better accessibility increases directly hunting pressure and exploitation of few forest resources in the area. Also by increasing general development in the area affected by road development the pressure to the wildlife resources would increase. About 16246 trees will be affected due to widening of road.

Mitigation Measures-The proper wildlife monitoring system should be applied along the road area, especially in the vicinity of larger settlements. In formerly forested areas reforestation should be considered. About 32,000 various suitable trees need to be replanted on the road side slopes.

ANNEX-3: Monitoring Plan for the Sample Subprojects

The monitoring plan and approximate environmental mitigation cost for the following subprojects are given in the following table.

Environmental component	Location	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
Construction Stage					
Dust Management	Dust Generating place Close to School/Madrasha, Hospital, etc.	Observation	As & when required	Contractor	LGED
Worker facilities	Proper sanitation facilities should be provided at construction camp	Observation	As & when required	Contractor	LGED
Health and Safety	Construction Site and Camp sites	Inspection	As & when required	Contractor	LGED
Air Quality	Close to School/ Madrasha, Hospital & Villages	Test (Measurement of dust and vehicular emissions such as SPM, etc.)	once	Contractor	D&SC & LGED
Surface Water Quality	River (if any)	Test (Monitoring of water such as PH, DO, BOD, COD, etc)	once	Contractor	D&SC & LGED
Flora and fauna	in vicinity of construction camp	Inspection (Monitoring of flora, fauna and other resources.)	Monthly	Contractor	D&SC & LGED
Traffic movements	Construction areas	Inspection (Monitoring of	Daily	Contractor	D&SC/LGED

Environmental component	Location	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
		traffic control devices)			
Waste management (including construction wastes)	Construction Yard/Labor Camp	Inspection (Monitoring of collection, transportation and disposal of solid waste. Inspection of waste disposal sites and construction camps)	Daily	Contractor	D&SC/LGED
Documentation	Along the road	Reporting	Daily	Contractor	D&SC/LGED
Operation Stage					
Air Quality	Close to School/ Madrasha, Hospital & Villages	Test (Measurement of dust and vehicular emissions such as SPM, etc.)	Once	LGED	LGED
Traffic Safety	Along the road	Inspection (Monitoring of traffic control devices)	Once	LGED	LGED
Tree plantation	Road side slope	Inspection (Two tree seedlings to be planted for each tree felled)	Monthly	FD/NGOs	LGED

Annex 4: Public Consultations Findings for Mowchak – Fulbaria Road and Bridge Maintenance

SITE: DHENGARBARI VILLAGE
ROAD: MOWCHAK – FULBARIA ROAD, KALIAKOIR, GAZIPUR
DATE: 26 NOVEMBER 2011
TIME: 12.00 PM TO 12.45 PM.

A consultation meeting was held during 12.00 PM to 12.45 PM in the afternoon on 26th November 2011 at Dhengarbari village. The consultation meeting were conducted with the local people (e.g., farmer, Labour Containing Society). Around 7 people participated in the meeting. In consultation meeting; environmental and social issues were examined. The main focus was to dig out information on how does indiscriminate use of natural resources cause poverty and environmental degradation by declining the homestead forests and decreasing livelihood of people. The issue on potential impact of construction works has also been raised.

Environment Specialist Mr. Nazim Uddin and LGED Upazila Engineer Mr. Anisur Rahman were present as facilitators. Mr. Anisur Rahman was selected by the participants to chair the meeting. The participants were spontenious and gave their full consent regarding the maintenance of the Mowchak-Fulbaria Road as they deeply feel the need of it.

Suggestions:

- Local employment need to be created during the construction phase.
- There should be acceptable and effective mitigation measures in order to reduce noise and dust pollution.

Focus Group Discussions (FGDs)

List of Participants

Focused Group Women Workers Date & Time 26/11/11 (12 30.)
Location Vill - Dhengarbari, Uz. Kaliakoir, Dt. Gazipur.

Sl No.	Name, Address & Telephone No.	Occupation	Signature
1	Jomola Begum	LCS, LGED	
2	Moriam Begum	LCS, LGED	
3	Shalida Begum	LCS, LGED	
4	Momotaj Begum	LCS, LGED	
5	Lalla Begum	LCS, LGED	
6	Joynal Abedine	Farmer	
7	Mojibor Rohman	Farmer	
8			
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LCS - Labor Contracting Society.

ANNEX 5: Sample Screening Checklist for RTIP-II (Additional Financing)

Rural Road and Bridge Maintenance and Rehabilitation

Name of Sub-project: ……..

Location of Sub-project: 1). Upazila: …… 2). District: ……..

Major Components of the Improvement works: …….

Screening Questions	Yes	No	Scale of Impact*			Remarks
			High	Medium	Low	
Potential Environmental Impacts during planning and design phase/ Sub-project siting. Is the sub-project area adjacent to or within any of the following environmentally sensitive areas?						
▪ Protected Area (Forest)						
▪ Wetland (Beel, Haor)						
▪ National Park						
▪ Wildlife sanctuary						
▪ Buffer zone of protected areas						
▪ Special area for protecting biodiversity						
Potential Environmental Impacts from construction of maintenance road. Will the sub-project cause……						
▪ loss of agricultural land ?						
▪ negative effects on rare (vulnerable), threatened or endangered species of flora or their habitat ?						
▪ negative effects on designated wetlands ?						
▪ negative effects on wildlife habitat, populations, corridors or movement ?						

Screening Questions	Yes	No	Scale of Impact*			Remarks
			High	Medium	Low	
▪ negative effects on locally important or valued ecosystems or vegetations ?						
▪ destruction of trees and vegetation						
▪ impact on fish migration and navigation ?						
▪ obstruction of natural connection between river and wetlands inside project area ?						
▪ water logging in polder areas ?						
▪ insufficient drainage ?						
▪ negative effects on surface water quality?						
▪ negative effects on groundwater quality, quantity or movement?						
▪ loss of existing buildings, property, economic livelihood ?						
▪ increased soil erosion and/or sedimentation ?						
▪ negative impact on soil stability and compactness ?						
▪ impacts on sustainability of associated construction waste disposal ?						
▪ traffic disturbances due to construction material transport and wastes ?						
▪ increased noise due to transportation of equipment and construction materials ?						
▪ increased noise due to day-to-day construction activities ?						
▪ increased wind-blown dust from material (e.g. fine aggregate) storage areas ?						
▪ health risks to labors involve in activities ?						
Potential Impacts of the maintenance road. Will the improved road cause …….						
▪ negative effects on neighborhood or community characters ?						
▪ negative effects on local business, institutions or public facilities ?						

Screening Questions	Yes	No	Scale of Impact*			Remarks
			High	Medium	Low	
▪ potential social conflict between occupational groups- farmers vs. fisheries ?						
▪ degradation or disturbance of historical or culturally important sites (mosque, graveyards, monuments etc.) ?						
▪ blockage of navigation system ?						
▪ impediments to movements of people and animals ?						
▪ conflicts in water supply rights and related social conflicts ?						
▪ air quality ?						

*Please consider scale of 1 -2 for Low, 2 -3 for Medium and 5 for High impact.

** Protected areas are lands and waters where development and use is restricted by legal or other means for the conservation of nature

Note: Please add any other screening questions relevant to the sub-project. Also provide additional comments and/or positive impacts in 'remarks' column.

Assessment:

……

Categorization:

Category Action Required

Low Impact		
Medium Impact		
High Impact		

Surveyed by: Designation: Signature: Date:

ANNEX 6: Screening Checklist For Sample Subprojects Under RTIP-II (Additional Financing)

Road and Bridge Maintenance and Rehabilitation : Mowchak-Fulbaria (UZR).

Location of Sub-project: 1). Upazila: Kaliakoir 2). District: Gazipur
Major Components of the Improvement works: Road Maintenance

Screening Questions	Yes	No	Scale of Impact*			Remarks
			High	Medium	Low	
Potential Environmental Impacts during planning and design phase/ Sub-project siting. Is the sub-project area adjacent to or within any of the following environmentally sensitive areas?						
▪ Protected Area (Forest)		√				
▪ Wetland (Beel, Haor)		√				
▪ National Park		√				
▪ Wildlife sanctuary		√				
▪ Buffer zone of protected areas		√				
▪ Special area for protecting biodiversity		√				
A. Potential Environmental Impacts from construction of maintenance road. Will the sub-project cause……						
▪ loss of agricultural land ?		√				
▪ negative effects on rare (vulnerable), threatened or endangered species of flora or their habitat ?		√				
▪ negative effects on designated wetlands ?		√				
▪ negative effects on wildlife habitat, populations, corridors or movement ?		√				
▪ negative effects on locally important or valued ecosystems or vegetations ?		√				
▪ destruction of trees and vegetation	√				√	Some government owned trees to be removed.
▪ impact on fish migration and navigation ?		√				

Screening Questions	Yes	No	Scale of Impact*			Remarks
			High	Medium	Low	
▪ obstruction of natural connection between river and wetlands inside project area ?		√				
▪ water logging in polder areas ?		√				
▪ insufficient drainage ?		√				
▪ negative effects on surface water quality?		√				
▪ negative effects on groundwater quality, quantity or movement?		√				
▪ loss of existing buildings, property, economic livelihood ?		√				
▪ increased soil erosion and/or sedimentation ?		√				
▪ negative impact on soil stability and compactness ?		√				
▪ impacts on sustainability of associated construction waste disposal ?	√				√	Proper disposal of wastes of construction materials to be monitored during construction.
▪ traffic disturbances due to construction material transport and wastes ?	√				√	Minimum disturbance is anticipated due to earthen road and traffic load is also less at present.
▪ increased noise due to transportation of equipment and construction materials ?	√				√	Some noise but impact will be minimal as noise level will be within allowable limit.
▪ increased noise due to day-to-day construction activities ?	√				√	Some noise but impact will be minimal as noise level will be within allowable limit.
▪ increased wind-blown dust from material (e.g. fine aggregate) storage areas ?	√				√	There will be some dust nuisance during construction but proper environmental code of practice will be in place to reduce dust emission.
▪ health risks to labors involve in activities ?	√				√	Some risk during construction is anticipated which will be taken care of by adopting remedial measures incorporated in the contract document and by monitoring.
Potential Impacts of the maintenance road. Will the improved road cause …….						
▪ negative effects on neighborhood or community characters ?		√				
▪ negative effects on local business, institutions or public facilities ?	√				√	Some mosques cum religious school will be exposed to increased noise and dust pollution but impact will be minimal.
▪ potential social conflict between occupational groups-		√				

Screening Questions	Yes	No	Scale of Impact*			Remarks
			High	Medium	Low	
farmers vs. fisheries ?						
▪ degradation or disturbance of historical or culturally important sites (mosque, graveyards, monuments etc.) ?		√				
▪ blockage of navigation system ?		√				
▪ impediments to movements of people and animals ?		√				
▪ conflicts in water supply rights and related social conflicts ?		√				
▪ air quality ?	√				√	The number of motor vehicle is expected to increase after road maintenance.

* scale of 1 -2 for Low, 2 -3 for Medium and 5 for High impact.

Assessment:

The proposed road maintenance (sub-project) does not fall within any environmentally sensitive area. The existing road passes at start along the small shops and at number of locations passes along a number of ponds and /ditches where slope stabilization and widening will be required. This will have positive impact in reducing the risk of erosion. However, for maintenance of the road as per LGED standard, land acquisition will not require. Though the sub-project is not going to pose severe threat to important environmental components except some nuisance due to dust emission during maintenance, considering the total length, number of trees to be removed and additional land would not acquired, the subproject is recommended to be categorized as Medium impact sub-project.

Categorization:

Category	Action Required	Assessment
Low Impact	The sub-project needs limited environmental study.	√
Medium Impact		
High Impact		

Surveyed by: Designation: Signature: Date:

ANNEX 7: ENVIRONMENTAL CODE OF PRACTICES (ECP)

Guideline-1: Stackyard Facilities

Guideline-2: Site Preparation

Guideline-3: Waste Management

Guideline-4: Hazardous Materials Management

Guideline-5: Water Resources Management

Guideline-6: Drainage Management

Guideline-7: Soil Quality Management

Guideline-8: Top Soil Management

Guideline-9: Borrow Areas Development & Operation

Guideline-10: Air Quality Management

Guideline-11: Noise and Vibration Management

Guideline-12: Tree Cutting and Afforestation

Guideline-13: Protection of Fisheries

Guideline-14: Road Transport and Road Traffic Management

Guideline-15: Water Transport Management

Guideline-16: Erosion and Sedimentation Control

Guideline-17: Construction Camp Management

Guideline-18: Cultural and Religious Issues

Guideline-19: Occupational Health and Safety

Guideline-1: Stackyard Facilities

All facilities covered in this Guidelineshould be provided for Stackyard. The provision of facilities listed in this Guideline is subject to the availability of power and services.

Entry and exit

- The means of entering and leaving a workplace must be safe, both in normal working conditions and in an emergency.
- Aisles and walkways should be at least 600mm wide, and kept free of building material or obstructions at all times.
- Open sides of any entrance and exit where a worker could fall from one level to another must be protected with edge protection.
- You should consider separate entrances and exits where mobile plant is entering and exiting, to reduce the risk of anyone being hit by the moving plant.
- Emergency routes must be easily identified, kept free of obstructions, and have emergency lighting, directional signs and exit points marked. Emergency lighting systems must have a back-up system with sufficient capacity in event of a power failure.
- Temporary emergency exits should be clearly marked.

Meal rooms

- Adequate numbers of suitable tables and seating should be provided for eating meals.

- Seating should be either chairs or benches.
- The floor area provided should be at a rate of at least 1m² of floor space for each person using the room at any one time. This space includes space occupied by any tables and seating, but excludes fixtures and appliances.
- Meal rooms should be free of construction related dust and odours, and should have appropriate ventilation and temperature control systems such as:
    - reverse-cycle air conditioning
    - cooling fans or heaters, and
    - flow through ventilation.
- An adequate supply of boiling water for hot drinks should be provided.
- Food warming facilities of adequate size should be provided in each meal room.
- A sink unit of adequate size, with a supply of clean water, should be provided in each meal room.
- A suitable space or shelves for storage of workers' provisions should be provided, including for utensils and food.
- Garbage bins, with removable liners and secure lids should be provided. Bins should be emptied daily or more frequently if required.

Toilets

- Toilets should be located as close as practicable to the workplace and/or facilities.
- The number of toilets provided should be at a ratio of at least one for each ten (10) people or a fraction of 10 people.
- Separate toilets should be provided in workplaces where there are both male and female workers. However, one unisex toilet may be provided in workplaces with both male and female workers where:
    - the total number of people who normally work at the workplace is 10 or fewer
    - there are two or fewer workers of one gender.
- Toilets should be soundly constructed single units, or separated by partitions of strong construction at least 1.5 metres (m) in height, with internal measurements of at least 1400mm long x 850mm wide and 2200mm high. Each toilet should be weatherproof and provided with adequate natural/artificial lighting and ventilation.
- Toilets and urinals should be installed so as to provide adequate privacy. Each toilet should be located:
    - in a position that gives privacy, and
    - in a cubicle, or room, that is fitted with a door that gives privacy and is lockable from inside the cubicle or room.
- Toilets should be clearly marked where separate toilets are provided for males and females.
- Each toilet made available to a female worker must:
    - have facilities to dispose of sanitary items for females and serviced regularly, and
    - be separated from urinals so that no urinal can be seen by her.
- Toilet facilities should be installed to prevent any odours reaching dining facilities. Each toilet should be constantly supplied with fresh air from openings to the outside air or from mechanical ventilation.
- Toilets should be connected to the sewer where available.

- If connection to a sewer is not available, self-contained freshwater flushing or open closet portable toilets should be provided. If the total number of people who normally work at the workplace is 10 or more then an ablution block fitted to a septic tank or temporary holding tank should be provided.
- Toilets that are not connected to a sewer should be serviced at least once a week for a toilet used by five or more people.
- Each toilet should be well drained and have a floor constructed of, or covered with, durable waterproof material.
- Portable toilets should be installed to prevent them toppling over.
- The internal measurements for portable toilets should be at least 1.05m² in area and 1.9m high.
- Covered walkways should be provided to ensure toilets remain accessible during inclement weather.

Washing facilities

- Undercover facilities within or adjacent to each toilet or urinal should be provided. These should be in addition to any provided within portable toilets.
- Clean water and cleansing agents (and disinfecting where appropriate) should be provided for the purposes of washing.
- Basins or wash trough points should be provided with water, and hot water where practicable, at the rate of at least one for each 10 people or fraction of 10 people.
- Water taps over a trough should be at least 500mm apart.
- Adequate number of mirrors should be provided at convenient points.
- Garbage bins, with removable liners and secure lids should be provided. Bins should be emptied daily or more frequently if required.

Showers

- Shower facilities should be provided when required by the nature of the construction work being carried out.
- When required, a minimum of one shower for each workplace should be provided and at the rate of at least one for each 25 people or fraction of 25 people. A higher ratio should be provided for work such as demolition, tunnelling or work of a dirty nature.
- Separate shower facilities should be provided with adequate privacy for the exclusive use of male or females, where both males and females are employed.
- Each shower cubicle should have a shower curtain or door, soap holder, and hot and cold water.
- Shower facilities should have non-slip flooring throughout.
- Bench seating at least 400mm wide and 460mm in length for each shower adjacent to each group of showers should be provided.
- At least one hook or peg for hanging clothes should be provided.

Drinking water

- An adequate supply of cool, clean drinking water should be available on the working site.
    - A supply should be located within 30m of where the worker is working on a single level building, or

  - A supply should be located on the ground level and then every second level of a high rise building being built.
- Drinking water points should be provided near all hot and strenuous work stations. Additional points if needed should be provided.
- Where a connection to water supply is not possible, supply may be provided by other means suitable for dispensing drinking water, such as a flask, water bag, or cooled drink dispenser. If the water is made available in a container, the worker must be able to drink the water without having to drink directly from the same container as someone else.

Facilities for the safe keeping of tools and personal belongings

- A space should be provided for workers to bring hand tools inside amenity sheds during breaks/change times.
- Hooks or pegs (not nails) should be provided to enable hand tools to be kept off the floor. These should be in addition to hooks provided for clothes.
- Lockable chests, or other means, should be provided for the safe keeping of workers' personal belongings and tools kits.

GUIDELINE-2: SITE PREPARATION

1. General

The preparation of site for construction involves: (i) clearing of land required for construction; and (ii) management of activities such as traffic during construction. These activities have been detailed out for civil works of RTIP-II (Additional Financing)activities separately.

2. RTIP-II (Additional Financing)activities

a. Site Preparation Activities

After obtaining the consent of the community on the alignment, the Project Implementation Cell (PIC) of the District Office shall be responsible to stake out the alignment by establishing working benchmarks on ground. It shall be the responsibility of the PIC to take over the possession of the proposed RoW and hand over the land width required clear of all encumbrances to the Contractor. Activities pertaining to the clearance of land and relocation of utilities need to be initiated by the PIC well in advance to avoid any delays in handing over of site to the Contractor. Assistance of the Revenue Department shall be sought in accomplishing the task. To summarize, the PIC's responsibilities before handing over the site to the contractor include:

- Clearance of encroachments within proposed ROW;
- Initiation of process for legal transfer of land title;
- Alignment modification or relocation of common property resources in consultation with the local community;
- Alignment modification or relocation of utilities in consultation with the various government departments; and
- Obtain clearances required from government agencies for
  - Cutting of trees; and
  - Land Diversion of forestlands, etc.

b. Site Preparation Activities by the Contractor

Site preparation shall involve formation of the road base wherein it is ready for construction of protective/drainage works, carriageway, shoulders, parapets and other road furniture. The PIC shall transfer the land for civil works to the Contractor after peg marking of the alignment.

The Contractor shall verify the benchmarks soon after taking possession of the site. The Contractor, prior to initiation of site preparation activities, shall highlight any deviations/discrepancies in these benchmarks to the PIC in writing. The contractor shall submit the schedules and methods of operations for various items during the construction operations to the PIC for approval. The Contractor shall commence operations at site only after the approval of the schedules by the PIC.

The activities to be undertaken by the contractor during the clearing and grubbing of the site are as follows:

The clearance of site shall involve the removal of all materials such as trees, bushes, shrubs, stumps, roots, grass, weeds, part of topsoil and rubbish. Towards this end, the Contractor shall adopt the following measures: (i) Limiting the surface area of erodible earth material exposed by clearing and grubbing; (ii) Conservation of top soil and stock piling as per the measures suggested as part of Guideline 7, “Top Soil Salvage Storage and Replacement”; and (iii) Carry out necessary backfilling of pits resulting from uprooting of trees and stumps with excavated or approved materials to the required compaction conforming to the surrounding area. To minimize the adverse impact on vegetation, only ground cover/shrubs that impinge directly on the permanent works shall be removed. Cutting of trees and vegetation outside the working area shall be avoided under all circumstances. In case the alignment passes through forest areas, The Forest Ranger shall be consulted for identification of presence of any rare/endangered species within the proposed road way. Protection of such species if found shall be as per the directions of the Forest Department.

The locations for disposal of grubbing waste shall be finalized prior to the start of the works on any particular section of the road. The selection of the site shall be approved by the PIC. The criteria for disposal of wastes shall be in accordance with the measures given in Guideline on, “Waste Management and Debris Disposal” (Guideline 2).

In locations where erosion or sedimentation is likely to be a problem, clearing and grubbing operations should be so scheduled and performed that grading operations and permanent erosion and sedimentation control features can follow immediately, if the project conditions permit. Dismantling of structures and culverts shall be carried out in a manner as not to damage the remaining required portion of structures and other surrounding properties. The disposal of wastes shall be in accordance with the provisions given in Guideline 2, “Waste Management”. The following precautions shall be adopted:

- The waste generated shall not be disposed off in watercourses, to avoid hindrance to the flow,
- All necessary measures shall be taken while working close to cross drainage channels to prevent earthwork, stonework as well as the method of operation from impeding cross drainage at rivers, water canals and existing irrigation and drainage systems.

The designated sites duly approved by Implementing Agency shall be cleared of its existing cover for setting up of the construction sites, camps and related infrastructure facilities, borrow areas and other locations identified for temporary use during construction. The contractor shall comply with all safety requirements in consideration as specified in the Guideline on, “Labour & Worker’s Health and Safety”. Before initiation of site preparation activities along these lands to be used temporarily during construction, it shall be the responsibility of the Contractor to submit and obtain approval of the site redevelopment plan from the implementing agency. The letter/contract agreement between the owner(s) of the land parcel for temporary usage shall include site redevelopment to its original status. The guidelines for the same are furnished in the Guideline on, “Construction Plants & Equipment Management”; guideline, “Construction and Labour Camps”; and “Borrow areas”.

c. Traffic management during construction

Traffic management during construction is an activity specific to the contractors. Contractors must ensure a reasonably smooth flow of traffic during construction. The following are the general principles to be followed for traffic management during construction:

- Partial pavement construction over long lengths will not be permitted. The contractor should concentrate his activities over sections such that he can complete continuous fronts of up to a maximum of 1 km before starting the adjacent front. The contractor may open more than one continuous 1 km front provided that he has the separate resources to do so. The resources working on a 1 km front may not be shifted to another front until no longer required on that front.
- The construction activities should be staggered over sub-sections to the extent that the use of plant and equipment is optimized to maximum efficiency and to avoid idling. For road widening operations, excavation adjacent to the existing road shall not be permitted on both titles simultaneously. Earthworks must be completed to the level of the existing road before excavation work on the opposite side will be permitted.
- The construction operations taking place on a particular front must be managed efficiently such that delays between successive pavement layers are minimized.
- Before the start of the monsoon season (June) the contractor shall ensure that the pavement over any front is complete, full width, at least up to Dense Bituminous Macadam, DBM level, but preferably with Asphaltic Concrete, AC wearing course. The contractor should not start any sections of pavement that he cannot complete by the start of the monsoon season.
- In the absence of permanent facilities, temporary drainage and erosion control measures, as required by the Specifications, are to be implemented prior to the onset of the monsoon.

In cases where separate traffic diversions are not essential or cost effective the construction methodology should be in accordance with the guidelines following:

On a 1km section, the pavement construction (except new alignments) should be limited to 500m subsections with a minimum of 1 to 1.5 km between successive sub-sections to ease traffic management and safety issues. The earthworks in the widening portions are not limited in, this respect. Excavation on both sides of the existing, road over the same sub-section simultaneously shall not be permitted for reasons of safety to the traffic, particularly at night.

Sub-sections longer than 500 m may be authorized by the Engineer if two-way traffic flow can be comfortably managed and the Contractor can demonstrate his ability to maintain dust control, proper road edge delineation, proper signage and traffic control. Where single file traffic is permitted ('only applicable to final wearing course operations), the sub-sections shall be reduced to a maximum length whereby safe traffic regulation can be physically managed. Single file traffic may not be permitted at certain locations or times of the day when traffic volumes are such that excessive congestion shall occur.

GUIDELINE-3: WASTE MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
General Waste	Soil and water pollution from the improper management of wastes and excess materials from the construction sites.	The Contractor shall ▪ Develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food waste etc.) prior to commencing of construction and submit to RTIP-II (Additional Financing), LGED for approval. ▪ Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact. ▪ Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. ▪ Segregate and reuse or recycle all the wastes, wherever practical. ▪ Prohibit burning of solid waste ▪ Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route ▪ Provide refuse containers at each worksite. ▪ Request suppliers to minimize packaging where practicable. ▪ Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
Hazardous Waste	Health hazards and environmental impacts due to improper waste management practices	The Contractor shall ▪ Collect chemical wastes in 200 liter drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot. ▪ Store, transport and handle all chemicals avoiding potential environmental pollution. ▪ Store all hazardous wastes appropriately in bunded areas away from water courses. ▪ Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. ▪ Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse,

GUIDELINE-4: HAZARDOUS MATERIALS MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Fuels and Hazardous goods.	Materials used in construction have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on-site, and potential spills from these goods may harm the environment or health of construction workers.	▪ Prepare spill control procedures and submit the plan for RTIP-II (Additional Financing), LGED approval. ▪ Train the relevant construction personnel in handling of fuels and spill control procedures. ▪ Store dangerous goods in bounded areas on a top of a sealed plastic sheet away from watercourses. ▪ Refueling shall occur only within bounded areas. ▪ Make available MSDS for chemicals and dangerous goods on-site. ▪ Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site approved by the DoE. ▪ Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored and personnel trained in the correct use. ▪ Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use. ▪ Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur. ▪ Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill. ▪ Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. ▪ Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials.

GUIDELINE-5: WATER RESOURCES MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Discharge from construction sites	During construction both surface and groundwater quality may be deteriorated due to construction activities in the river, sewerages from construction sites and work camps. The construction works will modify groundcover and topography changing the surface water drainage patterns of the area including infiltration and storage of storm water. These changes in hydrological regime lead to increased rate of runoff increase in sediment and contaminant loading, increased flooding, groundwater contamination, and effect habitat of fish and other aquatic biology.	The Contractor shall ▪ Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials ▪ Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site ▪ Divert runoff from undisturbed areas around the construction site ▪ Stockpile materials away from drainage lines ▪ Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved bunded areas on site. Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This should be done in every exit of each cconstruction vehicle to ensure the local roads are kept clean.
Soil Erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	The Contractor shall ▪ Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion ▪ Ensure that roads used by construction vehicles are swept regularly to remove sediment. ▪ Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds)
Construction activities in water bodies	Construction works in the water bodies will increase sediment and contaminant loading, and effect habitat of fish and other aquatic biology.	The Contractor Shall ▪ Monitor the water quality in the runoff from the site or areas affected by dredge plumes, and improve work practices as necessary ▪ Protect water bodies from sediment loads by silt screen or bubble curtains or other barriers ▪ Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter,

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		debris and any form of waste (particularly petroleum and chemical wastes).. ▪ Use environment friendly and nontoxic slurry during construction of piles to discharge into the river. ▪ Reduce infiltration of contaminated drainage through storm water management design ▪ Do not discharge cement and water curing used for cement concrete directly into water courses and drainage inlets.
Drinking water	Groundwater at shallow depths is contaminated with arsenic and hence not suitable for drinking purposes. Depletion and pollution of groundwater resources.	The Contractor Shall ▪ Pumping of groundwater should be from deep aquifers of more than 300 m to supply arsenic free water. Safe and sustainable discharges are to be ascertained prior to selection of pumps. ▪ Tube wells will be installed with due regard for the surface environment, protection of groundwater from surface contaminants, and protection of aquifer cross contamination ▪ Protect groundwater supplies of adjacent lands

GUIDELINE-6: DRAINAGE MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Excavation and earth works, and construction yards	Lack of proper drainage for rainwater/liquid waste or wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.	The Contractor shall ▪ Prepare a program for prevent/avoid standing waters, which CSC will verify in advance and confirm during implementation ▪ Provide alternative drainage for rainwater if the construction works/earth-fillings cut the established drainage line ▪ Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there ▪ Rehabilitate road drainage structures immediately if damaged by contractors' road transports. ▪ Construct wide drains instead of deep drains to avoid sand deposition in the drains that require frequent cleaning. ▪ Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		▪ Protect natural slopes of drainage channels to ensure adequate storm water drains. ▪ Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem. ▪ Reduce infiltration of contaminated drainage through storm water management design
Ponding of water	Health hazards due to mosquito breeding	▪ Do not allow ponding of water especially near the waste storage areas and construction camps ▪ Discard all the storage containers that are capable of storing of water, after use or store them in inverted position

GUIDELINE-7: SOIL QUALITY MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Filling of Sites with dredge materials	Soil contamination will occur from drainage of dredged materials	The Contractor shall ▪ Ensure that dredged sand used for land filling should be free of pollutants. Prior to filling, sand quality should be tested to confirm whether soil is pollution free. Sediments should be properly compacted. Top layer should be the 0.5 m thick clay on the surface and boundary slopes along with grass. Side Slope of Filled Land of 1:2 should be constructed by suitable soils with proper compaction as per design. Slope surface should be covered by top soils/ cladding materials (0.5m thick) and grass turfing with suitable grass. ▪ Leaching from the sediments should be contained to seep into the subsoil or should be discharged into settling lagoons before final disposal. ▪ No sediment laden water in the adjacent lands near the construction sites, and/or wastewater of suspended materials excessive of 200mg/l from dredge material storage/use area in the adjacent agricultural lands.
Storage of hazardous and toxic chemicals	Spillage of hazardous and toxic chemicals will contaminate the soils	The Contractor shall ▪ Strictly manage the wastes management plans proposed in ECP1 and storage of materials in ECP2 ▪ Construct appropriate spill contaminant facilities for all fuel storage areas ▪ Establish and maintain a hazardous materials register detailing the location and quantities of hazardous substances including the storage, use of disposals

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		▪ Train personnel and implement safe work practices for minimizing the risk of spillage ▪ Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site ▪ Remediate the contaminated land using the most appropriate available method to achieve required commercial/industrial guideline validation results
Construction material stock piles	Erosion from construction material stockpiles may contaminate the soils	The Contractor shall ▪ Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds

GUIDELINE-8: TOP SOIL MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development.	The Contractor shall ▪ Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. ▪ Remove unwanted materials from top soil like grass, roots of trees and similar others. ▪ The stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil. ▪ Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. ▪ Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. ▪ Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the proposed plantation sites ▪ Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the bonding of the soil layers, water penetration and re-vegetation

GUIDELINE-9: BORROW AREAS DEVELOPMENT AND OPERATION

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Development and operation of borrow areas	Generally dredge materials will be used as borrow material for filling of construction sites to the 100 year flood level. In case, the borrow pits developed by the Contractor, there will be impacts on local topography, landscaping and natural drainage.	The Contractor shall ▪ Identify borrow pits in consultation with the local LGED staff and RTIP-II (Additional Financing) staff. ▪ Obtain the borrow material from: - barren land or land without tree cover outside the road reserve; - excavating land and creating new water tanks/ponds; - land acquired temporarily outside the road reserve; - excavation of proposed culverts; ▪ Do not dug the borrow pits within 5m of the toe of the final section of the road embankment. ▪ Dig the borrow pits continuously. Ridges of not less than 8 m widths shall be left at intervals not exceeding 300 m and small drains should be cut through the ridges to facilitate drainage ▪ Slope the bed level of the borrow pits, as far as possible, down progressively towards the nearest cross drain, if any, and do not lower it than the bed of the cross-drain, to ensure efficient drainage. . ▪ Do not locate the borrow pits within 500 m of any identified archaeological, religious or cultural sites if any. ▪ Follow the below for restoration of borrow areas are: - Return stockpiled topsoil to the borrow pit if is used for agriculture; - Stabilize the banks of the borrow pit with the top soil if it is used for fish ponds by compaction; - Return stockpiled topsoil to the borrow pit and all worked areas to be stabilized through re-vegetation using local plants. ▪ Control at each site by ensuring that base of the borrow pit drains into a sediment trap prior to discharging from the site.

GUIDELINE-10: AIR QUALITY MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	The Contractor should ▪ Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. ▪ Operate the vehicles in a fuel efficient manner ▪ Cover haul vehicles carrying dusty materials moving outside the construction site ▪ Impose speed limits on all vehicle movement at the worksite to reduce dust emissions ▪ Control the movement of construction traffic ▪ Service all vehicles regularly to minimize emissions
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	The Contractor shall ▪ Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the equipment suppliers and contractors/subcontractors ▪ Focus special attention on containing the emissions from generators ▪ Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites ▪ Service all equipment regularly to minimize emissions ▪ Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to the concrete batching and mixing plant to control the particle emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery inside the installations
Construction activities	Dust generation from construction sites, material stockpiles and access roads is a nuisance in the environment and can be a health hazard.	▪ Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g. high winds). Stored materials such as gravel and sand shall be covered and confined to avoid their being wind-drifted ▪ Minimize the extent and period of exposure of the bare surfaces ▪ Reschedule earthwork activities or vegetation clearing activities, where practical, if necessary to avoid during periods of high wind and if visible dust is blowing off-site

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		▪ Restore disturbed areas as soon as practicable by vegetation/grass-turfing ▪ Store the cement in silos and minimize the emissions from silos by equipping them with filters. ▪ Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations

GUIDELINE-11: NOISE AND VIBRATION MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Noise quality will be deteriorated due to vehicular traffic	The Contractor shall ▪ Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures ▪ Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc. ▪ Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall ▪ Appropriately site all noise generating activities to avoid noise pollution to local residents ▪ Use the quietest available plant and equipment ▪ Modify equipment to reduce noise (for example, noise control kits, lining of truck trays or pipelines) ▪ Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment. ▪ Install acoustic enclosures around generators to reduce noise levels. ▪ Fit high efficiency mufflers to appropriate construction equipment ▪ Avoid the unnecessary use of alarms, horns and sirens
Construction activities	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall ▪ Notify adjacent landholders prior any typical noise events outside of daylight hours ▪ Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		▪ Employ best available work practices on-site to minimize occupational noise levels ▪ Install temporary noise control barriers where appropriate ▪ Plan activities on site and deliveries to and from site to minimize impact ▪ Monitor and analyze noise and vibration results and adjust construction practices as required. ▪ Avoid undertaking the noisiest activities, where possible, when working at night near the residential areas

GUIDELINE-12: TREE CUTTING AND AFFORESTATION

This Guideline discusses the issue of tree cutting and afforestation. Loss of trees creates adverse environmental impacts. In order to mitigate there impacts, suitable measures have been suggested as part of this Guideline. These measures have been given for each of the stages of the road construction activities.

1. Project Planning and Design Stage

During alignment finalization, due consideration shall be given to minimize the loss of existing tree cover, encroachment of forest areas / protected areas etc. as specified in guideline on, “Project Preparation”. Tree felling, if unavoidable, shall be done only after compensatory plantation of at least three saplings for every tree cut is done.

The plantation/afforestation would be carried out by the forest department. It should be ensured that plantation is carried out only in areas where water can be made available during dry seasons and the plant can be protected during the initial stages of their growth. The species shall be identified giving due importance to local flora. It is recommended to plant mixed species in case of both avenue or cluster plantation.

The plantation strategy shall suggest the planting of fruit bearing trees and other suitable trees. Development of cluster plantations will be encouraged in the community lands, at locations desired by the community. The choice of species will be based on the preferences of the community. The PIC shall oversee the plantation to check the following:

- Whether trees are obstructing live of right at junctions;
- Whether trees are at the inside of the junctions; and
- Whether trees are within 5 meters of the proposed centerline.

2. Post-construction Stage

The maintenance of the saplings (including activities much as weeding, watering, planting of replacement saplings, etc. application of manure etc.) shall be the responsibility of the forest department. The PIC shall ensure the following:

- Shoulder of roads to be kept clear of weeds/undesirable undergrowth; and
- Branches of trees do not obstruct clear view of the informatory and cautions signs.

GUIDELINE-13: PROTECTION OF FISHERIES

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities in River	The main potential impacts to fisheries are hydrocarbon spills and leaks from riverine transport and disposal of wastes into the river	The Contractor shall ▪ Ensure the riverine transports, vessels and ships are well maintained and do not have oil leakage to contaminate river water. ▪ Contain oil immediately on river in case of accidental spillage from vessels and ships and in this regard, make an emergency oil spill containment plan to be supported with enough equipments, materials and human resources ▪ Do not dump wastes, be it hazardous or non-hazardous into the nearby water bodies or in the river
Construction activities on the land	Filling of ponds for site Preparation will impact the fishes.	The Contractor shall ▪ Inspect any area of a water body containing fish that is temporarily isolated for the presence of fish, and all fish shall be captured and released unharmed in adjacent fish habitat ▪ Install and maintain fish screens etc. on any water intake with drawing water from any water body that contain fish

GUIDELINE-14: ROAD TRANSPORT AND ROAD TRAFFIC MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Increased traffic use of road by construction vehicles will affect the movement of normal road traffics and the safety of the road users.	The Contractor shall ▪ Prepare and submit a traffic management plan to the RTIP-II (Additional Financing), LGED for his approval at least 30 days before commencing work on any project component involved in traffic diversion and management. ▪ Include in the traffic management plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs / lights, road signs etc. ▪ Provide signs at strategic locations of the roads complying with the schedules of signs contained in the Bangladesh Traffic Regulations. ▪ Install and maintain a display board at each important road intersection on the roads to be

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		used during construction, which shall clearly show the following information in Bangla: - Location: chainage and village name - Duration of construction period - Period of proposed detour / alternative route - Suggested detour route map - Name and contact address/telephone number of the concerned personnel - Name and contact address / telephone number of the Contractor - Inconvenience is sincerely regretted.
	Accidents and spillage of fuels and chemicals	▪ Restrict truck deliveries, where practicable, to day time working hours. ▪ Restrict the transport of oversize loads. ▪ Operate road traffics/transport vehicles, if possible, to non-peak periods to minimize traffic disruptions. ▪ Enforce on-site speed limit

GUIDELINE-15: WATER TRANSPORT MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities in River	The presence of construction and other construction activities in the River can cause hindrance and risks to the river traffic.	The Contractor shall ▪ Not obstruct other normal riverine transport while doing riverine transport and works ▪ Keep regular and close contacts with Bangladesh Inland Water Transport Authority (BIWTA) regarding their needs during construction of the project ▪ Plan the river transport and transportation of large loads in coordination with BIWTA to avoid traffic congestions. ▪ Provide signage for river traffic conforming to the BIWTA requirements
	Accidents	The Contractor shall ▪ Prepare an emergency plan for dealing with accidents causing accidental sinking of the vessels and ships ▪ Ensure sufficient equipment and staffs available to execute the emergency plans ▪ Provide appropriate lighting to barges and construction vessels.

GUIDELINE-16: EROSION AND SEDIMENTATION CONTROL

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Clearing of construction sites	Cleared areas and slopes are susceptible for erosion of top soils that affects the growth of vegetation which causes ecological imbalance.	▪ Reinstate and protect cleared areas as soon as possible. ▪ Mulch to protect batter slopes before planting ▪ Cover unused area of disturbed or exposed surfaces immediately with mulch/grass turfings/tree plantations
Construction activities and material stockpiles	The impact of soil erosion are (i) Increased run off and sedimentation causing a greater flood hazard to the downstream, (ii) destruction of aquatic environment in nearby lakes, streams, and reservoirs caused by erosion and/or deposition of sediment damaging the spawning grounds of fish, and (iii) destruction of vegetation by burying or gullying.	The Contractor shall ▪ Locate stockpiles away from drainage lines ▪ Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds ▪ Remove debris from drainage paths and sediment control structures ▪ Cover the loose sediments and water them if required ▪ Divert natural runoff around construction areas prior to any site disturbance ▪ Install protective measures on site prior to construction, for example, sediment traps ▪ Control drainage through a site in protected channels or slope drains ▪ Install 'cut off drains' on large cut/fill batter slopes to control water runoff speed and hence erosion ▪ Observe the performance of drainage structures and erosion controls during rain and modify as required

GUIDELINE-17: CONSTRUCTION CAMP MANAGEMENT

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Siting and Location of construction camps	Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.	The Contractor shall ▪ Locate the construction camps at areas which are acceptable from environmental, cultural or social point of view. ▪ Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. ▪ Local authorities responsible for health, religious and security shall be duly informed on the set up of camp facilities so as to maintain effective surveillance over public health, social and security matters

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction Camp Facilities	Lack of proper infrastructure facilities such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	Contractor shall provide the following facilities in the campsites ▪ Adequate housing for all workers ▪ Safe and reliable water supply. Water supply from deep tube wells of 300 m depth that meets the national standards ▪ Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females with total isolation by wall or by location. The minimum number of toilet facilities required is one toilet for every ten persons. ▪ Provide in-house community/common entertainment facilities. Dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible.
Disposal of waste	Management of wastes is crucial to minimize impacts on the environment	The Contractor should ▪ Ensure proper collection and disposal of solid wastes within the construction camps ▪ Insist waste separation by source; organic wastes in one pot and inorganic wastes in another pot at household level. ▪ Store inorganic wastes in a safe place within the household and clear organic wastes on daily basis to waste collector. Establish waste collection, transportation and disposal systems with the manpower and equipments/vehicles needed. ▪ Locate the garbage pit/waste disposal site min 500 m away from the residence so that peoples are not disturbed with the odor likely to be produced from anaerobic decomposition of wastes at the waste dumping places. Encompass the waste dumping place by fencing and tree plantation to prevent children to enter and play with. ▪ Do not establish site specific landfill sites. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.
Health and Hygiene	There will be a potential for diseases to be transmitted including malaria, exacerbated by inadequate health and safety practices.	The Contractor shall ▪ Provide adequate health care facilities within construction sites. ▪ Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. ▪ Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		▪ Initial health screening of the laborers coming from outside areas ▪ Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellant sprays during monsoon. ▪ Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices

GUIDELINE-18: CULTURAL AND RELIGIOUS ISSUES

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities near religious and cultural sites	Disturbance from construction works to the cultural and religious sites, and contractors lack of knowledge on cultural issues cause social disturbances.	The Contractor shall ▪ Communicate to the public through community consultation and newspaper announcements regarding the scope and schedule of construction, as well as certain construction activities causing disruptions or access restriction. ▪ Do not block access to cultural and religious sites, wherever possible ▪ Restrict all construction activities within the foot prints of the construction sites. ▪ Stop construction works that produce noise (particularly during prayer time) should there be any mosque/religious/educational institutions close to the construction sites and users make objections. ▪ Take special care and use appropriate equipment when working next to a cultural/religious institution. ▪ Show appropriate behavior with all construction workers especially women and elderly people ▪ Resolve cultural issues in consultation with local leaders and supervision consultants ▪ Establish a mechanism that allows local people to raise grievances arising from the construction process.

GUIDELINE-19: OCCUPATIONAL HEALTH AND SAFETY

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Best practices	Construction works may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. The population in the proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector transmitted diseases etc.), (and (ii) road accidents from construction traffic.	The Contractor shall ▪ Implement suitable safety standards for all workers and site visitors which should not be less than those laid down on the international standards (e.g. International Labor Office guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guidelines') and contractor's own national standards or statutory regulations, in addition to complying with the national standards of the Government of Bangladesh (e.g. `The Bangladesh Labor Code, 2006') ▪ Provide the workers with a safe and healthy work environment, taking into account inherent risks in its particular construction activity and specific classes of hazards in the work areas, ▪ Provide personal protective equipment (PPE) for workers, such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields, and ear protection. Maintain the PPE properly by cleaning dirty ones and replacing them with the damaged ones. ▪ Safety procedures include provision of information, training and protective clothing to workers involved in hazardous operations and proper performance of their job ▪ Appoint an environment, health and safety manager to look after the health and safety of the workers
Accidents	Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of the victims	▪ Provide health care facilities and first aid facilities are readily available. Appropriately equipped first-aid stations should be easily accessible throughout the place of work ▪ Document and report occupational accidents, diseases, and incidents. ▪ Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, so far as reasonably practicable, the causes of hazards. In a manner consistent with good international industry practice. ▪ Identify potential hazards to workers, particularly those that may be life-threatening and provide necessary preventive and protective measures. ▪ Provide awareness to the construction drivers to strictly

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		follow the driving rules ▪ Provide adequate lighting in the construction area and along the roads
Water and sanitation facilities at the construction sites	Lack of Water sanitation facilities at construction sites cause inconvenience to the construction workers and affect their personal hygiene.	▪ The contractor should provide portable toilets at the construction sites, if about 25 people are working the whole day for a month. Location of portable facilities should be at least 6m away from storm drain system and surface waters. These portable toilets should be cleaned once a day and all the sewerage should be pumped from the collection tank once a day and should be brought to the common septic tank for further treatment. ▪ Contractor should provide bottled drinking water facilities to the construction workers at all the construction sites.

RTIP-II (Additional Financing)

Volume B

Social Impact Management Framework (SIMF)

DEFINITION OF SELECTED TERMS

Compensation: Payment made in cash to the project affected persons/households for the assets acquired for the project, which includes the compensation provided in the Acquisition and Requisition of Immovable Properties Law2017 and others stipulated in this Social Impact Management Framework (SIMF).

Compensation-Under-Law (CUL): Refers to the compensation assessed for the acquired lands and other assets, such as trees, houses/structures, etc., by different government agencies as per the methods provided in the Land Acquisition Ordinance, and paid by the Deputy Commissioners.

Consultation Framework: In view of their stakes and interests in the project or subprojects, the framework is prepared to guide the project preparation team about who are to be consulted about the overall project and its positive and negative social impact implications and to seek their inputs and feedback in the different stages of the project cycle.

Cut-off Dates: These are the dates on which censuses of the affected persons and their assets are completed on a particular area (mauza/village). Assets like houses/structures and others which are created after the cut-off dates, and the persons or groups claiming to be affected, become ineligible for compensation and assistance. For private lands, these dates will however not constitute 'cut-off dates', if the legal Notice-3 is already issued before the censuses are taken. In such a situation, the Notice-3 dates are considered 'cut-off dates', as the acquisition ordinance prohibits changes in the appearance of the lands after issuance of Notice 3.

Entitlement: Refers to mitigation measures, which includes cash payments by DCs and LGED, as well as any non-cash measures stipulated in this SIMF (e.g., allowing the affected persons to keep felled trees, salvageable building materials, etc.), for which compensation is already paid.

Income Restoration: Refers to re-building the capacity of the project affected households to re-establish income sources at least to restore their living standards to the pre-acquisition levels.

Indigenous Peoples: Unless they are already recognized, the Indigenous Peoples are identified in particular geographic areas based on these four characteristics: (i) self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; (ii) collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; (iii) customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and (iv) an indigenous language, often different from the official language of the country or region.

Involuntary Resettlement: The situation arises where the State's power of eminent domain requires people to acquiesce their rights to personal properties and re-build their lives and livelihood in the same or new locations.

Khas Land: Khas lands are public lands those are not recorded in the name of any private citizen/entity of the country as per latest settlement record or owned by any government agencies. Deputy Commissioner in a respective district is the custodian of all khas lands in a district.

Participation/Consultation: Defined as a continuous two-way communication process consisting of: 'feed-forward' the information on the project's goals, objectives, scope and social impact implications to the project beneficiaries, and their 'feed-back' on these issues (and more) to the policymakers and project designers. In addition to seeking feedback on project specific issues, the participatory planning approach also serves the following objectives in all development projects: public relations, information dissemination and conflict resolution.

Physical Cultural Resources: Defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. Their cultural interest may be at the local, provincial or national level, or within the international community.

Project-Affected Person/Household: Persons/households whose livelihood and living standards are adversely affected by acquisition of lands, houses and other assets, loss of income sources, and the like.

Rehabilitation: Refers to improving the living standards or at least re-establishing the previous living standards, which may include re-building the income earning capacity, physical relocation, rebuilding the social support and economic networks.

Relocation: Moving the project-affected households to new locations and providing them with housing, water supply and sanitation facilities, lands, schools and other social and health care infrastructure, depending on locations and scale of relocation. [Homestead losers may also relocate on their own in any location they choose.]

Replacement Cost: The World Bank's OP 4.12 on Involuntary Resettlement describes "replacement cost" as the method of valuation of assets that helps determine the amount sufficient to replace lost assets and cover transaction costs. In applying this method of valuation, depreciation of structures and assets is not taken into account. For losses that cannot easily be valued or compensated for in monetary terms (e.g., access to public services, customers, and suppliers; or to fishing, grazing, or forest areas), attempts are made to establish access to equivalent and culturally acceptable resources and earning opportunities. Where domestic law does not meet the standard of compensation at full replacement cost, compensation under domestic law is supplemented by additional measures necessary to meet the replacement cost standard.

Stakeholder: Refers to recognizable persons, and formal and informal groups who have direct and indirect stakes in the project, such as affected persons/households, shop owners, traders in haats/bazaars/kitchen markets, squatters, community-based and civil society organizations.

Top-Up Payment: Refers to LGED's payment in cases where the compensation-under-law (CUL) determined and paid by DCs falls short of the replacement costs/market prices of the affected lands and other assets.

Vested Non-Resident (VNR) Properties: Originally known as "enemy properties", these have been left behind by the people of minority communities who migrated to India and other countries as a result of the independence and partition of India in 1947. Some of these properties have been identified through 1984, and have since been leased to private citizens or allocated to various government agencies. The act is known to be controversial and has been widely abused.

1. SOCIAL SAFEGUARDS & MITIGATION ISSUES

1.1 INTRODUCTION

This Social Impact Management Framework (SIMF) is proposed to deal with social safeguard compliance issues likely to arise under the Second Rural Transport Improvement Project-Additional Financing ,(RTIP-II (ADDITIONAL FINANCING))), a follow up program of the ongoing Rural Transport Improvement Project (RTIP-II) of the Local Government Engineering Department (LGED). LGED under the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C), Government of Bangladesh (GOB) is preparing RTIP-II (ADDITIONAL FINANCING) (the Project) and will subsequently implement it. The Project is expected to improve, rehabilitate and carry out periodic maintenance on Upazila Roads and Union Roads all selected through a participatory approach in the central, north-eastern and south-eastern regions of Bangladesh. It is determined that implementation of the physical components of the project, especially the improvement of Upazila Roads, will involve social safeguards compliance issues. The International Development Association (IDA) of the World Bank group is assisting with preparation of the project and will provide financial support to implement it.

Social safeguards compliance issues are generally expected to relate to the World Bank's Operational Policies on Involuntary Resettlement (OP 4.12) , Indigenous Peoples (OP 4.10) and Gender Policy OP 4.20 . But the details of the impacts will be known as the design of the many individual subprojects, which will involve multiple civil works contracts, progresses. According to the general scope of the civil works, the project is likely to trigger OP 4.12 as LGED will take back its previously unutilized lands along the Upazila Roads, and possibly Union Roads, some of which are likely to be under authorized and unauthorized private uses. There may also be a need for some additional private land at critical sections to meet the road safety requirements and road design standards. Application of OP 4.10 remains to be determined in terms of subproject locations and the scope and design of the improvement works. To reduce gender disparities and enhance women's participation in the project activities OP 4.20 is considered during preparation of this SIMF.

1.2 The SIMF Objectives

The SIMF is intended to provide general policies, guidelines, and procedures for integration of required mitigation measures of possible safeguard impacts into the selection, design and implementation of the subprojects in each phase. Its objective is to help LGED to ensure that the project:

- Enhances the social outcomes of implementation of the individual subprojects;
- Identifies and mitigates adverse impacts that the selected subprojects might cause on people (men & women), including protection against loss of livelihood activities, with culturally, socially and economically appropriate measures;
- Develops necessary safeguard mitigation measures to adequately disclose and consult with affected people on draft action plans, to replace their lost assets and to improve (or at least restore) their incomes and livelihoods, and

- Is prepared and implemented in compliance with relevant policies of the GOB and the World Bank.

1.3 The RTIP-II : AF Project Area

The RTIP-II (ADDITIONAL FINANCING) project area comprises 18 of the 64 administrative districts (zila) of Bangladesh. The project area covers about 21000 sq. km and has a population of about 28 million. Poverty varies significantly between divisions and districts. All project districts have benefited from earlier infrastructure development assistance under GoB and foreign-financed programmes.

1.4 Project Activities and Social Safeguards Implications

The Project Development Objective (PDO) of RTIP-II (ADDITIONAL FINANCING) is "Improved rural accessibility for rural communities and effective rural infrastructure asset management". Building on the successful outcomes from the ongoing RTIP-II, RTIP-II: AF will: (a) improve selected Upazila and Union Roads to full LGED technical standards including critical bridges and cross-drainage structures, with attention to gender inclusion and road safety issues; (b) rehabilitate, and carry out periodic maintenance on selected previously improved Upazila and Union roads to bring them back into a condition to be sustained through subsequent planned maintenance. All these facilities will be gender inclusive in planning, construction and operation.

The Project will be implemented in 1 (one) year. It is determined that implementation of RTIP-II : AF's physical components, especially the improvement of Upazila Roads (UZR) and possibly Union Roads (UNR), will require acquisition of land from private ownership and resumption of public land from authorized and unauthorized private uses. LGED will apply a consultative and participatory approach to the selection of sub-projects in order to involve key stakeholder groups, including those who are socio-economically vulnerable and indigenous peoples, in the decision-making process and to share in the development benefits.

The Project will contribute to improving the capability of vulnerable communities including women to cope with the impacts of flooding and climate change. The locations of the Project's physical components to improve rural-urban linkages. The project will benefit the population of the target districts through improved communication and trading network services irrespective of gender and ethnicity.

The major physical works that may require private land acquisition and taking back of the public land from private uses are the improvement of UZR[1]. Road improvement works typically include raising and widening of the existing embankments. It is likely that a substantial part of these works will be carried out on LGED's own land along the roads, which may have been eroded or encroached upon over the years. Acquisition, wherever necessary for widening, will likewise be

[1] Almost all rural roads were originally built over a long period of time on private lands under employment generation programs like Food-for-Work, Test Relief, CARE, etc. Although the Director-General of Survey records them as 'Public Roads', ownership of these roads still remains partially with the private landowners. Even then, at various times, LGED carried out improvements on these roads.

in strips along the roads. In exceptional circumstances land acquisition may be required for Upazila Roads only. The Project strategy is that:

- As far as possible, UZR will be selected where the improvement works can be carried out within the existing alignment.
- The rehabilitation and periodic maintenance of UZR and UNR will be within the existing alignments, to restore the roads to their previously improved condition. Similarly PBMC works will sustain the level of service of roads within existing alignments.

As to impacts on indigenous peoples (IPs), the general nature of works - rehabilitation and improvement - on the existing roads is highly unlikely to cause adverse impacts that would be substantially different from those on the mainstream communities. According to the 2001 population census, only 0.20% of the total population in the 9 central, 1.04% in the 9 north-eastern and 0.53% in the 8 south-eastern districts are indigenous tribal peoples (Annex C2). It is therefore anticipated that the IPs will be equally benefited from the project and there is little or no likelihood of relocation impact on the indigenous peoples living in the vicinities of the road corridors to be improved. But pending screening of the specific roads for improvement in phases, it remains unknown whether or not, or the extent to which, IPs would be affected by the project. The proposed SIMF has therefore taken into account the guidelines and provisions of OP 4.10 on Indigenous Peoples to deal with any potential impacts that might be caused by any chosen subprojects in any phases of construction.

Women in Bangladesh are at the forefront of awareness and empowerment through equity focused actions in government and in non-government sectors. But women's access to health services, labour markets and physical security, and their role in decision-making processes still leaves room for improvement. Especially in rural areas, they are lacking adequate access to resources and opportunities. LGED, being in the forefront of government activities for achievement of gender equity, has its own gender strategy for equal participation by men and women in the development process. It has a Women Development Forum which intervenes to achieve incremental benefits of infrastructure development for women and to increase their participation in planning, implementation and operation. RTIP-II : AF is expected to benefit both men and women in the project influence areas with improved access to roads. The Project will provide a specific long-term employment opportunity for disadvantaged women, following established LGED practice, through Labour Contracting Societies (LCS) for off-pavement routine road maintenance. However, due to low access to resources and opportunities, women in the project influence areas may undergo disproportionate impact in the process of land acquisition, resettlement and project construction. The SIMF, therefore, provides guidelines for gender sensitive actions in preparation, design, implementation and monitoring and evaluation of Social Management Plans in each phase.

1.5 Basic Principles

In consideration of the potential adverse impacts associated with land acquisition and displacement of authorized and unauthorized private activities from its own (and other public)

lands, LGED will select, design and implement all subprojects in accord with the following principles:

- Prior to selection of specific roads/subprojects, LGED will undertake community and stakeholder consultations about their objectives, scopes, and social safeguard implications, especially with respect to land acquisition and displacement of businesses, trading and other activities from its own lands (and other public lands, if they are also likely to be used by the project). Consultations will inter alia include,
- All formal/informal local entities, such as Municipal Committees, Union Parishads, Market Management Committees, local women's groups and others with direct and indirect stakes in the project who are deemed key actors to influence project design and implementation.
- The persons, such as landowners, business owners, traders, and the like, who would be directly affected by the subprojects.
- The persons who would be indirectly affected in terms of loss of livelihood and/or loss of access to common property resources.
- Unless absolutely required, LGED will avoid private land acquisition and keep the improvement and rehabilitation works limited, to the extent feasible, to the existing right-of-way to minimize displacement of economic and other activities from private and public lands, including its own.
- LGED will avoid, to the extent feasible, subproject activities that will threaten the cultural way of life of IPs; severely restrict their access to common property resources and livelihood activities; and affect places/objects of cultural and religious significance (places of worship, ancestral burial grounds, etc.).
- LGED will undertake social screening of all subprojects to identify potential social safeguard issues, and adopt and implement impact mitigation measures consistent with the Bank's OP 4.12 and OP 4.10.
- Special attention will be given to female affected persons in the resettlement process and to the vulnerability of women and children in the project areas to social exclusion, trafficking, risks of HIV/AIDS infection and road safety following the policy guidelines of the World Bank on gender.
- LGED will ensure establishment of equality between women and men in all spheres of project activities.

1.6 Safeguards Screening & Mitigation Guidelines

LGED will screen each subproject under each phase to identify potential safeguards compliance issues and social impacts associated with the rehabilitation and improvement works, in order to determine applicability of the OP 4.12 ,OP 4.10 and OP 4.20 and the required Social Management Plans (a screening format is provided in Annex A1). Where adverse impacts cannot be avoided entirely, LGED will select, design and implement the individual subprojects in accord with the following guidelines:

- *Guidelines for Land Acquisition & Resettlement.* Contains principles, policies and guidelines for private land acquisition and use of public lands and adverse impact mitigation; mitigation measures; and implementation and monitoring arrangements for mitigation plans (Section B);

- *Framework for Indigenous Peoples Plan.* Contains principles and guidelines to identify and deal with adverse impacts on IPs, and a consultation framework for adoption of mitigation and development measures, where subprojects would adversely affect them (Section C); and
- *Guidelines on Gender Actions:* Contains principles and guidelines to identify and deal with gender sensitive project issues including participation, benefit sharing, empowerment and vulnerability management (Section D).

1.7 Assessment of Impacts and Risks

Social impacts and risks including land acquisition, resettlement and social concerns will primarily be identified during the initial social screening of subprojects. Once social impacts are noted, census of affected persons and assets will be conducted following the road design and land acquisition plan in compliance with the SIMF guidelines on land acquisition and resettlement (section B), on indigenous peoples (section C) and on gender actions (section D). The affected persons and their communities will be consulted during the census survey to understand the risks and options and devising mitigation of social impacts. Land acquisition process will be initiated by LGED well ahead of time so that assessment of social impacts and risks can be done for preparation and approval of RPs and IPPs before award of civil works contract and implementation of the same before displacement of people. The screening and assessment of resettlement impacts will be done using Annex A1 and valuation of assets will be done following the methods in Annex B2. Land acquisition proposal for respective subprojects will provide information on land and the census (by LGED) and joint verification (jointly by DC and LGED) will provide data on inventory of losses and risks recognized in the SIMF.

LGED will prepare and submit to the Bank for safeguards review, clearance and public disclosure of social impact assessment (SIA) including RP and IPP for all site specific roads. A social screening report will be prepared for all specific roads based on the SIMF. All subprojects' SIA and RP/IPP will be disclosed locally and in Bank Infoshop prior to mobilization of the civil works contract.

1.8 Implementation Arrangements

Headed by a Project Director (PD), LGED has established a Project Management Unit (PMU) at its headquarters to prepare and implement the entire project. The PD is accountable to the Chief Engineer, LGED and the Secretary, Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C) for successful implementation of the project. Among other responsibilities, the PD will oversee preparation and implementation of the phase-wise land acquisition and the Resettlement Plans. The PD will ensure that the engineering designs identify the locations and magnitudes of the land to be acquired precisely, prepare and submit the acquisition proposals to the Deputy Commissioners (DC – head of the acquisition authority), and provide them with the acquisition funds, allowing sufficient time to complete the acquisition process. The PD will also ensure that compensation payment and measures to mitigate social impacts adopted beyond the provisions of the acquisition law are all completed before handing over land for civil works. A Senior Sociologist at the PMU will assist the PD in the process of land acquisition and resettlement of affected

persons and in managing social issues including gender and vulnerability. The PMU will act as the Bank's counterpart for all activities that involve land acquisition and resettlement, and indigenous peoples.

The PD and the PMU will be actively assisted by the Consultant in carrying out the project preparation and implementation tasks. In the field, however, the focal points are the LGED Executive Engineers (XEN) in each district who will implement the Project on the ground, including land acquisition and resettlement plans, and where applicable indigenous people's plans for the subprojects undertaken in their districts. The XENs will call on the services of an LGED District Sociologist posted in each district. The XENs will be directly assisted by the Upazila Engineers (UE – one in each upazila) who will, in turn, be assisted by their Community Organizers (CO – one in each upazila). The Consultant will also assist and support LGED project staff at the district and upazila levels. Actions and responsibilities of LGED staff in PMU and in field level district and upazila offices are summarized in Annex A2. The consolidated responsibility matrix, and a summary Job Description for the District Sociologists, are in Annex A3.

The evaluation of land acquisition and resettlement under RTIP-I & RTIP-II identified that there were delays in the payment of CUL due to difficulties faced by land owners in organizing title documents from Upazila Revenue Offices (URO), and delays in the conduct by other agencies of market price surveys for structures and trees. LGED's legal authority to address these issues is constrained. In respect of non-compliance of legal documents, LGED district and upazila staff will assess where, and to what extent, this is causing delays in payment of CUL and the Community Organisers will meaningfully facilitate illiterate and marginal land losers in organizing their title documents. Where land acquisition will be involved, the LGED XENs and District Sociologists will coordinate with the UROs as well as with the COs to ease and expedite the process. In respect of the valuation of structures and trees, the LGED, through its District Sociologists and Community Organisers, will give priority to facilitating and expediting the surveys, and increase its participation in the valuation process by PWD and forest offices by providing equivalent officers in the valuation team. Where there is serious concern about the valuation levels proposed, LGED will take follow up action to achieve a satisfactory outcome.

The Project will finance additional personnel resources to enable the LGED to fulfill its commitment to implement the social component, in particular the resettlement activities proposed in this SIMF. They will include:

- A full-time Social Scientist in each of the 26 districts (District Sociologist) who will work on the social and resettlement aspects of the project components undertaken in the districts. These persons will spend at least 75% of their working time on land acquisition and resettlement matters, and will be the prime support to the XENs and UEs. Whenever required, these social scientists will be brought together to work in particular work areas, irrespective of their designated locations.
- A full-time Senior Sociologist in the PMU in Dhaka to look after the overall land acquisition, resettlement and other social issues that include phase-wise social screening, social impact assessment (whenever deemed necessary), the processing tasks relating to land acquisition, RP/IPP preparation and clearance of RP/IPP (by IDA), coordination and scheduling of these activities with the civil works programs, and documentation and reporting of all tasks performed up to RP/IPP preparation and clearance. This person will provide direct technical support to and supervise the works of the District Sociologists at the district level.

- An information processing facility, to collate and update the resettlement database used to monitor progress in land acquisition and delivery of entitlements, with the required number of appropriately qualified persons, will be established in each LGED district office.
- If required, the Project will also finance the temporary services of personnel for the enumeration of the censuses, baseline socio-economic surveys and market surveys, and provide resources for the valuation process jointly with the DCs, PWD, DF and other agencies.
- The consultants will also actively assist LGED for social screening, social impact assessment, preparation and implementation of RPs and if required, IPPs for each phase of construction. The DS consultant will assist LGED in preparing land acquisition proposals and coordinating with concerned DC offices for expediting land acquisition.

1.9 Grievance Redress

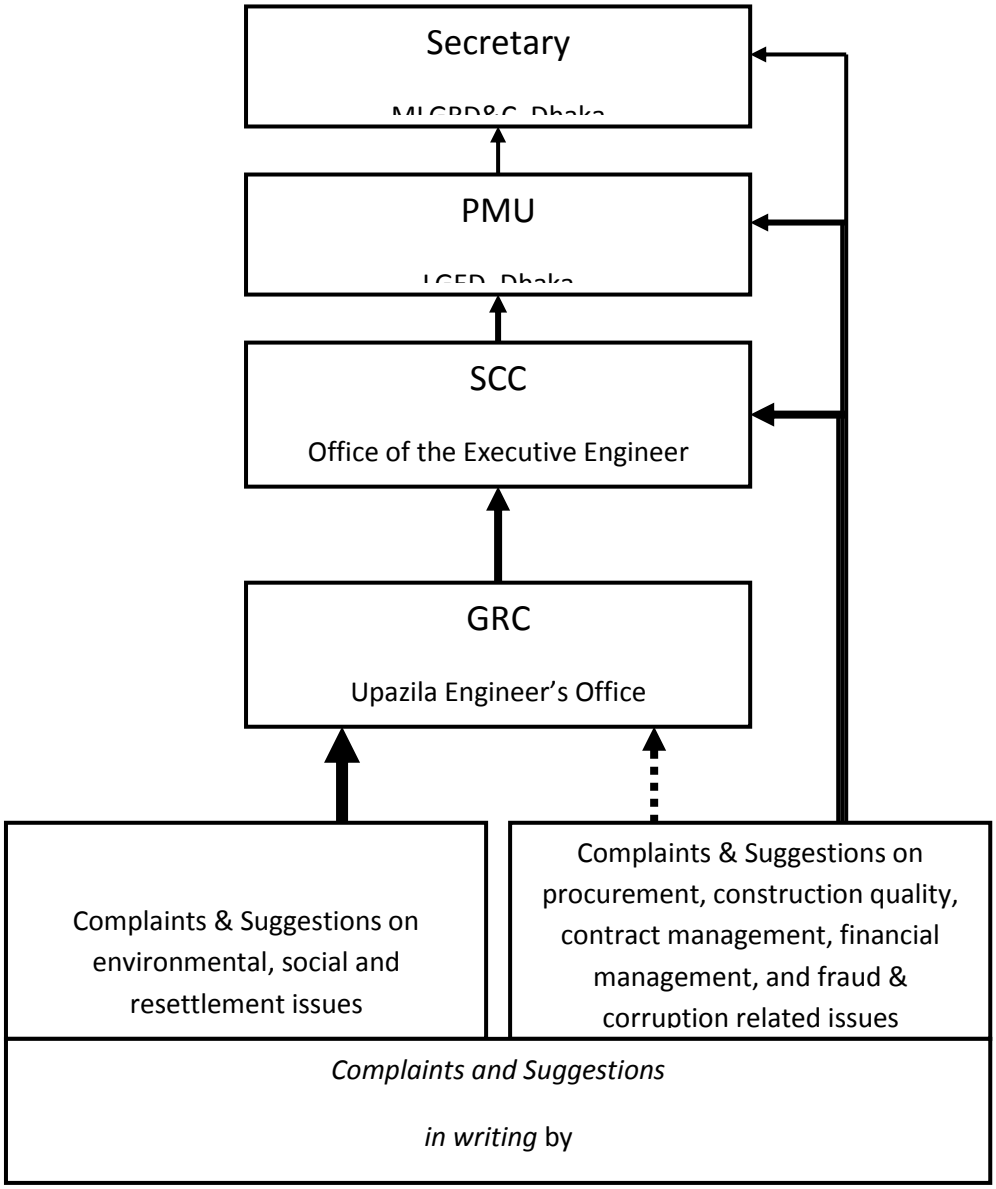
Considering the need, LGED will establish a procedure to answer to queries and address complaints and grievances about any irregularities in application of the guidelines adopted in this SIMF for assessment and mitigation of social safeguard impacts. Based on consensus, the procedure will help to resolve issues/conflicts amicably and quickly, saving the aggrieved persons from having to resort to expensive, time-consuming legal action. The procedure will however not pre-empt a person's right to go to the courts of law.

A Grievance Redress Committee (GRC) formed for each upazila to ensure easy accessibility by the affected persons (with a few exceptions, each civil works contract will be in one upazila). This GRC, and the process for resolving land acquisition grievances, will be one component of the RTIP-II : AF "Suggestion and Complaints Mechanism (SCM)" which is presented in a separate document. The SCM sets out the information and communications strategy to ensure that PAPs are fully informed about their rights to offer suggestions and make complaints, and the different mechanisms through which they can do so, including grievances related to the land acquisition process. All land acquisition grievance received through the SCM process will be forwarded to the GRC. The Secretariat for each GRC will be at the office of the Upazila Engineer. The membership of the GRCs will ensure proper presentation of complaints and grievances as well as impartial hearings and investigations, and transparent resolutions. Where IPs are among the affected persons, the membership composition of the GRCs will take into account any traditional conflict resolution arrangements that IP communities may practice. If the aggrieved person is a female, LGED will ask the concerned female UP Member or Municipal Ward Councilor to participate in the hearings. Members of the GRCs will be nominated by the Upazila Engineer and approved by the Project Director.

GRC Membership

1.	Upazila Engineer (Upazila LGED Office)	:	Convenor
2.	Community Organizer (Upazila LGED Office)	:	Member-Secretary
3.	Local UP Member/Ward Councilor		Member
4.	Teacher from Local Educational Institution	:	Member
5.	Representative of Local NGO	:	Member
6.	Representative from Local Women's Group	:	Member
7.	Representative from the PAP Group	:	Member

Figure II: Institutional and Procedural Arrangements for Grievance Redress



All complaints will be received at the Office of the Upazila Engineer through the Community Organizer. All cases at the local level will be heard within four weeks of their receipt.

If the resolution attempt at the local level fails, the GRC will refer the complaint with the minutes of the hearings to the district level Suggestions and Complaints Committee (SCC) under the SCM for further review. With active assistance from the Sociologist, the SCC will make a

decision and communicate it to the concerned GRC. The SCC's decisions on unresolved cases will be communicated to the GRC within one week of the complaint receipt. If a decision at this level is again found unacceptable by the aggrieved person(s), LGED can refer the case to the MLGRD&C with the minutes of the hearings at local and headquarters levels (Figure II). At the ministry level, decisions on unresolved cases, if any, will be made in no more than four weeks by an official designated by the Secretary, MLGRD&C.A decision agreed with the aggrieved person(s) at any level of hearing will be binding upon LGED. There will be budgetary allocation for GRC and SCC members out of LGED for participating meetings and refreshments during meeting.

To ensure that grievance redress decisions are made in formal hearings and in a transparent manner, the Convener will apply the following guidelines:

- Reject a grievance redress application with any recommendations written on it by a GRC member or others such as politicians and other influential persons.
- Remove a recommendation by any person that may separately accompany the grievance redress application.
- Disqualify a GRC member who has made a recommendation on the application or separately before the formal hearing:
    - Where a GRC member is removed, appoint another person in consultation with the Project Director.
- The Convener will also ensure strict adherence to the impact mitigation policies and guidelines adopted in this SIMF and the mitigation standards, such as compensation rates established through market price surveys.

The affected persons and their communities will be informed of the project's grievance redress mechanism in open meetings at important locations and in PAP group meetings. Bangla translations of the SIMF and the SCM in the form of information brochures will be distributed among the affected persons. The PAPs will also be briefed on the scope of the GRC, the procedure for lodging grievances cases and the procedure of grievance resolution at the project level.

To ensure impartiality and transparency, hearings on complaints will remain open to the public. The GRCs will record the details of the complaints and their resolution in a register, including intake details, resolution process and the closing procedures. LGED will maintain the following three Grievance Registers:

- **Intake Register**: (1) Case number, (2) Date of receipt, (3) Name of complainant, (4) Gender, (5) Father or husband, (6) Complete address, (7) Main objection (loss of land/property or entitlements), (8) Complainants' story and expectation with evidence, and (8) Previous records of similar grievances.
- **Resolution Register**: (1) Serial no., (2) Case no.,(3) Name of complainant, (4) Complainant's story and expectation, (5) Date of hearing, (6) Date of field investigation (if any), (7) Results of hearing and field investigation, (8) Decision of GRC, (9) Progress (pending, solved), and (10) Agreements or commitments.
- **Closing Register**: (1) Serial no., (2) Case no., (3) Name of complainant, (4) Decisions and response to complainants, (5) Mode and medium of communication, (6) Date of closing, (7) Confirmation of complainants' satisfaction, and (8) Management actions to avoid recurrence.

Grievance resolution will be a continuous process in RP implementation. The PMU will keep records of all resolved and unresolved complaints and grievances (one file for each case record) and make them available for review as and when asked for by IDA and any other interested persons/entities. The PMU will also prepare periodic reports on the grievance resolution process and publish these on the LGED website. The format in Annex A4 may be used for periodic grievance reporting.

1.10 Training and Capacity Building

RTIP-II : AF is building on the experience of the ongoing RTIP-II in LGED. The RTIP-II PMU has also been given the responsibility for preparation, design and implementation of RTIP-II : AF. Under these circumstances, the PMU has prior experience of dealing with land acquisition and resettlement in compliance with OP 4.12 on Involuntary Resettlement and OP 4.10 on Indigenous Peoples. PMU staff are already oriented on preparation of resettlement plans and implementation of the plans at the field level. In the preparation process of RTIP-II : AF, the Executive Engineers from all the project districts were given a one day orientation on the project preparation process and on safeguard and non-safeguard social and environmental issues related to RTIP-II : AF.

However, in monitoring land acquisition and RP (and IPP, if needed) implementation activities, the LGED Senior Sociologist at the PMU will identify any issues that may be impeding progress and coordinate them with the PD and Project Manager for actions by the XENs at the district level and the Consultant team. Jointly with the Consultants, the Senior Sociologist will also train the LGED field staff, especially those who will implement subprojects including the District Sociologists, on social safeguards compliance issues relating to involuntary resettlement and indigenous peoples, as well as implementation of the various impact mitigation policies and measures adopted in this SIMF. Gender actions as per the project SIMF will be given special attention in all training and capacity building activities.

1.11 Public Consultation

Second Rural Transport Improvement Project Additional Financing (RTIP-II:AF) arranged a public consultation at Gheor, Manikganj on January 3, 2018 to disclose project policy on environmental and social management. LGED officials, consultants, local people's representatives, local people of different professions, representative of NGOs and women's organizations attended the consultation. The main objectives of the meeting were to disseminate project environmental and social management policy and to collect feedbacks from the participants. Potential environmental and social impacts of project works were disclosed in the meeting. At the same time project impact mitigation policy was discussed. The feedback from the participants has confirmed the importance of disclosure of project policy which aims to ensure that the interests of the project beneficiaries are taken into consideration throughout the life cycle of project.

1.12 SIMF Disclosure

LGED will disclose a Bangla translation of this SIMF to the public, and authorize the World Bank to disclose the SIMF at its Country Office Information Center and in its Info Shop. LGED will ensure that copies of the translated document are available at its headquarters and district and upazila offices, MLGRD&C, public libraries and local government offices in the project districts, and other places accessible to the general public. The resettlement plans and indigenous people's plans (if any) for subprojects will be translated into Bangla and made available at public places accessible to the project-affected persons and other stakeholders before award of civil works contract. As to disclosure, LGED will inform the public through notification in Website (Bangla and English) about the SIMF and where it can be accessed for review and comments.

1.13 Monitoring and Evaluation

LGED will set up an internal monitoring system to report quarterly involving the Upazila Engineer at the Upazila level and the Executive Engineer at the district level. The District Sociologists will primarily be responsible for collection of monitoring data on land acquisition and implementation of resettlement plans, indigenous peoples plans (if any) and gender actions in the process. The project Management Support Consultant team will include a senior, experienced Social Scientist who will be prepare six-monthly reports on monitoring of land acquisition and implementation of resettlement plans, indigenous peoples plans (if any) and gender actions in the process.

The LGED PMU will be responsible for monitoring, reporting and evaluation, including the design of the M&E system. Independent reviews of the LGED land acquisition process will be carried out at regular intervals through the RTIP-II (ADDITIONAL FINANCING) integrated performance audit procedure on a 15% sample of roads under a construction phase. The timing of these independent audits, and the tasks of the auditor for each audit, will be done annually or as determined from time-to-time based on the status of implementation of the Project Work Plan. In respect of land acquisition, the audits will at different stages review the LGED land acquisition process and its monitoring results, and the implementation of the RAPs. This will provide timely feedback on the effectiveness of the planning and implementation process for land acquisition and resettlement of affected persons including indigenous peoples, and on its monitoring. It will generate prompt feedback on problems and issues to be addressed by the Project. An independent impact evaluation will be carried out on 15% sample roads under each construction phase to evaluate the adequacy of the mitigation policies, the socio-economic impact of the Project on the persons affected, and the achievement of the social development goals as well as lessons for future projects. This independent evaluation will require inputs at project-start (to collect baseline data), during implementation (to expand the baseline data base and collect interim evaluation data) and at project-end (for evaluation). LGED will contract with local consultants to carry out the independent impact evaluation. Annex A5 presents the outline terms of reference for the independent evaluation. LGED has prepared the TOR for Independent Performance Auditing (IPA) and shared with the Bank before appraisal. All IPA reports including supervision of RP/IPP implementation will be shared with the Bank.

2. GUIDELINES FOR LAND ACQUISITION AND RESETTLEMENT

2.1 Legal and Policy Framework

The principal legal instrument governing land acquisition in Bangladesh is the Acquisition and Requisition of Immovable Properties Law 2017 and other land laws and administrative manuals relevant to alluvion/ deluvion land, char and khas land administration in Bangladesh[2]. The 2017 Law requires that compensation be paid for (i) land and assets permanently acquired (including standing crops, trees, houses); and (ii) any other damages caused by such acquisition. The Deputy Commissioner (DC) determines (a) market value of acquired assets on the date of notice of acquisition (based on the registered value of similar property bought and/or sold in the area over the preceding 12 months), and (b) 300% - 400% premium on the assessed value (other than crops) due to compulsory acquisition. However, it is well known in Bangladesh that people devalue land during transactions to pay lower registration fees. As a result, sometimes compensation for land paid by DC including premium remains less than the real market price or replacement value. The 1994 amendment of Ordinance of 1982 made provisions for payment of crop compensation to tenant cultivators.

The Ordinance, however, does not cover project-affected persons without title or ownership record, such as informal settler/squatters, occupiers, and informal tenants and lease-holders (without registration document) and does not ensure replacement market value of the property acquired. The act has no provisions for resettlement of the affected households/businesses or any assistance for restoration of livelihoods of the affected persons. As a result, land acquisition potentially diminishes productive base of farm families and those affected and displaced by development projects.

Since the 2017 Law falls short of the requirements of the World Bank safeguard policies on some grounds, the project land acquisition and resettlement policy has been harmonized with the World Bank's social safeguard requirements. The harmonization has also benefited from the RTIP-II experience in resettlement.

2.2 Land Needs & Resettlement Issues

Works on UZRs will consist of widening, raising and selective realignment of the selected roads, including improvement and rehabilitation of carriageways, shoulders, embankments etc, as well as construction of flood refuges in vulnerable areas. As discussed in the preceding section, pending final selection of the subprojects and finalization of the engineering designs, it is assumed that potential resettlement issues are expected to be associated with (i) private land acquisition; (ii) displacement of squatters and encroachers from public lands, including those owned by LGED; and (iii) resumption of leased-out public lands from private citizens. Considering

[2] Alluvial, diluvion and char land survey and settlement (No. 2-2/87/90(1060)/1987; Settlement of char land (No. 2L-3/73/86(19)-R.L/1973; Settlement of Diluviated Lands Reformed in Situ (Memo No. 196(36)-V-177/77-L.S /1978), State Acquisition and Tenancy (Amendment) Act, 1994; Transfer of Khas Land between GOB departments (M:/Sha-10/HUD/general-1/94/345(64)/1994 (source: Land Administration Manual, Vol. 1, Ministry of Land, GOB).

the potential impacts, LGED proposes to obtain private and public lands, which may have been under authorized and unauthorized private uses, by using the following means:

Private Lands. Wherever found absolutely necessary, LGED will use the present Acquisition and Requisition of Immovable Properties Law 2017 and mitigate the associated adverse impacts in compliance with the Bank's OP 4.12 on Involuntary Resettlement and OP 4.10 on Indigenous Peoples. In some cases, LGED may have to acquire the lands that may have been already used for some of the existing roads.[3].

Public Lands *(Including LGED's Own Lands)*

- Under Authorized Use: If the required lands are presently under lease from any government agency, LGED may seek to use them by fulfilling the lease conditions.
- Under Unauthorized Use: LGED will take them back by mitigating the associated adverse impacts consistent with the World Bank's OP 4.12 and OP 4.10.

2.3 Impact Mitigation Objectives

LGED will consistently adhere to the following guidelines:

- Avoid or minimize private land acquisition;
- Avoid or minimize displacement of persons and households who may have been using public lands for residential, commercial and other purposes; and
- Mitigate adverse impacts associated with private land acquisition; displacement from public lands; use of common property resources; and temporary displacement/closure of businesses and livelihood activities during implementation of civil works.

2.4 Applicability & Impact Mitigation Plans

The principles and guidelines as proposed in this SIMF will apply to all subprojects under RTIP-II : AF that will involve land acquisition from private ownership and/or displace people from the existing right of way (public land), which they may have been using for residential, agricultural, commercial or other purposes with or without formal authorization.

To mitigate adverse impacts, LGED will prepare and implement one of the following instruments:

- Resettlement Plan (RP). Where land acquisition and resumption of public lands, including LGED's own, for the subprojects undertaken in a project phase affect 200 or more persons; or
- Abbreviated Resettlement Plan (ARP). Where the subprojects in a phase displace fewer than 200 persons, documenting the affected persons and valuation of affected assets, impact mitigation measures and budget, and an ARP implementation schedule.

[3] It was found under RRMIMP-II that lands used for some of the existing Feeder-B roads did not belong to LGED. These roads were initially built on private lands without going through the legal acquisition process. As a result, LGED never became legal owner of this land. Under RRMIMP-II, this was detected at a late stage in the acquisition process, and the DCs required LGED to revise the acquisition proposals and go once again through the legal process. While preparing land acquisition proposals (LAPs) for RTIP-II : AF, LGED will carefully check ownership status of the lands being proposed for acquisition.

The number of project affected persons consists of all affected persons including their dependents and heirs, irrespective of their tenure status to the lands they use for any purposes.

2.5 Land Acquisition & Impact Mitigation Principles

In keeping with OP 4.12, LGED will use the following principles and guidelines to acquire private lands and resume public lands from private uses, and adopt impact mitigation measures.

Land Acquisition Principles

LGED will select the subprojects and consider alternative designs with an emphasis on avoiding or minimizing adverse impacts on private landowners and those who have been using its own and other public lands with and without authorization. To minimize adverse impacts, LGED will use the following principles:

- Avoid or minimize acquisition of private lands;
- Use as much public land as possible;
- Avoid or minimize:
    - Displacement from homesteads,
    - Loss of land valued higher in terms of productivity and uses,
    - Loss of buildings/structures that are used for permanent business/commercial activities.
    - Dislocation of squatters/encroachers; and
    - Impacts on community facilities, such as educational institutions, places of worship, cemeteries, etc., and buildings/structures that are socially and historically important.
- Sections of the roads will be re-aligned only where it is necessary to meet the required technical and safety standards, or to avoid affecting concentrations of commercial activities.
- *Option to offer residual plots for acquisition:* Where the portion of a plot remaining after acquisition becomes economically unviable, the landowner will have the option to offer the entire plot for acquisition.

Avoid or minimize adverse impacts on Indigenous Peoples. Where adverse impacts are found unavoidable, LGED will adopt appropriate mitigation measures as per the Bank's OP 4.10 on Indigenous Peoples (Section C).

Avoid or mitigate impacts on Cultural Property. LGED will plan, design and implement all subprojects in compliance with the World Bank's OP 4.11 on Physical Cultural Resources.

Social screening Screen the project early on to identify past, present, and future involuntary resettlement impacts and risks. In the wet season it is very hard, expensive and somehow unrealistic to conduct social screening in some low land areas. So, social screening in low land areas should be completed as first priority. Participation of females may be low in public consultations. In that cases community consultation for only females or household data collection from females can be organized.

Impact Mitigation Principles. Where adverse impacts are found unavoidable, LGED will plan to mitigate them in accordance with the following the principles:

- Resettlement of the project affected persons will be planned and developed as an integral part of the subproject design.
- Absence of legal titles in cases of public land users will not be considered a bar to resettlement and rehabilitation assistance, especially for the socio-economically vulnerable groups.
- Vulnerability, in terms of socio-economic characteristics of the affected persons/households, will be identified and mitigated according to the provisions adopted in this SIMF.
- Homestead-losers, including the poor and vulnerable households squatting on public lands, will be assisted with physical relocation and provision of basic facilities like water supply and sanitation.
- People squatting public lands/properties (without any legal agreement for right to use the land) will qualify for financial or any other form of assistance provided the acquisition affects significantly on their livelihood (lose more than 30% of their income) and cannot survive without income from the affected land/property[4].
- Assets like equipment, machinery or parts/components thereof that can be dismantled and moved away intact will not be eligible for compensation, but the owners will be paid the actual costs of dismantling and moving them.
- No compensation will be paid for temporary inconveniences faced by business operators and traders, unless they are required to stop completely their operations during the construction period. However, to ensure sustenance of their income streams, LGED will undertake the following measures in consultation with the concerned Municipal/Bazaar Committees and Design and Supervision Consultant:
  - Plan and implement the construction works in a manner to avoid/minimize inconvenience and disruption to the road users, and to business/trading activities where applicable.
  - Ensure spaces for all temporarily displaced business/trading activities in the vicinities of their present locations, or allow them to relocate temporarily to spots they find suitable.
- Where the project activities cause community-wide impacts affecting community facilities, access to common property resources, etc., LGED will rebuild them with its own resources and/or provide alternatives in consultation with the user communities.

2.6 Eligibility for Compensation & Assistance

Regardless of their tenure status to the lands used for a subproject, the affected persons/households will be eligible for compensation and assistance. Pending further investigations to identify other impacts and impacted persons, LGED will mitigate impacts on the following:

- Private Landowners. Persons who have legal rights to the affected lands and other assets, such as houses, other structures, trees, etc, built and grown on them.

[4] It was found under most previous projects that well-off and influential people built expensive and durable structures on public lands for their own use or to rent them out to others. They ranged from local politicians and musclemen to expatriate Bangladeshis. Under RTIP-II : AF, criteria related to quality of building materials and current uses and users will be used to determine vulnerability and eligibility for resettlement assistance.

- Squatters. Socio-economically vulnerable persons/households, who do not have legal rights to the affected lands, but use them for residential, commercial or livelihood purposes. (They will not be compensated for land, but for the assets built and grown on the land.)

- Owners of Displaced Businesses. Compensation for income loss from businesses that are: (i) displaced from private lands and those belonging to LGED and other public agencies; and (ii) required to close down temporarily during implementation of the civil works. In both cases, compensation/assistance will apply to the actual owners of the affected businesses.

- Employees of Affected Businesses - who are employed in the above two types of affected businesses.

- Rental Income Earners, from built premises situated on private lands. (Those who earn rental income by erecting buildings/structures on LGED and other public lands will be ineligible for compensation/assistance.)

- Vested and Non-resident Property (VNR) Owners/Users. Current users of the acquired lands and other properties designated 'vested and non-resident properties' during acquisition for the current project.

- Usufruct Rights Holders. Owners of affected business, agricultural, fisheries and other activities on formally leased-in government land, where leases stipulate compensatory conditions in cases where lands are taken back or acquired before lease expiration.

- Community and Groups. Where local communities and groups are likely to lose income earning opportunities or access to crucial common property resources used for livelihood purposes.

2.7 Compensation Principles & Standards

The following principles and standards will be used to determine compensation and assistance for persons/households in the different impact categories:

(1) Acquired Lands and Other Assets

- PAPs census identifies affected persons and their losses. Names of the affected persons must be verified with National Identity card (NID).
- Replacement costs for an equal amount of land of same use and quality, including the registration costs or stamp duties. Replacement cost will be collected during PAPs census at the first stage of project.
- Replacement costs of houses/structures and other immovable built items (e.g. water supply, sanitation, drainage, etc), at current market prices of the same building materials plus the current costs of labor to build them. Replacement cost will be determined by a Market Price Survey Committee at the time of PAPs Census.
- Current market prices of trees and other assets which are irreplaceable. Price of fruit trees will be determined considering the maturity and harvest price of fruits.
- Current market prices of crops in the field or on trees, if the lands are used before harvest.

- If the acquired land is agricultural and amounts to 20% or more of the total productive land owned by the affected household, a transition allowance at three times the value of the crops produced in a year on the acquired land.

Valuation principles and methods to determine the replacement costs of lands, houses/structures and other replaceable assets, and market prices of trees, crops and other irreplaceable assets are suggested in Annex B2.

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(2) Displacement from Homesteads

- *Displaced from private lands*: Relocation assistance to lands the affected households can personally arrange to buy, or to public lands arranged by LGED.
- *Displaced from public lands*: Relocation assistance for socio-economically vulnerable households to public lands arranged by LGED.
- *Displaced from VNR lands*: Relocation assistance either to lands they can personally arrange to buy, or to public lands arranged by LGED.
- Provision of pre-acquisition level basic utilities, such as water supply, sanitation, electricity, etc.

(3) Loss of Business, Employment and Rental Income

Temporarily Closed Businesses:

Where business activities come to a complete closure during construction, the owners will be paid for income loss at rates based on average daily net income for the smaller of the number of days needed to reopen the individual businesses, or to complete the civil works.

Partially Affected Businesses:

Where business premises are partially dismantled and the remainder is structurally safe and useable, compensation, calculated as above, for the smaller of the number of days needed to repair and reopen the individual businesses, or to complete the civil works.

Businesses Completely Displaced from Present Premises:

Owners of affected business will be compensated for loss of income for 45 days based on average daily net income from the business and assisted in relocating their business in new locations.

Loss of Employment Income from Displaced & Temporarily Closed Businesses:

Persons who have been continuously employed by the displaced and temporarily closed businesses for at least six months up to the day of the PAP census (cut-off date) will be compensated for the period until their employers restart their operations, or for a maximum of 30 days. The daily rates will be based on their monthly/daily salary paid by the employers.

Loss of Income from Rented-out Premises:

Three months' rent at the current rates for loss of rental income from premises affected on private lands.

(4) Vested and Non-Resident Properties

Lands and other properties that were not declared 'vested and non-resident' (VNR -- previously 'enemy properties' under the *Enemy Properties Act of 1965*)[5] through 1984, and are found to be 'vested and non-resident' during acquisition for any subprojects under RTIP-II : AF, the following guidelines will apply:

Agricultural lands:

- Present users/owners will qualify for compensation of three times the value of all crops grown in one year on the acquired lands;
- Current market prices of crops in the field or on trees, if the lands are used before harvest; and
- Where acquisitions affect the lands partially, the owners/users will be allowed to use the remainder.

Acquired homesteads (including houses/structures): To deal with partial and full acquisitions, LGED will consider the following alternatives in consultation with the present owners/users:

- *Partially acquired homesteads (including houses/structures)*: Assistance to the present owners/users to move and rebuild the houses/structures on the remaining land.
- *Fully acquired homesteads (including houses/structures)*: Relocation assistance either to lands they can personally arrange to buy, or to public lands arranged by LGED; or
- Six months' rent for living accommodation, comparable to the affected one, in the nearby towns where such accommodation is available for rental purposes.

(5) Leasehold Lands

- *Formally leased-in from any agencies of the Government*: Compensation as stipulated in the lease agreement.
- *Formally leased-in khas land*: Compensation, if any, stipulated in the lease agreement.

(6) Unforeseen Impacts

LGED will adopt and implement policies, in consultation with the affected persons/ stakeholders and the IDA, to mitigate any adverse impacts that may have remained unknown and are not covered in this SIMF.

(7) Cut-Off Dates. These will be established to identify the non-land assets that will qualify for compensation and discourage abuse of the mitigation policies by defrauding the project. These are the dates on which censuses of the affected persons and assets are completed on particular area (mauza/village). No person or his/her assets will qualify for compensation unless they are recorded in the census taken on the cut-off date.

[5] These properties have been left behind by the people of minority communities who migrated to other countries as a result of the independence and partition of India in 1947. An investigation through 1984 designated some of such properties as 'vested and non-resident (VNR)', which have since been leased to private citizens on an annual basis, or allocated to various government agencies. There still remains an unknown amount of such properties, which are used by people claiming to be related to the original owners. If the legal documents possessed by the present users are found unsatisfactory *during acquisition for the RTIP-II : AF subprojects,* DCs will declare them VNRP and disqualify them for the compensation-under-the-law. LGED will however implement the proposed mitigation measures on the ground that without the proposed project the current users would still be using the properties.

2.8 Compensation Payment

In cases of acquisitions, a part of the compensation for lands and other affected assets built or grown thereon will be assessed and paid to the title holding PAPs by the Deputy Commissioners (DCs), the heads of the Acquiring Bodies. If this payment, 'compensation-under-law' (CUL), is found to be lower than their replacement costs and/or market prices, LGED will directly pay the difference as 'top-up' to make up for the shortfall.

With and without acquisition, compensation/assistance due to all other PAPs, such as squatters, business owners and employees and those who are not covered by the acquisition ordinance, but qualify according to this SIMF, will also be directly paid by LGED.

Top-up Determination and Payment: Where an owner loses lands and other assets in more than one mouza or land administration unit, the person will be counted once, and his/her top-up will be paid as a single amount. The amount of top-up due to the affected person will be determined by comparing the total amount of CUL paid by the DCs for lands and other assets acquired in all mouzas with the total replacement costs and/or market prices thereof.

Partial CUL and Top-up Payment: Where DC's CUL payment is not made together for all lands and other assets acquired from an owner due to legal disputes or other reasons, LGED will determine the top-up for the acquisitions as a whole, but pay on the lands and other assets for which CUL has been paid. Top-up for the rest will be paid whenever the CUL payment is made after resolution of the disputes.

Compensations/entitlements due to the PAPs, including those who are not covered by the acquisition ordinance, but eligible according to this SIMF, will be paid in full before they are evicted from the acquired private and public lands.

Based on the principles proposed for impact mitigation, the following matrix defines the specific entitlements for different types of losses, entitled persons, and the institutional responsibility to implement them. Further explanations and application guidelines are given in Annex B1.

Entitlement Matrix

[Further explanations and application guidelines are provided in Annex B1. LGED will consult IDA for any modifications to the guidelines as and when found necessary for better implementation of the mitigation measures.]

1. LOSS OF AGRICULTURAL & OTHER LANDS

Ownership Type	Entitled Person	Entitlement	Responsibility
Private	Legal Owners, as determined by DCs, or by courts in cases of legal	Compensation-under-law (CUL) or replacement cost[6], whichever is higher. **If applicable (subject to paragraphs 41 & 42)** • Top-up equal to the difference between CUL	• CUL paid by DCs • Top-up &

[6] Replacement cost include current market price of land plus the expenditure for legalizing the land transfer including cost of stamp purchase and other duties (see Annex B2).

Ownership Type	Entitled Person	Entitlement	Responsibility
	disputes	and replacement cost. • Transition allowance (TA) for income loss (see Loss Category 5 below).	TA paid by LGED
Public Lands/VNR lands under lease	Leaseholders	Three-month advance notice and contractual obligations with the public agencies (DCs if VNR), as determined by DCs	Paid by DCs
Vested & Non-Resident Property (not under lease)	Current Owners/Users (without lease)	Transition allowance for income loss (see Loss Category 5).	Paid by LGED

2. LOSS OF HOMESTEAD LANDS

Location	Entitled Person	Entitlement	Responsibility
Homesteads on Private Lands	Legal Owners, as determined by DCs, or by courts in cases of legal disputes	**In addition to CUL & applicable top-up (as for Agricultural & Other Lands):** • Relocation assistance, including land development, where households choose to relocate on their own, or developed plots if they decide to relocate in public lands arranged by LGED. • Restoration of pre-acquisition level basic utilities (water supply, sanitation, electricity, etc.).	By LGED
Homesteads on Public Lands	Vulnerable Squatters	• Relocation assistance, including developed plots on LGED or other public lands to be arranged by LGED. • Provision of water supply & sanitation facilities.	By LGED
Homesteads on VNR Lands	Present Owners/Users (without lease)	• Assistance to move and rebuild the houses in the same homestead, in cases of partial acquisitions. • Assistance to settle in developed plots on public lands arranged by LGED, where acquisition requires relocation elsewhere; or • Six months' rent for comparable living accommodations. • Provision of water supply & sanitation facilities.	By LGED
	Lessees	• Contractual obligations with the public agencies (DCs), as determined by DCs	Paid by DCs

3. LOSS OF HOUSES/STRUCTURES USED FOR LIVING, BUSINESS & OTHER ACTIVITIES

Type & Location	Entitled Person	Entitlement	Responsibility
All Houses/ Structures on Acquired Private Lands	Legal owners, as determined by DCs, or by courts in cases of legal disputes.	• Compensation-under-law (CUL) or replacement cost, whichever is higher. • Transfer Grant (TG) to cover the carrying costs of household goods, at one-eighth (12.5%) of the replacement costs of the affected structures, in cases where a house is to be removed and constructed elsewhere. • Rental Allowance (RA) to cover 3 (three) months' rental of a comparable residential house in the upazila town, in cases where a house is to be removed and constructed elsewhere. • Allowed to keep the salvageable materials.	CUL paid by DCs and Top-Up paid by LGED in case replacement cost is higher than CUL. TG and RA paid by LGED
Shiftable & Non-shiftable Structures on Acquired Public Lands	Vulnerable Squatters	• Shiftable structures[7]: Transfer and Reconstruction Grant (TRG) @ Tk 50 per sq.ft. of floor area with a minimum of Tk 4,000 and maximum of Tk 6,000. • Non-shiftable structures[8]: TRG @ Tk 75 per sq.ft. of floor area with minimum of Tk 5,000 and maximum of Tk 7,000. • Allowed to keep the salvageable materials.	TRG paid by LGED
Houses/ Structures on VNR Lands	Current Owners/Users	• TRG (Amounts are to be determined in consultation with the current owners/users). • Allowed to keep the salvageable materials.	TRG paid by LGED

[7] Small structures on poles, which can be shifted without dismantling are not eligible for compensation (road side small pan-bidi shops, groceries and tea stalls).
[8] Non-shiftable structures with costly materials (RCC roof or CI sheet roof with brick walls) will not be eligible for this entitlement.

4. LOSS OF TREES AND CROPS ON ACQUIRED PRIVATE & PUBLIC LANDS

Location	Entitled Person	Entitlement	Responsibility
On private Lands	Legal owners as determined by DCs, or by courts in cases of legal disputes Current cultivator of agricultural lands (including tenants)	• Current market value of trees, based on species, size and maturity. • Current market prices of fruits on trees, if they are felled before harvest. • Current market price of crops based on variety • Owners are allowed to fell the trees and harvest the crops, and keep them.	By DCs (included in the CUL) and/or By LGED (included in the top-up)
On public Lands	• Squatters • Private groups, NGOs, etc.*	As those stipulated above for trees and fruits.	By LGED
On VNR Lands	Present Owner/User	As those stipulated above for trees and fruits.	By LGED

* Public lands, especially along the roads, are sometimes leased out to private groups and NGOs for tree plantation under income generation programs.

5. LOSS OF AGRICULTURAL, BUSINESS, EMPLOYMENT & RENTAL INCOME

Impact Type	Entitled Person	Entitlement	Responsibility
Agricultural: • If acquisition amounts to 20% or more of the total productive land holding	Legal Owners, as determined by DCs, or by courts in cases of legal disputes.	Transition allowance @ BDT 1500 per decimal of acquired agricultural land.	By LGED
• If acquired VNR lands are agricultural	Present Owners/Users	Transition allowance equivalent to three times the harvest prices of one year's crops produced on the acquired agricultural lands.	By LGED
Business: • Temporary closure of businesses in existing premises	Business Owners (premise/land owners & tenants)	Compensation, based on daily net income, for the actual number of days the businesses remain closed or needed to complete the civil works, whichever is smaller.	By LGED
• Partially affected businesses	Business Owners (premise/land	Compensation, calculated as above, for the number of days needed to repair and reopen the individual businesses, or	By LGED

Impact Type	Entitled Person	Entitlement	Responsibility
	owners & tenants)	complete the civil works, whichever is smaller.	
• Businesses requiring removal from the existing premises and spots	Business Owners (premise/land owners & tenants)	Compensation, calculated as above, for the number of days the business owners need to find alternative locations themselves, which will be paid for a maximum of 90 days.	By LGED
• Loss of employment income	Business Employees	Compensation at current daily wage rate for the period needed to reopen the businesses, which will be for a maximum of 30 days.	By LGED
• Loss of income from rented-out premises	Legal Owners	Three months' rent at the current rates to the owners of the premises.	By LGED

6. UNFORESEEN LOSSES

Impact Type	Entitled Person	Entitlement	Responsibility
As may be identified during subproject preparation & implementation	As identified	As determined in consultation with IDA and the stakeholders.	By LGED

2.9 Preparation of Mitigation Instruments

The nature and scope of the improvement and rehabilitation works will be determined in accordance with the basic principles proposed in paragraph 13 of Section A, which include community and stakeholder consultations, as well as other guidelines (paragraphs 32-36 of Section B) to minimize private land acquisition and displacement from LGED's own and other public lands. Once the improvement works are finalized and land acquisition needs determined, the major preparation tasks will consist of:

- *Land acquisition proposals (LAP).* Where lands from private and public ownership, excepting those owned by LGED itself, are to be acquired, LAPs will be prepared as per the standard requirements of the acquisition authority.
- *PAP census and fixing the cut-off dates*. To prepare RPs and ARPs, the censuses will assess details of the impacts and impacted persons/households with respect, but not limited, to the impact categories and compensation/assistance eligibility criteria proposed in this SIMF (paragraphs 42-44 of Section B). The dates on which censuses are taken will constitute the cut-off dates for squatters, and those on which the legal notice under Section 4 of the acquisition ordinance (Notice-4) is served will be the cut-off dates for private landowners. (Private landowners are not allowed to alter the appearance of the lands by erecting new structures or otherwise, after the Notice-3 is served.)

- *Market surveys*. To determine the replacement costs of lands, houses/structures and other replaceable, and market prices of irreplaceable, affected assets (Survey methods suggested in Annex B2).

2.10 Contents of RP & ARP

The RPs or ARPs will be prepared in view of the number of the persons affected by the civil works undertaken in each phase of the Project (Section B, para. 35). With the principles and guidelines proposed in this SIMF, the mitigation plans will include the following:

Resettlement Plan (RP)

- Brief description of the improvement and rehabilitation works undertaken on the individual road (or contract in cases of multiple contracts) with location of major impact spots, such as road sections/junctions, bazaars/trading centers, etc.;
- Results of census survey and summary of impact details (PAP/household level raw data will be computerized to prepare the entitlement files);
- An account of the alternatives considered to avoid and/or minimize the adverse impacts;
- An account of the consultations with the affected persons/households about the mitigation measures and implementation procedure;
- Specific compensation rates and standard of entitlements and entitled persons/households for different types of losses as per the principles and guidelines adopted in this SIMF;
- An account of impacts by gender and vulnerability due to subprojects in each phase and the special assistance that is to be provided;
- Description of resettlement sites and programs for improvement or restoration of livelihoods and standards of living;
- Grievance redress mechanism;
- Resettlement budget with breakdowns by loss categories and the number of persons entitled to compensation/assistance, and a RP implementation schedule; and
- Monitoring and evaluation.

Abbreviated Resettlement Plan (ARP)

- Documentation of the private and public lands, including LGED's own, required for the civil works in each phase, a census survey of affected persons, and valuation of the affected assets;
- Description of compensation and other resettlement assistance that will be provided according to the principles and guidelines adopted in this SIMF;
- An account of the consultations with the displaced persons/households about acceptable alternatives;
- Grievance redress mechanism;
- A resettlement budget with breakdowns by loss categories and the number of persons entitled to compensation/assistance, and an ARP implementation schedule;
- Monitoring and evaluation.

For convenience of review during implementation, the following from the SIMF may be annexed to both RPs and ARPs: Entitlement Matrix; Annex A2 on Implementation Arrangements; Annex B1 on Application Guidelines for Mitigation Measures; and Annex B3 on Monitoring Land Acquisition and Preparation and Implementation of impact mitigation plans.

2.11 Community/Stakeholder Consultations

Selection of subprojects and civil works will include extensive discussion on social safeguard issues associated with private land acquisition and displacement from LGED's own and other public lands; minimizing adverse impacts; gaining support and cooperation of local government bodies like Union Parishads; stakeholder groups like Haat/Bazaar Committees, and any entities looking after community interests; and most of all the affected landowners, squatters, business owners, and traders at bazaars/trading centers and others, who would directly face the adverse impacts and temporary inconveniences. Suggestions/feedbacks received from the consultations will be considered in subproject design.

Consultations will primarily include the following topics as they relate to project preparation and implementation:

- Subproject objectives, scope and implications with respect to its socioeconomic impacts; community inputs/feedback on design; and the rights and responsibilities on the parts of the communities themselves and of the agencies involved in its preparation and implementation, such as GOB, LGED, World Bank, Design & Supervision Consultants, etc.
- Potential impacts and their sources relating to the scope of the civil works required for specific subprojects. Once the would-be PAPs are identified, LGED will,
    - Consult and provide information to the PAPs on specifics of the mitigation measures and the processes that will be followed to implement them;
    - Inform the affected landowners of the legal documents required to claim compensation from DCs, and explain the procedure where the landowners may need to have them processed anew (LGED will actively assist the landowners procure any documents required for CUL payment);
    - Explain the functions and limitations of the Grievance Redress Committees, and how the aggrieved PAPs could lodge their complaints and grievances; and
    - Ensure contacts and information to all the PAPs eligible for compensation and assistance through all possible means of communication including radio broadcast, newspaper advertisement, local notification, personal mails and any other feasible means.
    - If participation of females is low in the consultation of people of both sex, arrange separate consultation for females separately.

Stakeholder consultation will be carried out throughout the project preparation and implementation period and LGED will consider stakeholder inputs and feedback to minimize the project's adverse impacts at any stage of the project cycle.

2.12 Documentation

While RPs/ARPs will include summaries of the impacts and impacted persons/ households, LGED, assisted by the MS Consultant, will ensure availability of the following and any other documentation as and when requested by IDA:

- Minutes of stakeholder consultation on matters like selection of rehabilitation/ improvement works, social safeguards implications of private land acquisition and displacement from public lands, mitigation measures adopted in the SIMF, etc.

- Inventory of different categories of PAPs based on the census of affected persons/ households and assets.
- Reports on all market price surveys conducted to determine replacement costs and current market prices of different types of assets.
- Entitlement files of individual PAPs, with the accounts of losses, CUL payment by DCs, and top-up and any other entitlements payment by LGED.
- Records of complaints and grievances and the decisions given by Grievance Redress Committees, LGED or by the MLGRD&C.

2.13 Monitoring & Reporting

Monitoring will consist of an array of steps related to land acquisition, and preparation and implementation of impact mitigation plans. The major tasks that are to be monitored are provided in Annex B3. The MS Consultant will assist LGED to set up and operate a computerized system to monitor and report progress and performance in land acquisition and resettlement activities.

LGED will provide the IDA with the following information for its review of performance and compliance with the OP 4.12:

- Contract-wise monthly updates indicating progress in land acquisition and CUL payment by DCs, and any issues that are to be addressed to facilitate the acquisitions;
- Contract-wise monthly updates on LGED's part of the payment: (i) top-up and other applicable entitlements to the CUL recipients; (ii) compensation/entitlements to the affected squatters; and (iii) compensation/entitlements to any other persons/groups not covered in this SIMF, but found later to be affected by the project works.
- Detailed reports for IDA implementation support missions covering the entire resettlement program, which will include, among other information, the latest status in land acquisition and compensation payment by DCs and LGED; implementation of any other stipulations adopted in the RP; accounts of the GRC activities; and any issues that are to be addressed to improve performance of the resettlement program.

The regular RTIP-II : AF independent integrated performance auditing (IPA) process will also cover social issues and assess how effectively and efficiently land acquisition is being carried out, and how impact mitigation plans (RPs or ARPs) are being prepared and implemented. It will identify any problems and issues arising to be addressed by LGED in order to improve the procedure and ensure compliance with safeguard policies. The independent impact evaluation of the RTIP-II (ADDITIONAL FINANCING) land acquisition will focus on the adequacy of the mitigation policies, the socio-economic impact on the persons affected by land acquisition, and the extent to which the intended social development goals have been achieved. It will identify lessons to make recommendations for improving LGED land acquisition processes for RTIP-II : AF and subsequent other projects. For review and concurrence, LGED will share the consultants' TOR with the World Bank (see Annex A5).

2.14 Land Acquisition & Resettlement Budget

The first year program may not involve any land acquisition or resettlement. However, the phase-wise budget for land acquisition and resettlement will be determined after selection of roads and design of civil works ensuring the following:

- The RP or ARP prepared for each phase, which is to be subjected to Bank review and clearance prior to accepting the work packages for Bank financing, will include a precise budget for land acquisition and resettlement; and
- The project funding approval process of the GOB, which may involve other ministries, will provide funds to finance land acquisition and resettlement activities that could not be identified at this stage of project preparation.
- The Land acquisition proposal should be submitted to DC office within a month from the date of administrative approval.

The budget for each phase will be detailed with breakdowns in terms of various types of losses with their replacement costs/market prices and the number of persons entitled to compensation in each loss category.

Provision for a Social Scientist and provision for a Resettlement Specialist are included in list of consultants.

3. FRAMEWORK FOR INDIGENOUS PEOPLES PLAN

3.1 Introduction

The largest proportion of the country's small indigenous population lives in the three districts of the Chittagong Hill Tracts (CHT) - Bandarban, Rangamati and Khagrachari - which are also heavily populated by mainstream peoples. The rest is dispersed in the plains districts where they generally live in settlements among the mainstream communities. However, none of the RTIP-II (ADDITIONAL FINANCING) subprojects are located in the CHT districts. In any case, given the nature of works - improvement/rehabilitation works on existing roads – it is highly unlikely that impacts on IPs in the plains districts would be substantial and different from those on the mainstream peoples. Land acquisition, if required, would most likely be in very small amounts and may affect those who live by the existing road alignments. But it will remain largely unknown whether or not, or the extent to which, the project as a whole will affect IPs until all roads and other subprojects are selected and surveyed.

Applicability of the Bank's OP 4.10 on Indigenous Peoples will depend on the presence of IPs in the project's impact zones where they might be affected in a manner that could threaten their culture and way of life, including present livelihood activities. Since the nature and scale of impacts will remain unknown until all roads/subprojects are selected and screened, LGED has decided to formally adopt guidelines to address IP issues and concerns, and identify and promote development opportunities for the affected IP communities. The proposed framework outlines principles, policies, guidelines and the procedure to identify impact issues and potential risks and, if required, formulate and execute Indigenous Peoples Plans (IPPs), whenever improvement and rehabilitation works are found to affect IPs under any subproject financed by the project.

3.2 Objectives of IPPs

The primary objective is to ensure that the road improvement and other works funded by the Bank do not adversely affect IPs and that they receive culturally compatible social and economic benefits. This will require LGED to work with the following strategic objectives:

- Screen all subprojects to determine presence of IPs and, if so, ensure their direct participation in selection, design and implementation of the physical works;
- Select subprojects and determine their scopes to avoid or minimize, to the extent feasible, adverse impacts;
- Adopt socially and culturally appropriate measures to mitigate the unavoidable adverse impacts; and
- Wherever feasible, adopt special measures – in addition to those for impact mitigation – to reinforce and promote any available opportunities for socio-economic development of the affected IP communities.

3.3 Defining the Indigenous Peoples

As IPs are found to live in varied and changing contexts, no single definition can capture their diversity. As such, RTIP-II : AF will use the World Bank's guidelines to identify IPs in particular geographic areas by examining the following characteristics:

- Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
- Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
- Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and
- An indigenous language, often different from the official language of the country or region.

3.4 Indigenous Peoples Plan

In accordance with the Bank's requirements, the project proposes the following principles, guidelines and procedure to prepare Indigenous Peoples Plans (IPPs), where improvement and rehabilitation works under the projects are found to affect IPs. To avoid or minimize adverse impacts and, at the same time, ensure culturally appropriate benefits, LGED will apply the following basic principles in selection, design and implementation of the subprojects.

Basic Principles

Where IPs are present in the impact zones of any selected roads and other subprojects and are likely to be affected, LGED will:

- Ensure that IP communities in general and their organizations are fully included in the selection of particular roads, and design and implementation of the subproject activities.
- Carefully screen the subprojects, together with IPs, for a preliminary understanding of the nature and magnitude of potential adverse impacts, and explore alternatives to avoid or minimize them.
- Where alternatives are infeasible and adverse impacts are unavoidable, immediately make an assessment of the key impact issues, together with IPs and others knowledgeable of IP culture and concerns.
- Undertake the necessary tasks to identify the impact details and the most appropriate mitigation measures, through intensive consultations with the affected IP communities, IP organizations, civil society organization like NGOs and CBOs, professionals, and the like.
- *Not undertake a subproject where the IP communities remain unconvinced to offer broad support for the project* (see details below).

3.5 IP Participation and Consultation

Participation of IPs in selection, design and implementation of the subprojects will largely determine the extent to which the IPP objectives will be achieved. Where adverse impacts on IPs are likely, LGED will undertake free, prior and informed consultations with the affected IP communities and those who work with and/or are knowledgeable of IP development issues and concerns. To facilitate effective participation, LGED will follow a time-table to consult the would-be affected IP communities at different stages of the project cycle. The primary objectives are to examine whether there is broad community consensus in support of the subproject and to seek community inputs/feedback to avoid or minimize the adverse impacts associated with the chosen subproject activities; identify the impact mitigation measures; and assess and adopt economic opportunities which LGED could promote to complement the measures required to mitigate the adverse impacts.

Consultations will be broadly divided into two parts. Prior to selection of a subproject located in an area predominantly inhabited by IPs, LGED will consult the IP communities about the need for, and the probable positive and negative impacts of, the road improvement/rehabilitation and other subproject works. Prior to detailed assessment of the impacts at household and community levels, the main objectives of consultation at this stage would be to ascertain (i) how the IP communities in general perceive of the need for undertaking the subproject in question and any inputs/feedback they might offer for better outcomes; (ii) whether or not the communities broadly support the works proposed under the subproject; and (iii) any conditions based on which the IP communities may have provided broad support to the subproject, which are to be addressed in the IPP and subproject design. To ensure free, prior and informed consultation, LGED will:

- Ensure widespread participation of IP communities with adequate gender and generational representation; customary/traditional IP organizations; community elders/leaders; and civil society organizations like NGOs and CBOs; and groups knowledgeable of IP development issues and concerns.
- Provide them with all relevant information about the subproject, including that on potential adverse impacts, organize and conduct these consultations in a manner to ensure full coverage of IPs in the project areas and free expression of their views and preferences.
- Document and share with the Bank the details of all community consultation meetings, with IP perceptions of the proposed works and the associated impacts, especially the adverse ones; any inputs/feedbacks offered by IPs; and the minutes stating the conditions that have been agreed during the consultations and provided the basis for broad-based community support for the subproject.

Once broad-based community consensus is established in favour of the subproject, LGED will assess the impact details at the household and community levels, with particular focus on the adverse impacts perceived by the IPs and the probable (and feasible) mitigation and community development measures. To ensure continuing informed participation and more focused discussions, LGED will provide IPs with the impact details, both positive and adverse, of the proposed subproject activities. The disclosure of IPPs will be done in local language through face to face meetings and involving inter-generational representations. Times for disclosure and consultation will be set in line with the available time of the tribes. Other than those that are technical in nature, consultations will cover topics/areas suggested under paragraph 79 (below) and those the IPs consider important. Beginning with those for broad-based support for the subproject, community consultations will continue throughout the preparation and implementation period, with increasing focus on the households which would be directly affected. Consultation timing, probable participants, methods, and expected outcomes are suggested in a matrix in Annex C1.

3.6 Contents of Indigenous Peoples Plan

The IPP will primarily aim at mitigating adverse impacts, and reinforcing and promoting any existing development opportunities in the project areas, with particular emphasis on the IPs who would be directly affected. The contents of the IPP will generally consist of the following:

- *Baseline data and impacts*, including analysis of cultural characteristics; social structure and economic activities; land tenure; customary and other rights to the use of natural resources; relationship with the local mainstream peoples; and other factors that have been suggested by IPs during consultations and are to be addressed in the IPP and project design. (Key areas of investigation are also suggested below.)
- *Strategy for disclosure and consultation*, indicating timing of disclosure and consultation, and the participants, such as affected IP communities, IP organizations, and individuals and entities who could provide useful feedback and inputs.
- *Mitigation measures and activities*, which will generally follow IP preferences and priorities, including those agreed between the IP communities/IP organizations and LGED.
- *Institutional capacity,* taking into account LGED's staff experience, consulting services, and IP and civil society organizations in designing and implementing IPPs.
- *IPP implementation schedule*, taking into consideration minimizing disruption to the livelihood and other activities of IPs.
- *Monitoring and evaluation,* with participation of IP representatives and organizations, as well as other civil society organizations that may have been operating in these areas.
- *Financing the IPP*. Budgets and sources of funds needed to implement the mitigation measures and development activities agreed between the IPs and LGED.

3.7 Socioeconomic Characteristics & Concerns

Baseline data and identification of social concerns will primarily focus on the cultural and socioeconomic characteristics of IPs and the potential vulnerability that might be caused by the proposed subproject. Data on the following socioeconomic characteristics are expected to indicate the nature and scale of adverse impacts and provide the essential inputs for IPP.

(1) Social & Cultural Characteristics

- Relationships with areas where they live -- relating to religious/cultural affinity with the ancestral lands, existence and use of livelihood opportunities, etc.
- Use of any indigenous languages for social interactions and their use in reading materials and for instruction in formal/informal educational institutions in IP localities.
- Food habits/items that may differ from non-indigenous peoples and the extent to which they are naturally available for free or can only be grown in the IP territories, and which are considered important sources of protein and other health needs of IPs.
- Interactions and relationships with other indigenous peoples' groups in the same and other areas.
- Presence of customary social and political organizations – characteristics indicating internal organization and cohesion of the communities, and their interaction with those of the non-indigenous population in these areas.
- Presence of IP organizations, like community based organizations (CBOs)/NGOs, working with IP development issues, and their relationships with mainstream organizations engaged in community development activities.
- Other cultural aspects likely to be affected or made vulnerable by the proposed subproject.

(2) Settlement Pattern

- Physical organization of homesteads – indicating organizational patterns with the existing community facilities, such as schools, places of worship, cremation/burial grounds and others, water supply and sanitation, etc.

- The extent to which the indigenous settlements/neighbourhoods are spatially separated from those of the non-indigenous peoples, indicating interactions and mutual tolerance of each other.
- Present distance between the IP settlements/neighbourhoods and the selected subproject.

(3) Economic Characteristics

- Prevailing land tenure -- indicating legal ownership and other arrangements that allow them to reside in and cultivate or otherwise use lands in their areas.
- Access to natural resources - prevailing conditions under which IPs may have been using natural resources like forests, water bodies, and others that are considered important sources of livelihood.
- Occupational structure - indicating the relative importance of the households' present economic activities, and the extent to which they might be affected or benefited because of the proposed subproject activities.
- Level of market participation -- engagement in activities that produce marketable goods and services, and how and to what extent market participation would be affected or enhanced by the subproject activities.

3.8 Impact Mitigation & Development Measures

To use private and public lands and avoid or minimize adverse impacts on IPs, LGED will apply the same guidelines proposed in Section B for involuntary resettlement. Eligibility and standards for compensation will also use those proposed in the same section. In addition, particular attention will be paid to ensure that non-local workers do not intrude into the IP localities, or resort to actions and behaviour that could be construed as culturally insensitive and disrespectful by IPs.

Choice of appropriate and culturally compatible development measures will largely depend on preferences and priorities of the affected IPs and their communities. Such measures may include providing credits where IPs are found to engage in the production of marketable goods, such as handicrafts, handlooms, small-scale horticulture; employment in construction and maintenance activities; basic water supply and sanitation facilities; and those, such as schools, that could be used by the communities as a whole. If credit programs are found appropriate, LGED will call upon civil society organizations like NGOs to organize and administer them.

4. GUIDELINES FOR GENDER SENSITIVE ACTIONS

4.1 Introduction

Women constitute about half of the national population in Bangladesh. They are now increasingly recognized to play an effective and critical role in the process for sustainable and equitable development for men and women in the country. The subprojects under RTIP-II : AF in each phase will therefore include a gender analysis for gender inclusive design, implementation and operation.

4.2 Objectives

Gender analysis for RTIP-II: AF will take account of general and specific gender concerns and social vulnerabilities and identify specific actions which will:

- Promote women's participation in project planning and implementation.
- Maximise women's access to project benefits.
- Minimize social vulnerability.

4.3 Gender Actions

In compliance with LGED's gender strategy[9] and Bank policy on gender, the project proposes the following principles, guidelines and procedures to identify gender actions in respect of subproject interventions and include those actions in subproject SMPs (Social Impact Assessment, RP/ARP and IPP). To mainstream gender in the project process, LGED will apply the following basic principles in selection, design, implementation and monitoring of the subproject SMPs.

- Ensure that women are involved in selection, design, implementation, and monitoring and evaluation of the subproject activities including land acquisition and resettlement.
- Carefully screen the subprojects to identify needs and expectations of, and potential adverse impacts on, women and document them.
- Identify the impact details and the most appropriate mitigation measures through intensive consultation with the affected women and their communities, NGOs and civil society organizations, professionals, and the like.
- Identify appropriate actions to ensure and maximize project benefits to women through the consultative process.
- If women are involved in civil works construction, operation and maintenance of subproject infrastructure, ensure: (i) equal pay for equal work; (ii) gender friendly work environment; and (iii) work place safety for women and children.

Increasing participation of women

Participation of women will be ensured during the design phase by stimulating their participation in all community meetings and also consulting them separately in focused group discussions to learn their preferences, experiences and needs. During the implementation process, women will be encouraged to participate in all community meetings, to be represented in decision-making for implementation of RP/ARP/IPP and to contribute in safeguarding themselves from health and social vulnerabilities. Women will be fully informed about

[9] LGED, 2010, Gender Equity Strategy and Action Plan (2008 – 2015), Dhaka, October

entitlements, timetable of compensation delivery and relocation activities. The District Sociologists will engage local women members to engage in community-led monitoring.

Maximizing women's access to project benefits

Local affected people, including women will be encouraged to take up construction employment through Labour Contracting Societies (LCS). LGED will monitor the employment of women through LCS. The Performance Based Maintenance Contracts (PBMC) will be executed with provisions for subcontracts with women LCSs.

Reducing women's social vulnerability

Social vulnerability of women in the context of subprojects under RTIP-II : AF may include domestic violence, sexual harassment, vulnerability to sexually transmitted infections (STI) including HIV/AIDS, and, though limited, human trafficking. The SIMF booklet will include information about STI and HIV/AIDS, trafficking in women and children, and public health and education services in the area. Contractors will implement a zero tolerance policy against sexual harassment at work places.

4.4 M&E of Gender Actions

Gender actions as per the SIMF will be internally monitored by LGED on a regular basis and the results will be included in the quarterly SMP reports. The independent M&E Specialist will monitor gender inclusive implementation of SMPs and report to LGED and the Bank in the annual, mid-term and end-term M&E reports. A draft format for monitoring of gender actions is attached at Annex D.

The Gender Action Plan for Additional Financed RTIP-II has been enclosed herewith.

GENDER ACTION PLAN

Introduction

The government of Bangladesh has clearly expressed its commitment for actions leading to women's empowerment and realization of their human rights. The principles of gender equality are embedded in the Constitution of the People's Republic of Bangladesh. Women's rights to equality and affirmative action in support of equality are guaranteed in the Constitution. The constitution of Bangladesh ensures the human rights and basic freedom of women. Keeping the view in mind, the government of Bangladesh developed National Women Development Policy in 1997 for the first time. It was subsequently updated in 2011 to ensure development and empowerment of women. The government of Bangladesh has firm commitment in favour of women development and gender equity. Like other countries of the world, Bangladesh also recognized women advancement and gender equity for attaining human rights, poverty reduction and sustainable economic & social development. National Women Development Policy 2011 aims to provide women with full control over their right to land, earned property, health, education, training, information, inheritance, credit, technology and opportunity to earn
.

Notwithstanding strong progress on the gender agenda, there are few unfinished agenda which need most attention concerning economic empowerment including: continued low female labour force participation, wage discrimination against women, inadequate representation of women in senior civil service positions and inadequate female managerial jobs in the private sector. Based on the National Women Development Policy 2011, the LGED prepared the Gender Equity Strategy of the LGED. This GAP has been prepared is to achieve equity between women and men and to support sustainable development through improved in participation of women in at all stages of the sub-project implementation

Objectives of GAP

Establishment of equality between women and men in all spheres of Project activities is the primary goal of preparation of the GAP. Objective of the GAP is to ensure women's safety at the workplace, equal wages for both men and women labourers and eliminate discrimination in employment.

The specific objectives of the GAP are:

- To advance women's equitable participation with men as decision makers in sub-project implementation process and RTIP-II : AF activities;
- To mainstream a gender perspective in all activities under the Project and
- To reduce gender inequalities in access to and control over the resources and benefits of development in the areas pertinent to the work of the sub-projects.

1. Contents of the GAP

I. Basis for GAP
II. Gender Equity Strategy of LGED
III. The World Bank Gender policy
IV. National and international commitments of the Government
V. Priority areas of intervention

A. Basis for GAP of Additional Financing RTIP-II

LGED has its own Gender Equity Strategy and it has guidelines to prepare Gender Action Plan for its Projects in accordance with LGED's Gender Equity Policy. The World Bank is co-financer for RTIP-II (ADDITIONAL FINANCING) and WB has Gender Policy (OP 4.20) which has stressed on preparation of GAP for all of its financed Projects. Therefore GAP under the RTIP-II : AF needed to prepare considering the LGED's Gender Equity Strategy and WB Gender Policy OP 4.20.

B. Gender Equity Strategy of LGED

The National Women Development Policy is basic foundation of LGED's Gender Equity Strategy. The principle objective of this Strategy is to develop women and to create women-friendly ambience at all levels of LGED activities in consonance with the incorporation of the National Women Development Policy 2011.

Policy Adoption

All the Project of LGED shall prepare Gender Action Plan (GAP) and implementation guidelines to follow in all stages of Project activities.

Institutional arrangements:

The RTIP-II : AF will execute the GAP in connection with the Gender and Development Forum of LGED.

Monitoring and Evaluation

All spheres of activities will be monitored and evaluated. Collection of data/information, irrespective of their sources shall be gender disaggregated. Collected data/information shall be sent to the Gender and Development Forum bi-annually and Forum in turn shall develop a Database.

Recruitment and Working environment

An Action Plan shall be prepared for future manpower engagement. Females will get equal opportunity with male during recruitment. A women friendly working environment has to be ensured. To meet this end, positions most suitable for the women are to be kept reserved for them by LGED at higher ratio, provisions for essential facilities exclusives for women are to be kept in the plans, designs and drawings for all infrastructures to be prepared and their proper implementation is to be assured.

Participation

There will be equal opportunities for all male and female working persons in all fields. Active participation of women shall be ensured.

Training

Work extension areas for the women are to be explored and identified and the women shall be provided with appropriate trainings. Highly skilled human resources will be developed by imparting trainings by expert trainers.

Empowerment

Areas for women empowerment at all levels of LGED (e.g. training, information and technology, income, inheritance, right or full control on acquired assets) shall be identified and measures shall be taken to ascertain their ratio of inclusion based upon proper analysis and competency.

C. The World Bank Gender Policy

World Bank Operational Policy 4.20: The Gender Dimension of Developments

1. The Bank aims to reduce gender disparities and enhance women's participation in the economic development of their countries by integrating gender considerations in its country assistance program.

2. To this end, the Bank assists its member countries to:

(a) Design gender-sensitive policies and programs to ensure that overall development efforts are directed to attain impacts that are equitably beneficial for both men and women. The Bank helps governments (i) identify barriers—including men's attitudes that prevent women from participating in and benefiting from public policies and programs, (ii) assess the costs and benefits of specific actions to remove these barriers, (iii) ensure effective program delivery, and (iv) establish monitoring and evaluation mechanisms to measure progress.

(b) Review and modify legal and regulatory frameworks to improve women's access to assets and services, and take institutional measures to ensure that legal changes are implemented in actual practice, with due regard to cultural sensitivity.

(c) Strengthen the database for, and train country officials in, gender analysis, particularly in countries with inadequate gender-disaggregated data.

(d) Obtain financing, if necessary, to meet the resource demands of program changes. Bank lending supports the expansion of women's access to services and assets, and the Bank helps to

(i) mobilize additional multilateral and bilateral financing, and (ii) organize Consultative Group meetings for specific countries. The Bank also promotes collaboration with international, national, and local non-governmental agencies in implementing Bank-financed Projects.

3. To analyze gender issues in each country, the Bank uses country poverty assessments, public expenditure reviews, other economic and sector work, and country dialogue. The analysis and strategies are incorporated into the Country Assistance Strategy. c Objectives and interventions for carrying out country gender strategies are reflected in the lending program and the design of lending operations. Implementation is monitored as a part of country implementation review.

4. The Gender and Development Group in the Bank's Poverty Reduction and Economic Management Network reports to the Board periodically on the Bank's progress in integrating gender in its operations.

D. National and international commitments of the Government

National and international commitments of the Government of Bangladesh are shown in the following table.

Name	Date of preparation and acceptance	Date of the approval of the Bangladesh Government
Universal declaration of the human rights	The council of the united Nations received and issued the universal declaration of the human rights as the general criteria of progress of all the nation and people of the world in December 10, 1948.	The Government of the people's republic of Bangladesh have committed to follow all the thirties article from that date as being a member of the general member of the united Nations.
Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)	The convention has been accepted in the general council of the United Nations on December 18, 1979.	The Government of the people's republic of Bangladesh has approved that document on December- 6, 1984.
Beijing platform for action (PFA)	In the documents of the fourth international women conference held on 1995 in Beijing, 12 issues for the development of women was accepted as to do for the Government, international community and NGO's.	The Government of the people's republic of Bangladesh has been agreed in that conference.
Millennium Development Goals (MDGs)	The chief of 189 states were gathered in the millennium summit on the September of 2000. After the completion of the summit the declaration of the chiefs of states is known as historical millennium goals declaration from which millennium development goals (MGD) have come.	The Government of the people's republic of Bangladesh has made commitments to fulfill 18 target and 48 indicators of the MDG within 2015.

Name	Date of preparation and acceptance	Date of the approval of the Bangladesh Government
Constitution of the people's republic of Bangladesh.	The Government of the people's republic of Bangladesh has declared the construction on 1972.	The year 1972
National women development policy 1997	The Government of the people's republic of Bangladesh has introduced the National Women development policy in 1997 for the first time in line with the Beijing PFA.	National women development policy was declared on 8 March 1997.
National women development policy 2011	National women development policies 2011 have been introduced for ensuring women empowerment, equal rights and opportunities.	The Government of the people's republic of Bangladesh has introduced the National Women development policy in 2011.

E. Priority Areas of Interventions

Project will make strategic investments in its gender mainstreaming efforts to promote gender equality and women's empowerment by focusing on five priority areas as follows.

i. Promote Women's Economic Empowerment:

Investing in women's economic empowerment leads to gender equality, poverty reduction and economic growth. However, gender inequalities persist in women's access to economic opportunities including employment, decent work and access to productive resources (such as land, property, credit, and financial services). As a result, women are more likely to work in low-productive agricultural employment and in low-wage informal jobs. As women perform the bulk of reproductive work, they often have little time left to pursue economic opportunities. Project will support women to explore their capabilities for a better and dignified life.

The Project will provide support to strengthen the role of women in economic activities including agricultural production, and to empower rural women for income generation, livelihood improvement and gender equality by enhancing their voices, leadership roles and participation in decision-making process. Under Project women will access to productive resources, extension services, technology, training and information to strengthen them.

ii. Ensure Women's Rights and Security:

Women's safety and security in public and private spaces remain precarious and require urgent action around the world. Women face intimidation and threats to their safety when they try to

take active roles in their communities. In the context of conflicts, crisis and natural disasters, women and girls in particular are exposed to additional risks and exploitation due to gender-based discrimination and norms in the society. Project's work in crisis response, including conflicts and other crisis, will ensure that all stages of interventions will be responsive to the different needs and priorities of women, men and diverse groups as well as their security and equitable access to services and livelihood support. The Project will also enhance women's participation in decision making and promote women's roles at all stages of interventions for peace building and natural disasters from early recovery to reconstruction and prevention stages. The Project will help the empowerment of trafficked persons. In addition, the Project will pay close attention to women and girls with disabilities who face multiple discrimination – because of their disabilities, gender and other social factors– and support their empowerment and leadership.

iii. Promote Women's health and Education:

Gender inequality continues to have a negative impact on a range of health and education issues. Gender-based discrimination contributes to excess female mortality across the lifecycle: at birth, during infancy and early childhood, and throughout the reproductive years. While significant progress has been made towards gender equality in primary education in the past decades in many developing countries, progress in primary completion and secondary education remains a challenge in sub-Saharan Africa, South Asia and the Arab States. Girls still have lower educational attainment, especially at the secondary and tertiary levels, limiting their options for future employment, income and economic opportunities. Promoting education and health for women and girls is the first step for their job opportunities . Project will pursue equal access to education through the creation of social and economic environments. Project will support women to explore their possibilities in traditionally male-centered areas.

iv. Promote Gender Responsive Governance:

Socio-cultural norms and discrimination based on gender, ethnicity and class/caste as well as stereotyped perceptions of gender roles exist in every aspect of society such as politics, governance, the workplace and the household. Women's voices and needs tend not to be reflected in the decision-making of the family, local governance and policy making. Project will support efforts by developing countries to establish legislation as well as to achieve gender equality based on the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and other international human rights agreements and conventions. Project promotes gender equality in social, political and economic structures that often place women in subordinate positions.

v. Promote Gender Responsive Infrastructure:

Basic infrastructure is critical for reducing women's reproductive work load and time poverty by releasing women from time-consuming drudgery. It also enhances the mobility, economic opportunities, and well-being of women and socially excluded groups. Project will expand its efforts toward gender responsive infrastructure development. Closer attention will be given to reducing the workloads and time poverty of women and children, and to support for their

overall economic and social empowerment. Project will also promote women's active participation and leadership in improving and operating these infrastructures

Project Gender Action Plans (GAPs)

Gender strategies and action plans are most effective at delivering results when they incorporate a number of good practices. No single element by itself is a formula for success good practices include the following.

Activities	Proposed Gender Action Plans (Target)	Remarks
1. Infrastructure Development	Implement programs/structure taking into account the need for women friendly facilities or most essential support facilities for women including separate sitting arrangements/ rooms, toilets & water supplying system, first aid services, and child care etc. or any other facilities as necessary/stipulated by the women members.	
2. Employment Opportunity and Working Environment	a. Ensure Employment of female in construction/ reconstruction work, tree plantation and caretaking (at reasonable number/ targeting 20% by the contractor in construction works and 33% in earth works by LCS &100% in tree plantation and caretaking. b. Include the gender sensitive clause on women employment in the tender document for contractor to ensure effective implementation and discuss the issue in pre-bid meeting to make sure women employment and women friendly working environment for women. c. Ensure implementation of the women friendly facilities both in contractor sand LCS work. d. Ensure proper operation and maintenance to keep the facilities usable around the year e. Provide equal pay for equal work f. Identify appropriate income generating activities and include women in those to increase employment for women.	
3. Training	a. Training needs assessment for identify women friendly work. b. Conduct special training to orient Project staff and beneficiaries on gender issues. c. Include gender awareness/sensitivity training modules for both men and women (on such topics as human rights of women, women & child laws and women & child health issues) in the training activities. d. Increase women participation in management and skill development training. e. Keeping provision & providing of income generation training for women (fish cultivation, tree plantation, rearing livestock, poultry & vaccination, mushroom cultivation, preparing organic/compost fertilizer, engraving, tailoring etc.) & establishing communication with the concerned line department under the Project (such as Agricultural Extension, Fisheries, Livestock and Women Affairs) as per their need.	

Activities	Proposed Gender Action Plans (Target)	Remarks
4. Participation	a. Motivate and involve women from the beginning of sub Project development process: i.e., awareness campaign, sub Project proposal meeting at Union Parishad, Reconnaissance Survey, Participatory Rural Appraisal, Feasibility Study, Detailed Design Study and etc. b. Increase effective participation of men and women in all stages of the Project implementation cycle: i.e., Planning, Implementation, M&E	
5. Empowerment	Ensure increase effective participation of men and women in all stages of the Project implementation cycle: i.e., Preconstruction, construction, and O&M. ➢ Ensuring 33% female in Project MC (Management Committee) and encourage to increase up to 50% with the important/key positions including Chairperson or Secretary to ensure women's participation in decision making and one-third women in all subcommittees. ➢ Formation separate platform or committee or gender development sub-committee for development female members. ➢ Provide microcredit ensuring One-third women and gradually increase up to 50% with special attention on poor and vulnerable women for financial empowerment of women.	
6. Financing	Ensure budget allocation of all training and activities under the Project for gender related aspects	

5. LEARNINGS FROM IMPLEMENTATION OF SOCIAL SAFEGUARD COMPLIENCES IN RTIP-II

5.1 Introduction

Capturing lessons learned is an integral part of every project and serves several purposes. Capturing lessons learned should occur throughout the project lifecycle to ensure all information is documented in a timely and accurate manner. The lessons learned document serves as a valuable tool for use by other project managers within an organization who are assigned similar projects. This document should not only describe what went wrong during a project and suggestions to avoid similar occurrences in the future, but it should also describe what went well and how similar projects may benefit from this information RTIP-II is now almost in final stage. Second Rural Transport Improvement Project Additional Financing (RTIP-II (ADDITIONAL FINANCING)) is an additional part of RTIP-II.

RTIP-II context

i) Improvement of Upazila Roads (UZR)
ii) Improvement of Union Roads (UNR)
iii) Rehabilitation and Periodic Maintenance (RPM)
iv) Growth center markets (GCM)
v) River Jetties,
vi) River Ways Transport-

The project had experience from RTIP-I on delay in land acquisition. RTIP-II identified the barriers and had commitments from the beginning not to spare any room for reoccurrence of those barriers. However the project could not overcome all of the barriers. Proper and timely LA depend on fruitful social screening, prompt designing and surveying, identifying losses and affected persons in a correct manner, preparing a meaningful LA plan and Resettlement Action Plan and successful implementation of RAP.

5.2 The lessons RTIP-II have had from improvement of project works

5.2.1 Social Screening

- In wet season social screening was very hard, expensive and unrealistic. So, for RTIP-II (ADDITIONAL FINANCING) Social screening of the low land areas should be completed as first priority. In emergency cases extra manpower from high land areas should be deployed for the low land areas.

- During social screening and in other public consultation participation of female participants were low. SO, RTIP-II arranged at least one consultation in each project Upazila for only females. Motivational works and Household data collection from females can be introduced.

5.2.2 Identifying losses and affected persons

- During PAPs Census name of the PAPs owners were not verified with NID. DC office and LGED paid compensation in cheque and Bank opened Accounts after verifying NID. In case of RTIP-II the list was prepared again verifying with NID. So, during preparation of List of Inventory names of the APs will be collected with verification of NID.

- In some sub-projects replacement cost of the affected properties determined at the time of payment. By this time price changed due to development of infrastructure and other reasons. Price of the affected propertied should be determined by Market Price Survey Committee during PAPs census.

5.2.3 Preparation and approval of LA Plan

- Delay in preparation of design, survey report delayed preparation of LA Plan. Ultimately it delayed land acquisition. In additional financing project effort should be taken to minimize delay in preparation of engineering design.

- In spite of all possible efforts, RTIP-II had to wait for more than sufficient time to get Administrative Approvals and to put up the cases to District Land Acquisition Committee (DLAC) meetings. As a result implementation of LAP delayed. More effective follow up may reduce delay.
- It has been observed that the initial works of land acquisition (from notice under Section 4 to 6) completed timely (53 days in between 70 days time frame) and LGED paid the amount estimated by DC offices timely (within 60 days as specified in the Ordinance of 1982). The Ordinance scheduled 60 days time for payment of compensation. DC offices have been delaying in preparing award list and payment of compensation. This happened due to unavailability of proper documents of APs and filing of Miscellaneous cases (Mis.case) by aggrieved persons.

5.2.4 Preparation and Implementation of Resettlement Action Plan (RAP)

- In absence of detail household and PAPs socio- economic survey it was hard to measure full impacts. A PAPs detail household census is required for a meaningful RAP.
- JV Investigation delayed in some places due to water loggings. In these areas land remain under water for more than seven months in a year. For prompt JV Investigation for low land areas should get priority by the project.
- In many cases APs do not show interest to collect pity amounts as compensation. In those cases implementation of RAP remained incomplete. Sociologists can here also play vital role in paying compensation. Sociologists can motivate the APs with pity amount to collect compensation.

A. Grievance Redress Mechanism

- RTIP-II received only a few grievance cases during its operation. Lack of knowledge on activities of Grievance Redress Committees is the main reasons of less interest of beneficiaries on project GRM. For dissemination information on GRM to beneficiaries, school and college students' postering, making documentary cane make the GRM more meaningful.
- GRC members lost interest in participating monthly meetings. Incentive for GRC members of outside LGED may increase their interest to participate in monthly GRC meetings.

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ANNEX A1: SCREENING FORM FOR SOCIAL SAFEGUARDS ISSUES

[To be filled in jointly by LGED and Consultants for each subproject/road, or section/spot. Where private lands are to be acquired, or public lands (including LGED's own) are to be resumed from authorized and unauthorized private uses, census of affected persons and inventory of losses to be prepared. The consultants will include a summary of the impacts and mitigation requirements for each subproject in the Screening Report. Impacts identification and the mitigation eligibility and requirements should follow the principles adopted in this SIMF.]

A. Identification

1. *.Name of subproject/road: ……..……* *Name of District: ……..…..*
   Union/Municipality: …….. *Upazila: ……..……*
2. *Road section/spot screened: ……..……..……*

……

3. *Project component*: *……..*
4. *Brief description of the physical works: ……..……..……..*

……..

……

……

5. Screening Date(s): *……*

B. Participation in Screening

6. *Names of <u>Consultants' representatives</u> who screened the subproject*: *……*

……..

7. *Names of <u>LGED officials</u> participated in screening: ……..*

……..

……..

8. *<u>Local Government representatives and community members & organizations</u> participated in screening: List them in separate pages with names and addresses, in terms of road sections/spots and any other information to identify them during preparation of impact mitigation plans.*

9. *<u>Would-be affected persons</u> participated in screening: List them in separate pages with names, addresses in terms of road sections/spots where they would be affected, and any other information to identify them during preparation of impact mitigation plans.*

C. Land Requirements & Ownership

10. *Will there be a need for additional lands* to carry out the intended works under this contract?*

    [ ] Yes [ ] No *(* 'Additional lands' mean lands beyond the carriageways and shoulders in case of roads.)*

11. *If 'Yes', the required lands presently belong to (*Indicate all that apply*):*

    [ ] LGED [ ] Government – *khas* & other GOB agencies [ ] Private citizens

    [ ] Others (Mention): ……..

D. Current Land Use & Potential Impacts

12. *If the required lands belong to <u>Private Citizens</u>, they are currently used for (*Indicate all that apply*):*

    [ ] Agriculture # of households using the lands: ……

    [ ] Residential purposes # of households living on them: …….

    [ ] Commercial purposes # of persons using them: …… # of shops: .....

    [ ] Other Uses (Mention): ..... # of users: ……

13. *If the required lands belong to <u>LGED and/or other Government agencies</u>, they are currently used for (*Indicate all that apply*):*

    [ ] Agriculture # of persons/households using the lands: ……..

    [ ] Residential purposes # of households living on them: ……

    [ ] Commercial purposes # of persons using them: …… # of shops: …….

    [ ] Other Uses (Mention): ……..... # of users: …….

14. *How many of the present users have lease agreements with any government agencies?*

    ……

15. *Number of <u>private homesteads</u> that would be affected <u>on private lands</u>:*

    <u>Entirely</u>, requiring relocation: …….. *<u>Partially</u>*, but can still live on present homestead: ……..

16. *Number of <u>business premises/buildings</u> that would be affected <u>on private lands</u>: ……..*

    Entirely and will require relocation: …… # of businesses housed in them: …….

    Partially, but can still use the premises: …… # of businesses housed in them: …….

17. *Residential households will be affected on <u>LGED's own and & public lands</u>: ……..*

    <u>Entirely affected</u> and will require relocation: # of these structures: ……

# of structures built with brick, RCC, & other expensive and durable materials: ……..

# of structures built with inexpensive salvageable materials (bamboo, GI sheets, etc: ……..

Partially affected, but can still live on the present homestead: # of structures: …….

# of structures built with brick, RCC, & other expensive and durable materials: ……..

# of structures built with inexpensive salvageable materials (bamboo, GI sheets, etc): …….

18. *# of business premises that would be affected on LGED's own & other public lands: ……*

Entirely affected and will require relocation: # of these structures: …….

# of businesses housed in these structures: ……

# of persons presently employed in the above businesses: ……

# of these structures built with brick, RCC, & other durable materials: ……

# of structure built with inexpensive salvageable materials (bamboo, GI sheets, etc): ……..

Partially affected, but can still stay in the present premises: # of these structures: .....

# of businesses housed in these structures: ……

# of persons presently employed in these businesses: ……

# of these structures built with brick, RCC, & other durable materials: ……

# of structure built with inexpensive salvageable materials (bamboo, GI sheets, etc): ……..

19. *# of businesses/trading activities that would be displaced from make-shift structures on the road, and other areas/spots: ……..*

20. *Do the proposed subproject works affect any community groups' access to any resources that are used for livelihood purposes?*

[ ] Yes [ ] No

21. *If 'Yes', description of the resources: ……..*

……

……

……

……

22. *Do the proposed works affect community facilities like school, cemetery, mosque, temple, or others that are of religious, cultural and historical significance?*

[ ] Yes [ ] No

23. *If 'Yes', description of the facilities: ……*

……

……

……

……

……

24. Describe any other impacts that have <u>not</u> been covered in this questionnaire?

……

……

……

……

25. Describe alternatives, if any, to avoid or minimize use of additional lands:

……

……

……

……

……

26. Which of the following impact mitigation plans would be prepared for the subproject?

[ ] Resettlement Plan [ ] Abbreviated Resettlement Plan [ ] None

E. ADDITIONAL INFORMATION ON INDIGENOUS PEOPLES (IPs)

(This section must be filled in if subprojects are located in areas that are also inhabited by indigenous peoples or adivasis.)

27. Names of IP community members and organizations who participated in screening:

……

……

……

……

……

28. Have the IP community and the would-be affected IPs been made aware of the potential positive and negative impacts and consulted for their feedback and inputs?

[ ] Yes [ ] No

Has there been a *<u>broad-based community consensus</u>* on the proposed works?

[ ] Yes [ ] No

29. Total number of would-be affected IP households: …….

30. The would-be affected IP households have the following forms of rights to the required lands:

[ ] Legal: # of households: ……

[ ] Customary: # of households: ……

[ ] Lease agreements with any GOB agencies: # of households: ……..…

[ ] Others (Mention): …… # of households: ……

31. Does the subproject affect any objects that are of religious and cultural significance to the IPs?

[ ] Yes [ ] No

32. If 'Yes', description of the objects: ……..

……

……

33. The following are the <u>three</u> main economic activities of the would-be affected IP households:

a. ……

b. ……

c. ……

34. Social concerns expressed by IP communities/organizations about the works proposed under the subproject: ……..

……

……

……

……

……

……

……

35. The IP community and organizations perceive the social outcomes of the subproject:

[ ] Positive [ ] Negative [ ] Neither positive nor negative

36. In respect of any conditions that may have been agreed for the broad-based community consensus, and the social impacts on IPs and their concerns, is there a need to,

Undertake an in-depth Impact Assessment study? [ ] Yes [ ] No

Prepare an Indigenous Peoples Plan? [ ] Yes [ ] No

On behalf of the consultants, this Screening Form has been filled in by:

Name: …….. Designation: ……..

Signature: …… Date: ……..

ANNEX A2: SIMF IMPLEMENTATION ARRANGEMENTS: ROLES & RESPONSIBILITIES OF LGED

PARTICIPANTS	RESPONSIBILITIES
CHIEF ENGINEER	Facilitate Project Management Unit (PMU) at LGED in the process of preparation, design, implementation and monitoring and evaluation of land acquisition and Social Management Plans.
PROJECT MANAGEMENT UNIT (PMU)	
PROJECT DIRECTOR	• Project Director at the PMU has the overall responsibility for land acquisition and preparation and implementation of Social Management Plans with assistance district and upazila level LGED staff and the Project Managers at PMU. The specific tasks include the following: • Oversees that roads and other components are selected, land acquisition requirements and locations are identified, social screening and public consultations are carried out, land acquisition proposals (LAPs) are prepared and administrative approval thereof is received and submitted to DCs, PAP censuses are taken and phase-wise and RPs/IPPs are prepared. • Liaises with other Government Ministries/Departments, including Deputy Commissioners, and any other stakeholders who are deemed instrumental in land acquisition and RP/IPP implementation processes. • Actively facilitates within LGED to have the services of Officials like District Sociologist, Asstt. Engineer, Sub Asstt. Engineer, Community Organizers from other districts and upazilas, as and when additional manpower is required in particular project sites. • Ensures that RPs/IPPs are implemented in full, including compensation payment, before civil works start. • Monitors progress in selection of roads and other components, engineering design and determination of land acquisition needs and their specific locations, LAP preparation and approval thereof by MLGRD&C, and submission of LAPs to DCs and approval by DLAC/relevant authorities. • Approves or actively facilitates approval of the land acquisition proposals and resettlement budgets by LGED/MLGRD&C. • Monitors progress in social screening and public consultations, PAP census and data processing, and phase-wise RP/IPP preparation. • Actively liaises with DCs, assist LGED XENs to resolve any issues to complete land acquisition in time. • Review of progress of land acquisition and payment of CUL and to-up on routine basis.
PROJECT MANAGER	• Assists Project Director in preparation and implementation of land acquisition and resettlement activities. • To ensure that roads and other components are selected, land acquisition requirements and locations are identified, social screening and public consultations are carried out, land acquisition proposals (LAPs) are prepared and submitted to Project Director for necessary action. To coordinate with the District Administration in LA process. • Liaises with Project Director and offices at the District level including Deputy Commissioners, and any other stakeholders who are deemed instrumental in land acquisition and RP/IPP implementation processes. • Ensures that RPs/IPPs are implemented in full, including compensation payment, before civil works start.

	• Monitors progress in selection of roads and other components, engineering design and determination of land acquisition needs and their specific locations, LAP preparation and approval thereof by MLGRD&C, and submission of LAPs to DCs and approval by DLAC/relevant ministries. • Monitors progress in social screening and public consultations, PAP census and data processing, and phase-wise RP/IPP preparation. • Actively liaises with Deputy Commissioners, assists LGED XENs to resolve any issues to complete land acquisition in time. • Monthly review of progress of Land Acquisition and payment of CUL and to-up payment.
SENIOR SOCIOLOGIST	• Coordinates all process tasks leading to selection of roads and other components, land acquisition and preparation and implementation of the phase-wise RPs/IPPs. • Coordinates and participate in the process tasks like social screening, public consultations, PAP census/surveys, market prices surveys, and joint on-site verification of the affected properties, and ensures flow of information between PMU and field offices. • Assists Land Acquisition and Resettlement Specialist (DS Consultant) and others in scheduling the process tasks and determine the manpower requirements, and assists the Project Director and Project Manager and XENs in re-allocation of available manpower and, if required, to arrange for additional manpower. • Assists Land Acquisition and Resettlement Specialist (DS Consultant) with RP/IPP preparation in the way of impacts and policy reviews, budgeting and working out the RP/IPP implementation schedules. • Assists with preparation of the PAP entitlement files for individual PAPs, and facilitate procurement of CUL payment information required to determine the Top-Up. • Assists the data processing personnel ensuring flow of data on process tasks, land acquisition and RP/IPP implementation, including details of compensation payment by DCs and LGED (Project Office). • To prepare the Monthly Progress Reports. • To monitor the activities of GRCs.
PROJECT FIELD OFFICES LGED District Office	
EXECUTIVE ENGINEER	• Coordinates all district level project activities with Project Director and Project Manager and DS consultants, and responsible for timely completion of all process tasks for the selected subprojects, leading to land acquisition and preparation and implementation of the phase-wise RPs/IPPs. • Assisted by the DS consultants and field staff, ensures that social screening, public consultations, identification of acquisition requirements and ground locations, PAP census, Market Price Surveys, joint-on-site verification and similar tasks are completed in time. • Submits LAPs to DCs and actively follows through the LAP approval processes by Deputy Commissioners and DLACs; legal acquisition process, including issuance of legal notices; and compensation payment by DCs. • Assists Deputy Commissioners, LAOs and other acquisition officials to arrange for spot payment of compensation. • Facilitates procurement of CUL payment information required to determine top-up payment by LGED (PMU). • Ensures that the Grievance Redress Committees (GRCs) are formed and made operational, receives grievances from the aggrieved PAPs, and schedules hearings. • Disburses the compensation due to the squatters, and the top-up to the

legal owners (checks are signed by PD).
- Monitors all tasks related to land acquisition and resettlement, and ensures that the contractors do not start the civil works before the PAPs are paid their compensation in full.
- Ensures assessment of Market Prices and preparation of entitlement files for top-up payment as per Entitlement Matrix.

SENIOR ASSISTANT ENGINEER (CIVIL/PROJECT)

- Coordinates all district level project activities with Project Manager, Executive Engineer and DS consultants, and responsible for timely completion of all process tasks leading to land acquisition and preparation and implementation of the phase-wise RPs/ IPPs.
- Assists XEN, DS consultants and field staff, in social screening, public consultations, identification of acquisition requirements and ground locations, PAP census, Market Price Surveys, joint-on-site verification and similar tasks are completed in time.
- To assist XEN in submission of LAPs to Deputy Commissioner and actively follows through the LAP approval processes by Deputy Commissioners and DLACs; legal acquisition process, including issuance of legal notices; and compensation payment by Deputy Commissioners.
- To assist XEN to arrange for spot payment of compensation by the Land Acquisition Officers.
- Facilitates procurement of CUL payment information required to determine top-up payment.
- To form Grievance Redress Committees (GRCs) and receive grievances from the aggrieved PAPs, and schedules hearings.
- To act as convener of Grievance Redress Committees (GRCs) and preside over the GRC meetings and ensure that the decisions of the meeting are recorded properly and decisions are implemented.
- To assist Executive Engineer in disbursement of compensation due to the squatters, and the top-up to the legal owners.
- To assist Executive Engineer in assessment of Market Prices and preparation of entitlement files for top-up payment as per Entitlement Matrix.

DISTRICT SOCIOLOGIST

ROLES AND RESPONSIBILITIES

The District Sociologists will play a critical role in the planning, implementation, monitoring and reporting of all the Social Dimensions of RTIP-II : AF. These cover three aspects:

(0) General social development work including the implementation of the information and communications strategy; participatory and consultation activities with different categories of beneficiaries, project affected persons (PAP), indigenous peoples and stakeholders; and implementation of the Suggestion and Complaints Handling Mechanism.
(1) Land acquisition and resettlement.
(2) Environmental matters.

The District Sociologist will report directly to their District Executive Engineers (XEN), but will also take advice and instructions from the PMU Senior Sociologist and, on specific matters, the MS Consultant Social Scientist (SS). They will provide oversight and support of the work of the upazila Community Organizers. Where appropriate and necessary on specific matters they will work together with other relevant LGED staff at district and upazila level, and with DS Consultant's district staff.

SPECIFIC TASKS

Social Development Dimensions of Project

- Responsible for organising all information dissemination activities under the RTIP-II : AF Information and Communications Strategy in their respective districts, including supervising and supporting the information work of the Community Organisers, and reporting on progress, achievements and issues identified.
- Responsible for ensuring the proper and timely conduct of all participatory and consultation activities for different aspects of the project including organising and conducting certain activities, assisting the MS consultant social specialists and other project consultants in carrying out field works, supervising and supporting the participatory and consultation work carried out by the Community Organisers, and ensuring proper and timely reporting of all such work in their districts.
- Providing the secretariat services for the District level Suggestion and Complaints Committee (SCC), including collating and documenting all suggestions and complaints received through different channels: preparing the agenda and papers for, organising, and writing the minutes of SCC meetings; organising and monitoring the follow-up actions to decisions made at the SCC; preparing regular district-level reports on the handling of suggestions and complaints; and responding to follow-up from the PMU about these reports.
- Contributing to the training of Community Organisers.
- Generally providing support the LGED XENs, the PMU and consultants on all social aspects of project implementation and reporting.

Land Acquisition and Resettlement

- Responsible for all process tasks leading to selection of roads and land acquisition and preparation and implementation of the phase-wise RPs/IPPs.
- Conducts and ensures factual integrity of social screening, public consultations, and PAP census and coordinates them with the Land Acquisition and Resettlement Specialist (DS Consultant).
- In assisting the Land Acquisition and Resettlement Specialist, actively participates in Market Price Surveys of the affected properties, and assists with joint-on-site verification of the affected properties.
- Facilitates and expedites the conduct of market price surveys of structures and trees and ensures LGED participation in the PWD and Forest office survey teams.
- Takes follow-up action to address concerns over inflated valuations of structures and trees.
- Organizes focus groups of PAPs on a continuing basis to explain the compensation payment modalities and documents are required to claim compensation from the Deputy Commissioner, and the Grievance Redress Procedure.
- In assisting the Land Acquisition and Resettlement Specialist (LA&RS), identifies the PAPs who do not have all legal documents to claim compensation from Deputy Commissioner, prepares lists of the missing documents for individual PAPs, and assists in obtaining the required documents from the Upazila Revenue Offices.

- Assists aggrieved PAPs to lodge grievances and the XEN to schedule the grievance hearings, and keeps records of the grievance proceedings as per monitoring requirements.
- Assists XEN, LGED and LAOs to arrange for spot payment of compensation, and informs and organize the PAPs accordingly.
- Ensures that the PAPs, both legal owners and squatters, have received their compensation.
- Performs other tasks that are pertinent to land acquisition and resettlement.

Environment

- As part of information and communication responsibilities, ensure proper dissemination of all information on the RTIP-II : AF environmental management strategy and environmental procedures, including public dissemination of Environmental Management Plans (EMP), and supervise and support the work of the Community Organisers on this matter.
- As part of participation and consultation responsibilities, ensure proper and timely conduct of all participatory aspects of the implementation of the environmental strategy and EMPs, supervising and overseeing the related work of the Community Organisers and supports the project and consultant specialist environmental staff. These responsibilities will continue from planning and screening (including conduct of IEEs and EIAs) through the design, construction and post-construction phases, including support for environmental monitoring.
- Include the handling of all environmental suggestions and complaints within the scope of responsibilities in providing secretariat services to the SCC.

LGED Upazila Office

UPAZILA ENGINEER

- Coordinates all Upazila level project activities with XEN, and responsible for the timely completion of all process tasks in the Upazila leading to preparation and implementation of the LAPs and RPs/IPPs.
- Assisted by the DS consultants and field staff, ensures that social screening, public consultations, identification of acquisition requirements and ground locations, PAP census, market price surveys, joint on-site verification and similar tasks are completed in time.
- Assists other responsible persons to identify the PAPs who do not have all legal documents to claim compensation from Deputy Commissioner, and to prepare lists of the missing documents for individual PAPs.
- Receives grievance petitions from aggrieved PAPs.
- To form Grievance Redress Committees (GRCs) and receive grievances from the aggrieved PAPs, and schedules hearings.
- To act as convener of Grievance Redress Committees (GRCs) and preside over the GRC meetings and ensure that the decisions of the meeting are recorded properly and decisions are implemented.
- Assists XEN and land acquisition officials to arrange for spot payment of compensation, and informs and organize the PAPs accordingly.
- Assists XEN to disburse the LGED's part of the payment to legal owners (top-up) and to the squatters.
- Monitors all tasks related to land acquisition and resettlement, and ensures that the contractors do not start the civil works before the PAPs are paid their compensation in full.
- Assist in LAP preparation and RP/IPP Implementation Process.

SUB-ASSISTANT ENGINEER	• To assist Upazila Engineer in performing the activities mentioned above and any other activity that may come up in the process of Land Acquisition, Resettlement of displaced persons and RP/IPP implementation within the Upazila.
COMMUNITY ORGANIZER	• Responsible for directly contacting the PAPs at the local levels. • Participates in process tasks like social screening, public consultations, and PAP census and surveys and coordinates them with the District Sociologist, Upazila Engineer (UE) and Assistant Engineer (Project-District HQ). • In assisting the Land Acquisition and Resettlement Specialist, actively participates in market price surveys, and assists with joint on-site verification of the affected properties. • Assists the District sociologist to facilitate and expedite conduct of market price surveys for structures and trees. Accompanies the surveyors from PWD and Forest offices in the conduct of the market price surveys. • In assisting District Sociologist organizes focus groups of PAPs, and consults the PAPs on a continuing basis to explain the compensation payment modalities and documents that are required to claim compensation Deputy Commissioners, and the Grievance Redress Procedure. • Assists the Land Acquisition and Resettlement Specialist and District Sociologist to identify the PAPs who do not have all legal documents to claim compensation from Deputy Commissioners, to prepare lists of the missing documents for individual PAPs, and to obtain the documents from the UROs. • Assists aggrieved PAPs to lodge grievances and the XEN to schedule the grievance hearings; keeps records of the grievance proceedings as per monitoring requirements. • Assists XEN, District Sociologist and LAOs, in arranging spot payment of compensation by informing and organizing the PAPs. • Keeps records of any compensation payment issues faced by the individual PAPs. • Performs other tasks that are pertinent to land acquisition, RP/IPP implementation with in the Upazila.

ANNEX A3: TASKS AND RESPONSIBILITIES MATRIX FOR LGED

Main tasks	Specific activities	PMU, LGED HQ	District LGED	Upazila LGED	Consultant LGED
Social impact assessment	Selection of roads and other components	PD and PM	XEN, DS	UE	LA&RS
	Identification of land requirements	PD and PM	XEN, DS	UE	LA&RS
	Social screening and public consultation	PD, PM & Sociologist	XEN / Sr Asstt. Engineer, DS	UE/ Sr Asstt. Engineer	SS, LA&RS
	Census and inventory of losses	PD, PM & S.Sociologist	XEN, DS	UE	SS, LA&RS
	Preparation of resettlement plans	PD, PM & S.Sociologist			SS, LA&RS
Land acquisition	Preparation of land acquisition proposals	PD, PM & S.Sociologist			SS, LA&RS
	Obtaining administrative approval on land acquisition	PD and PM			SS, LA&RS
	Participation in joint verification and valuation		Sr Asstt. Engineer	Sr Asstt. Engineer	LA&RS
	Providing funds for land acquisition	PD			
	Following up land acquisition process by DCs and ensure payment to all affected persons	PD, PM & S.Sociologist	XEN & DS	UE & CO	SS, LA&RS
	Taking over land and handing over to contractors		XEN	UE	SS
Implementation of mitigation plans	Identification of affected persons entitled for resettlement assistance		XEN & DS	UE & CO	SS, LA&RS
	Preparation of resettlement budgets and requisition to PMU		XEN & DS	UE & CO	SS, LA&RS
	Allocation of funds for resettlement &	PD and PM			

	rehabilitation				
	Payment of top-up and other cash assistance to PAPs		XEN & DS	UE & CO	
	Relocation of PAPs		XEN & DS	UE & CO	SS, LA&RS
Supervision and monitoring	Land acquisition	PD, PM & S.Sociologist, DS	XEN & DS	UE & CO	SS, LA&RS
	Social impact assessment	PD, PM & S.Sociologist	XEN & DS	UE & CO	SS
	Implementation of mitigation plans	PD, PM & S.Sociologist	XEN & DS	UE & CO	SS, LA&RS

PD = *Project Director*, PM = *Project Manager*, XEN = *Executive Engineer*, DS = *District Sociologist*, UE = *Upazila Engineer*, CO = *Community Organizer, SS = MS Consultant Social Scientist, LA&RS = DS Consultant's Land Acquisition and Resettlement Specialist*

ANNEX A4: BIANNUAL GRIEVANCE REPORT

Period from ____ _____to _____, 20___ Project Phase: ___

Case No.	Complainant's name, gender and location	Nature of complaints and expectation of complainant	Date of Petition submitted	Method of resolution with dates	Decisions and date of communication to the complainant	Agreement with and commitment to complainant	Progress (solved/ pending)	Reason, if pending

ANNEX A5: SCOPE OF INDEPENDENT PERFORMANCE AUDITING AND OUTLINE TERMS OF REFERENCE FOR INDEPENDENT EVALUATION

1. INTEGRATED PERFORMANCE AUDITING

Objectives

The primary objectives of independent performance auditing of project are to review the efficacy of internal monitoring, and design and conduct periodic third party monitoring and provide feedback to LGED and the World Bank on improvement of the measures being applied and enhancement of the implementation process. These audits are independent of SIMF but will also cover pertinent issues on land acquisition and resettlement, and identify the problems to be addressed by LGED and the need for further mitigation measures. TOR for IPA is being prepared by LGED and will be placed with the Bank for agreement before appraisal.

Scope of Tasks

The IPA, in addition to overall project performance, will cover the following tasks to cover also the SIMF objectives and procedures:

(1) To identify monitoring indicators and develop baseline of the indicators through a well designed baseline survey at the outset of each subproject implementation. Essential indicators are provided in Annex-B3.

(2) To review specific monitoring indicators for undertaking monitoring for Resettlement plans (RP), Indigenous peoples plans (IPP) and Gender actions.

(3) To review and verify the progress in land acquisition/resettlement implementation of the Project, including implementation of the RPs.

(4) Identify the strengths and weaknesses of the land acquisition/resettlement, approaches and implementation strategies.

(5) Assess the quality, timeliness and sufficiency of delivery of different categories of entitlements (compensation and rehabilitation measures).

(6) Review the results of internal monitoring and verify claims through sampling checks at the field level, involving affected people and community groups, to assess whether land acquisition/resettlement targets and objectives are generally being met.

(7) Monitor and assess the adequacy and effectiveness of the consultative process with APs, particularly vulnerable groups and women, including the adequacy and effectiveness of grievance procedures and legal redress available to the affected parties, and dissemination of information about these.

(8) Verify expenditure and adequacy of budget for resettlement activities.

(9) Provide a summary of whether land acquisition and involuntary resettlement is being implemented (a) in accordance with the RPs/IPPs, and (b) in accordance with the stated policy.

(10) Describe any outstanding actions that are required to bring the resettlement activities in line with the policy and the RP.

2. OUTLINE TERMS OF REFERENCE FOR INDEPENDENT EVALUATION

Objectives

The primary objectives for engaging independent evaluation consultants are to review the planning and implementation of land acquisition and involuntary resettlement and its results, and provide feedback to LGED and the World Bank on: (a) the project's achievements and shortcomings in respect of land acquisition; an (b) policy improvement and enhancement of the implementation process. The consultants will review the implementation process as per the policies set out in the SIMF, assess the achievement of resettlement objectives, the changes in living standards and livelihoods, the restoration of the economic and social base of affected people with special focus on women and vulnerable groups, the effectiveness, impact and sustainability of entitlements, the need for further mitigation measures if any, and identify strategic lessons for future policy formulation and planning.

Scope of Work

The scope of work of the consultants will include the following tasks:

- Review the policies and procedures for land acquisition and involuntary resettlement under RTIP-II : AF, and the monitoring processes and their outputs, and summarise the results based on the available monitoring data.
- Evaluate and assess the adequacy of compensation given to the PAPs and the livelihood opportunities offered, including for vulnerable women and IPs, and the effects on incomes as well as the quality of life of APs of project-induced changes.
- Review the quality and suitability of the relocation sites from the perspective of the both affected and host communities.
- Identify the categories of impacts and evaluate the quality, timeliness and sufficiency of delivery of entitlements (compensation and rehabilitation measures) for each category in relation to the approved policy. Assess how the entitlements were used and evaluate their impact and adequacy to meet the specified objectives of the Plans.
- Review the results of internal monitoring and evaluate the claims through checks at the field level to assess whether land acquisition/resettlement objectives have been generally met. Involve the affected people and community groups, including vulnerable women and IPs, in assessing the impact of land acquisition.
- Evaluate the adequacy and effectiveness of the participatory and consultative process with PAPs, particularly vulnerable groups and women, including the adequacy and effectiveness of grievance procedures and legal redress available to the affected parties, and dissemination of information about these.
- Provide a quantified assessment of the types of conflicts and grievances reported and resolved and the consultation and participation procedures.
- Assess the adequacy of budget for resettlement activities.
- Evaluate whether land acquisition and involuntary resettlement was implemented (a) in accordance with the RPs/IPPs, and (b) in accordance with the stated policy, define the socio-economic impacts on PAPs, and assess whether the project social development goals were achieved and adverse impacts avoided.
- Identify the strengths and weaknesses of the land acquisition/resettlement policies, objectives and implementation strategies applied, and make recommendations on policy improvement and enhancement of the implementation process.

Qualification and experience

The independent consulting organisation that carries out the evaluation will have extensive experience in social impact assessment including census and socio-economic surveys, stakeholder consultation, and analyzing social impacts including gender issues in compliance with the social safeguard policies of international development financing institutions and in planning, implementation and monitoring of involuntary resettlement for rural infrastructure projects. It will also have experience in institutional capacity analysis and implementation arrangements for preparation and implementation of resettlement plans, indigenous peoples plans, gender action plans and knowledge of the latest social safeguard policies of the World Bank.

Time Frame and Reporting

At project start the consultants will: (a) review the RTIP-II : AF land acquisition/resettlement policies, objectives, implementation strategies and procedures; (b) design in consultation with LGED the impact evaluation methodology, sampling frame and field survey procedures; and (c) collect and analyse base-line data.

Prior to project mid-term the consultant will expand the collection and analysis of base-line data, and conduct and analyse sample impact evaluation surveys including field consultations.

Towards project-end the consultant will carry out all additional work necessary, including field data collection and analysis and field consultations, to complete the evaluation study.

At each of the three stages of the work the consultants will submit a draft report for review by LGED and the World Bank, and finalise the report incorporating the comments and feedback received.

ANNEX B1: APPLICATION GUIDELINES FOR MITIGATION MEASURES

The following guidelines are based on the compensation eligibility of PAPs and mitigation principles and standards, and correspond to the entitlements proposed in the Entitlement Matrix.

1. LOSS OF AGRICULTURAL & OTHER LANDS

Entitlements for Legal Landowners

Compensation-Under-Law (CUL): As per Land Acquisition Ordinance, CUL covers lands and other assets, such as house/structures, trees, and other items of value, that are built and grown on the acquired lands.

CUL is assessed by the Deputy Commissioners (DCs) and paid only to the persons who have legal titles (and legal agreements in cases of leased-in assets) to the acquired lands and other assets.

Replacement Cost: Current cost of purchasing land of same quality and use, equal to the amount acquired, *PLUS* the registration cost or stamp duty.

Current cost will be determined by LGED through local market price surveys for different types of lands, by using the methods suggested in Annex B2.

Stamp Duty and Registration Cost: Charged on the price at which the land is being bought or sold.

Stamp duty and registration cost will be calculated on the current market prices that will be determined through land market surveys.

Top-Up: Equals the positive difference between the total replacement cost and the total CUL paid by DCs.

- *Top-up will apply only to the landowners who have legal titles (DCs identify the titleholders) to the affected lands and other assets.*
- *Top-up will be paid in cases where total CUL paid by DC to an affected property owner is found smaller than the total replacement costs/market prices of all affected assets determined through the market price surveys.*
- *Individual top-ups will be determined by taking into account all acquired assets (re: paragraph 18, Section B), but will be paid for the parts for which CUL is paid by DCs (re: paragraph 19, Section B). (Partial CUL and top-up payment may occur in situations where the lands acquired from an owner are located in more than one mouza, or are under more than one daag, or involve legal disputes.)*

Top-up will be determined in the following manner:

Sum of the replacement costs and market prices (as may apply) of all affected assets, MINUS the total amount of CUL paid by DC to a landowner for lands and other assets affected in any number of mouzas (re: paragraph 18 in Section B).

Transition Allowance: Will apply to certain landowners and 'vested non-resident (VNR)' land owners/users. Operational guidelines are provided under Loss Category 5 below.

Leaseholders of Public Lands

If such lands come under acquisition the DCs, who execute the lease agreements, will determine and settle the contractual obligations in the form of CUL.

2. LOSS OF HOMESTEAD LANDS (*VITA)*

Homesteads on Private Lands: For homesteads on private lands, the proposed assistance measures will apply in addition to the compensation for the lands as per provisions described above, and for the houses and other assets as per the provisions described below.

- *Where the affected households can no longer live in the present homesteads (vitaa), they can either directly purchase replacement lands at locations of their choice, or relocate on public lands that LGED would arrange. Wherever they decide to relocate, additional relocation assistance will consist of:*
  - Development of the lands to the level of other homesteads in the locality and provision of access roads.
  - Restoration of pre-acquisition level basic utilities, such as water supply and sanitation, electricity, etc.

Homesteads on Public Lands (Squatters): Relocation assistance will apply to poor and vulnerable households, and consist of:

> *Development, as above, of LGED's own or other public lands that LGED would designate for their relocation, as well as provision of water supply and sanitation facilities.*

Homesteads on VNR Lands: Relocation assistance as follows:

- *Where parts are acquired and the remainders of the homestead lands are adequate to move and rebuild the houses*: Compensation/assistance will consist of moving and rebuilding costs.
- *Where acquisitions require physical relocation elsewhere* – Relocation assistance will consist of relocation plot on public lands to be arranged and developed by LGED, and moving and rebuilding costs; *OR*
- Six months' rent for living accommodations comparable to the affected ones. The rent will be determined based on the prevailing rates in the nearby towns/urban settlements, including Upazila headquarters and the like.

3. LOSS OF HOUSES/STRUCTURES

Legal Owners

Compensation-Under-Law: Assessed by the DCs on all houses/structures standing on the acquired private lands at the time of issuance of Notice-3 under the Land Acquisition Ordinance.

Replacement Costs: Assessed by LGED, will include current costs of the same building materials, labor and any other cost items to rebuild the affected houses/structures.

- *Costs of materials, labour and other cost items will be determined by surveying their current prices in the local markets by using the methods suggested in Annex B2.*
- *Where houses/structures are partially affected and the remainders are structurally safe and useable, replacement costs will be determined on the affected portions.*

Squatters

Socio-economically vulnerable squatters are entitled to Transfer and Reconstruction Grant (TRG) for shiftable and House Construction Grant (HCG) for non-shiftable houses.

- *TRG will apply to shiftable houses/structures built with materials/components that can be dismantled without much damage and the materials can be used to rebuild them.* Shiftable

houses/structures are generally built with bamboo thatch, GI sheets, wood, plastic sheets, and other inexpensive, generally non-breakable materials.

- *HCG applies to non-shiftable houses/structures* generally built with materials/components that cannot be dismantled intact. These are likely to be built with mud walls, mud-plastered walls of straw/bamboo/jute stalks and similar cheap materials, and straw roofs.

The following exceptions will apply for TRG and HCG:

- *Both shiftable and non-shiftable houses/structures will be ineligible for compensation if (a) they are not used by the owners themselves, or (b) are rented out to others.*
- *No affected structures built after the cut-off dates will be eligible for compensation.*

Vested Non-Resident Property Users/Owners

Are eligible for TRG or HCG, which will be determined in consultation with the present users/owners.

- *TRG will apply where houses/structures are to be moved and rebuilt.*
- *HCG will apply where houses/structures are partly affected and the remainders are structurally safe and usable.*
- *Where houses/structures are partly acquired, the current users will be allowed to use the remainder.*

4. LOSS OF TREES ON ACQUIRED PRIVATE & PUBLIC LANDS

Compensations for trees affected on private lands will be assessed by the District Forestry Department, and those grown on public and VNR lands by LGED.

Compensation for Trees: Will be based on the survey of current prices in the local markets by using the methods suggested in Annex B2. The compensation will take into account the species, size, maturity and other characteristics of the affected trees that influence their market value.

In addition to the above compensation, the owners will be allowed to fell the trees and keep them. The owners will however not fell the trees unless LGED asks them to do so after it verifies, as and when necessary, the assessment by the Forestry Department.

Compensation for Fruits on Trees: Will apply if the trees need to be felled before the fruits are harvested.

LGED will use the standards of the Agriculture Department to estimate the amount of fruits on individual trees, and determine their value based on the survey of current harvest prices in the local markets (as suggested in Annex B2).

5. LOSS OF AGRICULTURAL, BUSINESS, EMPLOYMENT & RENTAL INCOME

***Agricultural Income**:* The transition allowance (TA), three times the value of crops grown a year, will be applied as follows: (a) *Legal Owners*: if acquisition amounts to 20% or more of the total productive area; and (b) *VNR Owners/Users*: for any amount of land acquired. The TA will be determined as follows:

In cases of multiple crops: *Sum of the harvest prices of the crops produced on the acquired land in each cropping season in the year, MULTIPLIED by three.*

In cases of single and perennial crops: *Total harvest price of the crop, MULTIPLIED by three.*

LGED will use the standards of the Agriculture Department to determine the amount of various crops produced per unit of land, and the market surveys for harvest prices (as suggested in Annex B2).

Business Income: Applies to the owners of all businesses affected on private and public lands.

Unless proper bookkeeping is practiced by the business owners, use of the method suggested for determining loss of business income may become difficult. In order to corroborate the income loss determined based on information given by the owners; LGED will examine previous year's income tax returns and VAT payment records.

Compensation for Temporarily Closed Businesses: Average daily net income, exclusive of expenses like rent, staff salary, utilities, etc., based on a period of 30 days.

Compensation will be paid for the number of days needed to reopen the individual businesses, or complete the civil works, whichever is smaller.

Compensation for Partially Affected Businesses: Applies to those which are affected partially and can still operate from the remainders of the premises.

Compensation, calculated as above, will be paid for the number of days needed to repair and reopen the individual businesses, or complete the civil works, whichever is smaller.

Compensation for Businesses Requiring Physical Relocation: Applies to businesses that are to be removed entirely from the present locations.

- In addition to their own initiatives to find alternative locations, the business owners will be allowed to relocate on LGED lands, if any in the vicinity, OR
- On public lands arranged by LGED, in consultation with the affected business owners and the local governments like Municipality, Union Parishads and haat/bazaar committees.
- Compensation based on average daily net income, exclusive of expenses like rent, staff salary, utilities, etc., based on a period of 30 days. Compensation will be paid as follows:
    - Self-relocation: For the number of days needed to reopen the individual businesses in locations the business owners choose, for a maximum of 90 days.
    - Relocation on LGED/Public Lands: For the number of days needed to reopen the individual businesses, for a maximum of 45 days.

Employment Income Loss: Will apply to persons who would be **(i)** found continuously employed in the affected businesses for at least six months up to the date of PAP census (cut-off date); and (ii) remain employed in those establishments at the time the businesses are required to vacate the lands.

- *Employees of businesses requiring temporary closure during construction will be compensated for the actual number of days needed to reopen the individual businesses, or for a maximum of 30 days.*
- *Employees of businesses requiring relocation will be compensated for the actual number of days needed to relocate them, or for a maximum of 45 days.*

The daily compensation rates will be based on the individual employee's current monthly salary or daily wages.

Rental Income Loss: Applies to the legal owners of the affected built premises located on private lands, which have been rented out to others. *The three months' compensation will be based on monthly rent paid by the current tenants*.

6. UNFORESEEN LOSSES

LGED will take into account any impacts/losses that are unique to any subprojects and not covered in this SIMF, and consult IDA to adopt measures and application guidelines required to mitigate them.

ANNEX B2: SUGGESTED METHODS FOR MARKET PRICE SURVEYS

In line with the proposed compensation principles, LGED, assisted by the consultants, will conduct market price surveys to determine replacement costs of the acquired lands, and where necessary of houses/structures and other replaceable assets and market prices of irreplaceable assets by using the methods suggested below.

Lands of All Kinds

The surveys will explicitly take into consideration the quality of the lands under acquisition. Quality will take into account current uses, cropping intensity and value of crops produced, accessibility from the existing roads, and any other characteristics that influence the market value. The surveys will be conducted with the following three groups of respondents:

- A random sample of 10-15 landowners in the *mouza* in which the lands under acquisition are located and in those adjacent to it along the road;
- As many of most recent buyers and sellers of similar lands as can be found in the same and adjacent mouzas along the road or near the subproject; and
- Deed writers, as many as can be found and agree to be interviewed at the land registration offices, who recently handled transactions of roadside lands in the same or adjacent mouzas. (They will be asked about the actual prices, not those written in the deeds.)

Market value of the lands will be determined in the following manner:

- *If variations in average prices reported by the three respondent groups are insignificant (or, are 10% or less), current value of the lands will be fixed at the average of the prices reported by the three groups.*
- *In cases of significant differences (more than 10%), the current prices will be negotiated in open meetings with the affected and other landowners, community leaders, CBOs/NGOs and the like.*

Replacement costs of land will equal the market price, plus the registration cost or stamp duty. The registration cost will be calculated on the current market price.

Houses and Other Built Structures

Replacement costs will be based on the current prices of various building materials, labor and other cost items in the local markets. The costs of building materials, such as bricks, cement, steel, sand, bamboo, timber, GI sheet, roofing materials like straw, golpata, etc, and labor will be based on:

- Survey of current prices of different types of materials with five or so dealers/manufacturers in the local markets.
    - *The replacement cost of the house/structure will be based on the lowest quoted price for each type of material, plus their carrying costs to the sites.*
- The current costs of labor with different skills will be determined by interviewing local contractors, LGED staff, or local construction workers.

Replacement costs of any other replaceable affected assets will also be based on the current prices of materials, transportation and labor costs, etc.

Trees & Other Irreplaceable Assets

Market prices of different species of trees will be determined by surveying the prevailing prices paid by timber and fuel-wood traders in the local markets. *The compensation for trees will be fixed at the highest prices offered by a trader.*

Compensation for all other irreplaceable assets will also be based on survey of their prevailing prices with dealers/traders in the local markets.

Fruits and Other Crops

Compensation will be fixed at the harvest prices of the fruits and other crops. Harvest prices of different varieties of fruits and crops will be collected from a sample of 7-10 dealers in the local markets. *The compensation for each type of fruit and crop will be fixed at the highest price offered by a trader.*

The market price surveys will begin as soon as locations of the required acquisitions are identified on the ground. LGED will document the replacement costs and market prices of various affected assets and make them available as and when asked for review by IDA.

ANNEX B3: MONITORING LAND ACQUISITION AND PREPARATION & IMPLEMENTATION OF IMPACT MITIGATION PLANS

The following indicators will be used to monitor the status of major tasks involved in land acquisition and in preparation and implementation of resettlement activities.

A. ***Land Acquisition.*** *Engineering Designs* are a pre-requisite for starting the land acquisition activities. Once the design decisions are finalized determining the acquisition needs and their ground locations, the following tasks will be monitored to assess progress in land acquisition:

- Preparation of the Land Acquisition Proposals (LAPs), by using standard formats required by land acquisition authority.
- Dates LAPs submitted to the MLGRD&C for administrative approval.
- Dates LAPs submitted to the Deputy Commissioners (DCs).
- Dates LAPs approved by the District Land Allocation Committees (DLACs) and, if required, the Ministry of Land.
- Dates Notice-3 issued by DCs of the project districts (These dates serve as cut-off dates for the legal owners of the lands under acquisition).
- Dates Joint Verifications by acquisition officials and LGED completed in the individual project districts.
- Dates Notice-6 issued by DCs of project districts.
- Dates Compensation Estimates submitted by DCs to LGED.
- Dates LGED sent the Compensation Estimates to LGD.
- Dates LGD approved the Compensation Estimates.
- Dates LGED placed the compensation funds with DCs.
- Dates Notice-7 issued by DCs in the project districts.
- Dates DCs started the CUL payment process in the project districts.
- Continuing monitoring of progress in CUL payment by DCs.

B. ***Preparation & Implementation of Mitigation Plans.*** Preparation of impact mitigation plans begins once decisions on engineering designs are finalized and ground locations of the acquisitions are identified. The following are the major tasks that will be monitored during preparation and implementation:

- Census of the project affected persons (PAPs) and assets, and fixing of the cut-off dates for squatters.
- Survey of replacement costs and market prices of the affected lands and other assets.
- Consultation and information dissemination with regard to compensation payment procedure and the documents required to claim compensation from the DCs (a continuing activity).
- Formation of the Grievance Redress Committees (GRCs).
- Preparation of Compensation Budgets for squatters and others not covered by the acquisition ordinance, and top-up for titleholders.
- Preparation and submission of RP/ARP/IPP for IDA review and clearance.
- Preparation of the individual entitlement files for different PAP groups, with all applicable entitlements.

- Approval of the Compensation Budgets by LGED.
- Continuing monitoring and reporting of progress in payment of CUL, top-up and other applicable entitlements to titleholders and squatters and similar PAPs; and relocation of homestead losers, and displaced businesses and other activities. Data on following indicators will be essentially collected for continuous monitoring and reporting:
    - PAPs are aware of their entitlements, and of the procedures for receiving them, before start of land acquisition;
    - PAPs are satisfied that they were properly consulted at all relevant stages of project identification, selection, design and implementation with focus on land acquisition;
    - PAPs are aware of the Grievance Redress Mechanism and their grievances are satisfactorily resolved;
    - PAPs are fully compensated in accordance with the entitlement matrix for all assets at full replacement cost;
    - Valuation of land and other assets was done in a participatory method to ensure replacement cost;
    - PAPs receive their entitlements (CUL, top-up, & other allowances) prior to taking possession of land for project civil works construction; and
    - Livelihoods of the PAPs are fully restored.

Any other tasks that may have remained unknown will be included in the monitoring system. Progress in land acquisition and Resettlement Planning and implementation activities will be reported in appropriate formats on land acquisition and resettlement. Format on land acquisition process will update on the status of land acquisition including preparation of land acquisition proposal (LAP), administrative approval, submission of LAP to Deputy Commissioners (DCs), notifications under the law, assessment, valuation, placement of fund and disbursement of compensation under law. Format on resettlement will provide updates on payment of resettlement assistance including top-ups for replacement value after compensation under law, relocation assistance, vacating project right of way and livelihood restoration measures.

ANNEX C1: INDIGENOUS PEOPLES' CONSULTATION MATRIX

Timing	***Consultation Participants***		***Consultation Method***	***Expected Outcome***
	Project Authority	***IP Community***		
Reconnaissance of road under consideration	LGED, NGOs/ CBOs and others working with IP issues	IP Communities, including organizations, community leaders/elders	Open meetings & discussions, visit of IP settlements & surroundings	*First-hand assessment of IPs' perception of potential social risks and benefits, and prospect of achieving broad base support for the project*
Preliminary Screening of the road	LGED, NGOs/CBOs and others working with IP issues	IP Communities, including would-be affected IPs, IP organizations, community leaders/elders, key informants	Open meetings, focus group discussions, spot interviews, etc.	*Identification of major impact issues, feedback from IP communities and would-be affected persons/households, and establishing broad-based community support for the project*
Feasibility Study taking into consideration, inter alia the conditions that led to community consensus	LGED, project consultants (Social Scientists), NGOs/CBOs, other knowledgeable persons	Would-be affected IPs, IP organizations, community leaders/elders, key informants	Formal/informal interviews; focus group discussions; hotspot discussion on specific impacts, alternatives, and mitigation; etc.	*More concrete view of impact issues & risks, and feedback on possible alternatives and mitigation measures; estimates of displacement from homesteads; inventory of common property resources; and information on other key impacts*
Social Assessment	LGED, project consultants (Social Scientists)	Adversely affected individual IPs/households	Structured survey questionnaires covering quantitative & qualitative information	*Inputs for IPP, and identification of issues that could be incorporated in engineering design*
Detailed Design	LGED, project consultants (Social Scientists) and other stakeholders	IP organizations, community leaders/elders, adversely affected IPs	Group consultations, hot spot discussions, etc.	*Preparation of IPP, and incorporation of SA inputs into engineering design to avoid or minimize adverse impacts, and IP development programs*
Implementation	LGED, project	Individual IPs, IP	Implementation	*Quick resolution of issues,*

Timing	***Consultation Participants***		***Consultation Method***	***Expected Outcome***
	Project Authority	***IP Community***		
	consultants (Social Scientists) & other stakeholders	organizations, community leaders/elders & other stakeholders	monitoring committees (formal or informal)	*effective implementation of IPP*
Monitoring & Evaluation	LGED, IDA, project consultants (Social Scientists), NGOs & CBOs	IP organizations/ groups and individuals	Participation in review and monitoring	*Identification & resolution of implementation issues, effectiveness of IPP*

ANNEX C2: DISTRIBUTION OF INDIGENOUS PEOPLES IN THE PROJECT DISTRICTS

Target Area	Districts	Number of Upazilas	Physical Area (sqkm)	Population 2011			IPs/Ethnic Minorities		
							No. persons	% of population	Density
				Male	Female	Total	2001	2001	IP per sqkm
Central	Dhaka	6	717	6460	5415	11875	8,891	0.38%	12.4
	Gazipur	5	1,761	1,738	1,596	3334	1,594	0.08%	0.9
	Manikganj	7	1,378	669	709	1378	624	0.05%	0.5
	Munshiganj	6	955	707	713	1420	1,170	0.09%	1.2
	Narayanganj	5	760	1494	1403	2897	1,828	0.08%	2.4
	Narsingdi	6	1,141	1,091	1,111	2202	629	0.03%	0.6
	Pabna	9	2,371	1,250	1,247	2497	3,826	0.18%	1.6
	Sirajganj	9	2,498	1,537	1,534	3071	2,159	0.08%	0.9
	Tangail	12	3,414	1,742	1,829	3571	17,462	0.53%	5.1
	Sub-total	***65***	***14995***	***16688***	***15557***	***32245***	***38183***	***0.20%***	**2.5**
North-eastern	Jamalpur	7	2,032	1,115	1,150	2265	5,065	0.24%	2.5
	Kishoreganj	13	2,730	1,403	1,450	2853	3,523	0.14%	1.3
	Mymensingh	12	4,360	2,506	2,535	5041	40,671	0.91%	9.3
	Netrokona	10	2,810	1,101	1,106	2207	32,934	1.66%	11.7
	Sherpur	5	1,040	664	670	1334	19,923	1.56%	19.2
	Habiganj	8	2,637	1,010	1,049	2059	48,126	2.74%	18.3
	Maulvibazar	7	2,889	936	965	1901	35,954	2.23%	12.4
	Sunamganj	11	3,690	1,224	1,219	2443	7,639	0.38%	2.1
	Sylhet	12	3,489	1,712	1,692	3404	17,363	0.68%	5
	Sub-total	***85***	***25677***	***11671***	***11836***	***23507***	***211,198***	***1.04%***	**8.2**
South-eastern	Brahmanbaria	8	1,927	1,349	1,459	2808	2,798	0.12%	1.5
	Chandpur	8	1,704	1,135	1,258	2393	2,599	0.12%	1.5
	Comilla	16	3,085	2,534	2,770	5304	4,360	0.09%	1.4
	Feni	6	928	687	734	1421	191	0.02%	0.2
	Noakhali	9	3,603	1,468	1,604	3072	16,532	0.64%	4.6
	Lakshmipur	5	1,455	820	891	1711	185	0.01%	0.1
	Chittagong	14	4,863	3,783	3,726	7509	57,379	1.30%	11.8
	Cox's Bazar	8	2,492	1,163	1,113	2276	25,493	1.44%	10.2
	Sub-total	***74***	***20057***	***12939***	***13555***	***26494***	***109,537***	***0.53%***	**5.5**
	Total Target Area	***224***	***60729***	***41298***	***40948***	***82246***	***358918***	***0.59%***	**5.9**
Total Bangladesh		*508*	*147,570*	*71,255*	*71,064*	142319	*1,410,169*	*1.13%*	9.6

ANNEX-D: MONITORING GENDER ACTIONS IN PROJECT PROCESS

Detail Design Phase

Aim	Method	Target	Indicator
Ensure gender inclusive design	Maximize participation of women in design activities through household surveys, focused group discussions, key informant interviews at community level.	30% female response in field surveys, focus group discussions to boost participation as required	Number of female respondents to household survey, list of women in focused group discussions, and list of key informants
Plan for and advocate involvement of women in subsequent Project phases	Project gender actions and participation strategy, plus specific gender actions in Project documentation	Monitorable Project gender actions	Specific mention of gender outcomes in Project documentation
Provision of base-line gender disaggregated information for subsequent monitoring of gender outcomes	Creation of a socio-economic baseline for the Project from household surveys	Gender disaggregated Project M&E framework	Project documentation and logical framework
Ensure gender mainstreaming of Project resettlement plan and land acquisition process	Attention to poor women as a vulnerable group, consideration of low female literacy rate when disseminating public information i.e. through individual contacts or focused group meetings.	20% female response in RP/ARP survey, incorporation of at least one woman on resettlement committees, public notification via community meetings - separate meetings for women	Number of female headed households in RP/ARP survey Female attendance at public meetings Membership of various RP/ARP implementation committees/boards

Project Implementation Phase

Aim	Method	Target	Indicator
Ensure both women and men benefit from jobs arising from Project construction	Explicit clause in works contract to employ PAPs, women, ethnic minorities and other local people in the order of preference	20% female workers on works contracts. Women LCS get subcontracts under PBMCs for routine off-	Contractor's monthly reports and external monitor's periodic reports.

	where labor is required, and to report labor hire disaggregated by gender. LCS provide off and on pavement road maintenance services under the Performance-based Maintenance Contracts Specify equal rates for men and women for equal work.	pavement maintenance. , Equal rate for equal work for male/female workers	
Protect vulnerable women and children from trafficking and HIV/AIDS infection as a result of construction activity/influx of people to the Project area.	Implementation of the Project HIV/AIDS and Anti-Trafficking awareness program. Include this program in the Project information dissemination, monitoring and evaluation work, and in work contracts	HIV/AIDs, Anti-Trafficking, and road safety are agenda items at every community meeting.	Monitoring and evaluation picks up good awareness of HIV/AIDS, Anti-Trafficking, and Road Safety information. No. of reported incidences of these issues in M&E reports.
Ensure that both male and female are benefited from the Project	Gather local level data of male and female population receiving medical services and education Gather local level data on male and female population getting increased employment opportunities and income from the Project. Payment of compensation and resettlement assistance to both spouses or one male and one female in an affected family.	Improvement and balanced enrolment of girls and boys at schools Men and women get equal treatment for health problems Men and women get equal treatment for employment Men and women get equal treatment for resettlement	Monitoring and evaluation reports.

Project Monitoring & Evaluation

Aim	Method	Target	Indicator
Ensure that the Project complies with the stated aims of government and WB gender policies	Periodic analysis of Project gender practices and outcomes, changes to Project practices as appropriate to enhance positive and mitigate negative gender outcomes.	Quarterly gender analysis may be incorporated into monitoring of construction, external monitoring of resettlement and income restoration programs as per RP/ARP.	Gender disaggregated M&E data in external M&E consultant's and implementation reports (for RP/ARP). Annual and periodic WB portfolio reviews. Reports of EA on the Project loan.